Environment Agency permitting decisions

Substantial Variation

We have decided to issue the variation for Amberswood Leachate Treatment Plant operated by Landfill Management Limited.

The variation number is EPR/PP3532MB/V003

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

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

Structure of this document

- Key issues
- Annex 1 the decision checklist
- Annex 2 the consultation responses

Key issues of the decision

Introduction

The installation treats non-hazardous leachate from Amberswood Landfill site by a methane stripping process.

Leachate is pumped from the landfill site into the first of a series of three aeration tanks on the installation. Methane gas is removed from the leachate by the passage of air bubbles introduced into the tanks by an aeration unit. The leachate flows from one tank to the next in series, allowing sufficient residence time for the methane to be stripped from the leachate. The treated leachate is then pumped via a pipe to the public sewer. The leachate is treated by Wigan waste water treatment works (WwTW) before discharge to the River Douglas.

The installation is permitted to treat up to 150 m^3/d of non-hazardous leachate a day, up to a maximum of 55,000 tonnes a year. These activities are covered

by the description in Section 5.4 Part A(1)(a)(ii) ‘Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving physico-chemical treatment’.

The variation has arisen due to the need to treat a greater volume of leachate from the landfill in order to avoid break outs into nearby watercourses. The maximum daily discharge volume will increase from 150 m^3/d to 250 m^3/d, or a maximum of 92,000 tonnes per year. This is a substantial variation because the increase in the daily treatment in itself constitutes a Part A activity.

H1 Assessment – emission to sewer

The applicant has supplied a H1 assessment of increasing the discharge to sewer and the resulting environmental impact from the treated effluent on the River Douglas. This uses data from monitoring and analysis of the leachate treatment plant (LTP) effluent collected between January 2011 and May 2013 for 15 determinands: ammonia, arsenic, BOD, cadmium, chloride, chromium, copper, cyanide, endosulphan, iron, lead, nickel, phenol, vanadium and zinc.

The assessment uses the mean and 95%ile concentrations of these substances, the maximum discharge volume of 250 m^3/d and an estimate of the Q95 river flow rate for the River Douglas. We are satisfied that these figures will provide a precautionary assessment of the long term and short term impacts.

We have undertaken an audit of their submission, including some sensitivity analyses. This has included using a Q95 flow rate for the River Douglas at Wigan (SD 586 060) of 0.392 m^3/s in comparison with the estimate used by the applicant of 0.886 m^3/s. We also input information to the tool that the applicant had not been able to add, including an entry for vanadium (Environmental Quality Standard (EQS) 20 µg/l) and ammonia (EQS 600 µg/l) and the relevant sewage treatment reduction factors (STRF) for all substances.

In all cases, we find slightly higher results for the process contributions (PC) and their percentage of the EQS. However, we agree with the applicants overall conclusion that all but 1 of the 15 determinands assessed have a PC/EQS ratio below the 4% threshold so are screened out and deemed to have an insignificant risk to the River Douglas.

<u>Ammonia - further discussion</u>

The applicant has calculated a PC of 5.45% of the EQS for ammonia, which is above the 4% threshold for insignificance. As such, we have looked into this substance in further detail.

At Wigan WwTW, the River Douglas (GB112070064820) is classed as a lowland river of high alkalinity. It is currently listed as ‘poor’ potential under the Water Framework Directive (WFD), although achieves ‘good’ status for ammonia. This gives a target of 0.6 mg/l ammonia for the River Douglas, whereas the H1 screening tool applies a more stringent 0.2 mg/l and therefore highlights ammonia as being of potential significance.

We have used the H1 tool to calculate that the PC from ammonia is 36.89 µg/l which is 6.15% of the EQS of 600 µg/l. This is slightly over the 4% threshold for insignificance, so we have calculated the Predicted Environmental Concentration (PEC). With a background concentration in the River Douglas (at Appley Bridge, site 88023091) of 167 µg/l and a PEC of 204 µg/l (an increase of 37 µg/l) we are satisfied that the 'no deterioration' criteria is met (no more than a increase of 10% of the EQS on the upstream quality, an allowance of +60 µg/l in this case) and the impact from ammonia can be screened out as insignificant.

Emissions to air

Sector guidance note S5.03 on the treatment of landfill leachate explains that methane stripping is the use of diffused air to strip out or reduce the dissolved methane content of leachate and is commonly used. It reduces methane concentrations sufficiently to allow discharge to sewer but does not significantly reduce COD or suspended solids.

Concentrations of methane present in exhaust gases will be well below explosive levels and an indicative standard is included in SGN 5.03 to require that adequate volumes of air shall be used during the stripping process to keep concentrations of methane present in the exhaust gas well below explosive levels. As with the original permit determination, we consider that releases to atmosphere are not likely to be significant due to the scale and nature of the operations carried out. There are no statutory air quality limits or objectives for methane for effects on human health and the environment.

Sector guidance note S5.03 notes there may be greater concern for the potential for release of odorous gases during the stripping process. However, at the great majority of full-scale methane stripping installations in the UK, such odour effects have been minimal and have not required specific treatment. This is the case at Amberswood LTP.

IED Periodic Monitoring Condition

The operator had queried the inclusion of this condition as they consider it unnecessary at this site given the controls they have in place and the low level of risk. We explained that this is an acceptable approach to fulfilling the requirements of the condition, provided they maintain their Site Condition Report and Management Systems. The operator has accepted this and the condition will remain in the variation as it is a direct requirement of the IED.

Annex 1: decision checklist

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

Aspect considered	Justification / Detail	Criteria met Yes
Consultation		
Scope of consultation	The consultation requirements were identified and implemented. No consultation was required. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.	✓
Responses to consultation	The 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 continue to have control over the operation of the facility after the issue of the variation. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.	✓
European Directives		
Applicable directives	All applicable European directives have been considered in the determination of the application. We have made some changes to the permit to implement the requirements of the Industrial Emissions Directive (IED): - Condition 3.1.3 on periodic monitoring is a new condition; - Conditions 4.3.1 and 4.3.2 Notifications have been amended.	✓
The site		
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility including discharge points. A plan is included in the variation and the operator is required to carry on the permitted activities within the site boundary, which has not changed. The new plan is an improvement on that in the existing permit. The site is centred at approximately SD 60985 04633.	✓

Aspect considered	Justification / Detail	Criteria met Yes
Biodiversity, Heritage, Landscape and Nature Conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat. An assessment of the application and its potential to affect the sites/species/habitats has been carried out as part of the permitting process. We consider that the application will not affect the features of the site/species/habitat. Martin Mere SPA/Ramsar is not in hydrological connectivity with the discharge point, nor are any of the local wildlife sites that fall within the 2 km screening radius. Therefore the discharge cannot have an impact on these sites. The impact on the European eel and its migratory routes is considered by the H1 assessment, which screens out all pollutants as having an insignificant impact on the receiving watercourse (discharge contributes <4% of the EQS to the river quality). These species/habitats will not be adversely affected by the increase in discharge. We have not formally consulted on the application. The decision was taken in accordance with our guidance.	✓
Environmental Risk Assessment and operating techniques		
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. Overall, the operator's risk assessment is satisfactory (see Key Issues for discussion). The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment, all emissions may be categorised as environmentally insignificant.	✓
Operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. The operations will continue to be in accordance with 'How to Comply' and S5.03 Guidance for the Treatment of Landfill Leachate.	✓

Aspect considered	Justification / Detail	Criteria met Yes
	The existing techniques/emission levels for priorities for control are in line with the benchmark levels contained in the TGN and we consider them to represent appropriate techniques for the facility. The permit conditions ensure compliance with relevant BREFs and BAT Conclusions, and ELVs deliver compliance with BAT-AELs.	
The permit conditions		
Waste types	We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility. The site only accepts leachate from Amberswood landfill and wishes to increase the volume from 150m^3/d to 250 m^3/d. We are satisfied that the operator can accept the waste because the site already successfully treats this leachate and has the capacity to treat this greater volume. We made these decisions with respect to waste types in accordance with S5.03 Guidance for the Treatment of Landfill Leachate.	✓
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. The new reference ensures that operations will continue to be in accordance with 'How to Comply' and S5.03 Guidance for the Treatment of Landfill Leachate. It also references operational information provided regarding treatment capacity, retention times and sludge output.	✓
Monitoring	We have decided that monitoring should continue to be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. These monitoring requirements were imposed in order to ensure that the operator monitors the flow of treated effluent that they are discharging to sewer. This information is required for compliance purposes.	✓

Aspect considered	Justification / Detail	Criteria met Yes
	We made these decisions in accordance with S5.03 Guidance for the Treatment of Landfill Leachate. Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.	
Reporting	We have specified reporting in the permit. The operator must report their daily flow to sewer on a quarterly basis as well as the annual tonnage of leachate treated. These requirements have been imposed in order to ensure that the volume and flow rate of discharged effluent used in the H1 risk assessment remain representative of emissions from the installation. We made these decisions in accordance with S5.03 Guidance for the Treatment of Landfill Leachate.	✓
Operator Competence		
Environment management system	There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓
Technical competence	Technical competency is required for activities permitted. The operator is a member of an agreed scheme.	✓
Relevant convictions	The National Enforcement Database has been checked to ensure that all relevant convictions have been declared. Relevant convictions were found and declared in the application. A post conviction plan was submitted by the operator and assessed as satisfactory. The operator satisfies the criteria in RGN 5 on Operator Competence.	✓
Financial provision	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓

Annex 2: Consultation responses

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

Response received from
Wigan Council (10/03/14)
Brief summary of issues raised
Response to our statutory nuisance questions – no problems.
Summary of actions taken or show how this has been covered
None required.

Response received from
United Utilities Water PLC (11/03/14)
Brief summary of issues raised
1. We have no objection to the application, the discharges to foul sewer specified in the application are contained within the extant consent to discharge trade effluent held by the applicant. 2. Adequate sewerage and sewage treatment facilities exist, no significant pollution is caused by acceptance of the trade effluent that is compliant with the consent. We believe treatment of the trade effluent in admixture with domestic sewage represents BAT.
Summary of actions taken or show how this has been covered
None required.

No responses were received to our web publicising or from our consultation with the HSE.