Holloway Lane AD Facility

784-B049182

Environmental Risk Assessment

Environmental Permit Application

SUEZ Recycling and Recovery UK Ltd

February 2024

Document prepared on behalf of Tetra Tech Limited. Registered in England number: 01959704

TETRA TECH

Tetra Tech Manchester, 11 York Street, 2nd Floor, Manchester, United Kingdom, M2 2AW

Tetra Tech Limited. Registered in England number: 01959704
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

DOCUMENT CONTROL

Document:	Environmental Risk Assessment
Project:	Holloway Lane AD Facility
Client:	SUEZ Recycling and Recovery UK Ltd
Project Number:	784-B049182
File Origin:	\\lds-dc-vm-101\Data\Projects\784-B049182_Holloway_Lane_AD\60 Project Output\61 Work in Progress\Appendix D - Environmental Risk Assessment\Environemental Risk Assessment (DRAFT V2).docx

Revision:		**Prepared by:**	Gemma Allan
Date:	November 2023	**Checked by:**	Lauren Stanger
Status:	Draft to Client	**Approved By:**	Andrew Bowker
Description of Revision:			

Revision:		**Prepared by:**	Lauren Stanger
Date:	February 2024	**Checked by:**	
Status:	Draft	**Approved By:**	Andrew Bowker
Description of Revision:	Updates to include bioaerosol risk assessment, wastewater treatment facility and H1 assessment		

Revision:		**Prepared by:**	Lauren Stanger
Date:	February 2024	**Checked by:**	Andrew Bowker
Status:	Draft	**Approved By:**	Andrew Bowker
Description of Revision:	Updates to H1 to include RO trial Nitrate concentrations		

Revision:		**Prepared by:**	
Date:		**Checked by:**	
Status:		**Approved By:**	
Description of Revision:			

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DRAWINGS

APPENDICES

1.0 INTRODUCTION

1.1 REPORT SCOPE

1.1.1 This section of the Environmental Permit application corresponds to Section 6 of Part B2 of the Environmental Permit application forms, and has been prepared on behalf of the operator, SUEZ Recycling and Recovery UK Ltd (SUEZ).

1.1.2 This application relates an area of land located off Holloway Lane (the site), Sipson, Middlesex, UB7 0AE. The site location and environmental permit boundary is shown on Drawing Number SUEZ/B049182/PER/01.

1.1.3 This Environmental Risk Assessment (ERA) has been prepared to support an Environmental Permit Application to allow the operation of an Anaerobic Digestion (AD) facility at the site. The process will generate biogas which will be processed by a Combined Heat and Power (CHP) engine to generate heat and electricity that would be used by the AD plant. Once the parasitic load has been met, any excess biogas will be processed by a gas upgrading plant to National Gas Grid criteria and injected into the gas grid. Alternatively, excess biogas will be processed by the CHP engines to generate electricity that will be exported to the National Grid.

1.1.4 The CHP engine will have a capacity of 1.2MW and therefore it's considered that the CHP engine will be subject to the Medium Combustion Plant Directive (MCPD) and therefore will comprise a MCP with a specified generator (SG).

1.1.5 The Operator also seeks to implement a wastewater treatment plant on site which will be used to treat the liquor extracted during the dewatering process of the digestate. Having been treated, the remaining liquid will be clean enough to either be used for washing down or within the process. Excess liquid will be discharged to public sewer in accordance with a trade effluent discharge consent. The treatment capacity of the wastewater treatment plant is over 50 tonnes per day, causing it to be a Schedule 1 Activity.

1.1.6 In addition, SUEZ agree to undertake the process of carbon capture as a function of this application.

1.1.7 This ERA is limited to a qualitative assessment of the potential risks to the environment and human health specifically related to the proposed activity. This report will identify any significant risk and demonstrate that the risk of pollution will be acceptable by taking the appropriate measures to manage the risk.

2.0 ENVIRONMENTAL RISK ASSESSMENT

2.1 METHODOLOGY

2.1.1 This report has been prepared following the Environment Agency's (EA) Risk Assessment guidance. It specifically relates to the potential risks associated with the following risk types: -

- Amenity and accidents;
- Surface water discharges;
- Air;
- Global warming potential;
- Site waste; and,
- Groundwater.

2.1.2 There will be no direct emissions to groundwater or surface water as a result of this proposal. Subsequently, it's considered that no further assessment is required for groundwater.

2.1.3 This report addresses the risks associated with amenity and accidents, air, global warming potential and site waste.

2.1.4 This risk assessment addresses the above, and is based on the following methodology: -

- Identification of potential sources of risks;
- Identification of all potential receptors to risk; and,
- Risk assessment of each risk type.

2.1.5 The ERA is a tool used to identify the pollutant linkage i.e., source-pathway-receptor. For most risks, the atmosphere is the main pathway and will always exist. Therefore, the ERA deals primarily with the sources and receptors and is provided in Appendix A and summarised below. The ERA will only consider environmental receptors within a 1km radius of the site.

2.2 SOURCES

2.2.1 The potential sources of risks have been considered for each risk type, as provided in Appendix A and summarised below:

Odour

- Receipt and treatment of organic waste;
- Biogas generated from the AD process;
- Storage of waste outputs from the AD process; and,
- Odour from the storage of waste during contingencies (e.g. mechanical breakdown).

Noise and Vibration

- Engine noise from vehicle movements;
- Use of reverse vehicle warnings;
- Loading/unloading of waste; and,

- Physical treatment of waste as part of the pre-treatment process.

Fugitive Emissions

- Particulate matter i.e., dust;
- Bioaerosols;
- Pests;
- Contaminated surface water run-off;
- Mud; and,
- Litter.

Accidents

- Fire or failure to contain firewater;
- Plant failure or breakdown;
- Flooding; and,
- Vandalism.

2.3 PATHWAYS

2.3.1 The pathways have been identified for each risk type as shown in Table 1: -

Table 1 : Potental Pathways

Risk Type	Pathway
Odour	Atmosphere
Noise and vibration	Atmosphere
Fugitive emissions	Atmosphere
Accidents	Atmosphere
	Surface water run-off
	Infiltration
	Percolation

2.4 RECEPTORS

2.4.1 A Nature and Heritage Conservation Screen (Reference Number EPR/NP3139PK/P001) was requested from the EA. This screen determines the presence of any sites of nature and heritage conservation, or protected species or habitats that may be impacted by the proposal. The results of the screen are provided as Appendix B.

2.4.2 Receptors within 1km of the proposed application boundary, including those identified in the Nature and Heritage Conservation Screen, have been listed in Table 2 and are shown on Drawing Number SUEZ/B049182/REC/01.

2.4.3 Receptors that are over 1km of the site and were identified in the Nature and Heritage Conservation Screen are listed in Table 3 and shown in the maps that were provided in Appendix B.

2.4.4 The main pathway for the identified sources will be atmosphere and as such, atmospheric conditions can affect dispersion rates and hence potential risk. As a result, the location of each receptor in relation to the site may influence the potential impact of the risk, as summarised in Tables 2 and 3.

Table 2: Receptors Within 1km of the AD Facility

ID	Receptor	Direction from Operational Area	Minimum Distance from the Permit Application Boundary (approx. m)
Domestic Dwellings			
1	Properties of Harmondsworth	SW	350
2	Properties of Sipson	SE	235
3	Properties of West Drayton	N	445
4	Property off Harmondsworth Lane	S	145
Commercial and Industrial Premises			
5	Industry off Polar Park Lane	S	710
6	Industry off Heathrow Boulevard	S	715
7	Sipson Road Industry	NE	320
8	Holloway Lane Industry and Commercial Properties	W	85
9	Harmondsworth Road Industry	S	75
10	Industry East of Tunnel Road West	E	710
11	Heathrow Boxing Club	N	720
12	Commercial Properties of Harmondsworth	SW	675
13	Commercial Properties of Sipson	W	390
14	Commercial Properties of West Drayton	N	480
15	Holloway Lane Commercial Properties	W	45
16	Industry South of Bath Road (A4)	S	1,000
17	Powerday	E	Adjacent
Schools/Hospitals/Shops/Amenities			
18	Heathrow Holiday Inn and Car Rental Services	NE	550
19	Novotel – Heathrow Airport and Airport Pick Ups	NE	775
20	Crowne Plaza Hotel	NE	990
21	Cherry Lane Childrens Centre	NE	550
22	Cherry Lane Primary School	NE	580
23	Once Upon a Daytime Nurseries	NE	720
24	Laurel Lane Primary School	NW	945
25	Lady Nafisa Secondary school for Girls	E	555
26	St Martins Church of England Primary School	NW	890

27	LGH Hotels Management Limited	N	700
28	Hyatt Place London Heathrow Airport	S	960
29	Hotels off Heathrow Boulevard	S	890
30	Heathrow Primary School	SE	200
Sensitive Land Uses			
31	Butterfly Park	NW	610
32	The Brambles Playground	NW	535
33	Harmondsworth War Memorial Recreation Ground	SE	820
34	Sipson Way Playground	SE	980
35	Sipson Village Recreation ground	SE	485
36	Little Harlington Playing Field	E	985
37	Harmondsworth Barn	W	1,000
38	Home Farm	SW	635
Highways or Minor Roads			
39	M4 Tunnel Road West & East	E	670
40	M4	N	380
41	A4 Bath Road	S	1,000
42	A408	E	400
43	A3044	N	140
Protected Habitats/ Designated ecological habitats e.g. Ramsars, SAC, SPA, SSSI			
44	Wordsworth Way Deciduous Woodland	N	430
45	Holloway Lane Deciduous Woodland	NE	505
46	Holiday Inn Deciduous Woodland	NE	490
47	M4 Deciduous Woodland	NE	460
Surface Water e.g. rivers and streams			
48	Pond adjacent to the site	W	Adjacent
49	Saxon Lake	W	900
50	Two ponds Sipson Road	NE	175
51	Hardcrete Pond	E	905
52	Harmondsworth Lane Brook	S	135
53	Bath Road Brook	S	355
54	Pond	SE	980
Local Wildlife Sites (LWS)			
55	Carp Ponds and Broads Dock	W	900
Groundwater (sensitivity)			

According to the Multi-Agency Geographic Information for the Countryside's (MAGIC) website, the site is not situated within a groundwater source protection zone. In addition, the MAGIC website indicates that the site overlies an Unproductive Bedrock Aquifer and a Principal Superficial Drift Aquifer.

Table 3: Receptors Identified from Nature and Heritage Conservation Screen

Site	Receptor Type	Direction from Operational Area	Minimum Distance from the Permit Application Boundary (approx. m)
Field Close Open Space Roughs	Local Wildlife Site	SE	1,036
Carp Ponds and Broads Dock	Local Wildlife Site	W	900
Iron Bridge Road Railsides	Local Wildlife Site	NE	2,017
Londons Canals	Local Wildlife Site	N	1,095
Lower Colne	Local Wildlife Site	W	1,058
St Georges Meadows Southlands Arts Centre	Local Wildlife Site	NW	1,032
Stockley Road Rough	Local Wildlife Site	NE	1,049
Wall Garden Farm Sand Heaps	Local Wildlife Site	SW	3,016
Southwest London Water Bodies	RAMSAR/SPA	SW	4,011
Windsor Forest and Great Park	Special Areas of Conservation	SW	9,035
Atlantic Salmon Migratory Route	Protected Species	W	1,022
European Eel Migratory Route	Protected Species	W	1,022

2.5 RISK ASSESSMENT

2.5.1 The ERA (Appendix A) looks at each specific hazard identified and assesses the likelihood of those hazards impacting on the receptors. This is achieved by fulfilling the following objectives: -

- Identify the location and nature of each hazard;
- Identify the specific receptors potentially at risk and assess the sensitivity of each receptor;
- Provide a qualitative assessment of the risk posed to each sensitive receptor;
- Identify management and monitoring techniques; and,
- Provide recommendations for more detailed assessments where necessary.

2.6 SUMMARY OF ERA

2.6.1 The ERA (Appendix A) indicates that the proposed development will have no significant impact with regards to odour, noise and fugitive emissions, and the likelihood of accidents is minimal.

3.0 AIR QUALITY RISK ASSESSMENT

3.1 METHODOLOGY

3.1.1 The EA's guidance requires the identification of any substances released to the air, the quantification of the emissions, and an evaluation of the potential environmental impact of the emissions.

3.1.2 The operation of the proposed AD facility will comprise emission points to air. Subsequently, an Air Quality Assessment (AQA) has been undertaken to assess the potential impact on air quality associated with the proposal. A copy of the AQA is provided as Appendix H of the Environmental Permit Application.

4.0 BIOAEROSOL RISK ASSESSMENT

4.1 METHODOLOGY

4.1.1 Section 11.4 of the EA's "Biological waste treatment: appropriate measures for permitted facilities (2022)" Guidance indicates that a bioaerosol risk assessment is required if the facility is within 250m of a sensitive receptor.

4.1.2 With reference to Table 2, the nearest sensitive receptors are the Holloway Lane Commercial Properties 45m to the west of the site. a Bioaerosol Risk Assessment has been undertaken to assess the potential impact on bioaerosols associated with the proposal. A copy of the bioaerosol risk assessment is provided as Appendix J of the Environmental Permit Application.

5.0 DISCHARGE TO SEWER

5.1 METHODOLOGY

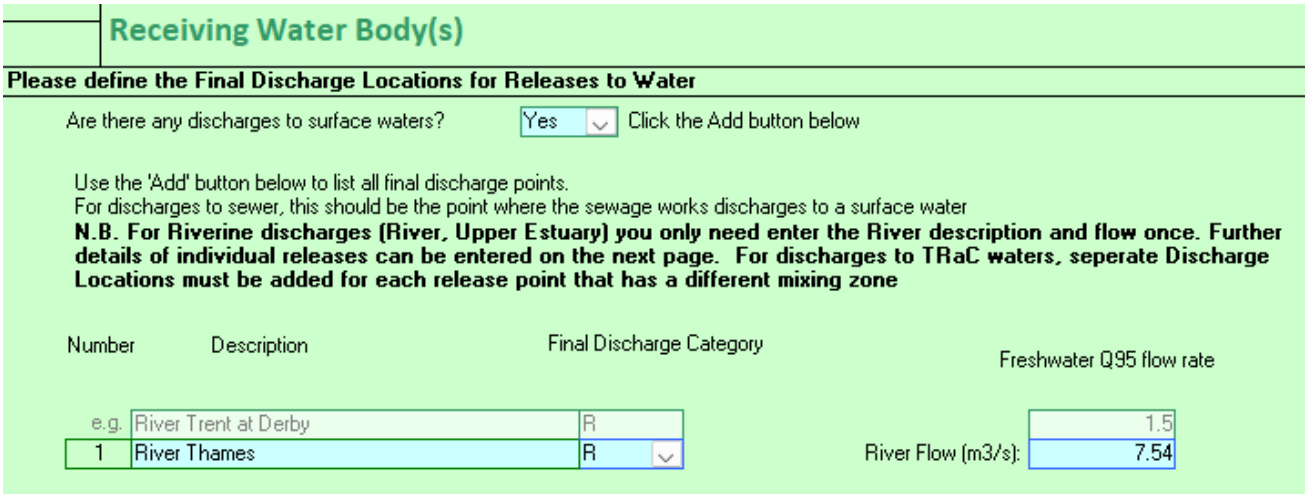
5.1.1 The EA's guidance requires the identification of any substances released to surface water. The operation of the proposed AD plant will comprise of effluent emissions through discharge to the sewer. Therefore, a H1 risk assessment has been prepared and is provided as Appendix C.

5.1.2 As mentioned in Section 1.1.5, SUEZ are seeking to operate a wastewater treatment plant on site which will be used to treat the liquor extracted during the dewatering process of the digestate.

5.1.3 Liquor will gravitate to the liquor pumping sump from where it will be transported to the wastewater treatment plant on site. The treatment process will reduce the Chemical Oxygen Demand, oxidise ammonia to nitrate ad correct pH. Waste sludge from this process will be used to dilute the food waste entering the plant. The remaining liquid is clean enough to either be used for washing down or within the process. Excess liquid will be discharged to the sewer. The effluent will go to Mogden Sewage Treatment Plant and will be discharged into the River Thames.

5.1.4 A H1 risk assessment has been carried out for the site to test whether the discharge of effluent to freshwater is a risk to the environment. First, the scope of the Environmental Assessment was entered, which is the activity of discharge to the sewer. Using the National River Flow Archive data, the nearest upstream water discharge location was identified as the River Thames with a freshwater Q95 rate of 7.54 as shown in Figure 1 below.

Figure 1: Water Discharge Location



5.1.5 The next step of the assessment requires further detail of the water discharge/release flow data which has been entered in as 2L/s (0.002m^3/s) as shown in Figure 2 below.

Figure 2: Water Discharge/Release Details and Flow Data

Water Discharge/Release Details and Flow Data

Please define your Release Points for Releases to Water

Number	Description	Location or Grid Reference	Activity or Activities	Final Discharge Point		Discharge via Sewer?	Mean Effluent Flow Rate* m3/s	Max Effluent Flow Rate* m3/s
e.g.	W1	Discharge from ETP into River		1		No	5	10
1	Discharge to sewer	TQ018722	Discharge to sewer	1	River Thames	Yes	0.0020	0.0020

5.2 H1 ASSESSMENT – TEST 1

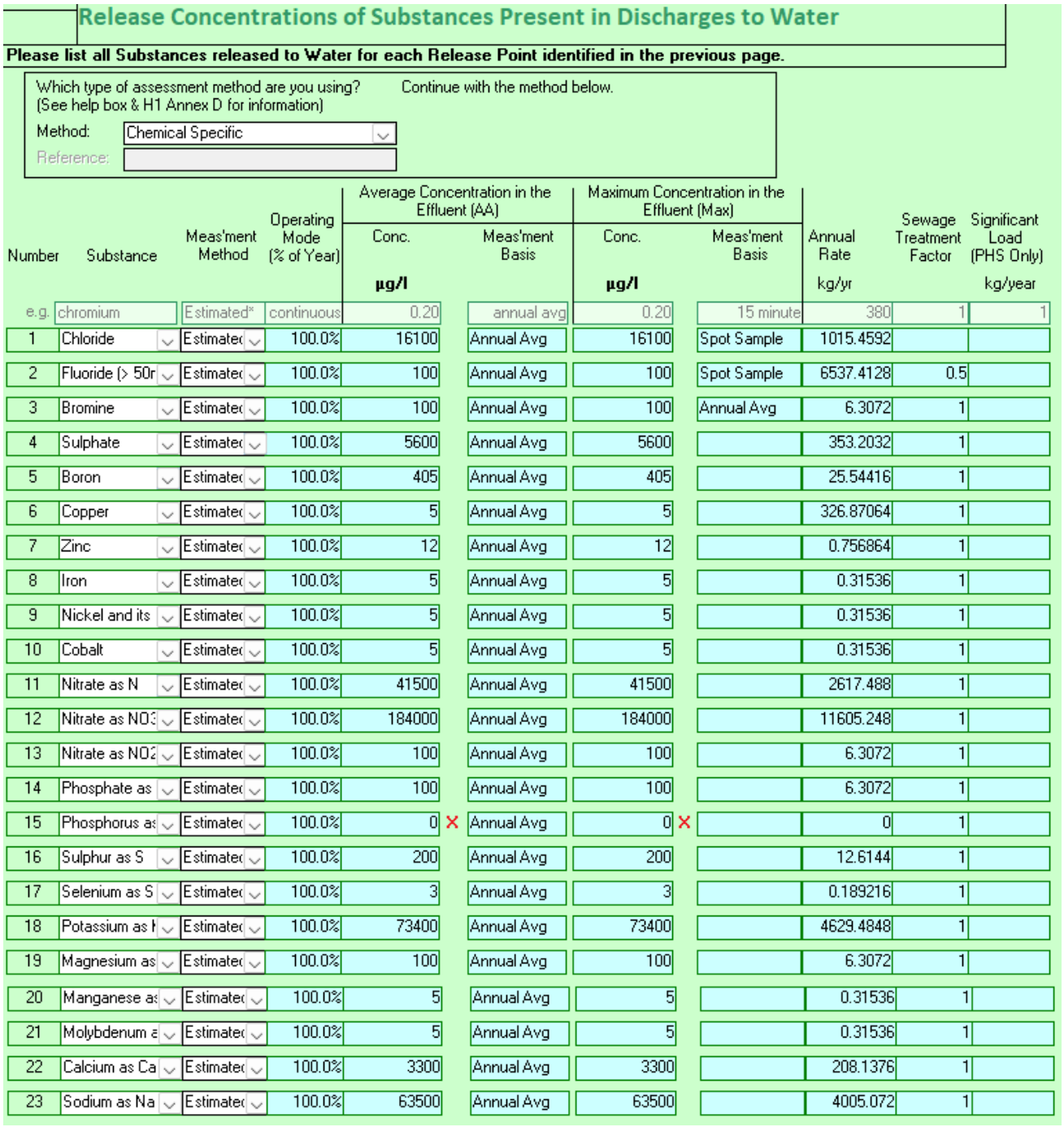
5.2.1 The data set shown in Figure 3 below was taken from the MBR Permeate and a post RO Trial at SUEZ's Charlton Lane Eco Park facility and is considered to be in line with the expectation for any discharge from the site at Holloway Lane.

Figure 3: Substance Concentrations Post RO Trial

	MBR permeate 4/1/24		Salinity Solutions post RO 19/12/23	
Boron	304.0	µg/l	405.0	µg/l
Calcium	125.0	mg/l	3.3	mg/l
Magnesium	55.3	mg/l	0.1	mg/l
Cobalt	16.0	µg/l	5.0	µg/l
Copper	5.0	µg/l	5.0	µg/l
Iron	58.0	µg/l	5.0	µg/l
Potassium	2,091.0	mg/l	73.4	mg/l
Manganese	13.0	µg/l	5.0	µg/l
Molybdenum	5.0	µg/l	5.0	µg/l
Sodium	3,247.0	mg/l	63.5	mg/l
Nickel	13.0	µg/l	5.0	µg/l
Phosphorus	22.2	mg/l	0.0	mg/l
Sulphur	44.1	mg/l	0.2	mg/l
Selenium	3.0	µg/l	3.0	µg/l
Zinc	19.0	µg/l	12.0	µg/l
Fluoride	0.1	mg/l	0.1	mg/l
Chloride	2,740.0	mg/l	16.1	mg/l
Bromide	0.1	mg/l	0.1	mg/l
Nitrate	2,122.0	mg/l	41.5	mg/l
Nitrate	9,398.0	mg/l	184.0	mg/l
Nitrite	2.0	mg/l	0.1	mg/l
Nitrite	2.0	mg/l	0.1	mg/l
Sulphate	279.0	mg/l	5.6	mg/l
Phosphate	116.0	mg/l	0.1	mg/l

5.2.2 The data set above from the RO trial dated 19/12/23 was then entered into the next stage of the H1 which details the release concentrations of substances present in the discharges to water. The concentration of each substance has been converted into ug/L and listed in the water emissions inventory in Figure 4 below.

Figure 4: Water Emissions Inventory



Release Concentrations of Substances Present in Discharges to Water

Please list all Substances released to Water for each Release Point identified in the previous page.

Which type of assessment method are you using? (See help box & H1 Annex D for information) Continue with the method below.

Method: Chemical Specific

Reference:

Number	Substance	Meas'ment Method	Operating Mode (% of Year)	Average Concentration in the Effluent (AA) Conc. µg/l	Meas'ment Basis	Maximum Concentration in the Effluent (Max) Conc. µg/l	Meas'ment Basis	Annual Rate kg/yr	Sewage Treatment Factor	Significant Load (PHS Only) kg/year
e.g.	chromium	Estimated*	continuous	0.20	annual avg	0.20	15 minute	380	1	1
1	Chloride	Estimated	100.0%	16100	Annual Avg	16100	Spot Sample	1015.4592		
2	Fluoride (> 50r	Estimated	100.0%	100	Annual Avg	100	Spot Sample	6537.4128	0.5	
3	Bromine	Estimated	100.0%	100	Annual Avg	100	Annual Avg	6.3072	1	
4	Sulphate	Estimated	100.0%	5600	Annual Avg	5600		353.2032	1	
5	Boron	Estimated	100.0%	405	Annual Avg	405		25.54416	1	
6	Copper	Estimated	100.0%	5	Annual Avg	5		326.87064	1	
7	Zinc	Estimated	100.0%	12	Annual Avg	12		0.756864	1	
8	Iron	Estimated	100.0%	5	Annual Avg	5		0.31536	1	
9	Nickel and its	Estimated	100.0%	5	Annual Avg	5		0.31536	1	
10	Cobalt	Estimated	100.0%	5	Annual Avg	5		0.31536	1	
11	Nitrate as N	Estimated	100.0%	41500	Annual Avg	41500		2617.488	1	
12	Nitrate as NO3	Estimated	100.0%	184000	Annual Avg	184000		11605.248	1	
13	Nitrate as NO2	Estimated	100.0%	100	Annual Avg	100		6.3072	1	
14	Phosphate as	Estimated	100.0%	100	Annual Avg	100		6.3072	1	
15	Phosphorus as	Estimated	100.0%	0	Annual Avg	0		0	1	
16	Sulphur as S	Estimated	100.0%	200	Annual Avg	200		12.6144	1	
17	Selenium as S	Estimated	100.0%	3	Annual Avg	3		0.189216	1	
18	Potassium as K	Estimated	100.0%	73400	Annual Avg	73400		4629.4848	1	
19	Magnesium as	Estimated	100.0%	100	Annual Avg	100		6.3072	1	
20	Manganese as	Estimated	100.0%	5	Annual Avg	5		0.31536	1	
21	Molybdenum a	Estimated	100.0%	5	Annual Avg	5		0.31536	1	
22	Calcium as Ca	Estimated	100.0%	3300	Annual Avg	3300		208.1376	1	
23	Sodium as Na	Estimated	100.0%	63500	Annual Avg	63500		4005.072	1	

Test 1 - Results

5.2.3 The results of the H1 risk assessment consist of the Water Impacts Test 1 – Freshwater and the Water Impacts Test 2 – Freshwater as shown in Figure 5 and 6 below.

5.2.4 The purpose of Test 1 is to check whether the concentration of the chemical and element in the discharge is more than 10% of the environmental quality standards (EQS). If this is more than 10%, Test 2 needs to be carried out.

5.2.5 As shown in Figure 5 below, Boron, Bromine, Cobalt, Copper, Nickel, and Zinc failed at Test 1 and so Test 2 needed to be completed.

Figure 5: Water Impacts Test 1 – Freshwater

Water Impacts - Fresh Water Releases

Apply Test 1 (See Guidance) and Calculate Process Contributions of Emissions to Water

This table applies Test 1 and also estimates the Process Contribution for Freshwater releases, this is calculated after dilution into the relevant surface water ype for each emission to water listed in the inventory, according to the release point parameters input earlier. If you have more accurate data obtained through dilution modelling, this may be entered as indicated and will be used instead of the estimated PC. Any releases which 'Pass' Test 1 are screened out at this oint.

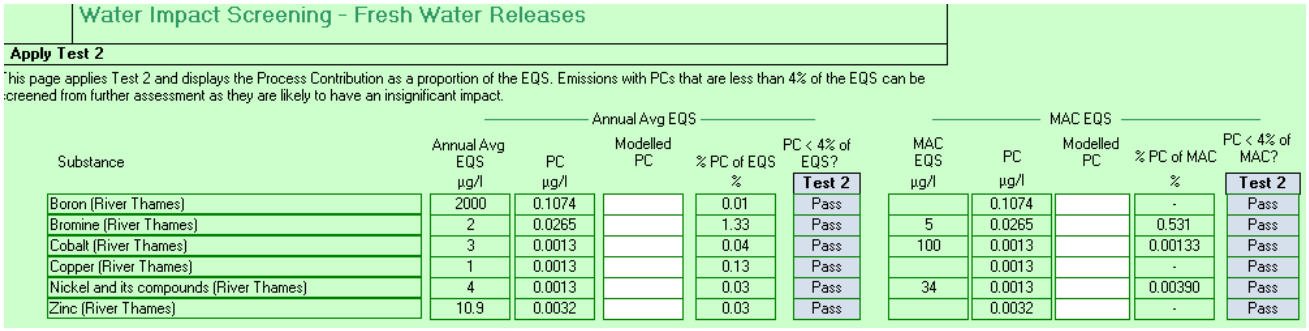
	Annual Avg EQS			MAC EQS		
Substance	Release µg/l	EQS µg/l	Release conc < 10% EQS	Release µg/l	MAC µg/l	Release conc < 10% EQS
e.g.			Test 1			Test 1
[Discharge to sewer] Boron (River Thames)	405.0000	2000.0000	Fail	405.0000		N/A
[Discharge to sewer] Bromine (River Thames)	100.0000	2.0000	Fail	100.0000	5	Fail
[Discharge to sewer] Calcium as Ca (River Thames)	3300.0000		N/A	3300.0000		N/A
[Discharge to sewer] Chloride (River Thames)	16100.0000	##########	Pass	16100.0000		N/A
[Discharge to sewer] Cobalt (River Thames)	5.0000	3.0000	Fail	5.0000	100	Pass
[Discharge to sewer] Copper (River Thames)	5.0000	1.0000	Fail	5.0000		N/A
[Discharge to sewer] Fluoride (> 50mg/l CaCO3) (dissolved) (River Thames)	100.0000	5000.0000	Pass	100.0000	15000	Pass
[Discharge to sewer] Iron (River Thames)	5.0000	1000.0000	Pass	5.0000		N/A
[Discharge to sewer] Magnesium as Mg (River Thames)	100.0000		N/A	100.0000		N/A
[Discharge to sewer] Manganese as Mn (River Thames)	5.0000		N/A	5.0000		N/A
[Discharge to sewer] Molybdenum as Mo (River Thames)	5.0000		N/A	5.0000		N/A
[Discharge to sewer] Nickel and its compounds (River Thames)	5.0000	4.0000	Fail	5.0000	34	Fail
[Discharge to sewer] Nitrate as N (River Thames)	41500.0000		N/A	41500.0000		N/A
[Discharge to sewer] Nitrate as NO2 (River Thames)	100.0000		N/A	100.0000		N/A
[Discharge to sewer] Nitrate as NO3 (River Thames)	##########		N/A	##########		N/A
[Discharge to sewer] Phosphate as PO4 (River Thames)	100.0000		N/A	100.0000		N/A
[Discharge to sewer] Phosphorus as P (River Thames)	0.0000		N/A	0.0000		N/A
[Discharge to sewer] Potassium as K (River Thames)	73400.0000		N/A	73400.0000		N/A
[Discharge to sewer] Selenium as Se (River Thames)	3.0000		N/A	3.0000		N/A
[Discharge to sewer] Sodium as Na (River Thames)	63500.0000		N/A	63500.0000		N/A
[Discharge to sewer] Sulphate (River Thames)	5600.0000	##########	Pass	5600.0000		N/A
[Discharge to sewer] Sulphur as S (River Thames)	200.0000		N/A	200.0000		N/A
[Discharge to sewer] Zinc (River Thames)	12.0000	10.9000	Fail	12.0000		N/A

5.3 H1 ASSESSMENT – TEST 2

5.3.1 The purpose of Test 2 is to introduce the dilution available in the receiving water. This test checks whether the process contribution (PC) of the chemical and element is more than 4% of the EQS. PC is the concentration of a discharged chemical and element in the water after it has been diluted.

5.3.2 Figure 6 below displays that all substances pass at Test 2. Therefore, no further modelling is needed.

Figure 6: Water Impacts Test 2 – Freshwater



Water Impact Screening - Fresh Water Releases

Apply Test 2

This page applies Test 2 and displays the Process Contribution as a proportion of the EQS. Emissions with PCs that are less than 4% of the EQS can be screened from further assessment as they are likely to have an insignificant impact.

Substance	Annual Avg EQS	PC	Modelled PC	% PC of EQS	PC < 4% of EQS?	MAC EQS	PC	Modelled PC	% PC of MAC	PC < 4% of MAC?
	Annual Avg EQS					MAC EQS				
	µg/l	µg/l		%	**Test 2**	µg/l	µg/l		%	**Test 2**
Boron (River Thames)	2000	0.1074		0.01	Pass		0.1074		-	Pass
Bromine (River Thames)	2	0.0265		1.33	Pass	5	0.0265		0.531	Pass
Cobalt (River Thames)	3	0.0013		0.04	Pass	100	0.0013		0.00133	Pass
Copper (River Thames)	1	0.0013		0.13	Pass		0.0013		-	Pass
Nickel and its compounds (River Thames)	4	0.0013		0.03	Pass	34	0.0013		0.00390	Pass
Zinc (River Thames)	10.9	0.0032		0.03	Pass		0.0032		-	Pass

6.0 SITE WASTE

6.1 METHODOLOGY

6.1.1 The recommended approach for a site waste assessment is detailed in the EA's 'Select a Waste Recovery or Disposal Method for your Environmental Permit' guidance.

6.1.2 As detailed in the Best Available Techniques and Operating Techniques (BATOT) document (Appendix C of the Environmental Permit Application), there will be three outputs associated with the proposed AD facility.

6.1.3 The first output will comprise unwanted packaging and contaminants which are removed from the food waste as part of the pre-treatment process. This waste will be stored within a skip and bulked up within the pre-treatment area prior to transfer off site to an appropriate permitted facility for further treatment.

6.1.4 The second output will be the biogas which will feed into the biogas will be processed by a CHP engine to generate heat and electricity that would be used by the AD plant. Once the parasitic load has been met, any excess biogas will be processed by a gas upgrading plant to National Gas Grid criteria and injected into the gas grid. Alternatively, excess biogas will be processed by the CHP engines to generate electricity that will be exported to the National Grid.

6.1.5 The third output relates to the digestate that's generated from the main AD process. As discussed within the BATOT document, SUEZ are seeking to utilise the digestate in a slurry, solid and liquid form which can be used as a fertiliser, compost, or soil improver. To achieve this, the digestate will be subject to the specifications outlined in PAS 110. If the digestate complies with PAS 110, it's considered that the digestate meets the end of waste criteria.

6.1.6 In the event that the digestate does not meet the specifications of PAS 110, it's considered that the digestate is waste and therefore will need to be disposed of accordingly.

6.1.7 In light of the above, it's considered that the proposed AD facility will generate the following waste outputs:-

- Unwanted packaging and contaminants;
- Non-compliant/poor quality digestate; and,
- Waste effluent.

6.1.8 The following tables identify 3 scenarios for the destination of the waste which is produced from the AD facility.

6.1.9 Option 1 details a scenario whereby the packaging and contaminants are transferred off site for recovery and the digestate is used for landspreading and the liquor is processed by the wastewater treatment plant on site to recover liquid that can be recirculated into the AD process.

6.1.10 Option 2 details a scenario whereby the packaging and contaminants are transferred off site for recovery, the digestate and slurry are used for land spreading and the liquor is treated on site before being discharged to sewer.

6.1.11 Option 3 represents a scenario whereby all materials are transferred off site for disposal by landfill.

Table 4: Waste Assessment - Option 1

Description of Waste Stream	Amount Produced (tonnes/annum)	Nature of Waste	Disposal or Recovery Option	Impact Score
Unwanted packaging/contaminants	8,450	Non-hazardous (2)	Recycling – R4 and R5 (3)	30,000
Digestate cake	19,000	Biodegradable Non-hazardous (4)	Land spreading – R10 (4)	304,000
Liquor	100,000	Biodegradable Non-hazardous (4)	Recovery of liquid for recirculation – R3/R5 (4)	1,600,000

Table 5: Waste Assessment - Option 2

Description of Waste Stream	Amount Produced (tonnes/annum)	Nature of Waste	Disposal or Recovery Option	Impact Score
Unwanted packaging/contaminants	8,450	Non-hazardous (2)	Recycling – R4 and R5 (3)	30,000
Digestate cake	19,000	Biodegradable Non-hazardous (4)	Land spreading – R10 (4)	304,000
Liquor	100,000	Biodegradable Non-hazardous (4)	Biological and/or physical and chemical treatment – D8/D9 (12)	4,800,000

Table 6: Waste Assessment - Option 3

Description of Waste Stream	Amount Produced (tonnes/annum)	Nature of Waste	Disposal or Recovery Option	Impact Score
Unwanted packaging/contaminants	8,450	Non-hazardous (2)	Landfill – D1 (30)	300,000
Digestate cake	19,000	Biodegradable Non-hazardous (4)	Landfill – D1 (30)	2,280,000
Liquor	100,000	Biodegradable Non-hazardous (4)	Landfill – D1 (30)	12,000,000

6.1.12 The tables above indicates that the scenario outlined in Option 1 represents the lowest impact scores that may be achieved for the waste outputs. As noted above, Option 1 provides a similar scenario to Option 2. The only difference is the disposal/recovery route for the liquor that is recovered from the digestate.

6.1.13 Consideration will be given to seeking alternative treatment and disposal routes in the future where new technologies are brought online.

7.0 GLOBAL WARMING POTENTIAL

7.1 According to the EA's with the "Assess the impact of air emissions on global warming" guidance, an assessment must be undertaken to determine the impact of any air emissions towards global warming. As noted in Section 3, the proposed AD facility will comprise emission points to air which relate to the operation of the one CHP engine.

7.2 The purpose of the CHP engine is to process biogas from the AD process to generate heat and electricity that would be used to accommodate the parasitic load of the AD plant. In addition, the CHP engine may be used to generated electricity to export to the National Grid.

7.3 According to the aforementioned guidance, any direct or indirect carbon dioxide emissions that come from renewable energy sources (e.g., from waste or from 'biomass' - biodegraded waste) as having an impact of '0' on global warming.

7.4 As such, it's considered that the air emissions from the CHP engine will not have an impact on global warming and therefore further assessment is not required.

7.5 Due to the site being classified as having an impact of '0' on global warming, it is established that a Greenhouse Gas Assessment is not required for this report.

DRAWINGS

Permit Boundary Plan - SUEZ/ B049182/PER/01

Receptor Plan - SUEZ/B049182/REC/01

APPENDICIES

APPENDIX A – ENVIRONMENTAL RISK ASSESSMENT

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**	**Probability 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 of probability and consequence.**
Receipt and treatment of odorous wastes	Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above.	Atmosphere	All odorous waste will be unloaded and processed from within an enclosed building. This building benefits from a fast-acting door which will be kept closed when not in use (i.e., arrival or departure of vehicles). In addition, pedestrian doors are also closed when not in direct use. This will minimise the potential for any odour generated on site to impact receptors beyond the site boundary. The facility will operate 24 hours a day, however, vehicle movements to and from the site will be restricted to the following hours: - • 07:00 –19:00– Monday – Sunday. The building will also benefit from an odour control system which will be designed to extract and treat any odour emissions that may be generated from the AD process. Details regarding the odour control system are provided in the Odour Management Plan (Appendix G of the Environmental Permit Application). All waste delivered for the AD process will be deposited within a waste reception pit that is	**Low** – the management procedures should prevent emissions of odour.	**Medium/Low** - Odour annoyance	**Low** – The management procedures employed reduce the likelihood of impact

			situated within the waste reception hall. The pit will be designed to push the waste into the pre-treatment area. This will ensure that waste is processed in the order it is received (first-in, first-out) and therefore ensure that the waste is not stored for more than 72 hours which will be the maximum residency time that waste will be stored in the reception area prior to treatment. Although the retention time for the main AD process will be up to 60 days, the process will be undertaken within sealed tanks which will minimise the release of odour emissions. SUEZ's Integrated Management System (IMS) includes site inspection check sheets that include a daily requirement for site staff to qualitatively assess odour; if perceived to be excessive, measures will be taken to identify the source of any malodourous and take appropriate remedial action. In addition to the above, SUEZ's IMS includes policies and procedures that requires all site infrastructure to be maintained in accordance with the manufacturer's guidance. In addition, the IMS includes a daily requirement for site staff to check plant and site infrastructure to ensure continuing integrity and fitness for purpose. In the event that any defects are identified so that it no longer meets the required standards, necessary remedial work will be completed as soon as practicable. In addition to the above, an Odour Management Plan (OMP) has been prepared which details how odour from the proposed activities will be managed. A copy of the OMP is provided as Appendix G of the Environmental Permit Application.			
Odour from biogas	Occupiers of domestic	Atmosphere	The whole AD process will be undertaken within an enclosed building. This building benefits from a fast-acting door which will be kept closed when not in use	**Low** – the management procedures	**Medium/Low** - Odour annoyance	**Low** – The management procedures

generated from AD process	dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above.		(i.e., arrival or departure of vehicles). In addition, pedestrian doors are also closed when not in direct use. This will minimise the potential for any odour generated on site to impact receptors beyond the site boundary. Any gases that are produced from the AD process will be produced within a sealed network and will be piped to a CHP engine to generate heat and electricity for the AD plant. Any excess biogas will be piped to the biogas upgrading plant to National Gas Grid criteria and injected into the gas grid. SUEZ's IMS includes site inspection check sheets that include a daily requirement for site staff to qualitatively assess odour; if perceived to be excessive, measures will be taken to identify the source of any malodourous and take appropriate remedial action. In addition to the above, SUEZ's IMS includes policies and procedures that requires all site infrastructure to be maintained in accordance with the manufacturer's guidance. In addition, the IMS includes a daily requirement for site staff to check plant and site infrastructure to ensure continuing integrity and fitness for purpose. In the event that any damage breaches the integrity of the engineered containment so that it no longer meets the required standards, necessary remedial work will be completed as soon as practicable. In addition to the above, an (OMP) has been prepared which details how odour from the proposed activities will be managed. A copy of the OMP is provided as Appendix G of the Environmental Permit Application.	should prevent emissions of odour.		employed reduce the likelihood of impact
Odour from the storage of	Occupiers of domestic	Atmosphere	The whole AD process will be undertaken within an enclosed building. This building benefits from a fast-acting door which will be kept closed when not in use	**Low** – the management procedures	**Medium/Low** - Odour annoyance	**Low** – The management procedures

outputs generated from the AD process	dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above.		(i.e., arrival or departure of vehicles). In addition, pedestrian doors are also closed when not in direct use. This will minimise the potential for any odour generated on site to impact receptors beyond the site boundary. As noted in Section 6, the AD is expected to generate three outputs. The first waste stream will comprise unwanted packaging and contaminants that are recovered from the organic waste as part of the pre-treatment process. Such waste streams are not putrescible in nature and therefore the risk of odour from this waste stream is expected to be low. Nevertheless, the building will also benefit from an odour control system which will comprise a two-stage process using a biofilter fit with synthetic medium, this will be followed by reheat to reduce moisture and a second stage carbon filter. Details regarding the odour control system are provided in the Odour Management Plan (Appendix G of the Environmental Permit Application). The second output will be the biogas which will be processed by a CHP engine to generate heat and electricity that would be used by the AD plant. Once the parasitic load has been met, any excess biogas will be processed by a gas upgrading plant to National Gas Grid criteria and injected into the gas grid. Alternatively, excess biogas will be processed by the CHP engines to generate electricity that will be exported to the National Grid. The third output relates to the digestate that's generated from the main AD process. As mentioned in Sections 6, SUEZ are seeking to utilise the digestate in a slurry, solid and liquid form which can be used as a fertiliser, compost, or soil improver. In the event that the digestate is used in a slurry or liquid form, both will be stored within enclosed tanks inside the AD building. If the digestate is processed	should prevent emissions of odour.		employed reduce the likelihood of impact

			via the centrifuge to separate the solid and liquid fractions, the digestate cake will be discharged into articulated trailers where it can be periodically collected and subsequently transferred off site. The trailers will be situated within a designated area inside the AD building. The storage area will be connected to an odour control system to process any odour that may be generated from the digestate. The digestate out area will utilise an odour abatement system Further details are provided in the BATOT document (Appendix C of the Environmental Permit Application). In the event that the digestate does not meet the required specifications, the material will be stored within designated RoRos/skips inside the AD building and disposed of accordingly. SUEZ's IMS includes site inspection check sheets that include a daily requirement for site staff to qualitatively assess odour; if perceived to be excessive, measures will be taken to identify the source of any malodourous and take appropriate remedial action. In addition to the above, SUEZ's IMS includes policies and procedures that require all site infrastructure to be maintained in accordance with the manufacturer's guidance. In addition, the IMS includes a daily requirement for site staff to check plant and site infrastructure to ensure continuing integrity and fitness for purpose. In the event that any damage breaches the integrity of the engineered containment so that it no longer meets the required standards, necessary remedial work will be completed as soon as practicable. Further to the above, an (OMP) has been prepared which details how odour from the proposed activities will be managed. A copy of the OMP is		

			provided as Appendix G of the Environmental Permit Application.			
Odour from the storage of waste on site during contingencies such as mechanical breakdown	Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above.	Atmosphere	All putrescible wastes will be stored within a building prior to removal from the site. This building benefits from a fast-acting door which will be kept closed when not in use (i.e., arrival or departure of vehicles). In addition, pedestrian doors are also closed when not in direct use. This will minimise the potential for any odour generated on site to impact receptors beyond the site boundary. In addition, the building will benefit from an odour control system which will minimise the risk of odour to impact sensitive receptors beyond the site boundary. In the event of a mechanical breakdown which is expected to disrupt the AD process for a prolonged period of time or increase the risk of odour emissions (i.e. breakdown of odour control system), SUEZ will consider a reduction of waste deliveries or cease accepting waste until appropriate remedial action has been taken. In addition, any waste stored in the reception hall may be transferred off site to an appropriate permitted facility. SUEZ's IMS includes site inspection check sheets that include a daily requirement for site staff to qualitatively assess odour; if perceived to be excessive, measures will be taken to identify the source of any malodourous and take appropriate remedial action. In addition to the above, SUEZ's IMS includes policies and procedures that requires all site infrastructure to be maintained in accordance with the manufacturer's guidance. In addition, the IMS includes a daily requirement for site staff to check plant and site infrastructure (including the odour control system) to ensure continuing integrity and	**Low** – the management procedures should prevent emissions of odour.	**Medium/Low** - Odour annoyance	**Low** – The management procedures employed reduce the likelihood of impact

			fitness for purpose. In the event that any damage breaches the integrity of the engineered containment so that it no longer meets the required standards, necessary remedial work will be completed as soon as practicable. In addition to the above, an (OMP) has been prepared which details how odour from the proposed activities will be managed. A copy of the OMP is provided as Appendix G of the Environmental Permit Application.			

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**	**Probability 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 of probability and consequence.**
Vehicle movements on site and haul roads. Noise from reverse vehicle warnings	Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above.	Atmosphere.	H&S Legislation is in place to ensure SUEZ protects its employees from the effects of noise. Loads will only be delivered to the site during following hours: - • 07:00 –19:00 – Monday – Sunday. Plant on site is fitted with "white noise" reversing beacons which minimise the intrusive nature of the safety measure. In accordance with SUEZ's IMS, site inspection check sheets include a daily requirement for site staff to qualitatively assess noise; if perceived to be excessive, measures will be taken to identify the source of any noise and take appropriate remedial action. All complaints received associated with noise will be recorded and investigated in line with company procedures. In addition to the above, SUEZ's IMS includes policies and procedures that requires all plant to be maintained in accordance with the manufacturer's	**Low** – the site is situated within an area with pre-existing waste management works and the management procedures should prevent emissions of noise.	**Medium/Low** - Intermittent noise and vibration disturbance.	**Low** – The management procedures employed reduced the likelihood impact.

			guidance. This will minimise the risk of mechanical failure which could result in increased noise emissions. All equipment and vehicles when not in regular use shall be switched off. In addition to the above, a Noise Impact Assessment (NIA) has been conducted in accordance with BS4142 Standards and a Noise Management Plan (NMP) has been prepared which details how odour from the proposed activities will be managed. A copy of the NIA and NMP is provided as Appendix I of the Environmental Permit Application.			
Noise from the loading/unloading of wastes	Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above.	Atmosphere.	H&S Legislation is in place to ensure SUEZ protects its employees from the effects of noise. In accordance with SUEZ's IMS, site inspection check sheets include a daily requirement for site staff to qualitatively assess noise; if perceived to be excessive, measures will be taken to identify the source of any noise and take appropriate remedial action. All complaints received associated with noise will be recorded and investigated in line with company procedures. Drop heights will be minimised as much as practicable. In addition to the above, a Noise Impact Assessment (NIA) has been conducted in accordance with BS4142 Standards and a Noise Management Plan (NMP) has been prepared which details how odour from the proposed activities will be managed. A copy	**Low** – the site is situated within an area with pre-existing waste management works and the management procedures should prevent emissions of noise.	**Medium/Low** - Intermittent noise and vibration disturbance.	**Low** – The management procedures employed reduced the likelihood of impact.

			of the NIA and NMP is provided as Appendix I of the Environmental Permit Application.			
Noise from the physical treatment of waste as part of the pre-treatment process	Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above.	Atmosphere.	H&S Legislation is in place to ensure SUEZ protects its employees from the effects of noise. In accordance with SUEZ's IMS, site inspection check sheets include a daily requirement for site staff to qualitatively assess noise; if perceived to be excessive, measures will be taken to identify the source of any noise and take appropriate remedial action. In addition to the above, SUEZ's IMS includes policies and procedures that requires all plant to be maintained in accordance with the manufacturer's guidance. This will minimise the risk of mechanical failure which could result in increased noise emissions. All complaints received associated with noise will be recorded and investigated in line with company procedures. In addition to the above, a Noise Impact Assessment (NIA) has been conducted in accordance with BS4142 Standards and a Noise Management Plan (NMP) has been prepared which details how odour from the proposed activities will be managed. A copy of the NIA and NMP is provided as Appendix I of the Environmental Permit Application.	**Low** – the site is situated within an area with pre-existing waste management works and the management procedures should prevent emissions of noise.	**Medium/Low** - Intermittent noise and vibration disturbance.	**Low** – The management procedures employed reduced the likelihood of impact.

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**	**Hazard**	**Receptor**	**Pathway**	**Hazard**
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 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 has the potential to cause harm?**
To Air						
Dust emissions from vehicle movements	Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above. Priority habitats listed in Table 2. Local Wildlife Site listed in Table 2. Sensitive land used listed in Table 2.	Atmosphere	Vehicles delivering waste to the site will be covered or sheeted to prevent the generation of dust whilst the waste is in transit. All vehicle drivers will comply with the speed limits within the site and on the access roads. The speed limit will be restricted to 10mph within the facility. The proposed AD facility and access road will largely comprise an impermeable paved surface and therefore vehicles will only drive over paved ground while they are delivering waste to the AD facility or exporting waste from the facility. As such, it is unlikely that any vehicles will track over any hardstanding/unmade ground and therefore the risk of dust is considered to be low. Nevertheless, in accordance with SUEZ's IMS, site inspection check sheets include a daily requirement for site staff to qualitatively assess dust; if perceived to be excessive measures will be taken to identify the source of any dust/particulates and take appropriate remedial action.	**Low** - Dust could potentially reach the nearby dwellings, commercial and industrial properties and designated sites and priority habitats when a strong wind blows in their direction.	**Low –** human health risk in immediate vicinity, nuisance risk to nearby vehicles and property. In addition, ecological receptors may be susceptible to smothering.	**Low** – The management procedures employed reduced the likelihood of impact.
Dust generated during	Occupiers of domestic	Atmosphere	The loading/unloading of waste will be undertaken within the confines of a building. This building benefits from a fast-	**Low** - Dust could potentially reach	**Low –** human health	**Low** – The management

loading/unloading of waste	dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above. Priority habitats listed in Table 2. Local Wildlife Site listed in Table 2. Sensitive land used listed in Table 2.		acting door which will be kept closed when not in use (i.e. arrival or departure of vehicles). In addition, pedestrian doors are also closed when not in direct use. This will minimise the potential for any dust generated from loading/unloading activities from the AD process to impact receptors beyond the site boundary. Nevertheless, in accordance with SUEZ's IMS, site inspection check sheets include a daily requirement for site staff to qualitatively assess dust; if perceived to be excessive measures will be taken to identify the source of any dust/particulates and take appropriate remedial action. General site housekeeping will ensure that dust does not build up on site and all dust generating activities will be monitored closely and site operatives will be vigilant and report any excessive dust issues to the Site Manager to be dealt with at the next available notice.	the nearby dwellings, commercial and industrial properties and designated sites and priority habitats when a strong wind blows in their direction.	risk in immediate vicinity, nuisance risk to nearby vehicles and property. In addition, ecological receptors may be susceptible to smothering.	procedures employed reduced the likelihood of impact.
Bioaerosols from the AD process	Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above. Priority habitats listed in Table 2.	Atmosphere	As mentioned in Section 4.1, a bioaerosol risk assessment has been prepared to determine the impact of bioaerosols and the subsequent mitigation methods. A copy of the bioaerosol risk assessment is provided as Appendix J of the Environmental Permit Application.	**Low** - the management procedures should prevent emissions of bioaerosols.	**Low –** human health risk in immediate vicinity.	**Low** – The management procedures employed reduced the likelihood of impact.

	Local Wildlife Site listed in Table 2. Sensitive land used listed in Table 2.					
To Water						
Contaminated rainwater run-off. Run off of contaminants from wastes or non-wastes (e.g. oil, fuel).	Groundwater. Surface water features listed in Table 2.	Direct surface water run-off from site. Infiltration. Percolation.	Waste that is accepted at the site will be stored within the confines of a building and therefore will minimise contact with rainwater. The proposed AD facility will benefit from an impermeable paved surface and a sealed drainage system to prevent the transmission of potentially contaminated liquids into groundwater beneath the site. Fuel storage will be provided, and storage will be in line with latest legislation. All deliveries of fuel will be supervised to ensure no spillages occur. Emergency spillage procedures are in place to ensure any oil, hydraulic fluids etc. are dealt with before they enter the drainage system. A supply of absorbent granules will be stored on site. The drainage system will be sealed off to prevent discharge in the event of an incident. Interceptors are cleaned at suitable intervals to maintain their effectiveness and are fitted with high level alarms. The hardstanding and drainage system are inspected as required by the IMS. The results of the inspections are recorded. Any remedial actions required are recorded in the site diary. Weekly check sheets include a requirement for site staff to undertake visual inspections of the status of the drainage.	**Low** – The engineered systems and infrastructure are designed to prevent any discharge of contaminated rainwater run-off.	**Medium –** contamination of local water bodies and/or groundwater.	**Low -** due to the design of the site.

Pests/Scavenging birds						
Birds and Pests.	Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above. Priority habitats listed in Table 2. Local Wildlife Site listed in Table 2. Sensitive land used listed in Table 2.	Air. Ground.	All putrescible waste will be unloaded and processed from within an enclosed building. This building benefits from a fast-acting door which will be kept closed when not in use (i.e. arrival or departure of vehicles). In addition, pedestrian doors are also closed when not in direct use. This will minimise the potential for interactions between birds/pests and the waste, therefore reducing impact on receptors beyond the site boundary. Waste acceptance procedures include a requirement for incoming waste to be checked for fly infestation either at the weighbridge or as the load is tipped. Any wastes found to contain flies on entry to the site will either be treated appropriately with the fly spray or rejected from the site. Routine inspections are undertaken as required by the IMS and appropriate action will be taken in the event that the inspections indicate the presence of any pests or vermin. A pest control contractor will be appointed to attend the site at regular intervals (to be determined) by the contractor in accordance with IMS procedures. Additionally, the pest control contractor will be called to site to deal with any vermin/pest related problems that may arise between scheduled visits. Pests will be managed in accordance with the Pest Management Plan that is provided as Appendix E of the Environmental Permit Application.	**Low –** The management actions should reduce the risk.	**Medium** - Nuisance, property damage and risk of vermin spread infections.	**Low** – the management procedures in place reduce likelihood of impact.
Mud						
Mud arising from vehicles movements	Highways listed in Table 2.	Tracked by vehicles.	The proposed AD facility and access road will largely comprise an impermeable paved surface and therefore vehicles will only drive over concreted ground while they are delivering waste to the AD facility or exporting waste from the facility. As such, it is unlikely that any vehicles will track	**Low –** The management actions should reduce the risk.	**Medium -** Mud on roads is unsightly and can increase the risk of road traffic incidents.	**Low** – the management procedures in place reduce likelihood of

			over any hardstanding/unmade ground and therefore the risk of mud is considered to be low. The wider permitted facility benefits from a wheel wash which will be used by all outgoing vehicles and therefore minimise the risk of mud to develop. IMS procedures require that all vehicles leaving the site are inspected for cleanliness, any vehicles not reaching the required standard will be manually cleaned before leaving site to prevent material being tracked onto local highways. A street sweeping vehicle will be contracted in to attend to any specific instances of mud being tracked onto local highways.			impact.
Litter						
Litter arising from vehicle movements and high winds.	All receptors listed in Table 2.	Air Tracked by vehicles.	Litter may arise from unwanted packaging and contaminants removed from the organic waste material as part of the pre-treatment process. All packaging and contaminants will be stored within a skip which is situated within the confines of a building. This building benefits from a roller shutter door on the outside and a speed door on the inside will be kept closed when not in use (i.e. arrival or departure of vehicles). In addition, pedestrian doors are also closed when not in direct use. This will minimise the risk of wind-blown litter. Vehicles will be sheeted/netted as necessary when entering/leaving the site to prevent fugitive emissions of litter/waste materials onto the public highways. SUEZ's IMS includes site inspection check sheets that include a daily requirement for site staff to check for litter on site. If litter is identified, site staff will undertake litter picking as required.	**Low –** The management actions should reduce the risk.	**Medium -** Local nuisance.	**Low** – the management procedures in place reduce likelihood of impact.

Table A4: Accident and Incident 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**	**Probability 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 of probability and consequence.**
Fire or failure to contain firewater	Groundwater. Site Operators Surface water features listed in Table 2. Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units' users in listed Table 2 above. Amenities listed in Table 2 above. Priority habitats listed in Table 2. Local Wildlife Site listed in Table 2.	Infiltration. Contaminated rainwater runoff.	With reference to the EA's 'Fire prevention plans: environmental permits' guidance, Section 3 indicates that a Fire Prevention Plan is not required for AD facilities that comprise a wet process. The proposed AD facility will largely comprise a wet process and therefore the risk of combustion from the waste is considered to be low. There will be strict waste acceptance procedures in place at the site to prevent the acceptance of non-conforming waste types. Details of the waste acceptance procedures are provided in the BATOT document (Appendix C of the Environmental Permit Application). SUEZ's IMS includes policies and procedures that requires all plant to be maintained in accordance with the manufacturer's guidance. This will minimise the risk of mechanical failure which may result in an increased risk of fire. Smoking is only permitted in designated areas. Daily checks of fire safety equipment will be carried out in accordance with SUEZ's IMS. The proposed AD facility will benefit from an impermeable concrete surface and a sealed drainage	**Low –** the management actions should prevent fire.	**Medium-** possible respiratory irritation from smoke inhalation Nuisance from smoke and emissions of particulates.	**Low –** due to Management system in place.

	Sensitive land used listed in Table 2.		system to prevent the transmission of potentially contaminated liquids into groundwater beneath the site. In addition, a bund will be installed around the digester tanks and associated infrastructure in accordance with CIRIA 736 guidance. The bund is designed to mitigate against artificial flood risk in the event of a digester tank fail. However, the bund will also be used to contain any firewater that may be generated in the event of a fire. The bund will be designed in line with the CIRIA 'Containment systems for the prevention of pollution (C736)' document. In the event of a fire, the drainage system will be sealed off to prevent discharge in the event of an incident.			
Spillage of oil, fuel or hydraulic fluid from plant colliding with infrastructure, mechanical failure, leak during refuelling or maintenance.	Groundwater. Surface waters listed in Table 2.	Surface run-off. Infiltration. Percolation.	The fuel oil storage facility on site is fully bunded in compliance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and are located on an impermeable concrete surface. All other fuel/oil storage on site takes place in accordance with relevant legislation and in suitably bunded containers. The site is provided with impermeable concrete surfaces to prevent the transmission of potentially contaminated liquids into groundwater beneath the site. SUEZ's IMS includes policies and procedures that requires all plant to be maintained in accordance with the manufacturer's guidance. This will minimise the risk of mechanical failure which will minimise the risk of leaks and/or spillages. In addition, the IMS includes a daily requirement for site staff to check plant and site infrastructure to ensure continuing integrity and fitness for purpose. In the event that any defects are identified so that it no	**Low** – the Management actions should prevent accidents and the engineered systems and infrastructure are designed to prevent any discharge of contaminated water run-off.	**Medium** - Pollution of local water courses, groundwater and aquifers.	**Low -** The management procedures in place should prevent this occurring.

			longer meets the required standards, necessary remedial work will be completed as soon as practicable. The AD plant will benefit from a process control monitoring system which will monitor the operational requirements of the plant and allow faults to be identified. This will ensure that remedial action is undertaken as soon as practicable.			
Flooding.	Groundwater. Surface water bodies listed in Table 2.	Infiltration. Contaminated surface water runoff.	The AD plant will benefit from a process control monitoring system which will monitor the operational requirements of the plant and therefore minimise the risk of flooding that may occur from the overfilling of tanks or leaks due to failure in pipework. A bund surrounding the digester tanks and associated infrastructure is proposed to mitigate against artificial flood risk, to external receptors. The bund will have a maintenance gate that will remain closed except for access. The expected volume of the enclosed bund area with the associated infrastructure in place will be sufficient to contain the flooding. Therefore, these potential artificial flooding sources can be contained on site and do not pose a risk to downstream receptors	**Low –** the management actions should prevent fire.	**Medium -** Disruption to works on site. Contamination of local groundwater and/or surface water. Contamination of local agricultural land.	**Low –** due to Management system in place.
Vandalism / theft – damage to waste containment and fuel storage infrastructure.	Groundwater. Surface water features listed in Table 2. Occupiers of domestic dwellings listed in Table 2 above. Commercial and industrial units'	Unauthorised entry to the site.	The following measures will be implemented to minimise the risk of unauthorised access. All waste accepted for the AD facility will be stored within the confines of a building. This building benefits from fast-acting doors which will be kept closed when not in use (i.e., arrival or departure of vehicles). In addition, pedestrian doors are also closed when not in direct use. The AD facility will be fenced to the complete site boundary. The whole site boundary will be lit up to allow night and day monitoring.	**Low** – the management actions should prevent unauthorised access and the engineered systems and infrastructure are designed to prevent any discharge of harmful liquids.	**Medium** - Pollution of local water courses, groundwater and aquifers.	**Low -** The management procedures in place should prevent this occurring.

	users in listed Table 2 above. Amenities listed in Table 2 above. Priority habitats listed in Table 2. Local Wildlife Site listed in Table 2. Sensitive land used listed in Table 2.		An intrusion detection system will be installed on site to detect any possible intrusion into the site premises. The detection system will be able to warn operational personnel and the gatehouse through the transmission of an alarm to the control system. A closed-circuit TV (CCTV) system will be installed to monitor critical areas and site boundary. The CCTV system will enable digital video record of all events for a period of at least four weeks. Records will be logged in a dedicated control system and should it be required; a printout of the logged events can be supplied on demand. A site access control system will be installed to cover all site access points. The site access control system shall consist of motorised gates, electronic access control system, intercom between gates and control room or gatehouse. CCTV cameras shall be located at all access points to provide clear identification of people and vehicles. Procedures within SUEZ's IMS include a daily requirement to check the condition of the security measures and take appropriate remedial action in the event of any damage.			

APPENDIX B – NATURE AND HERITAGE CONSERVATION SCREEN EPR/NP3139PK/P001

APPENDIX C – H1 RISK ASSESSMENT