

FICHTNER

Consulting Engineers Limited



Runcorn CC Facility Permit Application

Viridor Runcorn CCS Ltd

Environmental Risk Assessment

Document approval

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

Document revision record

Revision no	Date	Details of revisions	Prepared by	Checked by
0	20/10/2023	For Client	JRS	SMO
1	25/11/2023	For Client approval	JRS	SMO
2	29/11/2023	Final for submission	JRS	SMO
3	13/12/2023	Final for submission	JRS	SMO

© 2023 Fichtner Consulting Engineers. All rights reserved.

This document and its accompanying documents contain information which is confidential and is intended only for the use of Viridor Runcorn CCS Ltd. If you are not one of the intended recipients any disclosure, copying, distribution or action taken in reliance on the contents of the information is strictly prohibited.

Unless expressly agreed, any reproduction of material from this document must be requested and authorised in writing from Fichtner Consulting Engineers. Authorised reproduction of material must include all copyright and proprietary notices in the same form and manner as the original and must not be modified in any way. Acknowledgement of the source of the material must also be included in all references.

Contents

A	Introduction.....	4
	1.1 Risk assessment process	4
	1.2 Step 1 – identify risks	4
	1.3 Step 2 – assess the risk.....	5
	1.4 Step 3 – justify appropriate measures	5
	1.5 Step 4 – present the assessment	5
2	Table A1 – Odour Risk Assessment and Management Plan.....	6
3	Table A2 – Noise and Vibration Risk Assessment and Management Plan	8
4	Table A3 – Fugitive Emissions Risk Assessment and Management Plan.....	9
5	Table A4 – Accidents Risk Assessment and Management Plan	15
6	Detailed Assessment	18
	6.1 Emissions to air	18
	6.2 Habitats assessment	18
	6.3 Emissions to water	19
	6.4 Noise	21
	6.5 Visual impact.....	22
	6.6 Odour	22
	6.7 Global warming.....	22
	6.8 Disposal of wastes and residues	22
7	Conclusions.....	23
	Appendices	24
B	H1 Assessment Tool	25

A 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 Limited. 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 (CO₂) produced by the ERF for off-site transfer and sequestration.

The aim of this report is to assess the environmental risks associated with the CC facility.

Within the permit application, the applicant is required to demonstrate that the necessary measures are in place to protect the environment and ensure that the Facility, throughout its life, will not pose an unacceptable risk to the environment.

The aim of this document is to:

1. identify potential risks that the activity may present to the environment;
2. screen out those that are insignificant and don't require detailed assessment;
3. identify potentially significant risks, where appropriate;
4. choose the right control measures, where appropriate; and
5. report the findings of the assessment.

This document has been developed to consider the requirements of Environment Agency (EA) Guidance Notes H1 Annexes A, C, H and F. It is acknowledged that these guidance documents have been withdrawn; however, it is understood that the requirements of the guidance are still applicable.

1.1 Risk assessment process

This assessment has been developed in accordance with the EA Guidance Note H1. This guidance promotes four key steps:

1. identify risks from the activity;
2. assess the risks and check that they are acceptable;
3. justify appropriate measures to control the risks; and
4. present the assessment.

1.2 Step 1 – identify risks

The following report will identify the activities that present different types of risk to the environment associated with the operation of the Installation, including:

1. odour;
2. noise;
3. fugitive emissions; and
4. accidents.

1.3 Step 2 – assess the risk

The report will include an assessment of risks associated with the operation of the CC facility, and will identify the:

1. hazard;
2. receptor; and
3. pathway.

1.4 Step 3 – justify appropriate measures

This report will demonstrate that the risks associated with the operation of the CC facility have been considered, and identify the control measures which will be in place to demonstrate that the risks are being appropriately managed.

1.5 Step 4 – present the assessment

The assessment will conclude by presenting the following:

1. possibility of exposure;
2. consequence; and
3. the overall risk.

The report will present the overall risk applying the EA's H1 criteria, defined as:

1. insignificant;
2. not significant; and
3. significant.

2 Table A1 – Odour Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Delivery and unloading of amine solution.	Immediate area. The nearest residential receptor is located approximately 50 m to the south of the Installation Boundary, and approximately 250 m from amine storage areas.	Air.	The unloading of amine solution into storage tankers will be undertaken within dedicated chemical handling areas. The displaced air from the storage tank will be vented back into the delivery tanker.	Unlikely.	Nuisance.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Transfer of reclaimer waste onto waste collection vehicles for transport off-site.	Immediate area. The nearest residential receptor is located approximately 50 m to the south of the Installation Boundary, and approximately 250 m from the reclaimer waste storage facilities.	Air.	The transfer of spent amine solution/sludge onto waste collection vehicles will be undertaken within dedicated chemical handling areas. The arrangements for the storage and handling of the spent amine solution/sludge will be designed to mitigate any potential odours associated with loading the reclaimer waste into the waste collection vehicle.	Unlikely.	Nuisance.	Not significant.

3 Table A2 – Noise and Vibration Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Noise from process equipment and plant.	Immediate area. The nearest residential receptor is located approximately 50 m to the south of the Installation Boundary.	Sound propagation through air and the ground.	Noisy plant items, where practicable, will be installed inside buildings rather than outside. Where it is not possible to install noisy plant within a building, appropriate noise attenuation measures will be installed to mitigate noise impacts at receptors. Regular maintenance of process plant will be undertaken in accordance with documented maintenance procedures.	Unlikely (due to the industrial location of the site and distance to receptors).	Annoyance.	Insignificant. Refer to Appendix E of the Application Pack.

4 Table A3 – Fugitive Emissions Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Start-up and shutdown of CC facility	Immediate area – air.	Air.	Release of CO ₂ via the venting systems until the CC facility achieves steady state or shutdown.	Unlikely	Vapour release. Unsafe atmospheres if humans (employees or local residents) are exposed.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Spillage of chemicals during delivery and offloading activities.	Immediate area – air, land, water.	Air, surface runoff.	<p>Chemical unloading activities will be undertaken within dedicated chemical storage and handling areas.</p> <p>Chemical unloading areas will have contained drainage systems and be bunded with impermeable hardstanding to contain the chemicals in event of a spill/leak.</p> <p>Spill kits will be provided to cleaned up chemical spills in accordance with documented management systems.</p> <p>Drainage systems will be equipped with penstocks to contain any chemicals within the drainage systems for the CC facility.</p>	Unlikely.	Nuisance and dust.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Chemical discharges when filling chemical storage tanks.	Immediate area – air.	Air, surface runoff, direct contact.	<p>Amine solution will be delivered in sealed tankers and off-loaded via a standard hose connection. Air displaced from the storage tanks will be vented back into the delivery tanker.</p> <p>Unloading activities will only be undertaken in areas of hardstanding with contained drainage. Unloading activities will be supervised by suitably trained personnel.</p> <p>Drainage systems will be equipped with penstocks to contain any chemicals within the drainage systems for the CC facility.</p>	Unlikely.	Nuisance.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Overfilling of amine storage facilities when unloading from road tankers	Immediate area – air, land, water.	Air, surface runoff.	Chemical unloading activities will be undertaken within bunded chemical storage facilities Spill kits will be provided to cleaned up chemical spills in accordance with documented management systems.	Unlikely.	Nuisance, water pollution	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Spillage of amine solution/ spent solvent when transferring to tankers for transfer off-site.	Immediate area – air, land, water.	Air, surface runoff.	<p>Chemical unloading activities will be undertaken within dedicated chemical storage and handling areas.</p> <p>Chemical unloading areas will have contained drainage systems and be bunded with impermeable hardstanding to contain the chemicals in event of a spill/leak.</p> <p>Spill kits will be provided to cleaned up chemical spills in accordance with documented management systems.</p> <p>Drainage systems will be equipped with penstocks to contain any chemicals within the drainage systems for the CC facility.</p>	Unlikely.	Nuisance and dust.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Chemical discharges when transferring of amine solution/ reclaimer waste from storage tanks to tankers for transfer off-site.	Immediate area – air.	Air, surface runoff, direct contact.	Reclaimer waste will be transferred to sealed tankers and off-loaded via a standard hose connection. Air displaced from the tanker will be vented back into the storage tank. Unloading activities will only be undertaken in areas of hardstanding with contained drainage. Unloading activities will be supervised by suitably competent personnel with detailed knowledge and understanding of Viridor's procedures for chemical storage and handling.	Unlikely.	Nuisance.	Not significant.

5 Table A4 – Accidents Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Uncontrolled release of CO ₂ due to damage to the CO ₂ pipeline infrastructure.	Immediate area – air.	Air.	The CO ₂ pipeline infrastructure will be installed with leak detection and CO ₂ venting systems. A planned preventative maintenance system will be implemented by the network operator for the CO ₂ pipeline.	Unlikely	Vapour release. Unsafe atmospheres if humans (employees, workers at adjacent sites or local residents) are exposed.	Not significant.
Venting of CO ₂ due to process failure with the CC facility	Immediate area – air.	Air.	Release of CO ₂ via the venting systems. A planned preventative maintenance system will be implemented at the CC facility to reduce the requirement for unplanned shutdowns.	Unlikely	Vapour release. Unsafe atmospheres if humans (employees workers at adjacent sites or local residents) are exposed.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Leaks from the amine solution/ solvent storage facilities.	Immediate area – land, water.	Land, water.	The amine storage facilities will be located above ground in a dedicated bund.	Unlikely	Liquid or vapour release.	Not significant.
Spillage/leak of spent amine solution/solvent when transferring to tankers for transfer off-site.	Immediate area – land, water.	Land, water.	The amine storage facilities will be located above ground in a dedicated bund.	Unlikely.	Liquid or vapour release.	Not significant.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	What is the Overall Risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Spillage/leak of liquid chemicals when tanker off-loading.	Immediate area – air, land.	Air, direct contact.	Off-loading of liquid chemicals will be from sealed tankers and off-loaded via dedicated hoses. Spillages will be prevented by good operating procedures, high tank level alarm/trips etc. Storage tanks will be located within suitably designed secondary containment. Unloading of liquid chemicals will be undertaken on areas of contained drainage to prevent the release of contaminated effluent off-site through any spillages.	Unlikely	Liquid or vapour release.	Not significant.

6 Detailed Assessment

The environmental impact of the Installation has been evaluated using the H1 software tool as described in Part 2 of Technical Guidance Note EPR-H1. The H1 software tool is presented in Appendix A of this report.

6.1 Emissions to air

Detailed air quality assessments, including a Dispersion Modelling Assessment and Dioxin Pathway Assessment, have been undertaken to assess the air quality impacts associated with the implementation of the CC facility. The assessments are presented in Appendix D of the Application Pack.

In relation to the impact on human health, the Dispersion Modelling Assessment concludes:

- Emissions from the operation of the Proposed Facility will not cause a breach of any AQAL.
- There is predicted to be an increase in the impacts as a result of the proposed CC facility, but the overall impact of the Installation is not significant this includes for the additional products released from the CC facility such as amines, nitrosamines and nitramines.
- There is no risk of exceeding an AQAL for any metal either on a long or short term basis.

In addition, CO₂ venting would have an insignificant impact on air quality.

6.2 Habitats assessment

There are a number of habitat sites present within a 10 km radius of the Facility. The following habitat features presented in Table 6-1 have been considered within the Dispersion Modelling Assessment:

Table 6-1: Sensitive Ecological Receptors

ID	Name	Location		Distance from absorber stack at closest point (km)
		X (m)	Y (m)	
European and UK designated sites				
E1	Mersey Estuary SPA/ Ramsar/ SSSI	Point of maximum impact within designated site		0.5
Local sites				
E2	Pickering's Pasture LNR/ LWS	349300	383800	1.6
E3	Runcorn Hill LNR/ LWS	350800	381600	1.0
E4	Frodsham and Helsby and Ince Marshes LWS	350170	379740	2.0
E5	Upper Mersey Estuary Intertidal Areas and Mudflats LWS	348600	381500	1.2
E6	Upper Mersey Estuary LWS	351600	383300	1.9

In relation to the impact on ecologically sensitive sites:

- All impacts at local nature sites can be screened out as 'insignificant';

- The change in impact and overall impact of emissions from the Installation at the Mersey Estuary SSSI cannot be screened out for airborne ammonia impacts and nitrogen deposition impacts. Further assessment of likely emission concentrations and the sensitivity of the affected habitats has shown that no significant effects are likely.

6.3 Emissions to water

As explained in the Supporting Information, refer to section 3.3, the CC facility will include a wastewater treatment plant which will treat the condensate from the DCC to enable it to be re-used within the hybrid cooling tower. Viridor proposes to discharge the blowdown from the hybrid cooling towers to the Manchester Ship Canal.

The EA's H1 assessment tool has been completed to understand the impact of the discharge on the Manchester Ship Canal, refer to Appendix B.

For the purposes of the determining the inputs into H1 assessment the following assumptions have been made with regards the composition of the flue gases from the ERF being condensed in the DCC; treated in the waste water treatment plant; and cycled within the hybrid cooling towers:

1. Emissions to air from the ERF:
 - a. NO_x is released at the ELV (180 mg/m³)
 - b. Ammonia is released at the highest recorded emission concentration (maximum composition) for the previous two years;
 - c. Ammonia and metals (Cadmium and Mercury) is released at the average emission concentration (average composition) for the previous two years; and
 - d. Ammonia and metals (Cadmium and Mercury) is released at the average recorded emission concentration (long term assessment) for the previous two years.
2. The water treatment plant has an abatement efficiency of 80% of all contaminants present in the flue gases from the ERF/condensate.
3. The cooling water is cycled within the hybrid towers three times, resulting in evaporative losses within the cooling towers.

Allowing for these assumptions, the following parameters have been used for the discharge composition in the H1 assessment.

Table 6-2: Discharge composition

Composition	Unit	Average (long term) Composition	Maximum (Short term) Composition
Mercury - (Hg)	mg/l	0.00066	0.00162
Antimony - (Sb)	mg/l	0.00014	0.00021
Arsenic - (As)	mg/l	0.00013	0.00021
Cadmium - (Cd)	mg/l	0.00021	0.00039
Chromium - (Cr)	mg/l	0.00264	0.00764
Cobalt - (Co)	mg/l	0.00008	0.00017
Copper - (Cu)	mg/l	0.00130	0.00355
Lead - (Pb)	mg/l	0.00184	0.00502
Manganese - (Mn)	mg/l	0.00075	0.00194
Nickel - (Ni)	mg/l	0.00256	0.00812
Thallium - (Th)	mg/l	0.00018	0.00023

Composition	Unit	Average (long term) Composition	Maximum (Short term) Composition
Vanadium - (V)	mg/l	0.00011	0.00014
Ammonia (NH ₃)	mg/l	0.04856	0.20086
Flow rate	m ³ /hr	38.9	56.3
Temperature	°C	20	20

For the purposes of the H1 assessment, only those contaminants provided in Table 6-2 within the discharge which have an WQ standard have been considered.

The results of the H1 screening assessment are summarised in

Table 6-3: Summary of Stage 1 assessment- average composition

Pollutant	Release conc (ug/l)	Annual EQS (ug/l)	Test 1: Release conc <10% EQS avg
Mercury and its compounds (dissolved)	0.00066	-	N/A
Arsenic	0.00013	50	Pass
Cadmium and its compounds (dissolved, water hardness ≥ 200 mg/l CaCO ₃)	0.00021	0.25	Pass
Chromium III (95%ile) (dissolved)	0.00264	4.7	Pass
Cobalt	0.00008	3	Pass
Copper (dissolved, bioavailable)	0.0013	1	Pass
Lead and its compounds (dissolved)	0.00184	1.2 (bioavailable)	N/A
Manganese	0.00075	123 (bioavailable)	N/A
Nickel and its compounds (dissolved)	0.00256	4 (bioavailable)	N/A
Ammonia (≤ 50mg/l CaCO ₃ (90 %ile))	0.04856	300	Pass
Mercury and its compounds (dissolved)	0.00066	-	N/A
Arsenic	0.00013	50	Pass
Cadmium and its compounds (dissolved, water hardness ≥ 200 mg/l CaCO ₃)	0.00021	0.25	Pass
Chromium III (95%ile) (dissolved)	0.00264	4.7	Pass
Cobalt	0.00008	3	Pass

Table 6-4: Summary of Stage 1 assessment- maximum composition

Pollutant	Release conc (ug/l)	MAC (ug/l)	Test 1: Release conc <10% MAC
Mercury and its compounds (dissolved)	0.00162	0.07	Pass
Arsenic	0.00021	-	N/A
Cadmium and its compounds (dissolved, water hardness \geq 200 mg/l CaCO ₃)	0.00039	1.5	Pass
Chromium III (95%ile) (dissolved)	0.00764	32	Pass
Cobalt	0.00017	100	Pass
Copper (dissolved, bioavailable)	0.00355	-	N/A
Lead and its compounds (dissolved)	0.00502	14	Pass
Manganese	0.00194	0	N/A
Nickel and its compounds (dissolved)	0.00812	34	Pass
Ammonia (\leq 50mg/l CaCO ₃ (90 %ile))	0.20086	-	N/A
Mercury and its compounds (dissolved)	0.00162	0.07	Pass
Arsenic	0.00021	-	N/A
Cadmium and its compounds (dissolved, water hardness \geq 200 mg/l CaCO ₃)	0.00039	1.5	Pass
Chromium III (95%ile) (dissolved)	0.00764	32	Pass
Cobalt	0.00017	100	Pass

Therefore, as concluded in the H1 assessment, the impact of the discharge from the hybrid cooling towers can be screened as insignificant for all pollutants which are present within the discharge from the hybrid cooling towers.

6.4 Noise

The impact of noise from the Installation is considered in the noise assessment contained in Appendix E of the Application Pack. As explained within the noise assessment:

Noise emissions from the CCS facility will be controlled through the application of noise control measures/techniques which have been described. Due to technical and spatial constraints, it is not feasible to incorporate additional noise control techniques.

For 99.6% of the year noise emissions from operation of the CCS facility would result in negligible impact at all noise sensitive receptors (NSRs) and for all time periods (daytime, evening and nighttime). For the remaining 0.4% of the year (11 hours), noise emissions would be higher, and a moderate adverse impact would likely result at two NSRs.

However, as this moderate impact would only occur for 11 hours in a year, and would be limited to the daytime period only, not affecting sleep, it is considered that, on balance and over the entire year period, the overall impact would be negligible.

Consequently, when considering the entire year period, noise emissions from operation of the CCS facility would result in negligible impact at all NSRs and for all time periods.

The EP for the Facility does not include a requirement for a Noise Management Plan. Therefore, as the noise impacts associated with the operation of the CC Facility are considered to be 'negligible', it is not proposed to develop a Noise Management Plan within this application. In accordance with condition 3.4 of the EP for the ERF, in the event that the Facility was to give rise to off-site noise impacts, Viridor Energy Limited is committed to developing a Noise Management Plan to manage and mitigate noise impacts from the Facility. Viridor Runcorn CCS Limited would be able to commit to the same condition for the CC facility so that it is consistently applied to the installation.

6.5 Visual impact

The visual impact of the Installation has not been considered in the EP application, since this is primarily a matter for the planning authorities.

6.6 Odour

The CC facility is not anticipated to introduce any additional risk of odour impacts.

The ERF has an existing Odour Management Plan. Therefore, as part of the implementation of the documented management systems, refer to section 7 of the Supporting Information, Viridor Runcorn CCS Limited would propose to extend the existing Odour Management Plan to include for the operation of the CC facility.

6.7 Global warming

The CC Facility will remove emissions of CO₂ resulting from the combustion of waste within the Facility. Therefore, it is widely recognised that the CC Facility will have a positive impact on CO₂ emissions and the associated impacts of global warming.

6.8 Disposal of wastes and residues

The only solid residue which will be generated by the CC facility will be reclaimer waste. This will be transferred for recovery or disposal at a suitably licensed waste treatment facility.

7 Conclusions

As presented in this report, the CC facility is considered to contain appropriate control measures and management systems to ensure that the Facility does not have any significant impacts upon the local environment.

Appendices

B H1 Assessment Tool

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