Environment Agency permitting decisions

Variation

We have decided to issue the variation for Riverside AD Facility operated by Riverside AD Limited.

The variation number is EPR/AB3307LK/V002.

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.

Description of the changes introduced by the Variation

This is a Substantial Variation.

The changes introduced by this variation as a result of application by the operator are:

- Increase in annual waste throughput from 36,000 tonnes to 77,500 tonnes;
- Addition of a new digester tank;
- Addition of a biogas upgrading plant with a new emission point to air (AD-EP3);
- Addition of a new combined heat and power (CHP) engine with a new emission point to air (AD-EP4); and
- Addition of ancillary equipment (propane storage tanks)

The Industrial Emissions Directive (IED) was transposed in England and Wales by the Environmental Permitting (England and Wales)(Amendment) Regulations 2013 on 27 February 2013. This variation implements the changes brought about by the IED for “existing facilities operating newly prescribed activities” and completes the transition of this facility from a waste operation to an IED Installation.

The facility is located within the Willow Lane Industrial Estate in Mitcham, Surrey at grid reference TQ 27569 67516. It is bound to the north by open woodland; to the south by a public open space; to the east by industrial units; to the west by the River Wandle. This is a multi-operator site, with site infrastructure shared with an adjacent thermophilic aerobic treatment (TAD) facility operated by Riverside Bio Limited.

The facility will process up to 77,500 tonnes per annum of pre-processed waste arising from the TAD facility via anaerobic digestion (AD). Pre-processed waste (which has undergone pasteurisation) from the adjacent TAD facility will be delivered to the digesters via a series of steel pipes. Waste will undergo digestion at 35°C for up to 60 days. Raw biogas drawn from the

digesters will be upgraded to biomethane and injected into the gas grid. Excess biogas will be used to generate electricity from one CHP engine (1.2 MWth). Only one CHP engine will be operated at any one time on site.

The by-product from the AD process (whole digestate) will be pumped via a series of steel pipes to a holding tank at the adjacent TAD facility for separation into solid and liquid fractions and despatch off-site using tankers. This environmental permit does not authorise the spreading of digestate on land.

Main releases to air will be from the biogas upgrading plant, CHP engines and emergency flare. Biogas will be burnt in the emergency flare in the event of breakdown and/or maintenance of the biogas upgrading plant and CHP engines. Uncontaminated site surface water is discharged via two emission points SW1 and SW2 to the River Wandle.

There are two non-statutory sites (Bennett's Hole and the Upper River Wandle) within 200 metres of the facility. Assessment by the Environment Agency shows that emissions from the activities undertaken at the facility are unlikely to have a significant impact on the habitat sites.

The application was duly made on 20 January 2016. 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 the determination.

Although we were able to consider the application duly made, we did in fact need more information in order to determine it, and issued a request for additional information on 28 January 2016. A copy of the request and response received was placed on our public register.

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 responses

Key issues of the decision

1. Assessment of impact on air quality – biogas upgrading plant

The Operator proposes to use a "membrane-based technology" to upgrade raw biogas to biomethane. There are different processes with membrane separation – either it is separation with a gas phase on both sides of the membrane (dry membranes) or it is a gas-liquid absorption which means that a liquid absorbs the carbon dioxide diffusing through the membrane.

The dry membrane technique is proposed at this installation. The membrane either works at high pressure >20 bar or at low pressures 8–10 bar. The separation is driven by the fact that different molecules of different sizes have different permeability through the membrane. Other important factors for the separation are the pressure difference between the two sides of the membrane and temperature of the gas. Carbon dioxide and hydrogen sulphide pass through the membrane to the permeate side whereas methane is retained on the inlet side.

The biogas is compressed and dried before being led to the membrane where carbon dioxide and hydrogen sulphide are separated. Further separation of hydrogen sulphide is needed before the biomethane can be fed into the grid.

The Operator submitted an assessment (H1 software tool) to consider the impact of air emissions from the biogas upgrading plant (emission point AD – EP3). The following table shows the H1 results of hydrogen sulphide and VOCs (as benzene):

Pollutant	EQS / EAL	Process Contribution (PC)		PC > 1% LT or 10% ST?
	µg/m^3	µg/m^3	% of EAL	
H_2S (long term)	140	0.0247	0.0177	No
H_2S (short term)	150	0.0651	0.434	No
VOCs (long term)	5	0.0247	0.494	No

From the table above, emissions of hydrogen sulphide and VOCs screen out as insignificant, in that process contributions are <1% of the long term EQS/EAL and <10% of the short term EQS/EAL. The Operator concludes that emissions of hydrogen sulphide and VOCs are unlikely to have a significant impact on human health. We agree with this assessment.

The emissions data (H_2S and VOCs) for the biogas upgrading plant were obtained from the manufacturer and not based on real-time operational monitoring data. We consider it appropriate to set an Improvement Programme (IP1) which requires the Operator to undertake a monitoring

survey following the commissioning of the biogas upgrading plant to obtain actual (real-time) operational monitoring data.

We have also set Improvement Programme 2 (IP2) which requires the Operator to undertake an air emissions impact assessment (H1 software tool) using the results of the monitoring survey and compare the long and short term impacts of pollutants in accordance with the Environment Agency guidance on air quality risk assessments. Following the review of results from the monitoring survey and impact assessment, the Environment Agency shall consider whether or not emission limits are appropriate at the biogas upgrading plant. In the event that emission limits are not considered necessary, the use of surrogate monitoring shall be employed. We have used this consistent approach for biowaste treatment facilities proposing to install biogas upgrading plants across England.

2. Impact of accidents

The Operator submitted a revised accident management plan to include the changes brought about by this Variation (upgrading of biogas to biomethane, storage of propane and addition of a new digester tank). Having considered the plan and other information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that accidents that may cause pollution are prevented but that, if they should occur, their consequences are minimised.

3. Secondary containment

The Operator submitted a revised calculation for secondary containment to take account of the new digester tank as part of this Variation. Secondary containment consists of a site bund of a 0.6 metre high perimeter concrete bund wall. The bund wall will merge with the ramp across the site entrance, ensuring that liquids are prevented from escaping through the site entrance. In the event of a catastrophic digester tank failure, liquids will flow into the adjacent TAD building. The Operator reports that the adjacent building has robust solid walls and the floors are reinforced concrete.

The Environment Agency considers it prudent to insert a Pre-operational Condition (POC1) which requires the Operator to submit a report which includes an assessment of the integrity of the proposed site secondary containment by an independent structural engineer prior to commissioning and operation of the new digester tank. This will ensure that the proposed site secondary containment is fit for purpose to reduce the risks of accidents and their consequences.

4. Management of uncontaminated site surface water

Uncontaminated surface water from the facility will be passed through an interceptor and surface water shut-off system prior to discharge to the River Wandle (via ditch system) at release points SW1 and SW2. The surface water shut-off valves are monitored and controlled by Supervisory Control and Data Acquisition (SCADA) system which is operated by the adjacent TAD facility

(Riverside Bio Limited). As site surface water from both facilities (Riverside AD Facility and Mitcham Waste Treatment Centre) will be discharged from SW1 and SW2, we consider that both operators share responsibility of the emission points. Consequently, we have included the procedures for managing the surface water drainage shut-off valves in the operating techniques table of both permits.

Based upon the information in the Application, we are satisfied that appropriate measures will be in place to prevent and/or minimise emissions to surface water.

Annex 1: decision checklist

This document should be read in conjunction with the application, supporting information and notice.

Aspect considered	Justification / Detail	Criteria met Yes
Receipt of submission		
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. The decision was taken in accordance with our guidance on commercial confidentiality.	✓
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. For this application, we consulted the following bodies: • London Borough of Merton Council (Planning) • London Borough of Merton Council (Environmental Health) • Health & Safety Executive • Director of Public Health, London Borough of Merton Council • Public Health England • Thames Water • National Grid • Animal and Plant Health Agency	✓
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.	✓

Aspect considered	Justification / Detail	Criteria met Yes
European Directives		
Applicable directives	All applicable European directives have been considered in the determination of the application.	✓
The site		
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility including the location of the part of the installation to which this permit applies on that site. A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.	✓
Biodiversity, Heritage, Landscape and Nature Conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or 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 application will not affect the features of the sites. 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	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment, all emissions may be categorised as environmentally insignificant.	✓
Operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance note - [Draft How to Comply with Your Environmental Permit – additional guidance for anaerobic digestion activities]. The proposed techniques/emission levels for priorities for control are in line with the benchmark levels contained in the above technical guidance note and we consider them to represent appropriate techniques for the facility. Overall, we consider that the proposed upgrading of biogas to biomethane provides an environmental benefit (reduction in combustion emissions) compared to the burning of biogas via CHP engines. We consider that this activity is BAT at this installation.	✓

Aspect considered	Justification / Detail	Criteria met Yes
	We have reviewed and approved the Odour Management Plan and consider it complies with the requirements of our H4 Odour management guidance note. We agree with the scope and suitability of key measures but this should not be taken as confirmation that the details of equipment specification design, operation and maintenance are suitable and sufficient. That remains the responsibility of the operator.	
The permit conditions		
Use of conditions other than those from the template	Based on the information in the application, we consider that we do not 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 have specified limits and controls on the use of raw materials and fuels.	✓
Pre-operational conditions	Based on the information in the application, we consider that we need to impose pre-operational conditions (see Key Issues).	✓
Improvement conditions	Based on the information on the application, we consider that we need to impose improvement conditions (see Key Issues).	✓
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.	✓
Emission limits	We have decided that emission limits should be set for the parameters listed in the permit. The following substances (nitrogen oxides, sulphur dioxide, carbon monoxide, VOCs) have been identified as being emitted in significant quantities and ELVs based on BAT have been set for those substances (see Table S3.1 in the permit). Emission limit values have been set with respect to the new CHP engine. Only one CHP engine will be operated at any one time.	✓

Aspect considered	Justification / Detail	Criteria met Yes
	It is considered that the ELVs specified in the permit will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured. The substances above have been set at the benchmark levels specified in LFTGN 08: Guidance for monitoring landfill gas engine emissions. We have not set any emission limits at the biogas upgrading plant until improvement conditions 1 and 2 have been completed (see Key Issues).	
Monitoring	We have decided that monitoring should be carried out for the parameters listed in the permit (Table S3.1), using the methods detailed and to the frequencies specified for the new CHP engine. These monitoring requirements have been imposed in order to demonstrate compliance with the conditions of the permit for operations requiring the management of air emissions. We made these decisions in accordance with LFTGN 08: Guidance for monitoring landfill gas engine emissions which is considered the most appropriate TGN for this activity. 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. We have not set any monitoring requirements at the biogas upgrading plant until improvement conditions 1 and 2 have been completed (see Key Issues).	✓
Reporting	The original reporting requirements for the CHP engines and emergency flare have not been amended. We have not set any reporting requirements at the biogas upgrading plant until improvement conditions 1 and 2 have been completed (See Key Issues). We made these decisions in accordance with our guidance on air quality risk assessments.	✓
Operator Competence		
Environment management system	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.	✓

Aspect considered	Justification / Detail	Criteria met Yes
Technical competence	Technical competency is required for activities permitted. The operator is a member of an agreed scheme.	✓
Relevant convictions	The National Enforcement Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in RGN 5 on Operator Competence.	✓
Financial provision	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.	✓

Annex 2: Web publicising and newspaper advertising responses

Summary of responses to consultation and web publication and the way in which we have taken these into account in the determination process. (Newspaper advertising is only carried out for certain application types, in line with our guidance.)

The Application was advertised on the Environment Agency website from 21 January 2016 to 19 February 2016. A copy of the Application was placed on the Environment Agency Public Register at Orchard House, Endeavour Park, London Road, Addington, West Malling, ME19 5SH.

Response received from Public Health England dated 17/02/2016	
Brief summary of issues raised	Summary of action taken / how this has been covered
We recommend that any Environmental Permit issued for this site should contain conditions to ensure that the following potential emissions do not impact upon public health: • emissions to air from point sources on site; • fugitive emissions of particulate matter or dust from activities on site; and • odours arising from all stages of the process on site.	Emissions to air from the facility and the potential impacts are discussed in section 1 of this decision document. We do not consider that there would be a significant impact of particulate matter or dust as a result of the operation of the facility. There is an odour management plan in place at the facility.
From the application documents, it appears that the Applicant has an accident management plan for the site although PHE has not received a copy of the plan. The Environment Agency (EA) may wish to ensure that an appropriate plan is developed and implemented for the site which considers all potential hazards.	The Operator submitted a site accident management plan during the determination. We have reviewed the submission and we consider that appropriate measures will be in place to ensure that accidents that may cause pollution are prevented but that, if they should occur, their consequences are minimised.
Furthermore, the EA may wish to ensure that there are appropriate control measures in place to prevent the accumulation of birds, vermin, pests and insects at the site as this has not been considered in the application documents received.	We consider that the risk of pollution from birds, vermin, pests and insects is low. The Operator is required to submit a pest management plan to the Environment Agency in the event activities on site are giving rise to the presence of pests (condition 3.6.2).
In relation to potential risk to public health, we recommend that the EA also consult the following relevant organisation(s) in relation to their areas of expertise:	The following organisations were consulted during the determination: • London Borough of Merton Council (Planning and Environmental Health). We did

• the local authority for matters relating to impact upon human health of contaminated land; noise, odour, dust and other nuisance emissions; • the Food Standards Agency, where there is the potential for deposition on land used for the growing of food crops or animal rearing; and • the Director of Public Health for matters relating to wider public health impacts.	not receive any response or concerns. No further action. • We did not consult the Food Standards Agency (FSA) as the application was screened out in accordance with our "Working Together Agreement" with FSA. No further action. • We consulted the Director of Public Health, London Borough of Merton Council. We did not receive any response or concerns. No further action. .
Based solely on the information contained in the application provided, PHE has no significant concerns regarding risk to health of the local population from this proposed activity, providing that the applicant takes all appropriate measures to prevent or control pollution, in accordance with the relevant sector technical guidance or industry best practice.	No further action. We have assessed the Applicant's proposals and consider that they are in accordance with our technical guidance notes.

No responses received from	• London Borough of Merton Council (Planning) • London Borough of Merton Council (Environmental Health) • Health & Safety Executive • Director of Public Health, London Borough of Merton Council • Thames Water • National Grid • Animal and Plant Health Agency • Members of the Public