

Natural Resources Wales permitting decisions

Five Fords WwTW AAD facility – Dŵr Cymru Cyfyngedig

Decision Document

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Glossary of acronyms used in this document

(Please note that this glossary is standard for our decision documents and therefore not all these acronyms are necessarily used in this document.)

BAT	Best Available Technique(s)
BAT-AEL	BAT Associated Emission Level
BREF	BAT Reference Note
CEM	Continuous emissions monitor
CHP	Combined heat and power
CROW	Countryside and rights of way Act 2000
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
DD	Decision document
EAL	Environmental assessment level
ELV	Emission limit value
EMAS	EU Eco Management and Audit Scheme
EMS	Environmental Management System
EPR	Environmental Permitting (England and Wales) Regulations 2016
EQS	Environmental quality standard
EU-EQS	European Union Environmental Quality Standard
GWP	Global Warming Potential
IED	Industrial Emissions Directive (2010/75/EU)
LHB	Local Health Board
NO _x	Oxides of nitrogen (NO plus NO ₂ expressed as NO ₂)
OPRA	Operator Performance Risk Appraisal
PC	Process Contribution
PEC	Predicted Environmental Concentration
PHW	Public Health Wales
PPS	Public participation statement
PR	Public register
RGS	Regulatory Guidance Series
SAC	Special Area of Conservation
SCR	Selective catalytic reduction
SGN	Sector guidance note

SPA(s)	Special Protection Area(s)
SSSI(s)	Site(s) of Special Scientific Interest
TGN	Technical guidance note
WHO	World Health Organisation

1. Our decision

We have decided to grant the Permit variation for the Five Fords WwTW AAD Facility, operated by Dŵr Cymru Cyfyngedig.

The Permit number is EPR/AP3139FT.

We consider that, in reaching this 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.

2. 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.

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

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

3. Key issues of the decision

3.1 What the Installation does

The Installation is located within a predominantly rural area, with the surrounding areas consisting of agricultural land, within the village of Marchwiel, Wrexham is 2km away. The Installation is bordered by areas of woodland and fields. The River Clywedog is on the Northern boundary of the site.

Upstream of the main Anaerobic Digestion (AD) plant, a Cambi thermal hydrolysis process (THP) plant increases the yield of gas obtained from the digestion of sludge and also increases the quality of the fertiliser produced from the AD process.

Organic matter is broken down in the AD process by naturally occurring bacteria in the absence of air resulting in the production of biogas and fertiliser. The biogas is then either injected into the local distribution system or burnt in on-site CHP engines to generate electricity. The feedstock associated with this plant is predominantly sludge from the on-site sewerage treatment works and satellite sites in North Wales.

A liquor treatment plant reduces the pollutants present in the post digestion dewatering centrate to acceptable levels before pumping back to the main waste water treatment plant. The resultant biogas is sent from the AD process to the gas to grid facility. The Biomethane injection plant (BIP) comprises three main packages; Biogas Upgrade plant (BUP); Grid Entry Unit (GEU) and Propane Storage and Transfer Plant (PSTP). The BIP is intended to take biogas produced from the anaerobic digestion part of the plant to allow direct injection of biomethane into the national grid. The BUP has a maximum design capacity to handle 930Nm³/hour of biogas.

The BUP cleans the biogas of contaminants deemed harmful to the natural gas grid and reduces the carbon dioxide content, thereby increasing the calorific value (CV) of the gas so it can be designated as biomethane. The pressure of the gas entering the BUP is increased by a gas booster and passed through 2 sets of activated carbon filters (ACFs) configure in series.

The first set of ACFs remove volatile organic compounds (VOCs) and siloxanes, the second set removes Hydrogen Sulphide. The biogas is then compressed, cooled and dried before being passed through a set of membranes which separate the methane from the carbon dioxide. Raw biogas pre gas to grid is 65% methane and is >99% methane post gas to grid.

The biomethane is then passed to the national grid entry unit where a small amount of Propane is added to produce enriched biomethane with a calorific value compatible with that required by the Gas Network Operator. Prior to injection into the gas grid network, the enriched biomethane is monitored, analysed and odourised. The odourisation of the gas is a legal requirement.

3.2 Key Issues in the Determination

The key issues arising during this determination were;

- Emissions to air
- Best Available Techniques
- Containment

We therefore describe how we determined these issues in more detail in this document.

3.3 Consultation on the Application

The consultation requirements were identified and implemented. The decision was taken in accordance with our Public Participation Statement and our Working Together Agreements.

We advertised receipt of the Application by a notice placed on our website, which contained all the information required by the EPR and IED, including telling people where and when they could see a copy of the Application. This ran for 4 weeks from

the 1st November 2018 until the 30th November 2018. We placed copies of the application on our Public Register and anyone wishing to see these documents could do so.

At the same time, we sent copies of the Application to the following bodies, which includes those with whom we have “Working Together Agreements”.

- Public Health Wales
- Wrexham County Borough Council – planning department
- Wrexham County Borough Council – environmental health department
- North Wales Fire & Rescue Service

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our final determination.

On completion of the draft determination, we advertised this draft determination on our website. This ran for four weeks from 13th August 2019 until 11th September 2019. No responses were received.

3.4 Requests for further information

The application was submitted on 31st July 2018 and was duly made on 29th October 2018. As is common with these types of application, further information was required to enable final determination.

We issued four ‘Notices requiring further information’ (Schedule 5 Notice) on the 9th November 2018, 15th January 2019, 26th March 2019 and the 19th September requesting further information in relation to their Air Quality assessment, Medium

Combustion Plant Directive, containment, site surfacing, the baseline conditions covered by the Site Condition Report (SCR) and site plan.

The Applicant submitted the response to the 1st Schedule 5 notice on the 4th December 2018, the response to the 2nd Schedule 5 notice was received on the 5th March 2019 and all parts of the response to the 3rd schedule 5 notice was received by the 11th July 2019. The 4th schedule 5 notice was received by the 26th September. The responses received satisfied all notices.

4. Operator

We are satisfied that 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”.

5. The Legal Framework

5.1 European Directives

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

The applicability of the following European directives has particular relevance to combustion plant applications. We have therefore assessed their relevance to this particular Permit as follows:

- Industrial Emissions Directive
- Medium Combustion Plant Directive

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

6.The Regulated Facility

This Application is to operate an Installation which is subject principally to the Environmental Permitting Regulations 2016 ('EPR') and is subject to the requirements of the Industrial Emissions Directive ('IED').

The Installation is subject to the EPR because it carries out an activity listed in Part 2 of Schedule 1 to the EPR:

- S5.4 A(1)(b) - Recovery 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, and excluding activities covered by Council Directive 91/271/EEC concerning urban waste-water treatment (a)— (i) biological treatment;
- 1.2 A(1)(a) – refining gas where this is likely to involve the use of 1,000 tonnes of gas in any 12-month period.

Schedule 1 EPR defines 'Installation' to include 'directly associated activities' ('DAA'). At this Installation, the DAAs include propane storage and transfer plant, steam and electrical power supply, emergency flare operation, gas storage, siloxane removal plant, discharge of condensate and digestate storage.

The Installation is also subject to Schedule 25A of EPR – MCP, due to 2 x 1.668MWth steam raising boilers. These are classed as Medium Combustion Plants (MCPs) and are compliant with the Directive.

6.1 The site

The Operator submitted a site plan which we consider satisfactory, showing the site of the Installation, its extent, and emission points.

The site plan is included in Schedule 7 of the Permit, and the Operator is required to carry out the permitted activities within the site boundary.

6.2 Site Condition Report

The Operator submitted a revised Site Condition Report to account for the additional land that is being added as part of this variation. The site condition report from 2011 to support the original permit application remains valid for the existing site boundary as no changes have taken place in that area. The proposed extension to the site increases the total operational area to approximately 1.935 Ha.

The site is not within a groundwater source protection zone or flood zone.

No significant contamination was identified to be present on the site based on ground investigation data assessed during Version 1 of the Site Condition Report (2011). No known contamination of the existing or proposed site has been identified and no contamination events have occurred, since the issue of this report.

An intrusive ground investigation was undertaken in October 2016 in the location of the proposed extension to identify conditions on the site prior to the commencement of a permit variation. The scope of the investigation comprised cable percussion boreholes (to 15m bgl), two rotary follow-on boreholes (to a maximum of 23.8m bgl), trial pits (to 4.5m bgl) and in-situ testing and laboratory testing. Ten samples of made ground were submitted for laboratory analysis for metals, speciated polycyclic aromatic hydrocarbons (PAH), BTEX compounds (benzene, toluene, ethylbenzene, and xylene), total petroleum hydrocarbons (TPH) and asbestos. The concentrations were compared to generic screening values protective of human health for a commercial end use. There were no exceedances of any criteria.

Leachate analysis of the soil samples identified widespread but marginal exceedances of metals (copper, iron and manganese) as well as exceedances of ammoniacal nitrogen and phenol against water quality standards (Environmental Quality Standards (EQS) and Drinking Water Standards (DWS)).

It should be noted that the leachate exceedances were found in multiple samples, indicating that the contamination is widespread in the area and representative of baseline conditions on the site.

Groundwater samples from the superficial deposits identified slightly elevated concentrations of metals, ammoniacal nitrogen and phenol when compared to water quality standards. These were similar to those determinants identified as exceeding water quality standards in the leachate.

Ground gas monitoring was undertaken on four occasions in November 2016. Concentrations of methane were all <0.1%v/v except for a single occasion where a concentration of 0.1%v/v was recorded in BH1605. Concentrations of carbon dioxide were generally <0.1%v/v with a maximum concentration of 0.4%vol recorded in BH1603. Concentrations of carbon monoxide were all <0.1ppm except for a single occasion where a concentration of 1.6ppm was recorded in BH1603. Concentrations of hydrogen sulphide were all <0.1ppm. Flow rate was recorded on all occasions to be <0.1l/hr. BS8485 indicates that should methane be encountered exceeding 1%vol or carbon dioxide exceeding 5%vol some level of gas protection for any building type will be required regardless of gas flow rate, as these thresholds were not reached, the site is categorised as 'Very Low Risk' and there is no need for gas protection on the site.

6.3 Proposed site design: potentially polluting substances and prevention measures

Process water used on-site is contained within a closed loop system, whereby the water is recycled for re-use. Any process water that cannot be re-used within the system will be routed to the adjacent waste water treatment works for treatment prior to discharge to the environment.

The ground on which the AAD plant is situated is to be covered in an impermeable, concrete surface to prevent discharges to ground and surface waters – Improvement Condition (IC) 7/8. The ground on which the existing digester tanks are located are to be covered in an impermeable concrete surface too. As well as concrete outside, the area will be kerbed to ensure containment and sufficient drainage added to ensure spills can be captured and redirected to the Wastewater Treatment Work through the sealed drainage system. All access roads within the site are fitted with built-up kerbing and sealed joints to remove any accumulated water to the sealed drainage system.

Further details on containment capacity etc will be provided via IC7. All effluent, spillages and storm water will be routed to the adjacent waste water treatment works via the sealed drainage system. It is also advised that sleeping policemen are installed.

The Operator has categorised items of equipment into 2 classes relating to the probability and risk of a sludge spillage;

- items with moving parts requiring frequent maintenance and more liable to a “failure” event, and;
- storage items with no moving parts where leakage will be due to a compromise in structural integrity or failure of installed controlled systems.

Based on the above categories, all pumps, external mixers, centrifuges, the polymer dosing plants, cake import conveyor, Odour Control Units, THP and sludge coolers are located on bunded slabs that enable sludge spillages to be contained, washed down and returned to the WwTW via the sealed drainage system for treatment.

Storage silos are located on bunded slabs which drain to the adjacent WwTW via the site’s sealed drainage system, however, the bunding is not sized for a complete failure of the silo itself. The bunding will capture the smaller, more likely spills from on-site activities. The tanks are located on slabs that have concrete skirts which capture small spillages caused by leaking joints etc. Like the silos these drain to the adjacent WwTW via the sealed drainage system, meaning all spillages are contained on-site and there is no drainage to surface water or the public sewer. The tanks themselves have drain down systems that are again directed to the sealed drainage network.

All tanks and silos on-site have a detailed maintenance regime in place and comprehensive control measures serving the tanks that alarm if a level drops when there are no pumping operations taking place, this will alert the operators to a potential leak, meaning a complete failure of the tank/silo is unlikely.

If there was a total failure of one of the tanks, which based on rigorous maintenance regimes is unlikely, it would be routed to the adjacent WwTW via the sealed drainage

system. The sealed drainage system would act as attenuation. This is a pumped system with storage within the pipes, manholes and pumping stations. These pumping stations can stop the sludge being pumped forward if required, but in normal operation would route the sludge to the adjacent works for treatment.

The treatment works has biological treatment capacity in normal operation. However, if the works is hydraulically overloaded the flows will be forwarded to the storm system, however, the sealed drainage system would return the flow to the storm tank return chamber (i.e. downstream of storm). The sludge would be passed on for further treatment in all circumstances and would not be released to the environment.

The Operator has also followed the guidance document *“Control and monitor emissions for your environmental permit”* to improve the environmental protection on the site. The Operator has ensured that there are no tanks/silos located near watercourses, there are no tanks located in a flood risk area, the concrete slabs on which the tanks/silos are situated are designed considering the contents of the vessels and fully kerbed roads have been constructed where spillages due to sludge transport can be contained.

Based on the low residual risk of catastrophic failure of a vessel, the control and maintenance regime, the measures put in place with regards to reducing the risk of spillages from the operations and the tertiary containment of the sealed drainage system, the adjacent WwTW and storm holding tanks, the containment measures on-site are acceptable.

There are no releases to land or groundwater associated with the Installation. In addition, there are no point source releases of process effluents to controlled waters or public sewer from site.

All raw materials are handled and stored within the on-site buildings or within silos once on-site, with the exception of the biogas which is stored in dedicated gas storage vessels.

Water treatment chemicals and polymers for use within the boiler system are stored within the boiler building in tablet form on hard standing within an area served by a sealed drainage system. Polymers are stored in sealed silos within a bunded area.

All substances are assessed for COSHH compliance where relevant and stored and handled accordingly. Material Data Safety Sheets (MSDS) are kept on-site.

There is a designated waste management area on-site, where all skips and containers are kept, they are on a concrete hardstanding to prevent spillages to ground, all skips are clearly marked and all waste (except gas cylinders) are sorted in this area.

The Operator has confirmed that all relevant elements of the Installation will be designed in accordance with recognised standards, methodologies and practices.

6.4 Closure and decommissioning

Having considered the information submitted in the Permit application, we are satisfied that the appropriate measures will be in place for the closure and decommissioning of the Installation.

Permit condition 1.1.1a requires the Operator to have a written management system in place which identifies and minimises risks of pollution including those arising from closure.

At the definitive cessation of activities, the Operator must satisfy us that the necessary measures have been taken so that the entire Installation ceases to pose a risk to soil or groundwater, considering both the baseline conditions and the site's current or approved future use. To do this, the Operator must apply to us for surrender, which we will not grant unless and until we are satisfied that these requirements have been met.

7. Biodiversity, Heritage, Landscape and Nature Conservation

7.1 Sites Considered

The Installation is within the relevant screening distance criteria of protected habitats. A full assessment of the Application and its potential to affect the designated site has been carried out as part of the permitting process. We consider that the Application will not affect the features of the designated sites listed below.

The following European protected sites (i.e. Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar) are located within 10km of the Installation:

- Midland Meres and Mosses Phase 2 - UK11080
- River Dee and Bala Lake - UK0030252
- Johnstown Newt Sites - UK0030173
- Berwyn and South Clwyd Mountains - UK0012926

There were no Sites of Special Scientific Interest located within 2km of the Installation.

Several non-statutory Local Wildlife Sites (LWS), National Nature Reserves (NNR), Local Nature Reserves (LNR) and Ancient Woodlands are located within 2km of the Installation, including part of a Site of Importance for Nature Conservation (SINC), which is located within the Installation boundary. These have been considered in the assessment.

We have also checked our records for the presence of European Protected Species (EPS), as defined by the Habitats Directive, within the locality of the Installation. Five Fords is known to support populations of protected species including great crested newts and bats. As a consequence, NRW has previously issued European protected species derogation licences for the site. NRW agree that the changes brought by this variation are not likely to be detrimental to the maintenance of the favourable conservation status of any local populations of European protected species.

7.2 Habitats Risk Assessment

The Applicant has modelled the predicted maximum ground level concentrations of NO_x, SO_x, nutrient deposition and acidification at all the European protected sites listed above and compared them with the relevant long and short term critical levels (CL_e) and critical loads (CL_o). These values and the background concentrations were obtained from the Air Pollution Information System (APIS) website. The emission sources that have been included within this assessment are:

- Two existing 2.8MWth output combined heat and power engines ('CHPs')
- One existing 1.5MWth output hot water standby boiler ('existing boiler')
- Two new 1.6 MWth output dual fuel steam raising boilers ('new boilers')

The existing operating conditions for the Plant consists of the two CHP engines operating at 100% load continuously all year. The existing boiler operates occasionally throughout the year when either one or both engines are not running, (Scenario 1 & 2). The proposed operating conditions for the Plant consists of two new boilers operating at 100% load continuously all year and the two existing CHP engines being used for peak lopping, assumed to be 8 hours per month (Scenarios 3 & 4). The existing standby boiler will be decommissioned. In order to undertake a comprehensive assessment, a number of scenarios have been included to capture the worst-case effects.

- Scenario 1 – Two existing CHP engines operating on biogas at full load continuously throughout the year.
- Scenario 2 – One existing CHP engine and one existing standby boiler operating on biogas at full load continuously throughout the year.
- Scenario 3 – Two new boilers operating on natural gas at full load continuously throughout the year.
- Scenario 4 - Two new boilers operating on biogas at full load continuously throughout the year.
- Scenario 5 - Two new boilers and two existing CHPs operating on natural gas at full load continuously throughout the year.

Scenario 3 is the expected normal operating mode. It is expected that the gas to grid plant would have approximately 98% availability across a year and therefore Scenario 4 is highly unlikely as it would only occur when the gas to grid plant was unavailable. Nevertheless, this scenario has been included for completeness to present worst case impacts. Scenario 5 represents a hypothetical operating condition as it assumes that the two new boilers and the two existing engines will operate continuously, all year at full load.

7.2.1 Midland Meres & Mosses Phase 2

NO_x

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.1%, 0.13%, 0.03%, 0.03% of the annual mean CLe respectively and the short-term PCs for Scenarios 1 – 5 are 0.36%, 0.60%, 0.12%, 0.13%, 0.48% of the 24-hour mean CLe respectively. This is below the 1% and 10% screening thresholds and the impacts are therefore considered insignificant. No further assessment required.

SO_x

The long-term PCs for Scenarios 1, 2 & 4 (as these are the only scenarios operating on biogas) are 0.1%, 0.15%, 0.03% of the annual mean CLe respectively. This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

Nutrient Nitrogen Deposition

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.0%, 0.1%, 0.0%, 0.0% of the annual mean CLo respectively. This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

Acid Deposition

The site is not sensitive to acid deposition and therefore no further assessment has been carried out.

7.2.2 River Dee and Bala Lake

NO_x

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.2%, 0.23%, 0.07%, 0.07% of the annual mean CLe respectively and the short-term PCs for Scenarios 1 – 5 are 0.65%, 0.81%, 0.20%, 0.24%, 0.81% of the 24-hour mean CLe respectively. This is below the 1% and 10% screening thresholds and the impacts are therefore considered insignificant. No further assessment required.

SO_x

The long-term PCs for Scenarios 1, 2 & 4 (as these are the only scenarios operating on biogas) are 0.25%, 0.35%, 0.07% of the annual mean CLe respectively. This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

Nutrient Nitrogen Deposition

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.1%, 0.1%, 0.1%, 0.0% of the annual mean CLo respectively. This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

Acidification

The long-term PCs for Scenarios 1, 2 & 4 (as these are the only scenarios operating on biogas) are 0.25%, 0.35%, 0.07% of the annual mean CLe respectively. This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

7.2.3 Johnstown Newt Sites

NO_x

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.03%, 0.03%, 0.0%, 0.0% of the annual mean CLe respectively and the short-term PCs for Scenarios 1 – 5 are 0.17%, 0.23%, 0.04%, 0.07%, 0.23% of the 24-hour mean CLe respectively. This is below the 1% and 10% screening thresholds and the impacts are therefore considered insignificant. No further assessment required.

SO_x

The long-term PCs for Scenarios 1, 2 & 4 (as these are the only scenarios operating on biogas) are 0.0%, 0.05%, 0.0% of the annual mean CLe respectively. This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

Nutrient Nitrogen Deposition

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.0%, 0.0%, 0.0%, 0.0% of the annual mean CLo respectively (PC is less than 2 decimal places not 0%). This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

Acid Deposition

The long-term PCs for Scenarios 1 – 4 (no scenario 5 as this will only operate very infrequently) are 0.0%, 0.0%, 0.0%, 0.0% of the annual mean CLo respectively (PC is less than 2 decimal places not 0%). This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

7.2.4 Berwyn and South Clwyd mountains SAC

NO_x

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.0%, 0.03%, 0.0%, 0.0% of the annual mean CLe respectively and the short-term PCs for Scenarios 1 – 5 are 0.12%, 0.13%, 0.03%, 0.04%, 0.13% of the 24-hour mean CLe respectively. This is below the 1% and 10% screening thresholds and the impacts are therefore considered insignificant. No further assessment required.

SO_x

The long-term PCs for Scenarios 1, 2 & 4 (as these are the only scenarios operating on biogas) are 0.0%, 0.00%, 0.0% of the annual mean CLe respectively (PC is less than 2 decimal places not 0%). This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

Nutrient Nitrogen Deposition

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.0%, 0.0%, 0.0%, 0.0% of the annual mean CLo respectively (PC is less than 2 decimal places not 0%). This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

Acid Deposition

The long-term PCs for Scenarios 1 – 4 (scenario 5 not included as this will only operate very infrequently) are 0.1%, 0.1%, 0.0%, 0.0% of the annual mean CLo respectively (PC is less than 2 decimal places not 0%). This is below the 1% screening threshold and the impacts are therefore considered insignificant. No further assessment required.

7.2.5 In-combination assessment

All new emissions at the Dŵr Cymru Welsh Water site have screened out as insignificant and are well below the 1% threshold for long term impacts and 10% for short-term impacts, in addition to this the proposed operation will in fact improve overall emissions from site, therefore an in-combination assessment is not required.

7.3 Non – Statutory sites

For non-statutory sites, Natural Resources Wales impact assessment criteria considers whether or not an installation can cause significant pollution. If the process contribution from an installation is less than 100% of the critical level or load for a site, we consider that no significant pollution will be caused.

The Applicant screened for non-statutory sites within a 2km range and included all of the sites in the air dispersion impact modelling carried out to inform both the HRA and the Air Quality assessment. The impact on the closest non-statutory site was less than 100% of the relevant critical levels and loads and therefore we are satisfied that significant pollution will not be caused for all non-statutory sites within the 2km screening radius. The modelling looked at a worst-case scenario meaning that max deposition and concentrations were seen at closest site, so sites that are further away will be less affected.

8. Environmental Risk

8.1 Assessment of Impact on Air Quality

The Applicant's assessment of the impact on air quality is set out in the Air Quality Assessment sections of the application. The assessment comprises:

- Dispersion modelling of emissions to air from the operation of the boilers and CHP engines.
- A study of the impact of emissions on nearby sensitive receptors, including human receptors and habitat/conservation sites.

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the Installation's stacks and its impact on local air quality. The impact on conservation sites is considered in the Biodiversity, Heritage, Landscape and Nature Conservation section above.

The Applicant has assessed the Installation's predicted emissions to air against the relevant air quality standards, and human health.

The Applicant used dispersion modelling software ADMS, version 5.2. Within the modelling they used 5 years (2013-2017) of meteorological data from the Hawarden meteorological station. The Applicant assessed the impact of emissions of oxides of nitrogen (NO_x), expressed as NO_2 (NO_x), Carbon Monoxide (CO) and Sulphur Dioxide (SO_x). Emission limits for the pollutants have been taken from the Medium Combustion Plant Directive for the 2 new boilers.

The terrain module was not used as the surrounding area is generally flat and has slopes with gradients less than a one-meter gain in height for 10m travelled. Building downwash has been used within the modelling assessment.

For the conversion of NO_x to NO_2 a conversion factor of 100% for long-term and 50% for short-term has been applied, this has been taken from current Environment Agency guidance.

The Air Quality Assessment considered the following substances;

- Oxides of Nitrogen (NO and NO₂), expressed as NO₂ (NO_x)
- Sulphur Dioxide (SO_x)
- Carbon Monoxide (CO)

The Applicant's modelling predictions with regard to human health are summarised in the following sections.

8.1.1 Consideration of Key Air Pollutants

The predicted impact on air quality from NO_x emissions have been assessed against the European Union Environmental Quality Standard (EUEQS) values of 40 µg/m³ as a long term annual average and a short term hourly average of 200 µg/m³.

The predicted impact on air quality from SO_x emission have been assessed against the EUEQS values of 266, 350 and 125 µg/m³, for 15-minute, hourly and 24-hourly averages respectively.

The predicted impact on air quality from CO has been assessed against the EUEQS values of 30000 and 10000 µg/m³ for hourly maximum and running 8-hour maximum daily respectively.

The Applicant used the Defra background maps for the background values used in the assessment. The Applicant has modelled the predicted impact of long-term and short-term NO_x emissions at 5 nearby human receptors. These 5 receptors were chosen as they are expected to experience the greatest impact due to the close proximity to the plant, therefore these represent a worst-case scenario.

As above, the Applicant modelled the predicted maximum ground level concentrations of NO_x, SO_x and CO. The emission sources that have been included within this assessment are:

- Two existing 2.8MWth output combined heat and power engines ('CHPs')
- One existing 1.5MWth output hot water standby boiler ('existing boiler')
- Two new 1.6 MWth output dual fuel steam raising boilers ('new boilers')

The same 5 scenarios listed in the above section were modelled for the impact on human health. Scenarios 1 and 2 show the current operating regime, scenarios 3 and 4 show the proposed operation and scenario 5 represents a hypothetical operating scenario.

Oxides of Nitrogen (NO and NO₂), expressed as NO₂ (NO_x)

Long Term (Annual Mean)

The long-term Process Contributions (PCs) for Scenarios 1 – 4 (scenario 5 is not included as this will only operate short term) are 1.3%, 1.5%, 0.5%, 0.8% of the annual mean CLe respectively, where the 1% is exceeded for scenarios 1 and 2, the Predicted Environmental Concentration (PEC) is 30% and 31.8%, as this is below the long-term screening threshold the emissions screen as not significant and no further assessment is required.

Short-Term (Daily Mean)

The short-term PCs for Scenarios 1 – 5 are 9.8%, 13.5%, 2.4%, 3.0% and 10.5% of the short-term mean CLe respectively, where the 10% is exceeded for scenarios 2 and 5, the PEC is 15% and 11.6%, as this is below the screening threshold for short-term emissions, the emissions screen as not significant and no further assessment is required.

Carbon Monoxide - CO

The maximum predicted off-site hourly maximum and 8-hour rolling CO PC was modelled at 6.3 µg/m³ and 6.0 µg/m³. This is well below the 1% threshold for long-term impact and therefore the effects at all off-site locations are insignificant.

SO_x

99.9%ile of 15-minute averages

The PCs for Scenarios 1 – 5 are 15.0%, 20.5%, 0.0%, 6.2% and 15.0% of the mean CLe respectively, where the 10% is exceeded for scenarios 1, 2 and 5 the PEC is 15.4%, 21.1% and 15.4%, where scenarios 1 and 5 are below the short-term screening threshold the emissions screen as not significant and no further assessment is required. Scenario 2 exceeds the threshold, however, scenario 2 is an existing scenario and the plant will not operate in this way once the changes are complete.

99.73%ile of hourly averages

The PCs for Scenarios 1 – 5 are 9.6%, 13.5%, 0.0%, 4.4% and 9.6% of the mean CLe respectively, where the 10% is exceeded for scenario 2, the PEC is 13.8%, this is below the short-term screening threshold and therefore the emissions screen as not significant and no further assessment is required.

99.18%ile of 24 hourly averages

The PCs for Scenarios 1 – 5 are 8.0%, 10.4%, 0.0%, 8.0% and 8.0% of the mean CLe respectively, where the 10% is exceeded for scenario 2, the PEC is 11.1%, this is below the short-term screening threshold and therefore the emissions screen as not significant and no further assessment is required.

Scenarios 3 and 4 represent the operating scenarios going forward, the PC's for all short-term and long-term emissions of NO_x, SO_x and CO are below the 1% and 10% screening thresholds respectively. It should be noted that the operating scenarios going forward (3 & 4) are an improvement on the current operating scenarios (1 & 2), which will lead to an improvement in local air quality.

In summary, we are satisfied that there are unlikely to be any exceedances of long and short-term air quality standards (for NO_x, SO_x and CO) for protection of human health at sensitive receptors due to the proposal.

8.2 Emissions to surface water

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

There will be no process emissions to surface water from the Installation. The surface water will be routed to the sealed drainage system and then on to the adjacent waste water treatment works.

We are satisfied that the pollution risk associated with the Installation is low based on the use of appropriate surfacing, satisfactory containment, inspection measures and the operating procedures which will be put in place as part of the ISO 14001 environmental management system.

8.3 Emissions to sewer

There will be no emissions to the public sewer, all process water will be routed to the sealed drainage system and then on to the adjacent waste water treatment works.

8.4 Emissions to soil and groundwater

There will be no emissions to soil or groundwater as a result of the operation of the Installation. With the inclusion of IC7 and IC8, all activities will be carried out on an impermeable concrete surface with sealed drainage and raised kerbing ensuring no releases to the soil or groundwater.

8.5 Fugitive emissions

There will be no significant fugitive emissions to air of gases, vapours or particulates associated with the Installation. There are also appropriate containment measures on

site to for the control of liquid wastes to prevent release to the environment. The area outside the existing digester area will be made impermeable and the area kerbed to ensure containment and sufficient drainage added to ensure spills can be captured and redirected to the Wastewater Treatment through the sealed drainage system (IC7 and IC8).

8.6 Odour

We consider that the Applicant's proposals represent the appropriate measures to prevent/minimise odour from the permitted activities. The Operator provided an odour assessment (Five Fords WwTW AAD – Odour Impact Assessment of Upgrade Works) accounting for the plant upgrades, the assessment looked at the impact odour could have at sensitive receptors.

The assessment looked at the current baseline conditions and the upgrade works (including 2 odour control units (OCUs)). The assessment used the US EPA AERMOD dispersion modelling software to predict impact.

The assessment found that the changes on site would result in a 1% increase to maximum odour, however the impact experienced at nearby sensitive receptors will in fact decrease.

Odour Criteria	Baseline scenario (km ²)	Proposed upgrade (km ²)
C ₉₈ 1 hour ≥ 1.5 OUE/m ³	0.80	0.64
C ₉₈ 1 hour ≥ 3.0 OUE/m ³	0.37	0.21
C ₉₈ 1 hour ≥ 5.0 OUE/m ³	0.20	0.08

This reduction is attributed to the way in which odour is released from the upgraded equipment, mainly the post-digestion centrifuges and cake handling areas. In these areas the odour releases are at an increased height offering better dispersion in the atmosphere.

Odour Control Units (OCUs) will also be used in the cake import/export areas, this will reduce the odour emissions from the process.

As we are satisfied that appropriate measures will be in place to prevent or, where that is not practicable to minimise odour and prevent pollution from odour, we consider that no odour management plan is needed and Permit conditions 3.3.1 and 3.3.2 are sufficiently protective.

8.7 Noise

The Applicant submitted a noise assessment, that was prepared for the planning consent in 2016. The noise assessment shows the potential impacts on nearby sensitive receptors from the upgrade works. The upgrades to the Installation will mean that new structures will be used in conjunction with existing infrastructure.

The assessment was written in accordance with BS4142:2014. The assessment looked at 3 sensitive receptors that are in close proximity to the Installation.

A continuous, unassisted measurement of background sound levels was carried out over a 7-day period at the closest noise sensitive receptor to the Installation. These results were presented in the assessment report. Cadna noise prediction software was then used to predict the impact on the receptors.

An acoustic penalty of +3dB was added to the assessment to account for the intermittent nature of the operation. The results showed that at all receptors the noise impact from the Installation was below the background during both the daytime and night time. Therefore, impacts from noise at all sensitive receptors can be considered to be low.

The report concluded that the noise from the plant will be below background levels at sensitive receptors and can therefore be screened out.

8.8 Efficient use of raw materials, water and Energy

Biogas is produced by the anaerobic digestion process and then used at the Installation or injected to the local distribution network, this is therefore a primary raw material, the usage of biogas is continuously monitored to ensure optimal efficiency. The biogas is stored with 2 double membrane inflatable bags, constructed from PVC coated polyester fabric, resistant to UV and microbial degradation. This bag is then fully enclosed and stored on a concrete base, therefore fugitive emissions are negligible.

Natural gas is used on-site to provide fuel for the steam raising boilers, this is not stored on-site and is taken as needed from the National Grid, the boilers are optimised to ensure efficient operation and therefore optimal gas consumption.

The Installation also uses process chemicals for the boilers including water treatment chemicals and polymers, the usage of these chemicals is monitored to ensure usage is minimised as far as possible. This is tracked through purchase records.

Energy use is optimised and minimised as far as possible, the main substance used on-site is biogas, this is classed as a renewable energy source, the gas to grid part of the Installation has been accredited with the International Sustainability & Carbon Certification (ISCC) to attribute a carbon footprint to the renewable gas, in conjunction with the schemes registration into the new 'Green Gas Certification Scheme'.

The design of the Installation maximises the efficiency from the process, including recovering waste heat for use in other parts of the process. The Operators EMS makes energy efficiency a key objective and reducing the consumption from the national grid. There are specific procedures in place to reduce the energy consumption of the Installation, this includes the production of monthly energy usage reports that are reviewed by senior management. Specific measures currently employed at the Installation to reduce energy consumption are employed;

- Combustion temperature is kept constant to reduce emissions to air and energy usage.

- Recovered heat from the AAD process is then used elsewhere in the process to reduce natural gas usage.
- Housekeeping and maintenance is carried out to ensure equipment operates as efficiently as possible.
- Combustion monitoring and maintenance is carried out to ensure complete combustion of fuel and heat is transferred as efficiently as possible.
- Engines are equipped with turbochargers to further increase efficiency.
- Monitoring of operational parameters, to ensure equipment is operating as it should be and allowing for continuous optimisation.
- All main hot water pipes & boiler plant are lagged to reduce heat losses.

Energy efficient lighting is used across the Installation. The Operator complies with OFGEM and Combined Heat and Power Quality Assurance Programme requirement, as usable heat is measured and reported on a monthly basis. The monitoring plan on-site also monitors gas usage against energy production.

Further, as the Operator is in receipt of government incentives for the process, heat recovery, electricity production, gas use and overall efficiency is monitored and reported. This information then informs the Installations energy efficiency plans.

This information will be compiled once the Installation is fully operational and will form part of the EMS and environmental policy.

The AAD facility will increase yield of biogas produced, therefore, as more gas is produced and injected into the local distribution system, the overall performance and efficiency of the Installation will increase.

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place to ensure the efficient use of raw materials and water within the Installation.

The Operator is required to report raw material usage under condition 4.2 and Schedule 4. The efficiency of the use of auxiliary fuel will be tracked separately as part of the energy reporting requirement under condition 4.2.2.

8.9 Avoidance, recovery or disposal with minimal environmental impact of wastes produced by the activities

This requirement addresses wastes produced at the Installation. The principal waste streams produced by the Installation are general waste, screenings/grit, scrap metal, waste oils, batteries WEEE, oil contaminated items, aerosols and gas cylinders.

Screenings/grit are collected by an aggregates company to be used as a soil conditioner (this is licenced separately by the EA/NRW). WEEE, batteries, waste oils and oil contaminated items are treated as hazardous waste and are removed from site by a licenced contractor, gas cylinders are collected by BOC Ltd.

The Installation has a waste management plan that covers details such as; types of waste produced on-site, waste segregation, storage and removal from site. There will only be small volumes of waste generated at the AAD facility as waste will be recycled where possible.

Having considered the information submitted in the application, we are satisfied that the waste hierarchy referred to in Article 4 of the Waste Framework Directive will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of using a method that minimises any impact on the environment. Permit condition 1.4.1 will ensure that this position is maintained.

The Applicant is required to prevent, minimise and control emissions using the Best Available Techniques; this is considered further in the Application of Best Available Techniques section below.

8.10 Flood Risk

The Installation is located within the catchment of the Afon Clywedog and is within Flood Risk Zone A (as classified by the Environment Agency and NRW), this is considered to be at little or no risk of fluvial or tidal flooding from the Afon Clywedog.

The nearest ordinary watercourse is 280m to the west of the Installation and flows to the Afon Clywedog upstream of the site. It is considered that this watercourse does not present any risk to the site from flooding.

The drainage system within the AAD site directs all surface water back to the head of the works and on through the waste water treatment process. Any increase in run-off will only affect flow through the WwTW and will not impact on neighbouring sites.

In summary 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.

9. Operating Techniques

We have reviewed the techniques used by the Operator and have compared these with those set out in the BAT Conclusions for Waste Treatment and Sector Guidance Note S5.06: recovery and disposal of hazardous and non-hazardous waste and concluded that the operating techniques conform with BAT.

The Operator provided a full BAT assessment comparing the site operations against the Waste Treatment BAT Conclusions. The Operator concluded that they comply with all of the BAT conclusions, we agree with the conclusions.

9.1 Waste Acceptance

The anaerobic digestion facility used to operate under a T21 exemption due to the throughput of the facility. Following this variation, the Operator has increased the throughput to 104,465 tonnes of waste per annum to be treated, this is above the exemption threshold and therefore this now falls within the scope of EPR. The list of wastes to be accepted at the Installation are included in Schedule 2 of the environmental permit.

9.2 Site Security

The entire Installation is classified as a critical national infrastructure site by the Centre for the Protection of National Infrastructure (CPNI). Access to the site is restricted by a 2.5m high security fence with an automatic entrance gate controlled by the site. All authorised access is via a fob system. The site is manned 24/7, 7 days a week. The site is covered by CCTV which is monitored by on-site staff. All aspects of site security are covered in the management systems.

9.3 CHP Assessment

CHP is the simultaneous generation of electricity and usable heat within the same process, this is also known as cogeneration. As part of this variation 2 new steam raising boilers have been installed to heat the digesters, due to this the CHPs at the Installation are going to be modified so that they will no longer produce the heat that was previously used to heat the digesters. The CHP plants will now only produce electricity and as such no CHP assessment is required.

10. The Permit Conditions

10.1 Raw Materials

Raw materials used on-site are Natural Gas, Biogas, Corrosion Inhibitors, Lubricating Oil and Carbon filters. These are listed in Schedule 2 of the Permit and will have the appropriate controls in place to handle the materials.

10.2 Incorporating the application

We have specified that the Applicant must operate the Installation in accordance with the descriptions in the application, including all additional information received as part of the determination process. These descriptions are specified in table S1.2 “Operating Techniques” in the Permit and are therefore directly enforceable.

10.3 Emission Limits

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

The 2 new steam raising boilers are classed as new Medium Combustion Plant due to their size and therefore the emission limits have been taken directly from the Medium Combustion Plant Directive (MCPD).

The 2 CHPs are classed as existing plant and therefore the emission limits remain unchanged. These are listed in Table S3.1 in the site’s Environmental Permit.

The ELVs selected in the Permit are compliant with the MCPD.

Actual emissions are almost certain to be below emission limits in practice, because any Applicant who sought to operate its Installation continually at the maximum permitted level would almost inevitably breach those limits regularly, simply by normal fluctuations in plant performance, resulting in enforcement action (including potential prosecution) being taken.

Should the Installation, once in operation, emit at rates significantly below the limits included in the Permit, we will consider setting appropriately lower ELV’s. We are, however satisfied that emissions at the permitted limits would ensure a high level of protection for human health and the environment in any event.

The following substances have been identified as being emitted in significant quantities and ELVs based on BAT have been set for those substances;

- NO₂
- CO
- SO₂ (when biogas is used)

The site currently monitors VOCs from the CHP plants on an annual basis, the Permit limit is set in the Permit at 1000mg/m³, however, the Operator has been unable to comply with this Permit limit. The Operator submitted a H1 risk assessment using worst-case data, the assessment showed that even though the emission limit couldn't be met, the emissions to air can be screened out as insignificant and therefore the emission limit can be removed the Permit. The Operator has agreed to maintain the CHPs to the same standard as previously, this includes weekly oil analysis, trending and condition monitoring processes to maintain efficiency, in-line with environmental requirements. The Operator submits the CHP engine efficiency data to NRW annually so this can be monitored as part of the Permit.

It is considered that the ELVs described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.

10.4 Monitoring

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 of the Permit using the methods detailed and to the frequencies specified in those tables. These monitoring requirements have been imposed in order:

- to demonstrate compliance with emission limit values and to enable correction of measured concentration of substances to the appropriate reference conditions.

As mentioned above, the requirement to monitor and report VOC emissions has been removed from the Permit, as the Operator has demonstrated using the H1 risk assessment tool that the emissions to air are insignificant. We agree with the conclusions.

For emissions to air, the methods for continuous monitoring are in accordance with the Environment Agency Guidance M2 for the monitoring of stack emissions to air. NRW has adopted this guidance.

There is no monitoring of emissions to water, as there are no process emissions to either surface water or foul sewer.

Based on the information in the Application and the requirements of the Permit conditions we are satisfied that the Operator's techniques, personnel and equipment will have either MCERTS certification or MCERTS accreditation as appropriate.

10.5 Reporting

We have specified the reporting requirements in Schedule 4 of the Permit. We are satisfied that this frequency is appropriate for a plant of this type. These meet the reporting requirement set out in the IED and ensure data is reported to enable timely review by NRW.

11. Operator Competence

11.1 Environmental Management System

The Applicant has stated in the Application that they operate an Environmental Management System (EMS) certified under ISO14001, a copy of the certificate confirming this was provided as part of the Application. The Operator has stated that the sites current EMS and QMS will be updated to take account for the new activities.

Improvement Condition (IC9) requires the Operator to update the existing Environmental Management System to incorporate the new activities carried out by the Advanced Anaerobic Plant and submit the updated EMS to Natural Resources Wales for approval.

To ensure that the management system proposed by the Applicant sufficiently manages the residual risk of accidents, Permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents.

11.2 Accident Management Plan

The Operator has Accident Management Plan (Environmental Emergency Procedures) and a Site Emergency Plan. The Operator has also carried out an Accident Risk Assessment. An Environmental Risk Assessment in line with H1 guidance was also produced and submitted with the Application, all identified risks have been incorporated into the sites management systems.

11.2 Relevant convictions

Our 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 EPR RGN 5 on Operator Competence.

11.3 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 EPR RGN 5 on Operator Competence.

11.4 OPRA

We are satisfied that the Applicant's submitted Operator Performance Risk Appraisal ('OPRA') profile is accurate. The OPRA score is 127 and will be used as the basis for subsistence and other charging, in accordance with our Charging Scheme. OPRA is Natural Resources Wales method of ensuring application and subsistence fees are appropriate and proportionate for the level of regulation required.

ANNEX 1: Improvement Conditions

Table S1.3 Improvement programme requirements

Ref.	Requirement	Date
IC5	The Operator shall incorporate the Biomethane Injection Plant Accident Management arrangements into the existing Accident Management Plan.	Complete
IC6	The Operator shall update its existing Environmental Management System to incorporate the new activities carried out by the Biomethane Injection Plant. The Operator shall submit the updated EMS to Natural Resources Wales for approval	Complete
IC7	The operator shall submit a report detailing how they will construct impermeable bunding and surface work around storage and process tanks on site. The report should include a site plan showing the extent of the work, information on the anticipated capacity of the "bunded/kerbed" area, justification for the height of any kerb/bund. Justification is required in the report for any areas the operator believe bunding and surface work is not required. The Operator shall submit the report to Natural Resources Wales for approval	31/10/2019
IC8	Once the proposal IC7 is agreed with NRW, complete required bunding and surface work around required storage and process tanks no later than 6 months.	Within 6 months of agreement of IC7
IC9	The Operator shall update its existing Environmental Management System to incorporate all activities now covered by the permit. The Operator shall submit the updated EMS to Natural Resources Wales for approval	Within 3 months of permit variation issued.

ANNEX 2: Consultation Responses

Consultation was conducted as detailed in the “Consultation on the application” section above. Below are tables which summarise responses received together with how they have been addressed in the determination process. For specific statutory bodies, we have summarised their specific responses in the tables below. No responses were received from members of the public.

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Wrexham County Borough Council – Environment Health Department - response received 26th November 2018.	
Summary of issues raised:	Summary of action taken / how this has been covered
1. Information provided relating to previous noise issues on-site – all addressed by the operator	1. No actions required

Response Received from Betsi Cadwaladr University Health Board (incorporating comments from Public Health Wales) - response received 21st November 2018.	
Summary of issues raised:	Summary of action taken / how this has been covered
2. No issues raised – consultation response concluded that the health board had no grounds for objection based upon public health considerations, and for the site to be operated in-line with BAT	2. No actions required
3. The EMS should be updated to include the new activities	3. Improvement Condition 8 requires the Operator to update the EMS.
4. It is recommended that the monitoring regime for VOCs be reviewed should any future changes to the process occur.	4. This would be assessed if the Operator applies to change the process.
5. It was noted that hydrogen sulphide may be present in biogas and wastewater. NRW should be satisfied that this has been considered within the odour assessment and management plans.	5. This has been considered in the odour assessment provided with the Application.

Response Received from North Wales Fire & Rescue Service - response received 5 th November 2018.	
Summary of issues raised:	Summary of action taken / how this has been covered
1. No concerns raised – the fire service have stated they will carry out a BFS site audit and report any adverse comments	1. No further comments received – no action required.

We didn't receive any responses from Wrexham County Borough Council – Planning Department.