Environment Agency permitting decisions

Substantial Variation

We have decided to issue the variation for Buckden Effluent Treatment Plant operated by Anti-Waste Limited.

The variation number is EPR/GP3431LF/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 and web publicising responses

Key issues of the decision

Introduction

The installation treats non-hazardous leachate from Buckden South Landfill, Buckden North Landfill and leachate and other aqueous liquids from off-site sources. It is treated by the activated sludge process in sequencing batch reactors prior to discharge via a reed bed to polish the effluent. The receiving watercourse is the River Great Ouse.

The installation is currently permitted to treat up to 200 m^3/d of non-hazardous leachate a day, up to a maximum of 73,000 tonnes a year. These activities are covered by the description in Section 5.4 Part A(1)(a)(i) 'Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving biological treatment'.

The variation has arisen due to the need to treat a greater volume of leachate from the landfill to account for seasonal rainfall fluctuations when larger volumes of weaker strength leachate may be generated. The maximum daily discharge volume will increase from 200 m^3/d to 330 m^3/d, or a maximum of 120,000 tonnes per year. This is considered a substantial variation because the increase in the daily treatment capacity in itself constitutes a Part A activity.

H1 Assessment – emission to surface water

The applicant has supplied a H1 assessment of increasing the discharge volume and resulting environmental impact from the treated effluent on the River Great Ouse. This uses data from monitoring and analysis of the leachate treatment plant (LTP) effluent collected between 2011 and 2014 for the following determinands: arsenic, cadmium, chloride, chromium, copper, cyanide, iron, isoproturan, lead, mecoprop, mercury, nickel, sulphate and zinc. We refer to these as 'hazardous pollutants' and have published guidance on the assessment of these in discharges to surface waters (H1 Annex D1).

The applicant has provided a table of their calculations rather than using our H1 software tool. This is acceptable but it is unclear whether their calculation of the process contribution (PC) relates to the maximum or the mean effluent concentrations. As such, we have undertaken an audit of their submission using the mean and maximum concentrations of the substances, the maximum discharge volume of 330 m^3/d and the Q95 river flow rate (2.1 m^3/s) for the nearest gauging station on the River Great Ouse (Bedford Ouse at Offord). Where an emission limit value (ELV) is already included in the permit, we have used this instead of the maximum concentration figure in order to check that a discharge at the ELV would still have an insignificant impact. These figures provide a precautionary assessment of the long term and short term impacts. We also input information to the tool that the applicant had not included, with an entry for boron.

In all cases, we find that the hazardous pollutants assessed have a PC/EQS ratio below the 4% threshold so are deemed to have an insignificant risk to the River Great Ouse. The only exception to this is the maximum allowable concentration (MAC) for isoproturon, which is calculated to have a maximum PC of 10.6% of the MAC EQS because this is based on its ELV of 50 μg/l. This is a vast overestimate of the likely impact, as the maximum concentration found in the effluent is 5 μg/l.

Therefore, we agree with the applicant's overall conclusion that all hazardous pollutants are emitted in such small quantities that they are unlikely to cause a significant impact on the receiving water.

The other suite of pollutants that are of concern are the sanitary determinands - ammonia, suspended solids, BOD and phosphorus. These are assessed using the H1 Annex D2 methodology to ensure that any discharges are not causing an unacceptable level of deterioration to the water quality.

This stretch of the River Great Ouse (GB105033047921) currently meets 'good' chemical status under the Water Framework Directive. As such, the following class boundaries apply as upper limits (90%iles) to the water quality of the river, which is lowland and of high alkalinity:

- BOD 5 mg/l
- Ammonia 0.6 mg/l
- Phosphorus 0.12 mg/l

In addition, we require the following standard (annual average) to be met for the protection of fisheries:

- Suspended solids 25 mg/l

The applicant has provided data for the concentration of these determinands in the effluent and carried out an assessment for BOD, ammonia and phosphorus. They have used flow data for the Bedford Ouse at Offord:

- Q95 2.1 m^3/s
- Mean flow 13.962 m^3/s

The applicant has modelled the impact of the discharge in order to demonstrate that it does not have a significant impact on the receiving watercourse. They did not have sufficient data on the upstream quality to carry out calculations for the downstream quality, so have provided results for the incremental change in water quality:

Table 4: Predicted Concentrations

Determinand	50 %ile	99%ile
Ammoniacal Nitrogen (mg/l)	0	0
BOD (5 Day) (mg/l)	0	0.02
Phosphate (Total) as P (mg/l)	0	0.01

The applicant concludes that the discharge meets our requirement of 'no deterioration'. We have carried out our own modelling, using all of the necessary data, in order to confirm whether we can approve this conclusion:

Determinand (mg/l)	Upstream mean quality	Upstream standard deviation of quality	Effluent mean quality	Effluent standard deviation of quality	Downstream mean quality	Downstream 90%ile quality
Suspended solids	17.68	19.48	15.35	22.98	17.93	-
BOD	2.12	1.24	3.75	4.06	2.14	3.65
Ammonia	0.142	0.075	0.48	0.72	0.14	0.24
Phosphorus	0.188	0.065	1.98	0.93	0.19	0.27

It can be seen that for all determinands, the discharge of effluent does not cause a deterioration in the downstream mean quality by more than 10% of

the upstream quality. This meets our requirements for ‘no deterioration.’ The downstream quality also meets the WFD good status 90%ile requirements for BOD and ammonia and the standard for suspended solids.

The upstream quality of phosphorus (0.188 mg/l) already exceeds the WFD good status target of 0.12 mg/l. Our River Basin Management Plan for Anglian notes that phosphate is at poor status in this stretch of the river and that it would be disproportionately expensive and technically infeasible for phosphate to achieve good status. As such, we must at least ensure that any effluents that contain phosphorus do not cause further deterioration of the receiving water quality. We are satisfied that this is the case for this discharge and do not need to introduce a phosphate limit at this time.

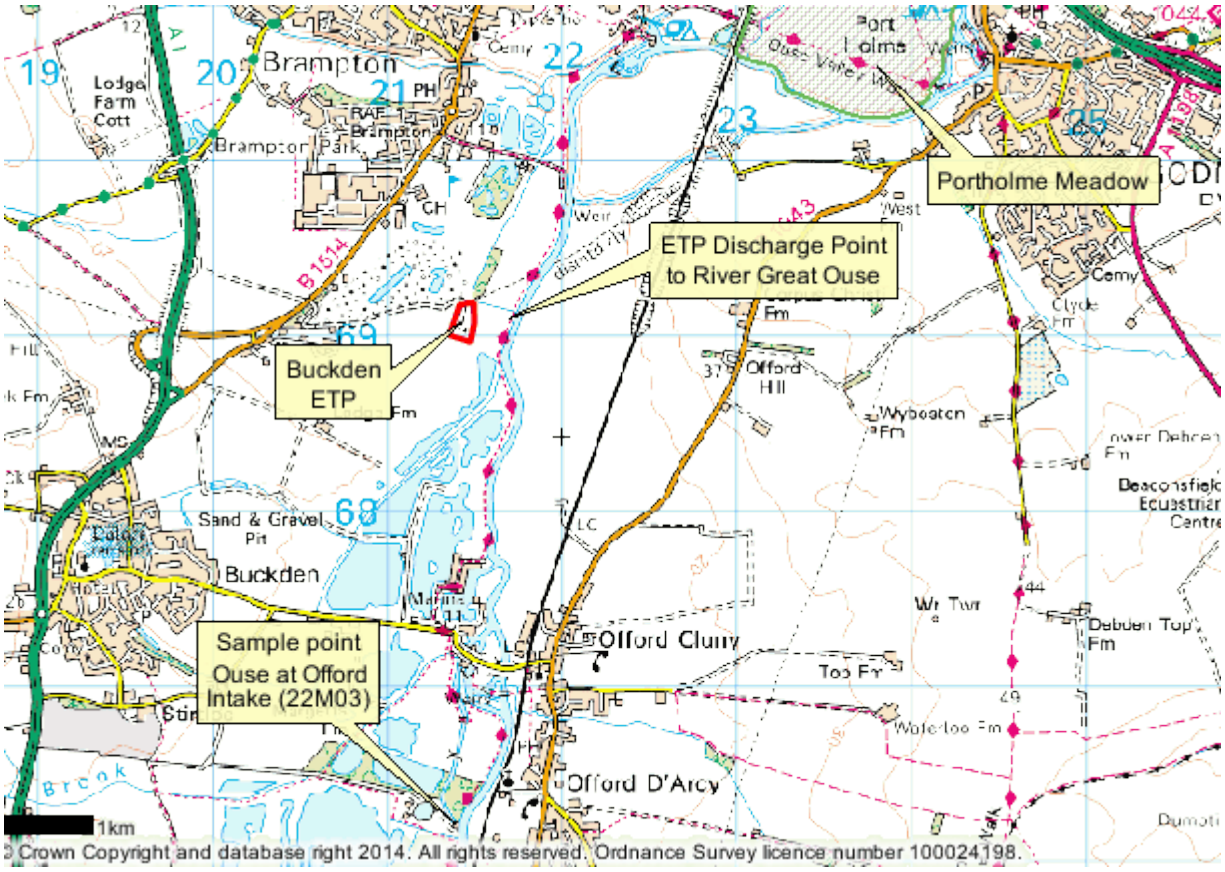
To conclude, we have completed our H1 assessment of the discharge on the River Great Ouse and are satisfied that any impacts are not significant.

Point Source emissions to water – emission limits and monitoring requirements

As the H1 assessment has shown that the impacts of the discharge on the River Great Ouse are not significant, we have decided that emission limit values (ELVs) on hazardous pollutants are no longer necessary for this permit. These were included in the original PPC permit in 2007 because they were directly transferred from the site’s Consent to Discharge (PRCNF/05345), which was issued in 1995. There is now sufficient data to prove that no ELVs are required, however we have retained the requirement for the operator to monitor for these substances. This will ensure that they maintain an awareness of the quality of their effluent and have the data required for any future assessments. This is also important in ensuring that the operator can comply with condition 3.3 ‘Emissions of substances not controlled by emission limits’ to ensure that these substances do not cause pollution. We have removed the requirement for Direct Toxicity Assessment but introduced the requirement for monthly monitoring of mercury and cadmium because the operator did not hold representative data for these substances. They are of importance as priority hazardous substances, for which the Water Framework Directive (WFD) has set tighter EQSs.

Regarding the sanitary determinands, we have retained the ELVs for these substances because they are key parameters for the WFD classification. With the operator’s agreement we have reduced the ELV for ammonia from 10 mg/l to 4 mg/l to meet the benchmark in the sector guidance. In addition, the permit now requires the operator to monitor the effluent for phosphorus but we have removed COD as a parameter because we are satisfied that potential depletion of oxygen is monitored by using the parameter BOD.

It is considered that the ELVs/equivalent parameters or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.


Portholme Meadow
ETP Discharge Point to River Great Ouse
Buckden ETP
Sample point Ouse at Offord Intake (22M03)
Brampton
Buckden
Offord Cluny
Offord D'Arcy
Offord Hill
Wyboston
Sand & Gravel Pit
1km
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Annex 1: decision checklist

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

Aspect considered	Justification / Detail	Criteria met Yes
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. 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. 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 TL 21446 69076.	✓

Aspect considered	Justification / Detail	Criteria met Yes
Site condition report	The operator provided a description of the condition of the site with the original application.	✓
Biodiversity, Heritage, Landscape and Nature Conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat. A full assessment of the application and its potential to affect Portholme Meadow SAC and SSSI has been carried out as part of the permitting process. We consider that the application will not affect the features of the site and that this assessment also ensures that the local wildlife sites are protected. We have not formally consulted on the application. We have sent a copy of our assessment of the impact on Portholme SAC to Natural England for information only. The decision was taken in accordance with our guidance. The impact on the European eel & River lamprey and their migratory routes is considered by the H1 assessment (see Key Issues), which screens out all hazardous pollutants as having an insignificant impact on the receiving watercourse (discharge contributes <4% of the EQS to the river quality) and confirms that all sanitary determinands cause no deterioration (less than 10% deterioration to the upstream quality). These species/habitats will not be adversely affected by the increase in discharge.	✓
Environmental Risk Assessment and operating techniques		
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is unsatisfactory and required additional Environment Agency assessment to make up the shortfall. The details of this are explained in the Key Issues section on the H1 assessment. The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment, all emissions may be categorised as environmentally insignificant.	✓

Aspect considered	Justification / Detail	Criteria met Yes
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. The proposed 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 TGN and ELVs deliver compliance with BAT-AELs. We consider that the emission limits included in the installation permit reflect the BAT for the sector.	✓
The permit conditions		
Updating permit conditions during consolidation.	We have updated some of the previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit(s). The operator has agreed that the new conditions are acceptable.	✓
Raw materials	We have 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. 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.	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
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, including reference to items completed under the Improvement Programme that are now part of the operating techniques. A new reference ensures that operations will continue to be in accordance with S5.03 Guidance for the Treatment of Landfill Leachate. It also references operational information provided regarding the effluent to be received and pre-acceptance and acceptance procedures.	✓
Emission limits	We have decided that emission limits should be retained for the parameters listed in the permit. See the 'Key Issues' section for further detail on this.	✓
Monitoring	We have retained monitoring for the parameters listed in the permit, using the methods detailed and to the frequencies specified. See the 'Key Issues' section for further detail on this. 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 retained the reporting specified in the permit.	✓

Annex 2: Consultation and web publicising responses

Summary of responses to consultation and web publication and the way in which we have taken these into account in the determination process.

Response received from
Anglian Water
Brief summary of issues raised
Anglian Water have no issues relating to either surface water or groundwater abstractions in the area and as such have no comment.
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 Health and Safety Executive or Huntingdonshire District Council.