Permitting decisions

Bespoke permit

We have decided to grant the permit for Flint Group Varn House operated by Day International (U.K.) Limited.

The permit number is EPR/HP3736DD.

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 provides a record of the decision making process. It summarises the decision making process in the decision checklist to show how all relevant factors have been taken in to account.

This decision document provides a record of the decision making process. It:

- highlights key issues in the determination
- summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account
- shows how we have considered the consultation responses.

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

Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Key issues of the decision

Process and containment

This plant is divided into four units: process or manufacturing unit, utilities unit, tank farm and chemical storage. The process unit is divided into different sections according to the products: Polymerization Section, Silica Treatment, Compound Making Section and Emulsion Section. The process requirements (heat and vacuum) are provided by the utilities unit via the kerosene boiler, hot oil heater, cold oil system, cooling tower, process water filtration and supply, and vacuum pumps.

A Hazard and Operability (HAZOP) study was carried out on the plant, the main areas of concern were identified as the possible over pressurisation of a system and accidental releases. The system was therefore designed with these in mind and mitigation, such as a pressure relief system and secondary containment, included as part of the plants design. The low impact installation process takes place within a building which is designed to contain any uncontrolled release. The plant is built at a lower level than the yard outside, the

depth is between 200mm at the south side of the plant and 150mm at the north side of the plant. The total amount of liquid the building could contain is 61.58m^3. The utilities building has also been calculated in the same way and has a capacity of 8.7 m^3. The building has a storage capacity greater than 110% of the largest tank and 25% of the total volume of all the tanks, and complies with the secondary storage requirements for tanks, sumps, containers and bunds to prevent leaks or accidental release of liquids in our guidance document: *Control and monitor emissions for your environmental permit,* published 1 February 2016. The HAZOP study was reviewed in 2015 by a 3rd party consultant and an engineering team. It is reviewed every 3 years or when a significant change proposed to the process equipment.

Raw materials and kerosene fuel are stored outside the building on a chemical resistant concrete hardstanding. All of the raw materials are stored in accordance with *Chemical Warehousing: The storage of packaged dangerous substances HSG71*. Raw materials that come into the site either come in on a C of C (Certificate of Conformance) or is subject to raw material quality testing. This ensures that the products used are fit for purpose and not contaminated. Each material has a dedicated code and its own dedicated storage location. New materials cannot be stored until the quality department has confirmed they are correct and control numbers assigned to each material and are subject to segregation rules to prevent incompatible materials coming in to contact with one another and also preventing unwanted adverse chemical reactions. The storage and handling of substances, and transportation of materials are covered in the plants HAZOP study. The storage tank is bunded and has a storage capacity greater than 110% of the largest tank and 25% of the total volume of all the tanks, and complies with the secondary storage requirements for tanks, sumps, containers and bunds to prevent leaks or accidental release of liquids in our guidance document: *Control and monitor emissions for your environmental permit,* published 1 February 2016. The pipework from the tank to the boiler is a single stainless steel pipe with no joints.

The outside area has an impermeable surface with a shut off valve and interceptor installed which enables the operator to manually isolate the outside area when off-loading of kerosene and Siloxane D4 is taking place. This area can also be isolated in the event of a spillage to prevent releases into the environment. The off-load line to the D4 tank and 350 CST oil storage tank are also equipped with an automatic overfill detection and shut off system to prevent overfilling of the storage tanks, while it is manual on the process tank.

The kerosene storage tank is double skinned, self bunded and constructed of stainless steel with the capacity of 1m^3. This storage tank can only contain 75% of the largest tank and it does not meet the standard set out in our guidance. However the operator has committed to make improvements to this tank.

We have included improvement condition to enable the operator to complete a review of the construction, integrity and secondary containment for tanks, sumps, containers and bunds against the standard set out in Environment Agency web guide Control and Monitor Emissions for your Environmental Permit, and CIRIA Containment Systems for the Prevention of Pollution, and submit a report outlining the findings and identify improvements ant in line with the Environment Agency's H1 guidance while the site can remain operational. The report shall include details of any changes made to the site in association with this requirement, for example changes in plant or infrastructure and any additional impact assessments carried out. The report shall be submitted in writing to the Environment Agency for approval.

Low Impact Installation (LII) operation

We are satisfied that the operator has demonstrated that the proposed operation complies with LII criteria, specified in Environment Agency Application Form, Part B2, Appendix 1, 'Low impact installation checklist' as summarised below:

Management techniques: This type of operation has existed at the site for many years with no history of nuisance or pollution arising as a result. The operation is covered by the site's externally accredited ISO 9001 and ISO 14001 Environmental Management System. Substances are handled to prevent or reduce workers exposure in accordance with the Control of Substances Hazardous to Health Regulations. All operators working in this plant are trained in the manufacturing process, and management and emergency procedures.

Aqueous waste: the only aqueous waste generated is during clean down procedures. The de-volatilization unit is cleaned quarterly, each clean down generates approximately 0.5m^3 of waste water for jet washing and 0.5m^3 for rinsing. The reactor is cleaned during the same quarterly cycles, approximately 4.0m^3 of water is used. Waste water is reused for four washing cycles. The water from floor washing is collected in an impermeable stainless steel sump below the reaction vessels and transferred to intermediate bulk containers (IBCs) for disposal. Waste water is stored in IBCs internal to the silicon plant and collected for off-site disposal by a waste management contractor. The total quantity of waste water is expected to be approximately 8.0m^3 for the year, averaging to 0.02m^3 per day. No waste water or effluent discharges to drains from the silicon manufacturing procedure is permitted.

Abatement system: the operator does not rely on abatement system for environmental emissions.

Groundwater: No releases to groundwater of hazardous substances or non-hazardous pollutants permitted.

The process, building and equipment are designed in such a way that should any incident occur they will not have a significant impact on the environment. All site surfaces are engineered with concrete and regularly inspected and repair in line with the maintenance schedule. There is a robust maintenance programme in place which includes equipment condition monitoring and planned preventative maintenance on the equipment in the plant. Contractors conduct regular inspections on storage vessels, lifting equipment, electrical systems, pressure systems, process and water systems. The operator has confirmed that regular internal and external training is provided to management and key members of staff to manage the site's environmental and quality requirements.

Waste production: no hazardous or non-hazardous waste produced at the site other than the quantity of aqueous waste specified above.

Energy usage: is 0.38 MW. The site is limited to consume energy at a rate less than 3MW.

Accident prevention: the plant systems and equipment are on a planned preventative maintenance program. All reaction vessels and tanks are subject to non-destructive testing annually. The pipe lines and valves are visually inspected monthly and continual conditional monitoring of process equipment is all part of the Operator's mitigation systems. Any defects identified are recorded and acted on as required. The heating and cooling systems for the process are incorporated in the plants HAZOP study, which identified over pressurisation, corrosion and stream leaks as the main risks. The over pressure protection systems vent outside the plant into a blow off tank which minimises the potential for escape in to the environment.

All raw materials are stored either within a building that has containment or outside within bunded areas which are inspected regularly. All drains are covered during the receipt and transfer of loads. Drains can be isolated and spill kits are available on site. The Operator ensures site staff are fully trained on accident management procedures, regularly carrying out desktop and mock drills. They also provide information to the local fire brigade who are aware of their emergency procedures. The site is not a Control of Major Accident Hazards (COMAH) site.

Noise: There has been no history of noise complaints at the site. Although the process is likely to give rise to low level noise and vibration during normal operation, it is unlikely to cause offence and pollution outside the site. See *Noise section of Key Issues of the decision* for further information.

Emissions of polluting substances: there is no likelihood of a release to the environment of any particular substance from the installation at a rate greater than that determined as insignificant. See *Emissions to air section of Key Issues of the decision* for further information.

Odour: We are satisfied that the process is inherently of low odour. There has been no history of odour complaints at the site.

History of keeping to the regulations: no history of environmental non-compliance or enforcement has been recorded.

Emissions to air

The kerosene boiler (thermal rated input of 0.45 MWth) provides heat to the reactors during the production process.

No assessment was required, on the impacts of emissions to air from the kerosene boiler, on sites of heritage, landscape or nature conservation, and/or protected species or habitat due to the size of the combustion pant (less than 5MW). The combustion processes at the installation are not considered 'relevant' for assessment under the Environment Agency's procedures which cover The Conservation of Habitats and Species Regulations 2010 (Habitats Regulations). This was determined by referring to the Environment Agency's guidance 'AQTAG014: Guidance on identifying 'relevance' for assessment under the Habitats Regulations for installations with combustion processes.' Therefore the impact of combustion gases on Habitats sites have not been considered further.

We have carried out an assessment on the potential impact from the emissions for human health.

The Operator has undertaken screening using the Environment Agency's H1 assessment tool. The original H1 Risk Assessment submitted with the application showed that the short term Predicted Environmental Concentration (PEC) for Nitrogen Dioxide (NO_x) did not screen out as insignificant at stage 2. However, this assessment used the effective stack height of 0 metres and it was also found that other input parameters were incorrect, for example efflux velocity.

The applicant provided further information on stack diameter and recalculated the efflux velocity using an increased stack height of 13m. Using these input parameters they reran their assessment of the emissions to air for carbon monoxide and nitrogen dioxide. The results of the reassessment showed that the air emissions met the following criteria of long term Process Contribution (PC) less than 1% of Environmental Action Limit (EAL) and short term PC less than 10 % of AEL. Based on this H1 screening, we are satisfied that the impacts from emissions of carbon monoxide and nitrogen dioxide were screened out as insignificant. However, as the input parameters were based on improvements the Operator has committed to making at the site we have included the following improvement condition in the permit.

The operator must submit a report demonstrating that the emissions from the boiler are insignificant in line with the Environment Agency's H1 guidance. The report shall include details of any changes made to the site in association with this requirement, for example changes in plant or infrastructure and any additional impact assessments carried out. The report shall be submitted in writing to the Environment Agency for approval.

Noise

The operator submitted an Environmental Noise Survey (reference number FTON32984). The report concluded that the site is unlikely to receive complaints about noise emissions during the evening, but is likely to receive complaints about noise during the day. However, this report did not only consider noise from the site, instead it covered the noise impacts from the Operator's wider activities taking place outside of the permit boundary and which are therefore not part of our low impact installation assessment.

The operator submitted further information to demonstrate that there is only a low potential for offence due to noise from the activities covered by this permit. There are two receptors relatively close to the installation (LII) (52m from the nearest receptor and 60m from the other). However, the installation has been operational prior to the permit application and no records of complaints have been recorded by the Local Authority or the Environment Agency. The area used for the Low Impact Installation, including its loading and storage area, is located in the part of the Operator's site which is the furthest from potential sensitive receptors. In addition, there is a main road to the west of the two closest receptors, which is a potentially significant noise source and the road is closer to the receptors than the LII itself.

The operator has confirmed that the plant receives deliveries two or three times a month during normal operational hours (9 a.m. to 5 p.m.). Raw materials are only moved into the plant once a week and forklift movements are only permitted during normal operational hours. Outside these hours finished goods will be stored in the plant. The main activity takes place within a building, when the plant is operation all external doors remain closed. The process building is a controlled environment and to contain potential fugitive emissions shutter doors are closed, only opening for limited periods to allow access.

We are satisfied that the standard noise conditions in the permit are sufficient and no additional measures are necessary at this time. We conclude that the activities carried out at the site have a low potential for offence and pollution outside the site.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Consultation	
Consultation	The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement. The application was publicised on the GOV.UK website. We consulted the following organisations: • Local Authority Environmental Protection • Natural England The comments and our responses are summarised in the consultation section.
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 our guidance on legal operator for environmental permits.
The facility	
The regulated facility	We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation'. The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit. The facility is located in the north-westerly corner of the larger site at Varn House operated by Day International (U.K.) Limited. There are no non-permitted activities undertaken within the permit boundary of the low impact installation. However the larger site has other non-permitted activities carried out, operated by the same Operator.

Aspect considered	Decision
The site	
Extent of the site of the facility	The operator has provided plans which we consider are satisfactory, showing the extent of the site of the facility. The plan is included in the permit.
Site condition report	Assessment of Site Condition Reports is not required for Low Impact Installation Permits in accordance with 203_08 'Receiving, duly making and consulting on an application' Environment Agency Guidance.
Biodiversity, heritage, landscape and nature conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and habitat. The application is within 10 km of two Special Areas of Conservation (SAC) sites: Rixton Clay Pits, Manchester Mosses, and one Ramsar Site: Rostherne Mere; and within 2 km of five Local Wildlife Sites (LWS): Coroners Wood, Broadoak Wood, Reedbed by ship Canal Sidings, Carrington Power Station and Old River Irwell, and one area of Ancient Woodland. We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage, and habitats identified in the nature conservation screening report as part of the permitting process. We are satisfied that the installation meets the criteria of a low impact installation (LII). We consider that the application will not affect any sites of nature conservation, landscape and heritage, and habitats identified. The decision was taken in accordance with our guidance.
Environmental risk assessment	
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. See *Key Issues of the decision* section of this decision document for further information.
Operating techniques	
General operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility. We are satisfied that the operator has demonstrated that the proposed operation complies with LII criteria, specified in Environment Agency

Aspect considered	Decision
	Application Form, Part B2, Appendix 1, 'Low impact installation checklist'. The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit. See *Key Issues of the decision* section of this decision document for further information.
Operating techniques for emissions that screen out as insignificant	The kerosene boiler provides heat to the reactors during the production process. Emissions of Carbon Monoxide and Nitrogen Dioxide to air have been screened out as insignificant, and so we agree that the applicant's proposal poses a low risk to the environment and human receptors. See *Key Issues of the decision* section of this decision document for further information.
Permit conditions	
Raw materials	The proposed raw materials described in Table 3c of Part B3 of application form are not considered to have a potential to contribute to the emissions to air, water and land. Therefore we did not specify any raw materials in the permit.
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme. We have imposed an improvement programme to ensure that: • The operator submits a report demonstrating that the emissions from the boiler are insignificant in line with the Environment Agency's H1 guidance. • The operator completes a review of the construction, integrity and secondary containment for tanks, sumps, containers and bunds against the standard set out in the relevant guidance This will enable the operator to complete the improvements proposed and keep emissions to insignificant in accordance with the requirements of a low impact installation facility. See *Key Issues of the decision* section of this decision document for further information.
Emission limits	We have decided that emission limits are not required in the permit.
Monitoring	There is no monitoring required in the permit.

Aspect considered	Decision
Reporting	We have specified reporting in the permit. Parameters, for which reports shall be made are listed in Schedule 4 of the permit.
Operator competence	
Management system	There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions. The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.
Relevant convictions	The Case Management System has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit. Paragraph 1.3 of the guidance says: "The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation." We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections. We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from
Natural England
Brief summary of issues raised
Natural England responded to our Habitat Directive assessment for determining likely significant effects on nature conservation sites, namely Rixton Clay Pits SAC, Manchester Mosses SAC and Rostherne Mere Ramsar. They have agreed with our assessment that there is no likely significant effect on the interest features of the nature conservation sites from the installation that could act alone or in combination with permissions and/or plans/projects of other competent authorities.
Summary of actions taken or show how this has been covered
No action is taken.

Response received from
Local Authority Environmental Protection
Brief summary of issues raised
The application has been considered in terms of noise, air emission and land contamination. The original application submitted incorporated an Environmental Noise Survey ref. FTON32984 dated September 2014. The BS4142 assessment showed complaints are likely during the day. The consultee is concerned that the additional information submitted following the application being deemed as not duly made does not address these concerns sufficiently. They therefore have recommended a further BS4142 assessment covering all aspects of the operation, plant, fork lift trucks, etc and mitigation methods as appropriate. They have checked the Council's database for Lynton Avenue and Brinnel Drive and cannot find any noise complaints. Consultee has reviewed the application from an air quality perspective. The process is the manufacture of polymerised silicon oil. The oil polymerisation process is a closed loop system, however, a kerosene boiler is used to heat the oil for the process, which will create emissions to air. The applicant has submitted an H1 Environmental Assessment of the emissions to air from the boiler, taking into consideration carbon monoxide and nitrogen dioxide emissions. The results of the assessment indicates that modelled concentrations of both pollutants will be low and of insignificant impact. The assessment is considered to be satisfactory and therefore the local authority has not further comments. They have also reviewed the information regarding contaminated land. The report advises that there are a number of historical sources of contamination at the site and that these are the likely sources of the contamination found during the site investigations. It also concludes that there is no contamination of soils and groundwater that is connected to the permit activities. They have a comment that relates to groundwater gradient. There seems to be no discussion of this and whether or not the well locations are suitably representative. This may be particularly important at Permit surrender.
Summary of actions taken or show how this has been covered
We conclude that the activities carried out at the site have a low potential for offence and pollution outside

the site in accordance with the *Key Issues of the decision section of this decision document* in regards to the noise and vibration generated at the site and techniques utilised to prevent and minimise pollution.