

Natural Resources Wales permitting decisions

GS Yuasa Battery Manufacturing UK Limited (Rassau Battery Manufacturing Site) Decision Document

Contents

Variation	3
The variation number is:	3
The operator is:.....	3
The installation is located at:	3
Purpose of this document	5
Key issues of the decision	6
Receipt of application	6
Confidential information.....	6
Identifying confidential information	6
Consultation	6
Operator	6
The facility	6
Legislation	8
The site.....	8
Site condition report	9
Biodiversity, heritage, landscape and nature conservation	9
Environmental Risk Assessment	10
Air.....	10
Water	14
Soil	14
Odour	14
Noise.....	15
Fugitive emissions.....	15
Monitoring	15
Reporting	16
Operating techniques.....	16
The permit conditions	16
Updating permit conditions during consolidation	16
Use of conditions other than those from the template	16
Raw materials	16
Waste types	17
Pre-operational conditions	17
Improvement conditions	17
Conditions where the consent of another person is needed.	17
Incorporating the application	17

Variation

The variation number is: EPR/BV5386IX/V006

The operator is: GS Yuasa Battery Manufacturing UK Limited

The installation is located at: Rassau Battery Manufacturing Site, Unit 22, Rassau Industrial Estate, Ebbw Vale, Gwent, NP23 5SD

We have decided to issue the variation for Rassau Battery Manufacturing Site operated by GS Yuasa Battery Manufacturing UK Limited.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

GS Yuasa Battery Manufacturing UK Limited applied to vary their permit for Rassau Battery Manufacturing Site to incorporate a replacement lead oxide mill and associated equipment, as well as confirming approved facilities for solvent and resin storage and preparation, and additional (non-scheduled) component assembly activities.

The operator propose to install and include the following equipment at the site (associated with the new mill):

- New 24 tonne lead oxide mill, replacing some of the existing capacity;
- New 20 tonne capacity silo to serve the new mill;
- New conveyor systems to serve the new process.
- New cutting and brushing machine with additional local exhaust vent (confirmed in additional information submitted by the operator on 24th February 2021).

The operator also propose the following facilities and activities which are not directly associated with the new mill:

- Replacement accelerator, industrial methylated spirits (IMS) and methyl ethyl ketone (MEK) storage;
- New drum rotator mixing process;

- Assembly and testing of Lithium-ion battery modules (non-permitted);
- Manufacture of energy storage containers; and
- The site ADEPT unit (advanced multi-energy management and optimisation time-shifting platform) (non-permitted).

It is not expected that there would be any significant increase in throughput or raw materials use at the site due to the incorporation of the new mill and silo. The site currently has 4 mills (numbers 4-7). Mill 4 is a small (8 tonne capacity) mill which can only produce approximately 2 tonnes of lead oxide per day. Mills 5 and 6 are each 14 tonne capacity mills with a combined output of 14 tonnes of lead oxide per day. Mill 7 is a 24 tonne capacity mill, producing approximately 18 tonnes of lead oxide per day. In total, the site can currently produce approximately 34 tonnes of lead oxide per day. The new mill is a 24 tonne capacity mill, and will be run 24 hours a day, 5 days a week to meet current demand and to future proof the site's lead oxide production capacity. It is proposed that as soon as the new mill (Mill 8) is online that Mill 4 will be decommissioned and Mills 5 and 6 will become back-up systems. Mill 7 will continue to run as normal but the proposed working shifts are expected to change from 24 hours a day, 6 days a week to 24 hours a day, 5 days a week. The proposed operations will increase the site's overall capacity to approximately 40 tonnes lead oxide per day. The two existing pellet cast furnaces currently operate for 312 hours per week to produce lead pellets to feed the existing mills. It is proposed that with the incorporation of the new mill and new working shifts, the running hours for the furnaces will reduce to a total of 240 hours per week.

The site currently has 6 lead oxide silos, each with a total capacity of 20 tonnes. However, these are only filled to a maximum of 18 tonnes. Each mill also has a dedicated pellet silo with a capacity of 45 tonnes each. Three new conveyors will be fitted which will link into the existing pellet caster and storage system to feed the new mill, and a new 20 tonne lead oxide silo will be built for Mill 8. A new screw conveyor will transfer the lead oxide from the bucket elevator of the new mill to the new lead oxide silo. All new conveyor systems will be enclosed and will be similar to the existing conveyors, linking into the existing system as required. The lead oxide silo that currently received material from Mill 4 will also be decommissioned once the new mill is operational.

An additional local exhaust ventilation emission point will be required from a new cutting and brushing machine. This and the emission point for new Mill 8 will be the only two new emission points in the permit.

This permit variation also incorporates a previously agreed amendment to emission points, comprising a change in the release from the Pellet Caster, via emission point A5 rather than A12.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Key issues of the decision

Receipt of application

The application was received at Natural Resources Wales (NRW) on 30th June 2020 and was accepted as duly made on 2nd November 2020. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

Confidential information

The applicant made no claim for commercial confidentiality. We have not received any information in relation to the application that appears to be confidential in relation to any party.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on commercial confidentiality.

Consultation

Due to the nature of the application, there was no requirement to advertise it or consult on it externally. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.

A copy of the application and all other documents relevant to our determination are available for the public to view. Anyone wishing to see these documents could arrange for copies to be made.

Operator

There are no changes to the operator as part of this variation. We are satisfied that the operator is the person who will have control over the operation of the facility after the variation has been issued. The decision was taken in accordance with RGN 1 Understanding the meaning of operator.

The facility

There are no changes to the activities which take place at the installation as part of this variation. The regulated facility is an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations (EPR) and the following directly associated activities (DAAs):

Schedule 1 Activities

- Schedule 1, Part 2, Chapter 2, Section 2.2: Non-ferrous metals – Part A(1)(a)
Producing non-ferrous metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic activities.
- Schedule 1, Part 2, Chapter 2, Section 2.2: Non-ferrous metals – Part A(2)(a)
Melting, including making alloys of, non-ferrous metals, including recovered products and operating of non-ferrous metal foundries where the plant has a melting capacity of more than 4 tonnes per day for lead or cadmium or 20 tonnes per day for all other metals, and – (i) no furnace (other than a vacuum furnace), bath or other holding vessel used in the plant for the melting has a design holding capacity of 5 or more tonnes.
- Schedule 1, Part 2, Chapter 2, Section 2.2: Non-ferrous metals – Part B(a) Melting, including making alloys of, non-ferrous metals (other than tin or any alloy which in molten form contains 50 per cent or more by weight of tin), including recovered products (such as refining or foundry casting) in plant with a melting capacity of 4 tonnes or less per day for lead or cadmium or 20 tonnes or less per day for all other metals.
- Schedule 1, Part 2, Chapter 4, Section 4.2: Inorganic chemicals – Part A(1)(a)(v)
Producing inorganic chemicals such as – non-metals, metal oxides, metal carbonyls or other inorganic compounds (for example calcium carbide, silicon, silicon carbide, titanium dioxide).
- Schedule 1, Part 2, Chapter 4, Section 4.2: Inorganic chemicals – Part A(1)(c)
Unless falling within any other Section, any manufacturing activity (other than the application of a glaze or vitreous enamel) involving the use of , or the use or recovery of, any compound of any of the following elements – (vi) lead; where the

activity may result in the release into the air of any of those elements or compounds or the release into water of any substance listed in paragraph 7(1) of Part 1 of this Schedule.

DAAs:

- Production, construction of charging batteries, including the preparation of moulded cases, assembly, sealing and charging.
- Quality control, fault testing and investigation of manufactured batteries, including voltage tests and manual disassembly of failed batteries to allow fault analysis.
- Combustion processes that are <20MWth input
- External storage of wet batteries
- Treatment of abstracted water
- Effluent treatment

Legislation

NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources

All applicable European directives have been considered in the determination of the application.

The site

GS Yuasa Battery Manufacturing UK Limited at Rassau Battery Manufacturing Site in Ebbw Vale manufactures valve regulated, sealed, lead acid batteries. The main raw materials used are lead and sulphuric acid. The site also manufactures lead oxide, an essential ingredient in the production of batteries.

Several batch processes take place to produce the batteries, including melting of lead ingots to form the battery plates and pellets, production of lead oxide from lead pellets in rotary mills, production of lead paste for the manufacture of the battery plates, injection moulding of battery cases, and final charging of the batteries.

There is currently a total of 84 releases to air. Lead is the only pollutant to air. There are two releases to sewer from the two on site effluent treatment plants and one

release of uncontaminated surface water to Cwm Nant Melyn. Ambient monitoring for lead is undertaken around the site and at a local sensitive receptor.

A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.

Site condition report

Due to the nature of the variation application (no addition of land), the operator was not required to provide a description of the condition of the site.

Biodiversity, heritage, landscape and nature conservation

The installation is within the relevant distance screening criteria of sites of heritage, landscape or nature conservation, and protected species or habitat .

A full assessment of the application and its potential to affect the sites has been carried out as part of the permitting process. We consider that the changes proposed in the variation will not affect the features of the sites.

The following sites have been considered:

Special Areas of Conservation (SACs) within 10km of the installation:

Usk Bat Sites SAC – Site code UK0014784 (approximately 2.41km away)

Cwm Clydach Woodlands SAC – Site code UK0030127 (approximately 5.61km away)

River Usk SAC – Site code 0013007 (approximately 7.72km away)

Sites of Special Scientific Interest (SSSIs) within 2km of the installation:

Mynydd Llangynidr SSSI – Site code 32W XK (approximately 1.82km away)

Local nature sites (ancient woods, local wildlife sites and national and local nature reserves) within 2km of the installation:

Three ancient woodlands

Sixteen local wildlife sites

Beaufort Hills Pond and Woodland Local Nature Reserve

Sirhowy Hill Woodlands and Cardiff Pond Local Nature Reserve

Operational Guidance Note Form 1 and Countryside and Rights of Way (CRoW) Appendix 4 were completed and forwarded to our internal environment team for consultation and notification.

In Form 1, an assessment was made of the impact of the changes proposed in the variation on the features of the three SACs above, via potential impact pathways such as toxic contamination, nutrient enrichment, acidification, habitat loss, physical damage by industrial processes, smothering, disturbance (noise), changes in thermal regime, changes in salinity regime, turbidity, siltation and entrapment. It was determined that the variation is not likely to have a significant effect on any of the sites, because there is no impact pathway from the changes proposed in the variation to any of the site features. This will also apply to the local nature sites listed above.

In CRoW Appendix 4, an assessment was made of the impact of the changes proposed in the variation on the features of Mynydd Llangynidr SSSI. The two things identified by NRW which might impact on the special features of the SSSI are:

- Obscuring the visibility of features such as the doline field with dense growth of trees or fly-tipping
- Quarrying currently occurs at the edge of the site, and any extension of quarrying into the SSSI would result in permanent destruction of karst and cave features.

It was therefore determined that the variation is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest.

Full details of the assessments carried out of the potential effect of changes brought by the variation on the above Natura 2000 and SSSI sites are detailed in the forms. Our conclusions were that the proposal is not likely to have a significant effect on any of these sites. The forms are available from our public register.

Environmental Risk Assessment

Air

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the installation and its impact on local air quality.

The operator initially submitted a H1 screening assessment as part of their application which suggested that emissions of lead to air from the installation could not be screened as insignificant when compared against the long-term Air Quality Standard (AQS) (there is no short-term AQS for lead). The operator provided justification for not submitting detailed modelling, which included the fact that the vast majority of the emission points included within the assessment have been operational for many years and would therefore be included in the H1 background data, causing a double-counting of emissions. NRW requested that the operator evaluate which emission points would be included in the H1 background data and could therefore be disregarded.

The operator resubmitted their H1 assessment which now only included emission point A1 (new Mill no.8) as the only emission point which would not have contributed to the background data. The background data used in the revised assessment was the annual average background data as measured to the north-east (down-wind) of the site for 2019. This methodology was checked by our air quality specialists and deemed to be reasonable. In applying down-wind monitor results the operator could justify removing in-situ, operational stacks. The updated H1 screening assessment suggested that emissions of lead to air from new emission point A1 could be screened as insignificant.

However, the operator had assumed a total flow of 2282.9m³/h from emission point A1 (Oxide Mill no.8) in their revised H1 assessment, rather than the maximum possible flow rate of 10,000m³/h. This was based on the total flow from existing Mill 7, also a 24 tonne capacity mill. Upon changing the total flow from A1 in the assessment to 10,000m³/h, the emissions no longer screened as insignificant. Although it is reasonable to accept that typical operational conditions will be significantly less than the theoretical performance capability, we were not satisfied that this represented a realistic and suitably conservative scenario.

NRW therefore requested that the operator carry out detailed air dispersion modelling for the whole GS Yuasa site, including all sources with lead emissions to air, and with the flow rate of proposed new Mill 8 at the maximum possible discharge of 10,000m³/h.

A formal request for this information was issued on 16th December 2020 via a Schedule 5 notice. A satisfactory response was received on 24th February 2021.

The operator submitted detailed air dispersion modelling which assesses the installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health. It predicts the potential effects on local air quality from the installation's stack emissions. The dispersion modelling has been based on the installation operating continuously at the relevant long-term emission limit value, i.e. the maximum permitted emission rate.

Following the variation to the permit, there will be 16 lead discharge points at the site and the operator has assessed the impact of emissions from all of these in their modelling. The majority of these are already in-situ and have been operational for many years. There are two new emission points which are A1 (Oxide Mill no.8) (replacing Oxide Mill no.4, which will be decommissioned), and A3 (New Cutting/Brushing Extraction) (replacing redundant Casting Off-Cut Hopper). Although only emission point A1 was included as a new emission point in initial H1 assessments, the operator later requested that new emission point A3 be included in the detailed modelling (and in the varied permit). The reason for this is that it had originally been planned that the required release from a local exhaust ventilation extract serving a new cutting and brushing line would be incorporated into existing emission point A18, which is the vacuum extraction for Cutting Machine 1-7. However, it was later determined by the operator that this extract would have insufficient capacity to accept the additional loading from the new cutting and brushing line in addition to the existing load and hence a new discharge point will be required to serve the new cutting and brushing line extract.

The air dispersion modelling has used measured data where available; as most of the emissions have been in place and operational for many years and undergo regular testing, the 2020 average reported lead emission from each existing source was included in the model. In the case of new emission points A1 and A3, the discharges were assumed to operate at capacity and at the emission limit values which will be incorporated into the revised permit. The assessment therefore provides a realistic

assessment of the impact of current emissions, coupled with a worst-case assessment of the proposed new discharges.

The operator has used dispersion modelling software ADMS 5, which requires emission sources to be defined in terms of dimensions, location and physical characteristics of temperature, velocity, and pollutant discharge rate. They have applied five years' worth of hourly average meteorological data (2016-2020) from the Sennybridge measurement station. Modelling was undertaken using a 4km x 4km grid with 20-metre grid spacing across the modelled area, with the site located approximately centrally within the grid. Specific receptors, representing locations where members of the general public may be present for significant periods of time, as well as nearby ecological habitat receptors, were entered into the model.

For long-term impacts there is a 1% insignificance threshold relative to a long-term AQS of the substance being studied. If this initial criteria is not met, a second stage screening assessment is undertaken to determine the impact of the Predicted Environmental Concentration (PEC). The PEC is the sum of the Process Contribution (PC) plus the appropriate background concentration. The second stage screening assessment states that if the long-term PEC is less than 100% of the long-term AQS at detailed modelling, its impact is screened as insignificant.

There are two assessment levels stipulated for lead; the Ambient Air Directive (AAD) limit of $0.5\mu\text{g}/\text{m}^3$ as an annual limit, and the UK Air Quality Strategy Objective of $0.25\mu\text{g}/\text{m}^3$. The latter, more stringent assessment level was applied by the operator when considering the results of the modelling exercise.

The results from the detailed modelling predict that the site operations result in a maximum annual average PC of lead which equates to 59.9% of the UK Air Quality Strategy Objective value hence does not immediately screen as insignificant. However, the PEC equates to 79.1% of the UK Air Quality Strategy Objective value therefore screening as insignificant at the secondary assessment stage. The potential impact of lead deposition to open ground outside of the site boundary such as at sensitive ecological receptor sites, farmland, gardens or allotment plots in the local area has also been assessed and is negligible. The results of the detailed modelling

therefore confirm that emissions of lead to air from the existing and proposed operations at the site are acceptable, will not result in any exceedance of the AAD or UK Air Quality Strategy Objective values, and are screened as insignificant at local sensitive receptors.

The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the operator used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed to establish the robustness of the operator's air impact assessment. The output from the model has then been used to inform further assessment of health impacts.

Emission limits

We have decided that emission limits should be set for the parameters listed in the permit.

The emission limit values for new point source emissions of lead to air from emission points A1 (Oxide Mill No.8) and A3 (New Cutting/Brushing Extraction) have been set in line with what has been included in the air dispersion modelling submitted by the operator. It is considered that these emission limit values will ensure that significant pollution of the environment is prevented and a high level of protection of the environment is secured.

Water

This variation will not impact emissions to water. The only source of emissions to water from the installation is uncontaminated surface water drainage discharging to Cwm Nant Melyn.

Soil

This variation will not impact emissions to soil. There are no direct emissions to soil from the installation.

Odour

We are satisfied that this variation will not cause an increase in odour from the installation. Odour is not considered to be a significant issue at the installation.

Permit condition 3.3.1 requires that emissions from the activities are free from odour at levels likely to cause pollution outside the site. We are satisfied that this condition will be sufficiently protective.

Noise

We are satisfied that this variation will not cause an increase in noise from the installation. Noise is not considered to be a significant issue at the installation.

Although new Mill 8 and associated systems will be installed, Mill 4 will be decommissioned and Mills 5 and 6 will become back-up systems. There are no outdoor activities at the site and it is not expected that the location of new Mill 8 and associated equipment within the building will impact the noise levels for nearby residents.

Permit condition 3.4.1 requires that emissions from the activities are free from noise at levels likely to cause pollution outside the site, as perceived by an officer of NRW. We are satisfied that this condition will be sufficiently protective in conjunction with measures already in place by the operator for minimising noise produced at the installation.

Fugitive emissions

We are satisfied that this variation will not cause an increase in fugitive emissions from the installation. Although new Mill 8 and associated systems (including a new silo) will be installed, Mill 4 (and associated silo) will be decommissioned and Mills 5 and 6 will become back-up systems.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions and to prevent pollution from fugitive emissions.

Monitoring

We have decided that monitoring should be carried out for new emission points A1 and A3 listed in the permit, using the methods detailed and to the frequencies specified.

Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.

Reporting

We have specified reporting in the permit.

Operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes.

The proposed techniques/ emission levels for priorities for control are in line with the benchmark levels contained in the TGN and we consider them to represent appropriate techniques for the facility.

The permit conditions

Updating permit conditions during consolidation

We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit.

The operator has agreed that the new conditions are acceptable.

Use of conditions other than those from the template

Based on the information in the application, we don't consider that we need to impose conditions other than those in our permit template, which was developed in consultation with industry having regard to the relevant legislation.

Raw materials

We are satisfied that this variation will not cause any fundamental changes to the nature or quantity of the raw materials used by the site. Lead consumption currently amounts to approximately 182 tonnes of pure lead per week and the facility currently produces approximately 34 tonnes of lead oxide per day. Production will remain the same following the variation, however, should demand increase in the future then

production could increase to approximately 40 tonnes per day. Since production will not increase significantly, all other raw material and chemical use will largely remain the same.

The existing external, banded resin storage and mixing container has been replaced with a new external, banded resin storage container, and a separate external, banded container housing a drum rotator to mix the resins. The use of the drum rotator reduces the potential for occupational exposure of staff during mixing activities.

Lithium-ion battery cells and associated components will be brought to site for assembly into modules. However, these new processes do not constitute scheduled activities.

Waste types

No waste types can be accepted at the regulated facility.

This variation will not bring any changes to the management of wastes at the GS Yuasa site. Lead dross waste is recycled at the site, although all other lead wastes are sent off-site for recycling. Once new Mill 8 is fully operational, Mill 4 has been decommissioned and Mills 5 and 6 are shut down, some material use and waste production is likely to reduce.

Pre-operational conditions

Based on the information in the application, we don't consider that we need to impose pre-operational conditions.

Improvement conditions

Based on the information on the application, we don't consider that we need to impose improvement conditions.

Conditions where the consent of another person is needed.

Based on the information submitted in the application, we don't consider that it is necessary to impose conditions where the consent of another person is needed.

Incorporating the application

We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.

These descriptions are specified in the Operating Techniques table in the permit.