

Environment Agency permitting decisions

Variation

We have decided to issue the variation for Portbury Plasterboard Facility operated by Siniat Limited.

The variation number is EPR/XP3036SZ/V004

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.

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.

Structure of this document

- Key issues
- Annex 1 the decision checklist
- Annex 2 the consultation and web publicising and responses

Key issues of the decision

1. What is being changed

This is a substantial variation to extend the plasterboard manufacturing facility to provide new buildings housing calcining operations, refining plant and gypsum storage. This will then allow an existing production line (board line 2) to operate exclusively using Desulphurised Gypsum (DSG) and crushed recycled waste plasterboard (reclaim) as its raw materials.

Two new stack emissions will be introduced: A13, a 12 MW gas fired calciner burner; and A14, a 1 MW reclaim gas fired burner. The emissions from these sources will pass through bag filtration systems to abate particulate (fine gypsum) matter.

The extension of the facility will result in a small increase in the area of land covered by the installation boundary.

This variation consolidates previous variations and updates all condition to the latest permit template. Consequently, it incorporates the changes required by the Industrial Emissions Directive such as the addition of a condition relating to a requirement for monitoring of groundwater and soil.

2. Air emissions

The applicant provided a detailed atmospheric dispersion modelling assessment of the impacts of the increase in emissions as a result of the proposals. The model used was ADMS v5, and the applicant modelled the impact of current emissions to provide a baseline (scenario 1) and then the impacts from the proposed expansion (scenario 2).

The model used background concentration data, for the modelled pollutants, from the DEFRA background pollutant database (<http://www.airquality.co.uk>). As the site is existing then the emissions from the site will already form part of the background levels in the area, and so a degree of double counting will have occurred in the assessment, making it more conservative.

Meteorological data for the years 2008-2012 from Finton Bristol City Airport which is located just 8km to the northeast of the installation was used in the modelling.

The downwash effects of main plant building and the gypsum store and the changes due to the proposed expansion, were incorporated into the modelling. The surface roughness used for modelling was 1.0m, which is considered appropriate for cities and consequently appropriate for this site which is on the outskirts of Bristol, if a lower surface roughness of 0.5m was used representing parkland and open suburbia then this would reduce impacts, thus the use of a surface roughness of 1.0m is conservative. Terrain

data has not been used as there are no hills with a gradient of over 1 in 10 within the vicinity.

The dispersion model included a number of worst case assumptions; including the use of the worst case meteorological year for each pollutant modelled. In addition, emissions were modelled either at their emission limit values (e.g. for particulates) or at maximum measured concentrations, and it is considered highly unlikely that the maximum emissions from all site sources would occur simultaneously at the same time as the worst case meteorological conditions.

The modelling assumes the particulate matter emission limits to be 50mg/m^3 , whereas some of the current limits are 100mg/m^3 (emission points A2, A3 & A6). This lower limit is in line with DEFRA's Process guidance note 3/12 (04) for plaster processes, and as a consequence we have lowered existing limits to reflect this limit.

In the modelling it is assumed that 100% of NO_x emitted is oxidised to NO₂ in the long term and 50% is oxidised in the short term. This is in line with Environment Agency guidance for "CONVERSION RATIOS FOR NO_x AND NO₂" for initial screening. However our guidance also states that conversion rates of 70% and 35% can be used respectively to get "worst case" scenarios. As the modelling has used 100% and 50% conversion factors, it is being conservative in its NO₂ impact predictions.

We have audited the modelling files using our own audit tool and we conclude that the data inputs to the model are satisfactory and will ensure reliable modelling results.

A summary of the applicant's modelling predictions for the proposed plant against air quality standards for human health are shown in the table below. The NO₂ and PM predictions are at the nearest sensitive receptor (Shirehampton), whereas SO₂ predictions are the maximum predicted results anywhere.

Pollutant	EQS / EAL		Back-ground	Process Contribution (PC)		Predicted Environmental Concentration (PEC)	
	$\mu\text{g}/\text{m}^3$			$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	% of EAL	$\mu\text{g}/\text{m}^3$
NO ₂	40	1	18.7	0.5	1.3	19.2	48
	200	2	37.4	2.6	1.3	40	20
PM ₁₀	40	1	14.6	0.9	2.3	15.5	39
	50	3	29.2	2.2	4.4	31.4	63
PM _{2.5}	25	1	10.1	0.9	3.6	11.00	44
SO ₂	266	4	13.7	52.7	19.8	66.4	25
	350	5	13.7	43.6	12.5	57.3	16
	125	6	13.7	30.8	24.6	44.5	36
CO	10000	7	126	75.8	0.8	202	2

Notes

- 1 Annual Mean
- 2 99.79th %ile of 1-hour means
- 3 90.41st %ile of 24-hour means
- 4 99.9th ile of 15-min means
- 5 99.73rd %ile of 1-hour means
- 6 99.18th %ile of 24-hour means
- 7 Maximum daily running 8-hour mean
- 8 1-hour maximum

As can be seen from the table above carbon monoxide (CO) emissions can be considered insignificant using our H1 guidance criteria of the process contribution (PC) being less than 10% of the short term Air Quality Standard (AQS). Also, short term NO₂ emissions are insignificant as they are less than 10% of the AQS.

Emissions of oxides of nitrogen, sulphur dioxide and particulate matter (PM₁₀ and PM_{2.5}) can be considered to not be significant as their predicted environmental concentrations (PEC) are well below the relevant AQS, both long term and short term. Consequently, these emissions are unlikely to cause a breach of the AQS even taking expected modelling uncertainties into account.

Based on the above figures we can conclude that the emissions from the installation after the proposed changes have been implemented will not cause significant harm to human health. An assessment of the impacts on ecological receptors is discussed below.

3. Habitats Assessment

European Sites and SSSIs,

The nearest special area of conservation (SAC), special protection area (SPA), site of specific scientific interest (SSSI) and Ramsar is the Severn Estuary which is just over 300m from the site. However, it is worth noting that the Severn Estuary extends for over 80 km and so any potential effects will be limited to a very small area. The Avon Gorge Woodlands SAC is just over 4km from the installation.

We have reviewed the applicant's assessment of impacts and carried out our own assessment and we have concluded that it is unlikely that the proposed variation to the environmental permit will have a significant effect either 'alone or in combination' on a SAC, SPA, Ramsar or SSSI. Full details can be seen in the appendix 11 and 4 documents.

Non Statutory sites,

There are 29 non statutory local wildlife sites, nature reserves and ancient woodlands within 2km of the installation. Given the large number of sites, and the fact that the isopleths in the dispersion modelling report show emissions from the installation are very localised the applicant and the Environment Agency have focused on the impacts on the nearest sites. These sites represent the worst case impacts and any sites further away will be less affected:

The nearest grassland site is referred to as Grassland 1 by the applicant, but our database identifies it as "Land adjacent to Royal Portbury Dock". The nearest woodland site is referred to as woodland 2, this does not come up on our database but is nearer to the site than the nearest site we have listed

“Portbury Dock Wood” and the isopleths show that it will be more affected than Portbury Dock Wood and so we have accepted the assessment of this wood as a worst case assessment of impacts.

As all the predicted process contributions were below 100% of the relevant Environmental Quality Standards, or critical levels/loads; we therefore conclude that the emissions from the installation are not likely to damage any of the flora or fauna features which are of special interest.

Annex 1: decision checklist

This document should be read in conjunction with the Duly Making checklist, the application and supporting information and permit/ notice.

Aspect considered	Justification / Detail	Criteria met
		Yes
Receipt of submission		
Confidential information	A claim for commercial or industrial confidentiality was originally made. However, the applicant withdrew the reports containing confidential information and resubmitted them with this information removed as it was not essential to the determination of the application. The applicant then withdrew their request.	✓
Consultation		
Scope of consultation	The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.	✓
Responses to consultation, and web publicising	The web publicising, and consultation responses (Annex 2) were taken into account in the decision. The decision was taken in accordance with our guidance.	✓
Operator		
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.	✓
European Directives		
Applicable directives	All applicable European directives have been considered in the determination of the application. Amendments have been made to the permit as a result of the implementation of the IED.	✓
The site		
Extent of the site of the	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
facility	<p>A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.</p> <p>The applicant did not include the DSG conveyor within the site installation boundary. This brings DSG from a rail head and is operated by a third party, this can be seen in figure 5 of the application. We have considered whether this should be part of the installation as it serves the gypsum storage area which is itself a DAA to the calcination process. Given the size of the gypsum storage area and the fact that gypsum can be delivered directly to the gypsum storage area, we have concluded that the conveyor system does not form part of the installation.</p>	
Site condition report	<p>The operator has provided a description of the condition of the site.</p> <p>We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under IED–guidance and templates (H5).</p> <p>The SCR was considered as the installation boundary has been increased slightly in order to cover the new buildings housing calcining operations, refining plant and gypsum storage. Until now this land has remained largely undeveloped, comprising landscaped areas with concrete roads/pathways.</p>	✓
Biodiversity, Heritage, Landscape and Nature Conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat .</p> <p>A full assessment of the application and its potential to affect the sites and habitats has been carried out as part of the permitting process. We consider that the application will not affect the features of the sites and habitats.</p> <p>See Key issues section for more details.</p>	✓

Aspect considered	Justification / Detail	Criteria met Yes
	We have not formally consulted on the application. The decision was taken in accordance with our guidance.	
Environmental Risk Assessment and operating techniques		
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory.</p> <p>There are no extra emissions direct to controlled waters or the sewer as a result of the proposed changes.</p> <p>The main fugitive emission risk is dust, and applicants considered that the preventative measures reduce the risk of this to a low risk, which we accept.</p> <p>Only DSG and crushed plasterboard materials (reclaimed plasterboard) are proposed to be stored and used in the area of the proposed extension / new processing plant. Neither of these raw materials are hazardous substances, and so do not pose a risk to groundwater.</p> <p>Accident risks are principally filter failures or vehicle fuel spills. Appropriate measures are in place to reduce these risks to a low risk.</p> <p>The applicant has used our website to identify the site is at medium to high risk of flooding. However, reviewing the map ourselves the site appears to be outside of a flood risk.</p> <p>Noise risk has been assessed. The plant expansion comprises of operations and equipment which are similar in nature to the activities currently undertaken on site. The new plant will be housed entirely within the plant building, which will offer a high degree of noise attenuation. No doors or louvre vents are located near the new equipment, which could offer a route for noise to leave the building. In addition, all proposed new equipment has been designed not to exceed 85db within 1metre of the noise source and no vibration issues are anticipated from the new plant and equipment. There will be no new equipment outside of the process building which could give rise to noise annoyance. There have</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	<p>been no noise complaints from the site for the past 2 years, and it is next to a coal yard and dock. Consequently we agree with the applicants assessment that the risk from noise will be low.</p> <p>For details on the impacts of emissions to air, see the key issues section of this document.</p>	
Operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance note, DEFRA's Process guidance note 3/12 (04) for plaster processes.</p> <p>Air emissions, The two new discharge stacks will be continuously monitored for the presence of particulates and the monitors will be linked in to the existing plant's Supervisory Control and Data Acquisition system (SCADA). The stacks will have bag filters which will be designed to ensure that particulate emissions are well below the 50mg/m³ limit for particulate emissions as prescribed as BAT within current technical guidance</p> <p>Fugitive emissions, DSG contains a background moisture content, which will limit dust generation. DSG and crushed plasterboard will be stored, transported and handled in enclosed spaces (i.e. inside buildings). Enclosed conveyors will be used for the transport of DSG/crushed plasterboard. High speed roller shutter doors will be used on the main access doors to the gypsum store. Stockpiles will be managed to reduce possible dust emissions and a road sweeper will be used to minimize dust sources for nuisance generation. The gypsum storage building will have a concrete floor which will be subject to existing plant inspection and maintenance procedures Cleaning of the new process buildings will be incorporated into existing housekeeping procedures.</p> <p>Energy Efficiency, The proposed new plant extension will use approximately 70% of the gypsum material, which is currently fed into an</p>	✓

Aspect considered	Justification / Detail	Criteria met Yes
	<p>existing kettle calcining process. The new combustion plant will allow a greater level of thermal recovery to be achieved for the same level of gypsum production. Other energy efficiency measures include the use of variable speed motors, energy efficient lighting, and the control and monitoring of energy use using the existing central plant control system (SCADA).</p> <p>As part of the existing production volume of plasterboard will be offset by the new more energy efficient plant, it is anticipated that an overall reduction in the energy use for the entire installation will be achieved as a result of these proposed changes.</p> <p>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 ensure compliance with relevant BREFs, and ELVs deliver compliance with BAT-AELs.</p>	
The permit conditions		
Updating permit conditions during consolidation.	<p>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.</p> <p>The operator has agreed that the new conditions are acceptable</p>	✓
Improvement conditions	<p>Based on the information on the application, we consider that we need to impose an improvement condition.</p> <p>We have imposed an improvement condition to confirm, by means of one off stack sampling, that the emission concentrations used in the air dispersion modelling are correct.</p>	✓
Incorporating the application	<p>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.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	These descriptions are specified in the Operating Techniques table in the permit.	
Emission limits	<p>We have decided that emission limits should be set for the parameters listed in the permit.</p> <p>The following substances have been identified as being emitted in significant quantities and ELVs and/or equivalent parameters or technical measures based on BAT have been set for those substances:</p> <p>Particulates – as discussed in the key issues section the modelling assumes the particulate matter emission limits to be 50mg/m³, whereas some of the current limits are 100mg/m³ (emission points A2, A3 & A6). This lower limit is in line with DEFRA’s Process guidance note 3/12 (04) for plaster processes, and as a consequence we have lowered existing limits to reflect this limit as well as setting it for emission points A13 and A14.</p> <p>NO₂ and SO₂ – emissions of these pollutants will not be insignificant. It has been decided not to set an emission limit for these pollutants as no benchmark exists in the DEFRA’s Process guidance note 3/12 (04) for plaster processes. Alternative parameters such as maintaining the burners will be used to ensure emissions of NO₂ pollutants are controlled. We have also set an improvement condition to carry out one off monitoring for NO_x and SO₂ emissions to confirm that the plant will operate as proposed.</p> <p>It is considered that the ELVs/ equivalent parameters or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.</p>	✓
Monitoring	<p>We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.</p> <p>These monitoring requirements have been imposed for the reasons discussed in the emission limit section above.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	<p>We made these decisions in accordance with DEFRA's Process guidance note 3/12 (04) for plaster processes.</p> <p>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.</p>	
Reporting	<p>We have specified reporting in the permit.</p> <p>We have set extra reporting , in order to report the extra monitoring requirements discussed above</p> <p>We made these decisions in accordance with DEFRA's Process guidance note 3/12 (04) for plaster processes .</p>	✓
Operator Competence		
Environment management system	<p>There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.</p>	✓
Financial provision	<p>There is no known reason to consider that the operator will not be financially able to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.</p>	✓

Annex 2: Consultation, and web publicising responses

Summary of responses to consultation, and web publication and the way in which we have taken these into account in the determination process.

One response received.

Response received from
Public Health England 15/7/14
Brief summary of issues raised
<ol style="list-style-type: none">1. PHE is aware that there have been a number of nuisance complaints in Avonmouth area relating to fugitive emissions and therefore particular attention has been given to the information on fugitive emissions supplied by the applicant.2. We would like the regulator to consider inclusion in the permit of a subjective fugitive emissions assessment at the site to ensure dust generating circumstances are identified and resolved quickly.3. We recommend that the regulator contact the local authority to establish whether there have been any reported nuisance issues from this location.4. Some of the materials will be transported to the site via an enclosed conveyor belt from the coal handling facility which will be operated by a third party contractor and as this is outside the boundary of the facility we would request the applicant ensures fugitive emission management is integral to the tendering process.
Summary of actions taken or show how this has been covered
<ol style="list-style-type: none">1. Fugitive emissions and their control have been assessed as part of this determination, and the techniques employed are considered to be BAT.2. The applicant provided an adequate fugitive emissions assessment, following our H1 methodology as part of the application. Condition 1.1.1 requires the operator to have a written management system that identifies and minimises risks of pollution which includes fugitive emissions. Also, condition 3.2.2 allows the Environment Agency to require an emissions management plan to be submitted to us and implemented, should the need arise.3. The local authority were consulted however they have not provided any response. The environment agency have been regulating this site for a number of years and have not had complaints about the site for over 2 years.

4. Although the conveyor system does not form part of the installation and so outside of our regulation , it was included in the fugitive emissions assessment. As the DSG will be moist and in a covered conveyor the risk of dust was considered low.

Response received from

North Somerset Council , Environmental Protection 22/7/14

Brief summary of issues raised

No issues raised. Provided a copy of 2004 planning permission which set noise levels.

Summary of actions taken or show how this has been covered

No actions required, noise has not been an issue at the site