

Permit Reference Number : EPR/BV5386IX Operator : GS Yuasa Battery Manufacturing UK Ltd Installation : GS Yuasa Battery Manufacturing UK Ltd

Form Number : MR1 Reporting of Mass Emissions to Sewer for the period from ...1 January 2020.....to...31 December 2020.....

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Annual mass ^[2]
S1 and S2	Mercury and its compounds	0.005 mg/l	<0.00001mg/l	
S1 and S2	Mercury and its compounds	0.9 g		0 g/m ³
S1 and S2	Cadmium and its compounds	0.01 mg/l	<0.00007mg/l	
S1 and S2	Cadmium and its compounds	0.3 g		0 g/m ³

[1] The result is given as a mass balance calculation, definition as given in condition 6.1.1

[2] The Annual Mass is given as a mass balance calculation, definition as given in condition 6.1.1

Signed.....
(authorised to sign as representative of the Operator)

Date.....15/2/2021

Permit Reference Number : EPR/BV5386IX Operator : GS Yuasa Battery Manufacturing UK Ltd Installation : GS Yuasa Battery Manufacturing UK Ltd

Form Number : R1 Reporting of Waste Disposal for the year ...2020.....

Waste Disposal & Recovery			
Waste Description	Disposal		Recovery
	Route	Tonnes	Tonnes
1) Hazardous Wastes			
Lead and lead oxide waste	EnviroWales	779.0	779.0
Other hazardous waste	See below	179.54	31.346
Total hazardous waste		958.54	810.346
2) Non-Hazardous Wastes	See below	215.564	121.508
Total non-hazardous waste		215.564	121.508
TOTAL WASTE	-	1174.104	931.854

Trends in Waste Disposal and Recovery				
Year	Parameter		Total Waste	
	Hazardous waste			
	Tonnes	per unit output [1]	Tonnes	per unit output [1]
2012	686.0394	0.0429621	923.3654	0.0578243
2013	1053.352	0.0542732	1264.863	0.0651712
2014	1054.71	0.0653937	1260.908	0.0781783
2015	1088.849	0.0649330	1249.611	0.0745200
2016	1116.079	0.0649365	1276.536	0.0742724
2017	1404.312	0.0794441	1645.108	0.0930663
2018	1133.9434	0.0610909	1395.0634	0.0751587
2019	1046.445	0.0575286	1330.159	0.0731259
2020	958.54	0.0529232	1174.104	0.0648250

[1] Waste per unit output should be quoted in units of waste produced from battery process / tonnes of battery produced per year.

Operator's comments :

A review of waste has again been undertaken throughout 2020 to ensure the accuracy of the figures reported.

Hazardous and total waste has reduced when compared with 2019, and a full description, along with an analysis of changes between 2019 and 2020 is appended to this report.

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Date 15/2/2021

Permit Reference Number : EPR/BV5386IX Operator : GS Yuasa Battery Manufacturing UK Ltd Installation : GS Yuasa Battery Manufacturing UK Ltd

Form Number : WU1 Reporting of Water Usage for the year ...2020.....

Water Usage		
Water Source	Annual Usage (m ³)	Water per unit output ^[1] (m ³ /t)
Abstraction Borehole	21199.0m ³	
Mains water	39688.0m ³	
Recycled Effluent	15600.0m ³	
TOTAL WATER USAGE	76487.0m³	4.2230286

Trends in Water Usage		
Year	Parameter	
	Total Water usage	Water per unit output ^[1]
2015	72814.0m ³	4.3422321
2016	86768.0m ³	5.0484031
2017	97980.0m ³	5.5428841
2018	90206.0m ³	4.8598272
2019	75307.0m ³	4.1400267
2020	76487.0m ³	4.2230286

[1] Water per unit output should be quoted in units of total water use / tonnes of battery produced per year.

Operator's comments :

Abstracted water:-

Borehole A = 16819m³, Borehole B = 4380m³, Total = 21199m³

Total water consumption has increased in 2020 by 1,180m³, however, the amount of recycled water also increased by 4,240 m³.

The total battery tonnage produced was also slightly lower in 2020, mainly due to the challenges faced with staffing levels due to COVID-19, however, it will be set an objective and target for continued improvement in 2021.

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Form Number : E1 Reporting of Energy Usage for the year ...2020.....

Energy Usage			
Energy Source	Energy Usage		CO ₂ Produced (tonnes)
	Quantity	Primary Energy (MWh)	
Electricity *	21058.188 MWh	50539.6512	5283.709
Natural Gas	7463.131 MWh	7463.131	1369.633
TOTAL	28521.319 MWh	58002.7822	6653.342

Trends in Energy Usage			
Year	Parameter		
	Primary Energy usage	CO ₂ produced	CO ₂ per unit output [1]
2016	52442.174	9744.643	0.5669703
2017	56257.718	9095.797	0.5145636
2018	59302.1274	7939.776	0.4277535
2019	58576.7598	7238.58	0.3979432
2020	58002.7822	6653.342	0.3673467

* Conversion factor for delivered electricity to primary energy = 2.4

[1] CO₂ per unit output should be quoted in units of total CO₂ produced / tonnes of battery produced per year.

Operator's comments :

I would add that CO₂ emissions are calculated using the DEFRA 2020 CO₂ emission factors, which includes factors for electricity transmission and distribution. Primary energy has continued to be calculated using the 2.4 conversion factor above.

Energy efficiency continues to be an objective and target for continued improvement.

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Date 15/2/2021

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Form Number : PI1 Reporting of Performance Indicators for the year ...2020.....

Annual Production/Treatment	
Production of batteries produced per year	18,111.883 tonnes

Environmental Performance Indicators

Performance Indicators		
Parameter ^[1]	Annual Mass	Units
COD	0.0757503	kg/tonne
Mass of lead released from A1 – A7 and A9 - A26	0.0015204	kg/tonne
Mass of lead released to sewer	0.0051065	kg/tonne

Trends in Environmental Performance			
Year	Parameter ^[1]		
2013	0.0610321	0.0043773	0.0030817
2014	0.1252405	0.0048269	0.0112394
2015	0.1387867	0.0051848	0.0104550
2016	0.0687224	0.0028735	0.0041387
2017	0.1018004	0.0027847	0.0081119
2018	0.1076151	0.0023237	0.0123617
2019	0.0977397	0.0025575	0.0083109
2020	0.0757503	0.0015204	0.0051065

[1] Performance indicators should be quoted in units of parameter / tonnes of battery produced per year

- Operator's comments:
- COD mass to sewer = 1371.9808 kg/year / 18111.883 tonnes of battery produced = 0.0757503 kg/tonne.
- Lead mass from stacks = 27.539 kg/year / 18111.883 tonnes of battery produced = 0.0015204 kg/tonne.
- Lead mass to sewer = 92.4892 kg/year / 18111.883 tonnes of battery produced = 0.0051065 kg/tonne.
- COD to Sewer: - I would add that the annual COD release has been calculated from the average of the maximum monthly figures recorded from both ALS and Dwr Cymru quarterly samples. Samples were taken in each month of January to December inclusive for factory No. 2 (S1) and January, April and each month from May to December for factory No.4 (S2).
- Stacks:- In 2020, there has been a decrease in the Lead mass from stacks against 2019, which relates mainly to a reduction in stack operational hours and given that no stack sampling was able to be performed in quarter 2 due to difficulties posed by COVID-19. However, if an average of the annual stack data is applied for quarter 2, the estimated figure of release would increase to 36.719 kg/year or a performance indicator of 0.0020273 kg/tonne.
As in previous years, all LEV systems continue to be shut-down at break times.
- Lead to Sewer: - The annual Lead release for S1 and S2 has been calculated from the average of the maximum monthly GS Yuasa figures recorded for each month of 2020.
Total Lead to sewer has decreased in 2020 which is mainly due to a reduction in the total volume of trade effluent discharged along with a reduction in some monthly Lead results taken throughout the year.

Signed
(authorised to sign as representative of the Operator)

Date...15/12/2021