Environment Agency Permitting decisions

Bespoke permit

We have decided to grant the permit for Teesside AD Power Plant operated by BioConstruct NewEnergy Ltd.

The permit number is EPR/YP3433VR

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.

The main features of the permit are as follows:

This anaerobic digestion plant is located on an industrial estate in a loop of the river Tees in Middlesbrough, Cleveland. The plant is designed to treat up to 120,000 tonnes of food waste, agricultural wastes and green waste per year. The process is largely controlled by an automated Supervisory Control and Data Acquisition (SCADA) system that has been used widely on other similar plants. The waste is mixed and then fermented by mesophilic bacteria in two 5800m^3 fermenter vessels before transfer via a 4820m3 post fermentation vessel, macerator (to reduce the particle size to less than 12mm) and pasteurisation treatment to two 8068m^3 digestate storage vessels. The process is designed to comply with the Animal By-Products Regulations (ABPR) and to produce digestate that will meet the requirements of the Anaerobic Digestion Quality Protocol including meeting Publicly Available Specification (PAS) 110.

Biogas (approximately 53% methane) is collected in membrane roofs on the post fermentation and digestate vessels, cleaned and compressed and then burnt in four gas engines to generate up to 5.1MWe of electricity for export to the national grid (and some use on site). Heat produced will also be used on site or dissipated by a cooling system. These Combined Heat and Power units vent to atmosphere through a 28m stack. If the gas engines are unavailable the excess gas will be flared. Potentially odorous sulphur compounds in the biogas are minimised by introducing a controlled small quantity of air into the fermenters and post fermenter vessels to promote microbiological oxidation. Remaining hydrogen sulphide is removed from the biogas using carbon absorption before combustion. The pasteurised digestate will be tankered off site. It is intended for use as fertiliser on land but will remain a waste unless it meets the requirements of the Anaerobic Digestion Quality Protocol (which includes Publically Available Specification (PAS) 110). This permit does not authorise the spreading of digestate on land.

Emissions to air including odour from building and vessel extraction are abated by a range of biofilters and carbon absorption units. There are no process discharges to water or sewer. Site surface water is collected in a sump linked to a 100m3 underground collection tank and then pumped automatically to a third 8068m^3 storage tank. The water is continuously monitored at all stages for dissolved oxygen content to indicate the presence

of any process materials with a significant Biochemical Oxygen Demand (BOD). If the final tank content dissolved oxygen concentration is satisfactory the contents are drained under gravity to the road sewer and thence to the River Tees as a manually activated operation.

The closest potential ecologically sensitive receptors are the Teesmouth and Cleveland Coast SPA/RAMSAR and Tees and Hartlepool Foreshore and Wetlands SSSI at 1.5km and Linthorpe Cemetery Local Nature reserve (1.8km) and Teesaurus Park wildlife site (0.6km).
The site operates its own environmental management system that includes weighbridge and visual checks of waste deliveries.

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 Consultation and web publicising responses

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

Key Determination Issues

1. Total Containment Volume

The initial application made reference to some containment bunding but only for selected smaller tanks (e.g. for diesel) and some key equipment. It was also stated that a Hazard and Operability (HAZOP) study had concluded that the risk of catastrophic tank failure of the larger tanks, by mechanical damage, fire or explosion, was sufficiently small that individual tank bunding was not required. Instead the site surface would be regraded, raised, sealed and surrounded by a low wall to ensure a containment volume of 500m^3 on the southern end of the site. This 500m^3 figure was calculated from the estimated volume from a tank over-foaming incident, plus loss of a tanker contents through driving away while still connected, added to a worst case rainfall.

The passive containment volume was increased to 600m^3 during determination when the 'active' containment proposal was changed to a pumped secondary storage one using one of the 8068m^3 final digestate storage tanks (see containment of emissions to water below).

Our Sector guidance note 5.06 (p38 point 44) states that bulk storage vessels should be located on an impervious surface that is resistant to the material being stored, with sealed construction joints within a bunded area with a capacity at least 110% of the largest vessel or 25% of the total tankage volume, whichever is the greater. This approach is reflected in the, as yet unpublished, How to Comply - additional guidance for anaerobic digestion which the applicant has nevertheless seen and referenced in Question 3a Technical Standards in Form B3 of the application.

The largest tanks in the proposed facility are final digestate storage tanks each of 8068m^3 capacity. 110% = 8874m^3.
In the initial application there were three digestate storage tanks but one will now be kept empty to be used as emergency remote secondary storage. So there are now five large process tanks on site totalling 32,556 m^3 capacity. 25% = 8139 m^3.
The total site containment of the emergency collection tank, south site containment and proposed 100m^3 + 30m^3 of collection sumps is equal to 8700m^3.
Although this total is just short of the 110% containment for a brim full final digestate tank we have accepted this proposal for this site because provision of the remaining volume would be disproportionately costly when compared to the environmental impact risk.

We reviewed the submissions and asked by Schedule 5 notice and subsequent e-mail exchanges for a copy of the supporting HAZOP and any other risk assessments to support the deviation from our guidance. The HAZOP record has been received as well as a Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) assessment of the risk of fire and explosion from the process, and a

further risk assessment of the risk of catastrophic tank failure using literature sourced values for failure probabilities and environmental impact severities.

This final risk assessment concluded that the digestate escaping from the site in the event of a catastrophic tank failure would be prevented from contaminating the groundwater by a layer of clay; would have only transient impact on the upper ground layers which are already likely to be contaminated by previous industrial use; and cannot reach the River Tees or other sensitive surface water bodies now that the containment strategy has been changed to an 'active' valve-closing one to a more passive remote pumped storage one.

The statement was also made that no similar tank from the tank suppliers or site built by the facility constructors had ever sustained a catastrophic tank failure to the best of the applicant's knowledge.

We have reviewed the various risk assessments submitted. We find that the proposed loss of containment solution by pumped remote secondary containment (in a tank originally intended for final digestate storage) is acceptable provided a number of additional measures are undertaken:

- All the actions/recommendations in the submitted HAZOP report relating to operational methods, fire and containment must be completed to the satisfaction of the Environment Agency before commissioning begins. We have included a Pre-Operational condition in the permit to ensure this.
- The submitted risk assessments did not contain sufficient details of consideration of the consequences of fire on site. Possible external fire sources include the many tankers per day on the confined site and the activities in the other half of the building that contains the reception hall. We have therefore included a Pre-Operational condition in the permit that before beginning commissioning of the new anaerobic digestion plant the operator shall submit to the Environment Agency, for approval, an assessment of the consequences of fire on site, including, but not limited to, quantitative consideration of the containment of fire-fighting water and other materials.
- There are no details of checking of construction quality of the tank although we understand hydraulic testing has been carried out. We have included Pre-Operational conditions in the permit to submit a full report of the tanks and bunding (including the whole site containment) by a qualified engineer for approval before commissioning begins.
- The DSEAR Risk assessment report recommends checking safety critical devices and instrumentation to as built status and operation. The application does not contain any details of provision for this. We have included a Pre-Operational condition in the permit to ensure that all the actions/recommendations in the submitted DSEAR report must be completed to the satisfaction of the Environment Agency before commissioning begins.
- The construction quality and maintenance of the process tanks on this site is critical to the application risk assessment conclusion that total

passive containment of a catastrophic tank failure is not required. We have therefore included process monitoring requirements in Table S3.3 of the permit to require a weekly external visual check for condition and leaks and a full internal inspection by a qualified engineer after 5 years and thereafter every 3 years. Records of these inspections must be kept for audit.

2. Containment of Emissions to Water

Our Sector guidance note 5.06 (p38 point 44) states that bulk storage vessels should be located on an impervious surface that is resistant to material being stored, with sealed construction joints within a bunded area with a capacity at least 110% of the largest vessel or 25% of the total tankage volume, whichever is the greater. This approach is reflected in the, as yet unpublished, How to Comply - additional guidance for anaerobic digestion which the applicant has nevertheless referenced in Question 3a Technical Standards in Form B3 of the application.

However, the initial application instead proposed regrading, sealing and raising the site surface to provide 500m^3 of containment volume on the site. This containment would also only be activated when an 'organic sensor' in the drain off-site triggered a 'slam-shut' valve. The 500m^3 volume was justified by reference to a HAZOP study that reportedly concluded the risk of catastrophic tank failure or fire on site was low and therefore that only containment for over-foaming, tanker drive away and heavy rainfall need be considered.

In the initial application in normal operation site surface water would drain under gravity to a surface water sewer and from there direct to the tidal River Tees, upstream of the European designated habitat sites. The applicant accepted that the impact of high BOD material entering the River Tees would be highly significant owing to a radical reduction in dissolved oxygen content.

We reviewed this submission and asked for further information in the Schedule 5 notice about the HAZOP study and other supporting risk assessments and details of the quality of construction of the site surfaces, and tanks, the sensor and valve and the foam detection and antifoam dispensing systems.

We assessed all the information received and concluded that the containment strategy as proposed represented an unacceptable risk to the environment.

After discussions with the applicant, during a site visit and subsequently, the application was amended to close the direct path to road sewer. Instead the surface water will drain through a small collection sump to an underground 100m^3 collection tank. From there is will be pumped to a 8068m^3 collection tank (formerly intended for final digestate). At each step it will be monitored by dissolved oxygen sensors connected to the SCADA monitoring and alarm system. The collection tank contents will

be routinely inspected by dissolved oxygen sensor and visual sample. If satisfactory the tank will be drained out to the road sewer through a lockable valve in a manual operation. The 500m^3 of site containment will remain for emergencies. We believe this change represents a reduction in potential environmental impact risk and therefore we did not consider it necessary to reconsult externally.

We accept this approach as suitable to address the risk of leaks and spills and all but the most severe over-foaming provided the pumps and sensors are subject to a satisfactory maintenance and calibration programme. We consider the risk of severe over-foaming is sufficiently small that the cost of further measures would be disproportionate to the environmental benefit. We have included the details of the amended approach in the permit by reference in the Operational Techniques table S1.2 to the Final Schedule 5 response received on 29/07/14 and subsequent e-mails. We have also set a minimum limit of 5mg/l dissolved oxygen in a visually clear and not significantly coloured sample for each discharge to road sewer.

We accept that some of the installation of measures to implement the amended approach will only be completed during the period of process commissioning and early production so we have also included an improvement condition in the permit to ensure the work is completed in the manner and to the target timescales in the submitted letters unless otherwise agreed with the Environment Agency.

HAZOP and Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) reports were submitted in response to a Schedule 5 notice. The risk of catastrophic tank failure is addressed in a separately submitted risk assessment document and elsewhere in this decision document. The DSEAR document deals with the risk of fire caused by the operation but does not consider the consequences of fire started elsewhere. The site will accept many tankers per day and shares its reception hall building with another company so the risk of fire from other sources cannot be assumed to be insignificant.

Therefore we have included preoperational conditions in the permit table S1.4 for the operator to submit
i)
a full assessment of the consequences of fire on site, including fire-fighting water containment.
ii)
the evidence of consideration of recommendations 2.1 to 2.7, assessment of measures by a competent person and the explosion protection document all referred to within the DSEAR report.
iii)
the evidence of consideration of all the action points in the HAZOP record relating to operational methods, containment and fire.

We would also include operational and plant commitments already made

in the HAZOP and DSEAR reports in the permit by reference in the Operational Techniques table S1.2 .

3. Identity of Operator

The original applicant was Greenlight Teesside Limited but it became apparent during determination that this was only because the process to appoint the company to operate the site was still in progress.

In June 2014 BioConstruct GmBH were appointed to run the site. They are experienced in this Anaerobic Digestion process and have been involved in the site construction. A UK subsidiary BioConstruct NewEnergy Ltd has been set up, registered at Companies House, to be the operator. Replacement Part A and Part F application forms have been submitted.

The reasons for this approach are understood and a change of operator during determination is allowed in the DEFRA Core guidance for environmental permitting.

We are satisfied that the BioConstruct NewEnergy Ltd will have day to day control over the operation of the facility after the granting of the permit.

4. Noise

The application included the results of noise modelling and an outline noise management plan. We reviewed these submissions and asked for further clarification in the Schedule 5 notice about the proximity of the closest residence, the inclusion of the flare operation in the modelling and how tonal and directional effects had been included in the model (which uses equipment sound power level values from a similar plant in Germany).

The applicant provided a satisfactory detailed description of the surrounding residential and other receptors. They believe that the flare is only likely to operate occasionally and the tonal and directional components of the site are similar to the German plant and will be adequately addressed by the Noise Management Plan; so neither is likely to affect the overall conclusion of no significant or at worst marginal noise impact at any receptor. However, it is accepted by the operator that the noise impact is currently only modelled so they have made a commitment to continue to assess major noise issues, to adopt those measures necessary such that noise does not cause annoyance or nuisance, and to update the Noise Management Plan within 12 months of the start of normal operation.

This commitment is already required as a condition of the planning permission. We have also included these commitments and the Noise Management Plan in the permit by reference in the Operational

techniques table S1.2. We have additionally included an improvement condition in table S1.3 to conduct and submit a confirmatory noise survey for comparison with the modelling conclusions within 12 months of starting normal operations.

With these measures we have decided we do not need to impose additional noise conditions beyond the condition (3.5.1) in the standard permit template.

5. Odour

The application included the results of odour modelling and an outline odour management plan. We reviewed these submissions and asked for further clarification in the Schedule 5 notice about details of the biofilter odour abatement for the reception hall, the proximity of the closest residence and the air change rate in the reception hall.

The applicant provided a satisfactory detailed description of the surrounding residential and other receptors and an outline description of the design and operational parameters of the biofilter. Our guidance recommends 3 air changes per hour for reception halls but the applicant plans a variable rate system to minimise energy use of 2 changes per hour in normal operation and 4 changes per hour during deliveries. The majority of the site deliveries are liquid waste by tanker and it is proposed that during this or solid food waste deliveries to the mixing pit the reception door will be closed. The submitted odour modelling has assumed the worst case of 2 air changes per hour.

We have assessed the odour modelling (for the whole site) and the Odour Management Plan. The requirements of the Odour Management Plan have been included in the permit by reference in Operational Techniques table S1.2.

With these measures we have decided we do not need to impose additional odour conditions beyond the condition (3.4.1) in the standard permit template.

6. Activity Coding and Accepted Waste Codes

The application was for an anaerobic digestion plant under EPR scheduled activity 5.4 A1 (b)(i) (as amended in 2013) for recovery or mix of recovery and disposal of more than 100 tonne/day of non-hazardous waste involving biological treatment. This covers the site operations from receipt of permitted waste through digestion and includes maceration, pasteurisation, chemical additions, biological desulphurisation and gas cleaning. The treatment of animal waste is limited to 10 tonnes/day under this activity reference. Other site activities are Directly Associated Activities in the permit table S1.1.

We reviewed this submission and asked for further information in the

Schedule 5 notice about requested waste codes. The definition of animal waste for anaerobic digestion was also clarified for the applicant. The applicant submitted a revised list of waste codes. The scheduled activity is now limited to the final agreed list of waste codes in Table S2.2 of the permit.

The applicant removed the hazardous waste code 07 01 08* for glycerol from biodiesel manufacture from the original proposed list stating that glycerol will only be accepted under non-hazardous EWC code 19 02 10 and only in circumstances where residual methanol is demonstrated to be below the hazardous waste threshold.

This commitment has been included in the permit by reference in Operational Techniques table S1.2. Additionally we have included an improvement condition in table S1.3 that the operator must submit evidence of the derivation of the methanol concentration and temperature limits for the glycerol waste accepted on site that will ensure its non-hazardous categorisation under WM2.

7. Emissions to Air

The applicant has carried out an assessment using our H1 methodology including Annex (f) releases to air. This screening considered emissions from the four exhausts from the CHP plant (which are grouped together in one stack), the flare, the reception biofilter and the slurry station vent treatment against long term and short term Environmental Assessment Levels (EAL). The stack height was correctly adjusted to effective height in the H1 assessment.

Long term Emissions Screening						
Substance	**EAL ($\mu g/m^3$)**	**PC ($\mu g/m^3$)**	**PC as % of EAL**	**Background ($\mu g/m^3$) LT**	**PEC ($\mu g/m^3$)**	**PEC as % of EAL**
NO2	40	3.43	**8.6**	32.6	36.0	**90.1**
PM10 (annual mean)	40	0.0511	0.1			
NMVOCs as benzene	5	0.738	**14.8**	0.451	1.19	**23.8**

Short term Emissions Screening						
Substance	**EAL ($\mu g/m^3$)**	**PC ($\mu g/m^3$)**	**PC as % of EAL**	**Background ($\mu g/m^3$)**	**PEC ($\mu g/m^3$)**	**PEC as % of headroom**
NO2	200	11.7	5.9			
SO2 (15min mean)	266	17.4	6.5			
SO2 (1 hour mean)	350	23.3	6.7			
SO2 (24 hr mean)	125	14.8	**11.8**	11.2	26.0	**25.3**

Short term Emissions Screening						
Substance	**EAL ($\mu g/m^3$)**	**PC ($\mu g/m^3$)**	**PC as % of EAL**	**Background ($\mu g/m^3$)**	**PEC ($\mu g/m^3$)**	**PEC as % of headroom**
PM10 (24 hr mean)	50	0.135	0.3			
CO	10000	85	0.9			

This screening concluded that not all Process Contributions (PC) could be considered insignificant (<1% of long term EAL and <10% short term EAL). The next step was to consider the long term background concentration and to add this to the process contribution, either long or short term to generate a Predicted Environmental Concentration (PEC) and to consider this against the long or short term EAL. If this PEC is more than 70% of the EAL for long term or more than 20% of the headroom (EAL – 2 x long term background) for short term then further detailed air modelling is necessary. The underlined bold figures in the tables show that further modelling was needed in this case for nitrogen dioxide, sulphur dioxide and non-methane Volatile Organic Compounds as benzene.

The applicant submitted output from an AERMOD modelling for NO_2, SO_2, Benzene, particulates (PM10) and carbon monoxide (CO) emissions from only the four CHP exhausts (as the majority contributors). The predicted environmental concentrations at all relevant receptor locations were below the Air Quality Standard objectives for all pollutants considered . As all concentrations at the wide variety of ecological and residential receptors were less than 1% of long term EAL and less than 10% of short term EAL the applicant concluded emissions could therefore be considered insignificant in accordance with H1 methodology.

However, we reviewed the submitted H1 and modelling and were unable to replicate the values for volumetric flows at actual and reference conditions from the supplied stack parameters such as stack diameter, exit velocity and moisture and oxygen content. We asked for confirmation of the parameters in the Schedule 5 notice and by contacting the applicant's consultant directly but were unable to completely resolve the issue.

We also noted that the tank sizing inputs to the model were significantly underestimated as they did not take account of the increase in tank sizes in the planning permission amendment or the gas collection membranes on top of the tanks.

We therefore carried out a screening exercise using a simplified AERMOD modelling program using the emissions parameters we believe to be the worst case and a rectangular building to represent either the fermenters and post fermenter tanks or the three digestate tanks. The receptor locations used were the same as in the submitted modelling.

We confirmed the conclusion from the applicant's H1 assessment that the

impact from particulates PM10 and carbon monoxide at all locations is insignificant. The highest process contribution for nitrogen dioxide produced a PEC at 105% of the long term EAL but this point is located within the west side of the site. All other location PEC results for NO_2, SO_2 and VOCs as benzene were less than the EALs. Although we do not necessarily accept the submitted modelling conclusion of insignificance for all pollutants at all locations our worst case screening exercise shows that the emissions are acceptable and we therefore do not need to impose tighter air emission limits in table S3.1 than the standard benchmark limits.

Nevertheless, we have included an improvement condition in table S1.3 to submit a commissioning report that will include, but not be limited to, check monitoring of the emissions from the 4 stack exhausts and the flare to confirm the model inputs.

8. Manning levels, Competence and Training

The Schedule 5 notice response confirmed that there will be one site manager for the facility with two shifts per day of two plant operators. This operational cover will be provided from 6am to 10pm Monday to Friday and part of Saturday. At other times it was confirmed there will be a contract security representative on site providing a 24 hour presence who can contact the site manager. The plant will continue to operate automatically even when the operational staff are not present and would contact the site manager by pager/mobile in alarm scenarios allowing them to access the control system remotely to identify the issue.

The plant operators will be multi-skilled as process operators, maintenance technicians (mechanical and electrical), banksmen for tanker loading/unloading, weighbridge operators and in the taking of waste reception samples.

The site manager (or designated plant operator) will work towards a formal Environmental Permit Operators Certificate and then WAMITAB diploma in the months after start up. The process operators will be trained during commissioning by experienced BioConstruct GmBH personnel using operation and training manuals to be adapted specifically for the Middlesbrough site by BioConstruct GmBH.

We reviewed the submission in the application and Schedule 5 notice response and have included these commitments in the permit by reference in the Operational Techniques table S1.2.

The identified training and competence of the operational personnel is only the waste industry norm. There is no evidence that there will anyone on site with a deeper understanding of the process to prevent or correct abnormal process conditions. Indeed the SCADA system will run the site unattended for periods at weekends and overnight. The application admits that tight control of flow rates is necessary to avoid foaming; when using glycerol in particular.

We have therefore included a pre-operational condition in table S1.4 to require the operator to make the completed operational, training and maintenance manuals available for Environment Agency inspection and approval at the site before commissioning begins.

Furthermore, we have included a pre-operational condition in table S1.4 to require the operator to submit a commissioning plan for approval before accepting any waste on site in order to demonstrate that permit conditions will be met under all anticipated operating conditions.

9. Monitoring

The application contained proposals for monitoring the air quality of the four CHP exhausts in the stack and the emergency flare stack. The applicant has committed to monitoring in commissioning, and annually thereafter for the pollutants identified in the modelling. Benchmark limits have been set in table S3.1 and reporting requirements in table S4.1. The applicant has confirmed that temporary scaffolding will be used for access at first with a view to a more permanent access in future.

The application, and Schedule 5 response to clarification questions, also contains details of waste acceptance sampling, in-process monitoring, plant inspection and the intention to use dissolved oxygen monitoring of surface water discharges.

We have set monitoring limits and reporting requirements in the permit for dissolved oxygen in the surface water discharged off-site in line with statutory limits in the receiving waters.

The proposed sampling and inspection of accepted waste was only to be a visual inspection for non-conformance with the delivery description and sample for retrospective analysis off-site for inhibitors and chemical contaminants. We are not satisfied that this will provide the degree of control of the process needed to make the risk of over-foaming or tank failure much lower than the industry norm. We have therefore included requirements in the permit to monitor the main digester contents for Volatile Fatty Acid concentration, total alkalinity and Carbon:Nitrogen ratio weekly and to report the results to the Environment Agency quarterly as evidence of the process being under control.

Annex 1: decision checklist

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.	✓
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. But see Identity of Operator in key determination issues above. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.	✓
The Facility		
The regulated facility	The nature of the operations to take place at the site required clarification. See Activity Coding and Accepted Waste Codes in key determination issues above. The decision on the facility was taken in accordance with RGN2 Understanding the meaning of regulated facility. After some clarification provided in the response to the	

Aspect considered	Justification / Detail	Criteria met Yes
	Schedule 5 notice it was concluded that the regulated facility is an installation which comprises the following EPR listed activities and Directly Associated activities: • S5.4 A(1)(b)(i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving one or more of the following activities: biological treatment • DAA: Biogas combustion • DAA: Emergency flare operation • DAA: Raw material storage • DAA: Gas storage • DAA: Digestate storage • DAA: Diesel Oil combustion	
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. A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.	✓
Planning permission	Planning permission was granted in July 2011 with a number of conditions. Some of these overlap with the application for an Environmental Permit including: • Requirement for a site contamination investigation. • Requirement for assessment of impact of emissions to air. • Complying with the submitted odour control measures. • Re-approval of any increase in stack height. • Development is in complete accordance with the approved plans and specifications. In May 2013 the applicant's then consultants Earthly Energy Limited via Harkin Associates were granted a non-material amendment to the planning permission that	✓

Aspect considered	Justification / Detail	Criteria met Yes
	included an approximately 60% increase in tank sizes and increasing the stack height from 12 to 28m.	
Site condition report	The operator has provided a description of the condition of the site. 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). The facility is situated on the former D1 Oils premises on Forty Foot Road, Middlesbrough. The site has a history of over 100 years of industrial use and the risk of contamination is high. We have assessed the submitted Site Condition Report which includes a survey of historical records and records of intrusive sampling. There is a layer of impervious clay under the whole site. We accept the conclusion that site lies in an area of 'Non Aquifer' and low groundwater vulnerability and that the proposed site activities do not pose a significant risk to groundwater.	✓
Biodiversity, Heritage, Landscape and Nature Conservation	The application is within the relevant distance criteria of Teesmouth and Cleveland Coast RAMSAR site; Teesmouth and Cleveland Coast Special Protected Area; and Tees and Hartlepool Foreshore and Wetlands Site of Special Scientific Interest. It is also within our screening distance for Local Wildlife sites at Haverton Hill Shipyard, Air Products Reedbeds, Portrack meadows and Teesaurus Park and a Local Nature Reserve at Linthorpe Cemetery. 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. See Emissions to Air and Containment of Emissions to Water in key determination issues above. An Appendix 11 Form was sent to Natural England for information only. No response has been received.	✓

Aspect considered	Justification / Detail	Criteria met Yes
	The decision was taken in accordance with our guidance.	
Environmental Risk Assessment and operating techniques		
EIA	In determining the application we have considered the Environmental Statement. We have also considered the planning permission and the committee report approving it.	✓
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is unsatisfactory in parts. See key determination issues above.	✓
Operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. See key determination issues above for operating techniques submitted in the application and during the determination that are included as references in the Operating Techniques Table S1.2	✓
The permit conditions		
Raw materials	We have not specified limits and controls on the use of raw materials and fuels.	✓
Waste types	We have specified the permitted waste types, descriptions and quantities which can be accepted at the regulated facility in Table S2.2. We are satisfied that the operator can accept these wastes for the reasons given in Activity Coding and Accepted Waste Codes in key determination issues above.	✓
Pre-operational conditions	Based on the information in the application, we consider that we need to impose pre-operational conditions. See key determination issues above.	✓
Improvement conditions	Based on the information on the application, we consider that we need to impose improvement conditions.	✓

Aspect considered	Justification / Detail	Criteria met Yes
	See key determination issues above.	
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 have been identified as being emitted to air in significant quantities and ELVs have been set for those substances. Oxides of nitrogen Sulphur Dioxide Carbon Monoxide Total Volatile Organic Compounds (VOCs) Non-methane VOCs A minimum limit has also been set for dissolved oxygen concentration in the water discharged from site to road sewer.	✓
Monitoring	We have decided that monitoring will be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. We made these decisions in accordance with our guidance on emissions to air H1 Annex (f) and monitoring method guidance M2.	✓
Reporting	We have specified reporting in the permit for monitoring results and other process performance parameters.	✓
Operator Competence		
Environment management system	We are not fully satisfied that the operator competence is currently adequate to support the increased level of process control and understanding required to support the reasoning that loss of containment risk from this facility is considerably lower than the industry norm.	✓

Aspect considered	Justification / Detail	Criteria met Yes
	See key Determination Issues. The applicant has proposed a comprehensive training programme before and during commissioning. We have therefore imposed a pre-operational condition to make all the EMS documentation including training and operational instructions available to the Environment Agency before commissioning for approval.	
Technical competence	Technical competency is required for activities permitted. The operator has proposed the nominated personnel gain the necessary certification within the allowed timescales.	✓
Relevant convictions	The National Enforcement Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found.	✓

Annex 2: Consultation and web publicising responses

The application was publicised on our website after Duly Making. No responses were received from members of the general public.

One letter was received from Paget-Brown (UK) acting for Earthly Energy Ltd.

Response received from
Paget-Brown (UK) acting for Earthly Energy Ltd (EEL)
Brief summary of issues raised
We were advised of EEL's objection to the granting of any further licence for the Site. EEL is in litigation against the companies which currently control the site, namely Greenlight Teesside Ltd, Greensphere AD 1 Limited and Greensphere Capital LLP. This litigation led to EEL issuing an Unfair Prejudice Petition on 23rd December 2013. EEL is of the view that SLR's application is based upon confidential data (subject to the Data Protection Act and/or Non-Disclosure Agreements) which has been taken without EEL's permission. This confidential data includes, but is not limited to (1) EEL's health and safety manual (2) operational manual (3) feedstock analysis reports and data (4) site management data and protocols and (5) EEL's own application(s) for an environmental agency licence/permits all of which EEL suspects has formed a large part of SLR's application.
Summary of actions taken or show how this has been covered
We have received a correctly authorised application for an EPR permit from the current controllers of the site. We must determine the application but the source of the information contained within it is something that is not within our remit to consider.

We sent consultation opportunity letters to the following bodies in accordance with our guidelines for consultation and, where appropriate, working together agreements:-
Middlesbrough Director of Public Health
Public Health England
Animal health and Veterinary Laboratories Agency
Civil Aviation Authority
Environmental Protection Department, Middlesbrough Council
Cleveland Fire and Rescue Service
Food Standards Agency
PD Tees Port Harbour Master
Health and Safety Executive
National Grid Plant Protection
Northumberland Inshore Fisheries and Conservation Authority
Northumberland Water Trade Effluent Advisor

Summary of responses to consultation (where a response has been received) and the way in which we have taken these into account in the determination process.

Response received from
PD Ports Harbour master – 09/05/14
Brief summary of issues raised
No issues raised
Summary of actions taken or show how this has been covered
No action required

Response received from
Environmental Protection Department, Middlesbrough Council – 19/05/14
Brief summary of issues raised
The consultee sent a copy of the conditions associated with the 2011 granting of planning permission. Particularly highlighted was condition 6 requiring the planning applicant to carry out a noise survey once the plant is operational
Summary of actions taken or show how this has been covered
The permit application contains details of a noise assessment report (conducted in accordance with our H3 guidance) and a Noise Management Plan. Having reviewed these submissions we consider that the standard noise section conditions in a permit will be sufficient to control the risk of noise pollution from the site at residential receivers.