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**Viridor Energy Ltd and Viridor Runcorn CCS Ltd**

Site Condition Report

## Document approval

	Name	Signature	Position	Date
Prepared by:	James Sturman		Lead Consultant	13/12/2023
Checked by:	Stephen Othen		Technical Director	13/12/2023

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# Contents

1	Introduction.....	4
1.1	The Objective .....	4
2	Site details .....	6
2.1	Applicant .....	6
2.2	Site address .....	6
2.3	National grid reference .....	6
2.4	Site location.....	6
3	Condition of land at permit issue .....	7
3.1	Environmental setting.....	7
3.1.1	Geology.....	7
3.1.2	Hydrogeology.....	7
3.1.3	Hydrology and Surface Waters .....	8
3.2	Pollution History.....	8
3.2.1	Site history .....	8
3.2.2	Historical Incidents .....	10
3.2.3	Historical Pollution Potential .....	10
3.2.4	Licenses and authorisations .....	10
3.2.5	Groundwater Abstractions .....	11
3.2.6	Surface Water Abstractions and Discharges .....	11
3.2.7	Other.....	11
4	Permitted activities .....	12
4.1	Activities.....	12
4.2	On-site fuel and chemical storage facilities .....	13
5	EC Guidance: Stage 1 – 3 Assessment.....	16
6	Previous Contamination and Site Investigations.....	20
7	Ongoing Management.....	21
8	Conclusions.....	22
	Appendices .....	23
A	Original Site Condition Report.....	24
B	Groundsure Report.....	25

# 1 Introduction

An Environmental Permit (EP) (Ref: EPR/RP3638CG now EPR/XP3005LB) was granted by the Environment Agency (EA) for the Runcorn Energy Recovery Facility (ERF) (herein referred to as the Facility) on 26 January 2011. The named Operator on the EP is Viridor Energy Ltd. The EP (EPR/XP3005LB) has been varied nine times. The latest variation to the EP was granted by the EA on 26 May 2023.

Within this application, Viridor Runcorn CCS Ltd is applying for an EP for the operation of the proposed carbon capture (CC) facility to capture the carbon dioxide (CO<sub>2</sub>) produced by the ERF for off-site transfer and sequestration.

Viridor understands that the EP for the CC facility will be determined as a standalone bespoke EP. Therefore, in addition to this application, a separate application is being submitted, on behalf of Viridor Energy Ltd, to vary the existing EP for the ERF to be a multi-operator Installation.

In October 2021, the Department for Business, Energy and Industrial Strategy (BEIS) announced funding for two regional carbon capture hubs, HyNet in the northwest of England and the East Coast Cluster in the North East.

Viridor Runcorn CCS Limited is proposing to install a single CC facility to extract the CO<sub>2</sub> from the emissions produced by the ERF. A detailed description of the CC facility is presented in section 3 of the Supporting Information (Ref: 3530-0320-0002JRS) provided in the Application Pack.

The CC facility will be located on an adjacent plot of land to the ERF located to the northwest of the Installation Boundary. As the ERF and CC facility will be a single installation, this Site Condition Report has been developed consider the ground conditions associated with the land within the Installation boundary.

As the existing Site Condition Report is not in accordance with the Environment Agency's latest guidance, this report has been developed in accordance with the Environment Agency's latest guidance.

## 1.1 The Objective

This Site Condition Report summarises the existing ground conditions for the land within the Installation boundary (the 'Site') and describes the setting for the land within the Installation boundary at the time of applying for the EP for the CC facility. This report draws on the following sources of background information which are provided as Appendices:

- The Site Condition Report submitted with the original application (Appendix A); and
- Groundsure Report (Appendix B).

The report:

- a. considers the existing waste incineration and the proposed carbon capture activities to be carried out at the Site;
- b. identifies any land contamination risk the activities pose that may be linked to existing and historical pollution events; and
- c. provides a baseline for the ground conditions.

The report presents details on the following:

- a. geology;
- b. hydrogeology;
- c. hydrology and flooding;

- d. historical and present land use; and
- e. existing ground conditions.

The following plans and drawings for the Installation can be found in Appendix A of the Application Pack, including but not limited to the following:

- site location plan;
- Installation Boundary drawing;
- activity boundary drawing; and
- emission points drawing.

## 2 Site details

### 2.1 Applicant

Two separate activities will be undertaken at the Site:

- Existing – Incineration of waste, which is operated by Viridor Energy Limited; and
- Proposed – Carbon Capture facility, which will be operated by Viridor Runcorn CCS Limited.

### 2.2 Site address

The Site address is:

Runcorn ERF  
Barlow Way  
Runcorn  
WA7 4HG

### 2.3 National grid reference

The grid reference for the centre of the Runcorn ERF is SJ 497 816.

The grid reference for the centre of the CC facility is SJ 497 816.

### 2.4 Site location

The installation is located on land within the INEOS industrial works at Runcorn, Halton, Cheshire. The overall INEOS site is located on the southern and western portion of the Runcorn peninsula and covers an area of approximately 10 Ha.

The ERF is located to the north of the Inovyn Runcorn site known as Weston Point and covers an area of approximately 10 hectares.

The ERF is located adjacent to the operational salt works and Weston docks in the north and west and a caustic tank farm directly to the north of the site boundary.

The CC facility will be located on the site of a former Scottish and Southern Energy power plant. Viridor understands that an EP (Ref: EP3738AA) is currently held by SSE generation of the operation of the power plant. A separate application will be submitted to surrender the EP for the power plant. To the west of the CC facility, Inovyn has three warehouses. An elevated walkway connects these warehouses to the onsite warehouses.

Other surrounding land uses include residential properties approximately 50m to the south-west, the village of Weston 100m to the south, recreational grounds to the east of the site across Picow Farm Road, which forms the eastern boundary of the site.

Overall, the site slopes gently from east to west towards the Mersey Estuary, which is a Special Protection Area (SPA) designated for its nature conservation importance in relation to the feeding and roosting of various bird varieties, Ramsar site and a Site of Special Scientific Importance (SSSI). Lying between the western site boundary and the Mersey Estuary is the Weaver Navigation, Manchester Shipping Canal and the Runcorn and Weston Canal. Cooling water from the ERF is currently discharged into the Runcorn and Weston Canal.

## 3 Condition of land at permit issue

### 3.1 Environmental setting

#### 3.1.1 Geology

As shown within the Groundsure Report, the solid geology within the Installation Boundary is summarised in Table 3-1:

Table 3-1: Geology

Lithology	Description
Artificial Ground	The full extent of the land within the Installation Boundary, and surrounding areas is made ground. All waste processing areas within the existing ERF are hardstanding.
Superficial Deposits	The superficial deposits underlying the eastern proportion of the ERF is blown sand and Diamicton Till.
	The superficial deposits underlying the western proportion of the installation, including the west proportion of the ERF and the CC facility, is Shirdley Hill Sand Formation.
Bedrock	The bedrock underlying the entire installation is Wilmslow Sandstone Formation – Sandstone, from the Early Triassic Epoch.

#### 3.1.2 Hydrogeology

As shown within the Groundsure Report, the underlying hydrogeology within the Installation Boundary is summarised in Table 3-2:

Table 3-2: Hydrogeology

Lithology	Description
Superficial Aquifer	The superficial aquifer underlying the eastern proportion of the installation, is a secondary undifferentiated aquifer. These are typically designated as both minor and non-aquifers in different locations due to the variable characteristics of the rock type.
	The superficial aquifer underlying the western proportion of the installation, including the west proportion of the ERF and the CC facility, is classed as a secondary A aquifer. These are generally classified as minor aquifers and are capable of supporting water supplies at a local

Lithology	Description
	scale, and can be an important source of base flow to rivers.
Bedrock	The bedrock aquifer is classed as a Principal aquifer. These are generally classified as a major aquifer, and due to the geology having a high intergranular and/or fracture permeability, they provide a high level of water storage and will support water supply/river base flow on a strategic scale.

As shown within the Groundsure Report, there are no Source Protection Zones within 500m of the Installation Boundary.

### 3.1.3 Hydrology and Surface Waters

As shown within the Groundsure Report, there are no surface water features within the Installation Boundary.

The Runcorn and Weston Canal is located approximately 50m to the west of the Installation Boundary; and the Weaver Navigation is located approximately 200m to the west of the Installation Boundary. Both of these watercourses are in hydrological continuity with the Manchester Ship Canal which is located within 500m of the Installation Boundary.

## 3.2 Pollution History

### 3.2.1 Site history

As shown within the historical mapping provided in the Groundsure Report, the history of the land use for the land within the Installation Boundary has been summarised in Table 3-3:

*Table 3-3: Land Use History for the land within (and surrounding) the installation*

Years	Description
1849-1882	The site is not constructed and the surrounding area is at present open fields. The Mersey Estuary lies to the west of the site. The Runcorn and Weston Canal passes to the west of the site. An area of rough pasture lies to the east, the small residential development of Weston Point lies to the south west, the small residential development of Weston lies to the south east and the larger residential development of Runcorn lies to the north east. The dock branch of the London and North Western Railway line passes to the north.
1896-1912	The site is shown on the 1896 map as 'Weston Point Salt Works', consisting of several buildings on the west of the site with associated rail lines, additionally towards the east of the main site building is a pond structure. The 1899 map also indicates another circular depression to the NE of the salt works building and a tank located adjacent to the east of the main building. By maps dated 1907 the pond has been expanded to a network of ponds and sluices by 1907 and the addition of several tanks and buildings to the south of the main building.



Years	Description
	Manchester Ship Canal lies to the west of the site on the shore of the Mersey Estuary. Rough pasture to the east has been converted to quarries. The Castner Kellner Alkali Works site has been built and developed to the south. The residential development of Runcorn has undergone further development.
1927-1937	The 1927 map shows the addition of several small tanks and small buildings in the immediate vicinity of the main site building. A refuse heap, shingle or gravel pit area is shown south east of the saltworks building at the end of a series of rail sidings. Maps dated 1937 no longer depict the tanks in the south to be present. The Weston Point Light Railway Line runs along the east of the site, first shown on the 1927 map. Additionally, a football ground is located on the north of the site. The land adjacent to the south of the site is now marked as allotment gardens, with Clarke terrace beyond. The 1937 map shows a marked construction and development of roads in the areas surrounding the site. Recreational grounds lie to the north, north east and east of the site
1938-1964	The site buildings show a marked change, with new buildings on the western side of the site and changes in the size and shape of the original buildings shown on the 1954 map edition, additionally the site is no longer annotated as 'Weston Point Salt Works' but just as a works. The new buildings to the west have rail lines running into them extending to the south and the rail sidings along the east of the site (Weston Point Light Railway) have increased in number. The pond and dump areas previously shown have been built over with the construction of new buildings. There are now no tanks shown to be present on site however a 'Water Tank' is located off site towards the north of the site. A small residential development is situated to the south east of the site. The 1954 map shows significant development of the residential areas of Runcorn, Weston and Weston Point and the small un-named residential area to the east of the site. A change in the site buildings layout is seen during this period. The industrial area surrounding Castner-Kellner Alkali Works has developed to the south. Industrial sites have developed to the north of the site in the area surrounding the London and North Western Railway Line.
1965-2010	Maps dated 1976 show the site to be a chemical works and has a similar layout as the 2010 mapping. Three tanks are located in the northern section of the site, which are fenced, or bunded. By 1981 an additional tank is shown further north adjacent to the single tank. There are some minor alterations in the size and shape of site buildings. Offsite towards the north of the site is an additional single tank. Further development of residential areas are seen, including a significant development of the previously small un-named residential area to the east of the site that now appears as Westfield. Further development of industrial areas to the north and south of the site are seen. The Runcorn Expressway (A557) is present, running to the east of the site. The former quarry to the east is a Public Park and Reservoir.
2023	The Runcorn ERF is shown.

Years	Description
	The land associated with the CC facility contains the existing buildings associated with the Scottish and Southern Energy power plant. It is understood that this has been mothballed.

As shown in the Groundsure Report, the Site has a history of industrial use. There have been a number of storage tanks associated with the Salt Works, located within the Installation Boundary. All of the tanks were removed prior to construction of the ERF.

In accordance with the requirements of the planning consent for the ERF, any contamination associated with the historical uses of the Site was determined, and where appropriate remediation was required to be undertaken prior to commencement of construction. Therefore, any contamination associated with the historical uses of the site were determined during construction, and where appropriate were remediated. Records associated the contamination, and remediation of the land associated with the ERF are held by Viridor Energy Limited.

Given the industrial history of the land associated with the CC facility, Viridor Runcorn CC Limited expects that the planning consent includes similar requirements for the additional land associated with the CC facility.

### 3.2.2 Historical Incidents

As shown within the Groundsure Report, there are no historical pollution incidents associated with the land within the Installation Boundary. There have been a number of reported pollution incidents associated with the adjacent areas to the Installation Boundary, but all of these pre-date the construction of the ERF.

### 3.2.3 Historical Pollution Potential

There are no records of sites determined as 'contaminated land' within 500m of the land within the Installation Boundary.

Given the industrial history of the site, there is potential for historical pollution to be present in the ground underlying the Facility. Prior to construction of the ERF, a detailed contamination assessment was undertaken, and where required remediation was implemented. Records from the site investigations and any subsequent remediation are held on file and will be available to support the EP surrender process at the end the lifetime of the installation.

A site investigation is ongoing in the land associated with the CC facility is ongoing, and when the records from the site investigation are available, these will assist in informing the baseline ground conditions associated with the additional land.

### 3.2.4 Licenses and authorisations

As shown within the Groundsure Report, there are three Part A Environmental Permits held on the land within the Installation Boundary – it is noted that one of these is the Environmental Permit for the ERF which is currently operated by Viridor Energy Limited. One of the Environmental Permits is for the Scottish and Southern energy plant (>50MWth) which will be demolished to accommodate the construction of the CC facility. The other is held by Ineos Chlorvinyls Limited and is for the incineration of waste in a plant with a capacity of <1 tonne per hour.

There is a Part A Environmental Permit for a combustion process (>50MWth), held by a different operator, within 100m of the Installation Boundary.

There are five Part A(2) and Part B Environmental Permits granted for facilities located within 500m of the Installation Boundary.

There are no radioactive substances licences associated with the land within the Installation Boundary. There are four radioactive substances licences within 500m of the Installation Boundary.

### 3.2.5 Groundwater Abstractions

As shown within the Groundsure Report, there are not any groundwater abstractions associated with the land within the Installation Boundary. There have been a number of groundwater abstractions associated with the land within 1,000m of the Installation Boundary; however, all of these are historical and are no longer active.

### 3.2.6 Surface Water Abstractions and Discharges

As shown within the Groundsure Report, there are not any surface water abstractions associated with the land within the Installation Boundary. There have been a number of surface water abstractions associated with the land within 2,000m of the Installation Boundary; however, all of these are historical and are no longer active.

As shown within the Groundsure Report, there are not any surface water associated with the land within the Installation Boundary. However, it is noted that the blowdown from the hybrid cooling towers is discharged to the Runcorn and Weston Canal, but this is regulated under the existing EP for the ERF and is not listed as a discharge. There have been a number of licenced discharges to controlled waters within 500m of the Installation Boundary; however, all of these are historical and are no longer active.

### 3.2.7 Other

As shown within the Groundsure Report, there has been some historical landfilling activities undertaken in the southern proportion of the Site. However, this area of land is associated with the operation of the ERF, and there are associated with this historical landfill since 1970.

## 4 Permitted activities

### 4.1 Activities

The installation will include a number of Schedule 1 installation activities (as defined in the Environmental Permitting Regulations) and directly associated activities. As the installation will be classified as a multi-operator installation, the activities have been listed against each facility within Table 4-1 and Table 4-2:

Table 4-1: Runcorn ERF (existing)

Type of Activity	Schedule 1 Activity	Description of Activity	Limits of specified activity
Installation	Section 5.1 Part A(1) (b)	The incineration of non-hazardous waste in a waste incineration plant with a capacity of 3 tonnes per hour or more	From receipt of waste to emission of exhaust gas and removal of waste arising. Waste code 20 03 01 shall not be received by rail. Waste types and quantities as specified in Table S2.2 of the EP.
<b>Directly associated activities</b>			
Directly Associated Activities	Energy generation	Generation of approximately 74MWe electrical power using a steam turbine from energy recovered from the flue gas and supply of heat.	
Directly Associated Activities	Back up electrical generator	For providing emergency electrical power to the plant in the event of supply interruption.	Emergency use to a maximum of 500 hours operation per year. Maximum of 50 hours testing per year.

Table 4-2: Runcorn CC facility (proposed)

Type of Activity	Schedule 1 Activity	Description of Activity	Limits of specified activity
Installation	Section 6.10	Capture of carbon dioxide streams from an installation for the purposes of geological storage pursuant to Directive 2009/31/EC of the European Parliament and of the Council on the geological storage of carbon dioxide	From receipt of flue gases from the ERF to treatment, capture of carbon dioxide for transfer to the Hynet storage network, discharge of residual exhaust gases, storage of raw materials and treatment of condensate in wastewater treatment plant to enable re-use as cooling water.

Type of Activity	Schedule 1 Activity	Description of Activity	Limits of specified activity
<b>Directly associated activities</b>			
Directly Associated Activities		Energy generation	Generation of heat and electrical power in a back pressure turbine.
Directly Associated Activities		Discharge of cooling water	The discharge of blowdown water from the hybrid cooling waters to the Manchester Ship Canal.

## 4.2 On-site fuel and chemical storage facilities

The activities undertaken at the Site will utilise a number of fuels and treatment chemicals. These materials will be stored in accordance with current guidance. The delivery and transfer details, and secondary and tertiary containment systems associated with the storage of these materials for each of the activities are provided within Table 4-3 and Table 4-4:

Table 4-3: Raw material containment facilities for the ERF (existing) – Primary raw materials

Material	Delivery details	Transfer for storage details	Storage containment details
Fuel oil	Delivered using tanker.	Unloading from delivery vehicle tanker into storage tank using sealed pipework. Storage tanks located with a dedicated concrete sump or other bunding. Hardstanding in this area will also have links to process drainage system.	Primary: Tank Secondary: Bunding/Sump Tertiary: Hardstanding and contained drainage
Ammonia solution	Delivered using tanker.	Unloading from sealed delivery vehicle into storage tanks via standard hose connection, under supervision by trained site operatives. Storage tanks and unloading located in a covered area with a dedicated concrete sump or other bunding. Hardstanding in this area will have contained drainage. Tanks to have high tank level alarms or trips.	Primary: Tank Secondary: Bunding/Sump Tertiary: Hardstanding and contained drainage
Hydrated Lime	Delivered using tanker.	Pneumatic unloading from delivery vehicle into	Primary: Silo

Material	Delivery details	Transfer for storage details	Storage containment details
		storage silo. Exhaust air to be de-dusted using fabric filters and automatic cleaning with compressed air after filling. Filter to be regularly inspected for leaks. Silos fitted with a high level alarm system to prevent overfilling.	Secondary: Hardstanding Tertiary: Contained process drainage
Activated carbon	Delivered using tanker.	Pneumatic unloading from delivery vehicle into storage silo. Exhaust air to be de-dusted using fabric filters and automatic cleaning with compressed air after filling. Filter to be regularly inspected for leaks. Silos fitted with a high level alarm system to prevent overfilling.	Primary: Silo Secondary: Hardstanding Tertiary: Contained drainage
Water treatment chemicals.	Delivered via road in IBCs.	Transferred to bunded storage facilities	Primary: IBC Secondary: Bunding Tertiary: Hardstanding

Table 4-4: Raw material containment facilities for the CC facility (proposed) – Primary raw materials

Material	Delivery details	Transfer for storage details	Storage containment details
MEA solution (Holding tank)	Delivered using tanker.	Unloading from delivery vehicle tanker into storage tank using sealed pipework. Storage tanks located with a dedicated concrete sump or other bunding. Hardstanding in this area will also have links to process drainage system.	Primary: Tank Secondary: Bunding/Sump Tertiary: Hardstanding and contained drainage
Sodium hydroxide (NaOH)	Delivered using tanker.	Unloading from delivery vehicle tanker into storage tank using sealed pipework. Storage tanks located with a dedicated concrete sump or other	Primary: Tank Secondary: Bunding/Sump Tertiary: Hardstanding and contained drainage

Material	Delivery details	Transfer for storage details	Storage containment details
		bunding. Hardstanding in this area will also have links to process drainage system.	
Water treatment chemicals	Delivered in IBC's via road vehicles	Transferred to bunded storage facilities	Primary: IBC Secondary: Bunding Tertiary: Hardstanding

Various maintenance materials (oils, greases, insulants, antifreezes, welding and firefighting gases etc.) will be stored in an appropriate manner. Any gas bottles on-site will be kept secure in a dedicated area(s).

## 5 EC Guidance: Stage 1 – 3 Assessment

In accordance with European Commission Guidance concerning baseline reports under Article 22(2) of the IED, a Stage 1 – 3 assessment has been undertaken to identify hazardous substances used at the Facility.

Stages 1 – 3 of the assessment are described as follows:

1. Identify which hazardous substances are used, produced or released at the installation.
2. Identify which of these substances are classed as ‘relevant hazardous substances’ (defined within Article 3 of EC Regulation 1272/2008). Justify any hazardous substances which have been excluded due to their incapability to contaminate soil or groundwater.
3. For each relevant hazardous substance, identify the actual possibility for soil or groundwater contamination at the Site (including probability of release), taking into account quantities, storage and transport, risk of release.

The full stage 1 – 3 assessment of the primary raw materials and residues handled at the Site is presented in Table 5-1. The substances handled at the Facility are identified in the context of their hazards and theoretical pollution risk, with justification as to whether the substance is of concern or not in the context of the Site.



Table 5-1: Stage 1 - 3 assessment of materials at the Site

Stage 1: Chemicals handled	Stage 2: Chemical characteristics and toxicity							Stage 3: Site specific characteristics			Stage 4: Site specific risk
Substance	Concentration / State	CAS No.	EC/List No.	Hazard statements (CLP)	Hazard substance under Stage 2?	Environmental fate / behaviour	Potential Pollution Risk?	Approx. Quantity Stored	Storage Arrangements/ Containment	Delivery, Storage and use details	Comments/ Chemical of concern?
<b>ERF</b>											
<u>Raw material</u>											
Non-hazardous residual household and commercial and industrial waste	Solid (possibly some liquids)	N/A	N/A	N/A	No	Mostly insoluble, however potential for a wide range of contaminants and potential for small amounts of liquids to be present.	Yes	Capacity - 15,500 t On average approx. 9,000 t stored.	Rail sidings & Waste bunker	Incoming waste delivered to the Site via rail will be unloaded at the rail sidings and stored prior to transfer to the waste bunker. Waste vehicles will discharge incoming waste directly into the waste bunker.	All waste unloading and storage arrangements will be undertaken on areas of impermeable hardstanding. Waste storage facilities will be designed at water-retaining structures to prevent underlying ground/groundwater. Any spillages will be cleaned up. Regular preventive maintenance of the storage facilities.
Fuel Oil (saturated and aromatic hydrocarbons)	Liquid	68334-30-5	269-822-7	H226, H304, H373, H315, H332, H351, H411, H350	Yes	Insoluble, high toxic effects, volatile	Yes	30,000 litres	Enclosed tanks with bunding/sumps	Delivery to the Facility in dedicated road tankers, unloaded into storage tanks via flexible hose, direct feed into burners.	Periodic inspections of tank undertaken (preventative maintenance), refuelling undertaken on areas of hardstanding with contained drainage, overflow protection on tank.
Ammonia solution	Liquid	57-13-6	200-315-5	N/A	No	Water soluble Potential for mobility in soil and water systems	Yes	2 x 50m <sup>3</sup> storage tanks.	Enclosed tanks with bunding/sumps	Delivered by road tanker and pumped into storage tank via flexible hose, direct feed from tank into the process	Unloading operations on areas of hardstanding with contained drainage, storage in a bunded area or area with sump, site drainage will be able to be isolated in a spill event, air emissions system is subject to advanced control measures
Hydrated Lime	100%, Solid	144-55-8	205-633-8	N/A	No	High aqueous solubility	Yes	8 x 80 t silos.	Enclosed silo(s)	Delivered in tankers, unloaded into storage silo by flexible hose, feed into flue gas treatment systems.	Any spillages easily swept up, site containment and handling procedures are good. Chemical dosing rates and flows within the FGT process are subject to control systems. Storage silos will be

Stage 1: Chemicals handled	Stage 2: Chemical characteristics and toxicity							Stage 3: Site specific characteristics			Stage 4: Site specific risk
Substance	Concentration / State	CAS No.	EC/List No.	Hazard statements (CLP)	Hazard substance under Stage 2?	Environmental fate / behaviour	Potential Pollution Risk?	Approx. Quantity Stored	Storage Arrangements/ Containment	Delivery, Storage and use details	Comments/ Chemical of concern?
											located above concrete hardstanding, and fitted with high-level alarms for unloading operations. Drainage in these areas will be contained.
Powder Activated Carbon, PAC	100%, Solid	7440-44-0	231-153-3	H252	Yes	Insoluble	No	2 x 38 t solios. 56T AVERAGE – 2 X 38T SILOS (28T is high level in each silo)	Enclosed silo(s)	Delivered by road, unloaded into silo via flexible hose, feed into flue gas treatment systems.	Any spillages easily swept up, site containment and handling procedures are good. Silo located above an area of concrete hardstanding.
<u>Residues</u>											
APCr (contains heavy metals, POPs)	Solid	90989-48-3	292-705-7	N/A	Yes	Presence of persistent organic pollutants (e.g. dioxins), volatiles.	Yes	4 x 20 m <sup>3</sup> silos	Silos	Ash from flue gas treatment. Direct feed from flue gas treatment system into storage facilities, then loaded into tanker (all enclosed) for transfer to hazardous landfill disposal or for recovery.	Any leaks during loading/unloading operations will be contained by concrete hardstanding, with measures to prevent overfilling in place. APCr storage and unloading will be in areas with contained drainage to the process drainage network.
Incinerator Bottom Ash (IBA)	Solid	91082-83-6	293-798-7	N/A	No	Limited solubility, potential for the presence of heavy metals	Yes	800 t	IBA bunker	IBA will be transferred via conveyor to the IBA bunker. IBA will subsequently be transferred off-site via road haulage vehicles for processing into secondary aggregate.	Inert and non-hazardous. Storage of IBA prior to transfer will be within an IBA bunker. Transfer of IBA to road haulage vehicles is undertaken within an enclosed IBA area with hardstanding.

Stage 1: Chemicals handled	Stage 2: Chemical characteristics and toxicity							Stage 3: Site specific characteristics			Stage 4: Site specific risk
Substance	Concentration / State	CAS No.	EC/List No.	Hazard statements (CLP)	Hazard substance under Stage 2?	Environmental fate / behaviour	Potential Pollution Risk?	Approx. Quantity Stored	Storage Arrangements/ Containment	Delivery, Storage and use details	Comments/ Chemical of concern?
<b>CC Facility</b>											
<u>Raw materials</u>											
MEA solvent	Liquid	141-43-5	205-483-3	H302 H312 H332 H314 H335 H412	No	Completely miscible in water. Toxic effects. Potential for mobility in soils.	Yes	60 t	Enclosed tanks with bunding/sumps	Delivered by chemical tanker and transferred into bunded tank using flexible hose. Injected into process to replace degraded solvent.	Periodic inspections of tank undertaken (preventative maintenance), site drainage will be able to be isolated in a spill event, air emissions system is subject to advanced control measures. Storage silos will be located above concrete hardstanding, and fitted with high-level alarms for unloading operations.
Sodium hydroxide	Liquid	1310-73-2	215-185-5	H290 H314 H318	No	Soluble in water Toxic effects Potential for mobility in soils.	Yes	50 t	Enclosed tanks with bunding/sumps	Delivered by chemical tanker and transferred into bunded tank by flexible hose. Direct feed into direct contact cooler/condensate.	Periodic inspections of tank undertaken (preventative maintenance), site drainage will be able to be isolated in a spill event. Any spillages easily swept up, site containment and handling procedures are good. Storage silos will be located above concrete hardstanding, and fitted with high-level alarms for unloading operations.
<u>Residues</u>											
Reclaimer waste	Solid	-	-	-	Yes	Potentially miscible in water. Toxic effects. Potential for mobility in soils.	Yes	<5 m <sup>3</sup>	IBCs/storage tanks with appropriate bunding/sumps	Residue from amine reclamation process. Stored in bunded storage facility. Transferred to road vehicles for transfer to off-site to a disposal facility.	Periodic inspections of containment facilities undertaken (preventative maintenance), site drainage will be able to be isolated in a spill event. Storage facilities within secondary containment, and will be located on an area of hardstanding.

## 6 Previous Contamination and Site Investigations

As stated within Article 22 (2) of the EA Industrial Emissions Directive (IED):

*“Where the activity involves the use, production or release of relevant hazardous substances [RHS] and having regard to the possibility of soil and groundwater contamination at the site of the installation, the operator shall prepare and submit to the competent authority a baseline report before starting operation of an installation or before a permit for an installation is updated for the first time after 7 January 2013”.*

Furthermore, the EA guidance note ‘H5: Site Condition Report – Guidance and Templates’ states that “where a facility involves the use, production or release of RHS”, a baseline report must be submitted as part of the application.

Prior to construction of the ERF, there were a number of intrusive site investigations undertaken on the land associated with the ERF. The findings of the studies are contained within the original Site Condition Report, refer to Appendix A. In addition, as required the EP for the ERF, Viridor Energy Ltd, is required to undertake a programme of groundwater and soil monitoring at the Site. Therefore, records of all previous site investigations, and soil and groundwater monitoring, are retained on-site by Viridor Energy Ltd.

There are not any records available of any intrusive investigations undertaken within the additional land associated with the CC Facility. Therefore, following removal of the process equipment associated with the Scottish and Southern energy plant, and prior to commencement of construction of the CC facility, it is proposed to undertake a detailed site investigation to determine the baseline ground conditions associated with this land. Therefore, Viridor Energy Limited and Viridor Runcorn CCS Limited propose to produce a baseline report detailing the ground conditions associated with the additional land prior to commencement of operations.

## 7 Ongoing Management

During the operational lifetime of the Site, the Site Condition Report will be further updated to take into account the following:

- any changes to the permitted activities or the Installation Boundary;
- any measures taken to protect the underlying land and groundwater;
- any pollution incidents that may have had an impact on land and associated remediation; and
- any soil, gas or groundwater monitoring (where undertaken).

At the end of the operational life of the Site, or one of the regulated activities, the Site Condition Report will be updated to include for decommissioning and site closure. It will be demonstrated that all sources of pollution risk have been removed and whether decommissioning has had any impact on the land. Any required remedial works will be documented and incorporated into the report. A statement of site condition will be made to confirm that:

- the permitted activities have stopped;
- decommissioning is complete, and the pollution risk has been removed; and
- the land is in a satisfactory condition.

## 8 Conclusions

This report has identified the historical and current condition of land, the activities to be permitted at the Facility, and detail on the reagents and residues to be involved with the operations undertaken at the Facility.

During the Operational phase of the Facility, any records which demonstrate how the land and groundwater have been protected will be maintained. This information will include inspection records of site infrastructure, pollution/incident reports, records of any ground investigations undertaken, and any monitoring records of soil, gas and/or water during the life of the permit.

Where it is identified that pollution has occurred, records will be maintained to demonstrate any pollution incidents that may have affected the land or groundwater. These records will be retained on-site and used to support the EP Surrender process.

# Appendices

# A Original Site Condition Report



## B Groundsure Report

ENGINEERING  CONSULTING

**FICHTNER**

Consulting Engineers Limited

Kingsgate (Floor 3), Wellington Road North,  
Stockport, Cheshire, SK4 1LW,  
United Kingdom

t: +44 (0)161 476 0032

f: +44 (0)161 474 0618

[www.fichtner.co.uk](http://www.fichtner.co.uk)