

F & R Cawley Limited

Part B4 – Section 2 – Table 2 Emissions

The following table summarises the proposed compliance limits for point source emissions to air from the lithium battery recycling plant.

Emission Point Reference and Location: Stack 1 – TL 06859 22997

Source: Battery Shredder

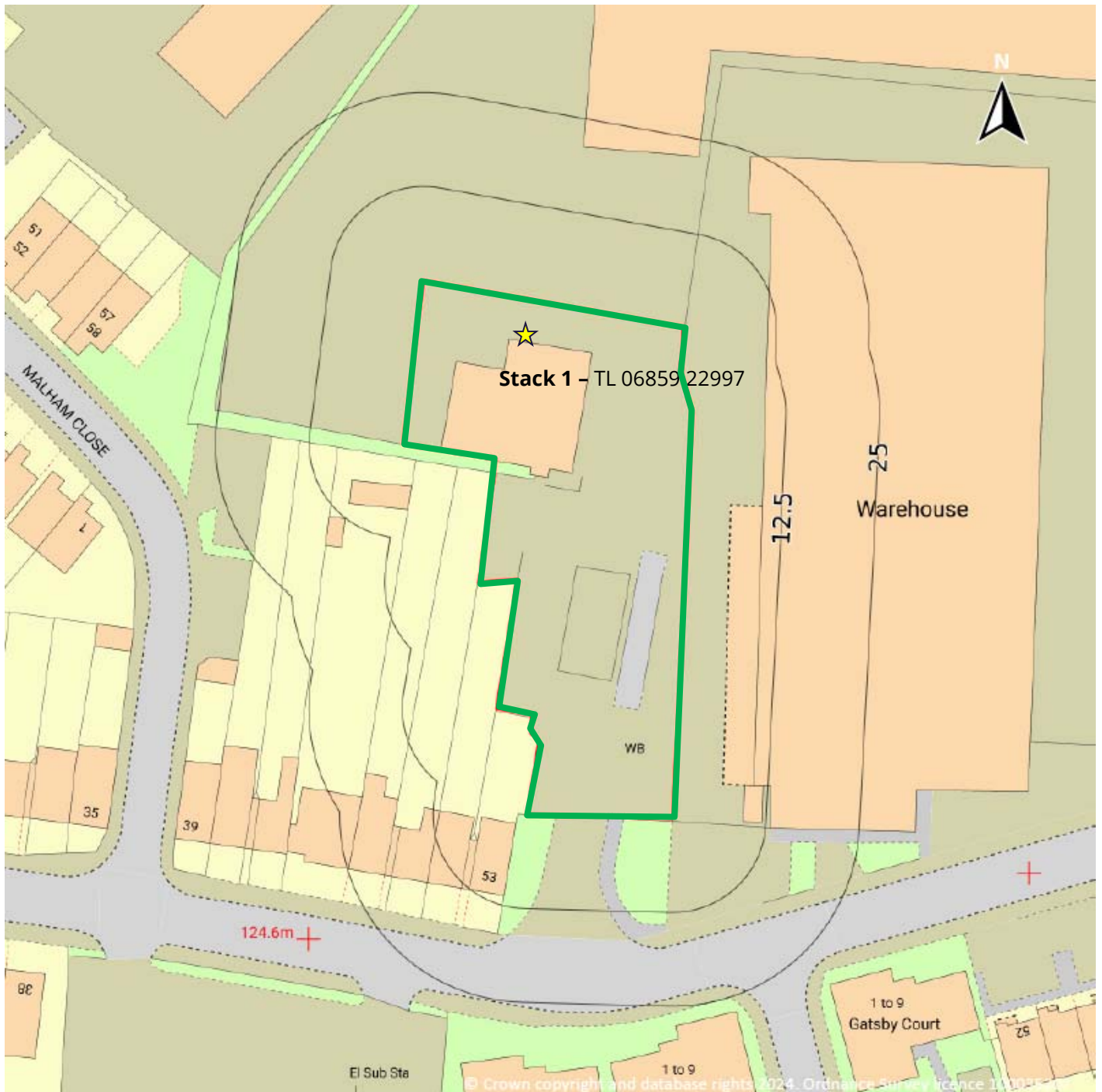
Parameter	Quantity	Unit
Copper	0.01	mg/m ³
Cobalt	0.1	mg/m ³
Manganese	0.002	mg/m ³
Nickel	0.004	mg/m ³
Lithium	1	mg/m ³
Iron	1	mg/m ³
Aluminum	1	mg/m ³
Phosphorus (particulates only)	0.005	mg/m ³
Sum of VOCs (dimethyl carbonate, ethylene carbonate, propylene carbonate, diethyl carbonate)	450	mg/m ³

The maximum concentrations for copper, manganese, nickel, phosphorus (particulates), rubber fume (as benzene) and sum of VOCs (as diethylketone) have been justified using the H1 risk assessment tool. The H1 Assessment has been undertaken as per the justifications and assumptions detailed in document Part B2 – Section 6 (ii) ERA – Aire Emissions. Copies of the input and output data are appended.

In the absence of Environment Assessment Levels, the maximum concentrations for cobalt, lithium, iron and aluminium have been set using Health and Safety Executive (HSE) Occupational Exposure Limits (OELs) as a guide.

Appendices

Appendix I – Site Plan



Appendix II – H1 Assessment

Main

Enter your information in the relevant cells. Click the "Enter" key of your keyboard to go to the next field. Select your sector from the dropdown menu

Facility reference information

Company name:	F & R Cawley
Location:	1 Covent Garden Close, Luton
Permit number:	MP3397NF
Sector:	
Authorising Body:	Environment Agency

Describe the objectives

Main
Objectives
Environment Assessment Home
Output Tables
Reference Information

Depending on the reason for the assessment you will need to complete different parts of the tools

Select the type of assessment:

Environmental assessment of the emissions from the Local Exhaust Vent (Stack 1) associated with battery st Env A

Air	Water	Energy	Raw materials	Waste
Yes	No	No	No	No

Please select whether you have releases in the dropdown menus above

Activities
1 Shredding added as new permit
2
3
4
5
6
7
8
9
10

Go to Environmental Assessment

Clear Environmental Assessment

Identify relevant impacts

Main
Objectives
Identify
Output Tables
Reference Information

If the impacts are not relevant, please select 'No' and justify your omission

You will be able to go back to this page if you click on the 'Identify' button in each of the assessments.

Releases?	
Yes	Air
No	Deposition from air to land
No	Water
No	Waste
No	Visual
	Ozone creation
	Global warming
	BAT-AEL test
	Performance indicators

Test Impact?	Justification for omission?
Yes	
No	Assessment for air emissions only
No	Assessment for air emissions only
No	Assessment for air emissions only
No	No visual plume when operational
No	Assessment for air emissions only
No	Assessment for air emissions only
No	Assessment for air emissions only
No	Assessment for air emissions only

1:Env Assmt

Go to Input ...	Go to Test ...
Air (input)	Air
Water (input)	Water
Energy (input)	
Raw Materials (in)	
Waste (input)	

Air release points and emissions inventory | 1 of 24 | Main | Objectives | Environment Assessment Home | Output Tables | Reference Information

1. Add release point details in the top table
2. In the lower table, select release point in the 1st column and fill in substance details
Uses inputs are shaded in light blue and dropdown menus in yellow.

User input: Formula/calculation, Tests, Dropdown menu

View Air Tests

Environment of Assessment

Release point code	Location or grid reference	Activity/Activities	Effective height (metres)	Dispersion Factor (Long term)	Dispersion factor (short term)	Dispersion factor (month)	Efflux velocity (m/s)	Total flow (m ³ /h)
Stack 1	TL 06959 2297	Damery Sheedding Vane Stack	0	149	2900	529	26.3	1154

7

Release Point	Substance	Measurement method	Operating mode(%)	Long term conc (mg/m ³)	Release rate g/s (long term)	Measurement basis (Long term)	Short term conc (mg/m ³)	Release rate g/s (short term)	Measurement basis (short term)	Annual rate (t/yr)	Long term PC (ug/m ³)	Short term PC (ug/m ³)	Total flow (m ³ /h)
Stack 1	Copper and compounds (as Cu)	Estimated	0%	0.01	0.00	Estimated from 120hr	0.01	0.00	Estimated from 120hr	0.00	0.00	0.32	1154.00
Stack 1	Manganese and compounds (as Mn)	Estimated	0%	0.002	0.00	Estimated from 120hr	0.002	0.00	Estimated from 120hr	0.00	0.00	0.02	1154.00
Stack 1	Nickel and compounds (as Ni) except nickel carbonyl	Estimated	0%	0.004	0.00	Estimated from 120hr	0.004	0.00	Estimated from 120hr	0.00	0.00	0.06	1154.00
Stack 1	Particulates (PM10)	Estimated	0%	0.6	0.00	Estimated from 60min	0.6	0.00	Estimated from 60min	0.00	0.02	4.28	1154.00
Stack 1	Benzene	Estimated	0%	0.5	0.00	Estimated from 60min	0.5	0.00	Estimated from 60min	0.00	0.02	3.56	1154.00
Stack 1	Phosphine	Estimated	0%	0.005	0.00	Estimated from 120hr	0.005	0.00	Estimated from 120hr	0.00	0.00	0.06	1154.00
Stack 1	Diethylketone	Estimated	0%	450	1.39	Estimated from 60min	450	1.39	Estimated from 120hr	3.52	35.51	5437.58	1154.00

Air impacts - Pollutants | 6 of 24 | Main | Objectives | Environment Assessment Home | Output Tables | Reference Information

Select test to view: First, <, >, Last, Air, Water

1. Please click on the 'import' button to import the pollutants and relevant information from the "air release points" tab.
2. Please add a modelled PC value if relevant.

User input: Formula/calculation, Tests

Environment Agency

Environmental Assessment

Import	Number	Substance	Long term EAL (ug/m ³)	Long term PC (ug/m ³)	Long term modelled PC	Short term EAL (ug/m ³)	Short term PC (ug/m ³)	Short term modelled PC
	1	Copper and compounds (as Cu)	0.05	0.004585533		0	0.120835	
	2	Manganese and compounds (as Mn)	0.15	7.33685E-05		1500	0.024167	
	3	Nickel and compounds (as Ni) except nickel carbonyl	0.02	0.00		0.7	0.05	
	4	Particulates (PM10)	40	0.02		50	4.28	
	5	Benzene	5	0.02		30	3.56	
	6	Phosphine	0	0.00		42	0.06	
	7	Diethylketone	7160	16.51		89500	5437.58	

Air impacts - Test 1 | 7 of 24 | Main | Objectives | Environment Assessment Home | Output Tables | Reference Information

Select test to view: First, <, >, Last, Air, Water

Click on 'test 1' to run the test. If you change the information in the "air release tab", please rerun the test.

User input: Formula/calculation, Tests

Environmental Assessment

Test 1	Number	Substance	Long term EAL (ug/m ³)	Long term PC (ug/m ³)	%PC of EAL (long term)	>1% of EAL? (long term)	Short term EAL (ug/m ³)	Short term PC (ug/m ³)	%PC of EAL (short term)	>10% of EAL? (short term)
	1	Copper and compounds (as Cu)	0.05	0.004585533	9.17%	fail	0	0.120835		
	2	Manganese and compounds (as Mn)	0.15	7.33685E-05	0.05%	pass	1500	0.024167	0.00%	pass
	3	Nickel and compounds (as Ni) except nickel carbonyl	0.02	0.000146737	0.73%	pass	0.7	0.048334	6.90%	pass
	4	Particulates (PM10)	40	0.02201056	0.06%	pass	50	4.277559	8.56%	pass
	5	Benzene	5	0.018342133	0.37%	pass	30	3.5646325	11.88%	fail
	6	Phosphine	0	0.000183421			42	0.0604175	0.14%	pass
	7	Diethylketone	7160	16.50792	0.23%	pass	89500	5437.575	6.08%	pass

Air impacts - Test 2 | 8 of 24 | Main | Objectives | Environment Assessment Home | Output Tables | Reference Information

Select test to view: First, <, >, Last, Air, Water

1. Add the air background concentration
2. Click on "Test 2" to run the test. If the "air release points" table is changed, tests 1 and 2 have to be rerun.

User input: Formula/calculation, Tests

Environmental Assessment

Test 2	Number	Substance	Long term EAL (ug/m ³)	Long term PC (ug/m ³)	Air Background conc (ug/m ³)	%PC of background (long term)	PEC Long term (ug/m ³)	%PEC of EAL% (Long term)	%PEC of EAL >20%? (long)	Short term EAL (ug/m ³)	Short term PC (ug/m ³)	%PC of the EAL >20%? (short)	%PC of background >20%? (short)
	1	Copper and compounds (as Cu)	0.05	0.004585533	0.029	22%	0.03	67.17%	pass	0	0.120835		
	5	Benzene	5	0.018342133	2	1%	2.02	40.37%	pass	30	3.5646325	13.71%	pass

Report test results | Clear Output tables

Air

Option	Substance	Test 1	Test 2
1	Copper and compounds (as C	Fail	Pass
1	Manganese and compounds	Pass	
1	Nickel and compounds (as N	Pass	
1	Particulates (PM10)	Pass	
1	Benzene	Fail	Pass
1	Phosphine	Pass	
1	Diethylketone	Pass	