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Dyddiad / Date: 23 November 2018

Sent by email to:

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Dear Mr White

Environmental Permitting (England and Wales) Regulations 2010

**Application for a Permit Variation – Advanced Anaerobic Digestion – Dwr Cymru
Welsh Water, Five Fords Waste Water Treatment Works, Cefn Road, Marchwiel,
Wrexham. LL130PA.**

We welcome the opportunity to comment on this permit application. We have consulted with our colleagues at the Environmental Public Health Service (delivered collaboratively through Public Health Wales' Health Protection Team and Public Health England's Centre for Radiation, Chemical and Environmental Hazards Wales). This assessment is based on actual or potential health risks from environmental exposures to chemicals, noise and extreme environmental events such as flooding.

Proposed Development

The application is to vary an existing environmental permit (EPR/AP3139FT) for the waste water treatment works (WWTW). The permit is required in order to upgrade the existing anaerobic digestion (AD) plant to advanced anaerobic digestion (AAD). The AAD process will involve introduction of a thermal hydrolysis (pressurised steam conditioning) plant and installation of 2 new 1.567 MW_{th} steam boilers as well as infrastructure and a new gas holder. The current AD plant operates under an exemption for a maximum throughput of 100,000 m³ of sludge per year. The proposed AAD operation will require import of additional sludge from other waste water facilities and will increase throughput to approximately 105,000 m³ thus exceeding the exemption and requiring the permit variation. All new processes will be situated within the existing site boundary.

The WWTW occupies an area of rural land some 3.5 Km south east of Wrexham. The nearest community of Marchwiel lies some 400 m south of the proposed AAD plant. Several other isolated properties lie within 800 m north of the boundary. The site is not within an air quality management area, nor within a source protection zone with bedrock classified as Secondary A aquifer. The site is defined for development as flood zone A (low risk). The nearest river is the Afon Clywedog approximately 500 m to the south.

The AAD process was granted planning permission in 2016 (Application P/2016/0709). Public Health Wales were not consulted on the application.

Overall Conclusion

We have no grounds for objection based upon the public health considerations contained within the application and provided the site is operated in line with best available technology (BAT) and current sector guidance.

It is noted that several breaches of the existing permit have been recorded during its operation and as such any future operations would be expected to be subject to suitably robust regulation.

Public Health Risk Assessment

The applicant has provided a risk assessment for all existing and proposed activities concluding that risks will be low based upon the provision of appropriate management controls, as defined within the applicants' ISO14001 environmental management system (EMS). **The environmental management system will need to be updated to include reference to proposed new activities.**

Emissions to air have been assessed as low. Air dispersion modelling has been used to assess potential plant emissions for oxides of nitrogen (NO_x / NO₂), sulphur dioxide (SO₂) and carbon monoxide (CO). Emissions were modelled under a number of worst case scenarios and found to be insignificant compared to relevant air quality standards and in terms of contributions to existing background concentrations. **Furthermore the new process will reduce current emissions.**

It is noted that the site has been unable to comply with emission limit values set for volatile hydrocarbon (VOC) emissions. Assessment using H1 guidance has found the actual level of VOC emissions to be insignificant and it has been agreed between the applicant and Natural Resources Wales that the new permit removes the need for testing of this parameter. **While current emissions of VOCs do not suggest any adverse impact on local air quality or health, we would recommend that the monitoring regime be reviewed should any future changes to the process occur.**

Wastewater treatment can generate odours, and controls have been defined to include use of sealed vessels for all odorous operations and provision of additional odour control units. Odours have also been modelled and assessed as part of the planning application with results suggesting no increase in levels compared to the existing AD. No complaints have been recorded from existing AD activities, thus adverse impacts from future activities appear unlikely. **It is noted that hydrogen sulphide may be present in biogas and wastewater and the regulator should be satisfied that this has been considered within the odour assessment and management plans.**



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Although wastewater treatment has the potential to generate bio-aerosols, predicted risks are deemed low as all operations with potential to generate aerosols will be undertaken in sealed vessels, while site management and hygiene will mitigate potential fugitive emissions.

Impacts from noise were subject to assessment as part of the planning application with results for both construction and operational phases of the work being found to be below existing background levels at all nearby receptors and thus posing no adverse impact. No noise complaints are recorded for past AD operations at the site.

Risks from liquid emissions are considered low as all activities will be undertaken on hard-standing with drainage returned to the water treatment process. All fuels and process chemicals will be stored within suitably bunded tanks. The site is not within a groundwater source protection zone and is low risk regards flooding. No recorded abstractions were identified in the vicinity.

A site condition report identifies sewage treatment activities have taken place at the site since the early 1900s, with the potential for past contamination. Investigations undertaken between 2008 and 2010 did not find evidence of soil contamination with all sample results below human health assessment criteria. Existing risks are deemed low as the site will be principally hardstanding and concrete. **It is assumed that contamination risks from any construction works involving excavation and / or permanent buildings will have been assessed, and controls defined, as part of the planning application and would not form part of this permit.**

Yours sincerely

A handwritten signature in blue ink, appearing to read 'T. Owen'.

Teresa Owen

Executive Director Public Health

Cyfarwyddwr Gweithredol Iechyd Cyhoeddus

cc: Dr Huw Brunt, Environmental Public Health Service in Wales