Environment Agency Permitting decisions

We have decided to vary the permit for Davyhulme WwTW Sludge Treatment Facility, United Utilities Water PLC.

The changes introduced via this Application include the following:

a) Provision for a limited time period trial to investigate optimisation of sludge re-liquidification.

The permit number is EPR/HP3931LJ/V004.

The Operator is United Utilities Water PLC.

The facility is located at Urmston, Mancester, M41 7JB.

The decision was effective from 02/072010.

Summary of the decision

We have decided to vary the permit for the Operator, subject to the conditions in the permit. 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 environment protection is provided.

The changes introduced via this Application include the following:

a) Provision for a limited time period trial to investigate optimisation of sludge re-liquidification
A six month trial is allowed via this variation. The purpose of the trial is to assess the feasibility of re-liquefying raw undigested sludge cake, normally disposed of via agricultural land so that it can be used to increase the methane generated and capture from the on-site primary digester.

This permit is for United Utilities Water PLC to operate a non-hazardous sludge treatment process at Davyhulme Wastewater Treatment Works (WwTW). The installation is located to the next to the wastewater treatment works. To the north and west of the installation lies the Machester Ship Cannal and is bounded to the south, east and west by the installation is bounded by housing and industrial units.

The sludge is collected, stored, screened and thickened with some of the water being removed before being transferred to the digesters. At the digesters, the sludge is heated which encourages the anaerobic biological breakdown of the sewage sludge The process produces biogas, which is mostly methane. The majority of the biogas is combusted to provide heat to the anaerobic digestion process and produce electricity for the WwTW .

There are no Special Areas of Conservation, Special Protection Areas within 10Km or SSSI's within 2km of this site.

The main emissions from this site are methane from the digesters and emissions to air of Oxides of Nitrogen, Carbon Monoxide and Sulphur Dioxide from the

combustion plant. Emission limits have been set in the permit to control emissions from the Combined Heat and Power Plant.
There are no emissions to water from this installation, however there are discharges of condensate from the installation to the on-site wastewater treatment works.

Purpose of this document

This decision document:

- explains how the Applicant's Application has been determined;
- provides a record of the decision-making process;
- shows how all relevant factors have been taken into account

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

Structure of this document

- Key Issues of the decision;
- Annex 1 the decision check list;

Key issues of the decision

The changes introduced via this variation include the following:

a) Provision for a limited time period trial to investigate optimisation of sludge re-liquidification
A six month trial is allowed via this variation. The purpose of the trial is to assess the feasibility of re-liquefying raw undigested sludge cake, normally disposed of via agricultural land so that it can be used to increase the methane generated within and capture from the on-site primary digester.

The trial for re-liquidification is limited to a period defined in condition 2.9 of this Application. Conditions are included in this variation to ensure extension to this period is only possible via written agreement with the Agency.

The environmental impact of this change is detailed below.

Environmental risk assessment.

Re-liquidification trial

The re-liquidification process is being introduced at this installation for the purposes of generating additional methane within the primary digesters from imported raw sludge cake. This sludge cake normally is limed and used for agricultural purposes. The increased methane generated will then be captured and used to increase the load to the CHP engine improving engine efficiency. The more efficient operation of the CHP engine will in turn help in maintaining the heat within the primary digesters.

The sludge cake will be imported by wagon from existing United Utilities permitted sites. Maximum quantity of sludge cake on site at any time is to be limited to 50 m^3. On site, the cake will be transferred into a bunded storage area and then into a feed hopper for the re-liquidification. The hopper will feed the cake into an enclosed screw conveyor into which final effluent will be added to re-liquefy the sludge. The final effluent will be provided from an existing final effluent point, close to the proposed process area. The re-liquidification process will reduce the dry solids to approximately 10%. The liquefied sludge will then be pumped via an above ground temporary flexible pipe to the screened sludge holding tank. This flexible pipe work is to be run over hard standing. In order to minimise fugitive emissions the re-liquidification process will be supervised at all times and be limited to day time operation.

Two further environmental benefits have been put forward by the Operator within the Application as follows:

1) Reduced chemical usage off site as the sludge cake will not require liming prior to transfer to the installation (this would be required if the cake was disposed of to land).
2) Vehicle movements and associated noise impact will be reduced. This is because concentrated sludge being imported would be reduced (current liquid operation necessitates approximately ten 28 m^3 tanker movements per day and yet with the use of this cake this would reduce to two 25 tonne wagons per day).

A H1 Part 1 Environmental assessment for this trial has been submitted within this Application. The Operator's findings and our comments are listed below for each criteria.

Odour Assessment

The Operator highlighted the potential for odour related to the cake stockpile. The closest residential properties are located greater than 200 metres away on Skipton Drive to the South -West of the site. The Operator has confirmed that sludge cake brought on site in any given day will be utilised on the same day to minimise odour impact. In the event of equipment breakdown any sludge cake remaining at the end of the day will be suitably sheeted. The Application stated that the Operator believes the overall risk of nuisance odour beyond the installation perimeter is not significant.

This view has not been fully accepted by the Environment Agency. The Environment Agency has considerable experience of operations at the site and concludes that there is potential for strong nuisance odour from undigested sludge. Secondly, Environment Agency guidance, "Getting the Basics Right" lists sewage sludge treatment as a process likely to create odour and requiring an Odour Management Plan.

Consequently additional information, outlined in points 1 to 7 below, was requested during the determination of this Appplication.

(1) Level of supervision – in addition to confirmation that the trial will be supervised at all times it was confirmed that all staff and contractors involved will receive training on Environmental Permitting awareness.

(2) Odour Monitoring - The operator is not intending to carry out any odour monitoring currently. However as discussed below an Odour Management Plan is to be submitted by the operator as part of a pre-operational condition. This is to be sent to the Environment Agency for approval prior to operations commencing.

It has been confirmed that basic perimeter patrols will take place to identify any odour problems at the installation perimeter. This lead to a review of appropriate odour control measures.

(3) Actions in the event of an odour at the site boundary – The operator stated their intention to only run the process at 50% capacity i.e. 25 m^3 of sludge per day initially. This is to allow determination of risk of potential odour at smaller impact. Any odour detected at this stage would stop the process. If no significant odour is detected then production would be ramped up to maximum 50 m^3 per day.

(4) Masking system – Further to steps taken under point (3) clarification was sought regarding the operator's usage of a perimeter masking system. This system was confirmed as involving the use of an odour neutralising agent, which is applied using spray nozzles. Initially this system is to be operational permanently unless an assessment of odour levels in practice is possible. The operator then confirmed that if odour was not an issue then the dose rates and hours of operation would be reduced accordingly.

After discussion with the Environment Agency site inspector the operator further agreed to record the hours of operation of this system within the site log book. This information could be useful in assessing the effectiveness of this system in the event of specific odour incidents.

(5) Stock piling of sludge cake - As discussed above material will not normally be stockpiled overnight. The maximum quantity stockpiled in the event of a system breakdown is to be limited to 50 m^3 and a maximum of three days residence time on site. After this time the cake will be removed from site.

(6) Clean up procedures - The cake bay is to be cleaned at the end of each day. Any runoff would enter the site drain and be returned back to the inlet of the installation for treatment. The cleaning is to be subject to a specific procedure and a supervisor will confirm the cleaning has been completed correctly.

(7) Sheeting – any sludge cake stockpiled at the end of each day due to equipment breakdown is to be sheeted to minimise odour and dispersion.

Whilst points 1 to 7 above provide better clarification of the methods to minimise odour potential, they must be formally addressedd via the following three measures:

a) Introduction of a new Odour Permit Condition as listed below. This mandates the usage and updating as appropriate of an Odour Management Plan (OMP).

Condition 3.4.1 is to be amended as follows:

Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including, but not limited to those, specified in an approved Odour Management Plan, to prevent or where that is not practicable to minimise the odour.

b) Pre-operational condition to ensure that the OMP for this trial is provided 2 weeks before commencement. The specific request made by the Environment Agency during the determination for site boundary checks to be introduced to pro-actively identify any odour problems was agreed by the operator. This is to be included in this OMP.

c) Limitation of trial via new permit condition 2.9.3 to 6 months.

There is also a condition 2.9.4 regarding the completion of the trial as follows

2.9.4 "The Operator shall notify the Agency in writing within 7 days of the completion of the technical Evaluation."

Noise Assessment

The operator has identified a potential noise hazard arising from the temporary pump associated with the re-liquidification process. The distance to the closest resident is greater than 200 metres away. The risk has been assessed as not significant by the Operator and the Environment Agency agrees. This is underlined via the limited operational hours for the trial between 8 am to 4 pm. In addition the trial will be supervised at all times allowing maintenance and assessment of the pump in the event of a breakdown or abnormal noise level.

Fugitive Emissions

For the re-liquidification trial the only potential hazard is the emission of re-liquefied sludge to ground water or surface water after a breach of the flexible pipe between the screw conveyor and sludge holding tank. The risk is minimised as the pipe run is over hard standing and sandbags are to be deployed for spill control. The operation is to be manned at all time and daily inspections of pipe integrity completed. Even in

the extreme event of sludge entering the drains, these return their contents to the front of the installation for re-treatment.

Accidents Risk Assessment and Management Plan

No new hazards identified relative to this variation.

Conservation

A summary of the Easimap screening results is as follows:

a) No Sites of Special Scientific Interest (SSSI) within 2 km
b) No Ramsar sites within 10 km
c) No Specific Area of Conservation (SAC) within 10 km.
d) One Local Nature Reserve within 2 km – Davyhulme Millenium Nature Reserve.

This variation does not add any significant environmental impact for air emissions and therefore there is no additional risk to these conservation sites via the introduction of this variation.

Groundwater

The changes introduced via this Application do not impact groundwater. The risk of fugitive emissions to groundwater related to the re-liquidification trial are to be prevented via the constant supervision of the operation and no overnight sludge cake storage on site, unless in the event of equipment breakdowns, and the limitation of sludge cake on site to no greater than 50 m^3.

Emissions to Surface Water and Sewer

There are no point source emissions to surface water or sewer introduced via this variation. Fugitive emissions are minimised via the usage of operating procedures and spill kit usage. For the mobile steam generator, drain isolation and shutoff procedures further minimise the risk of fugitive emissions. During the trial fugitive emissions will be minimised via supervision at all times and minimisation of the on site volume of sludge cake as detailed in the groundwater section above.

Operational techniques

Currently no operating procedure exists for this trial. In order to ensure such a procedure is in place a pre-operational condition. The condition is detailed below:

2	At least 14 days before operation of the re-liquidification trial the Operator shall submit a written operating procedure for this trial having regard to the environmental risks and including but not limited to procedures for handling fugitive emissions. The Environment Agency is to provide written approval on receipt of this report to allow operations to commence.

Monitoring and compliance

No new monitoring requirements are introduced via this variation.

Operator

There are no changes in respect of Operator or Operator competence associated with this variation.

Commercial and industrial confidentiality

The Operator has not made a claim for confidentiality for commercial confidentiality. We have not received any information in relation to this Application that appears to be confidential in relation to any party.

OPRA Score

The Operator OPRA score for this installation is 147.
There are no changes introduced that impact the OPRA score.

Annex 1: decision checklist

Bespoke permit and variation checklist

Activity	Justification / Detail	Determination criteria met	
		No	Yes
Receipt of submission			
Application fee	The Application fee is correct for a minor variation.		✓
Commercial confidentiality	The Operator has not made a claim for commercial confidentiality. We have not received any information in relation to this Application that appears to be confidential in relation to any party.		✓
Consultation			
Scope of consultation	For a minor variation there are no consultation requirements.		✓
Consultation responses	Not applicable.		✓
Operator			
Control of the facility	There are no changes to the Operator as a result of the variation.		✓
The facility			
The regulated facility	There are no changes to the Operator as a result of the variation.		✓
European Directives			
Applicable Directives	The European Directives that apply are as follows: IPPC Directive Groundwater Directive Waste Framework Directive		✓
The site			
Extent of the site of the facility	We are satisfied that there are no changes proposed to the extent of the site at the facility resulting form this Application and the Operator will carry on the permitted activities within the site boundary.		✓
Planning permission	We are not required to consider the planning permission for Applications.		✓
Site condition report	We are not required to review the site condition report as there are no changes to the installation site area.		✓
Environmental Risk Assessment and operating techniques			
EIA	Not applicable to a minor variation.		✓
Environmental risk	We have reviewed the Operator's assessment of the environmental risk from the facility. There is a potential risk for odour nuisance beyond the factory perimeter. This has been dealt with via the Odour Management Plan to ensure impact is insignificant and provide corrective actions in the event of a breach.		✓
Operating techniques	We have reviewed the techniques used by the Operator and compared these with the relevant guidance notes. The additional operating procedures for mobile steam generator and re-liquidification trial are in line with this guidance.		✓
The permit conditions			
Use of conditions other than those from the template	The permit contains many conditions taken from our permit template. We developed these conditions in consultation with industry having regard to the relevant legislation. Where such conditions are imposed we have considered the Application and accepted the details are sufficient and satisfactory to control that aspect of the operation. Various non-standard conditions were added related to the re-liquidification trial in line with wording already approved by legal. These conditions are 2.9.1, 2.9.2, 2.9.3 and 2.9.4.		✓
Odour conditions	The new odour condition has been added in line with latest H4 guidance enshrining requirement for an Odour Management Plan		✓
Pre-operational	Based on the information on the Application, we consider that we need to		✓

Activity	Justification / Detail	Determination criteria met	
		No	Yes
conditions	impose the following pre-operational conditions. • Amendment to Odour Management Plan to cover re-liquidification trial 14 days before the commencement of the trial. • The submission of a written operating procedure 14 days before commencement of the trial having regard to environmental risks and handling of fugitive emissions?		
Emission limits	There are no additional emission points or limits introduced with this variation.		✓
Monitoring	We have decided that no additional monitoring is required as the variation does not introduce any additional environmental impact.		✓
Reporting	No changes have been made to the permit reporting requirements		✓
Operator Competence			
Technical competence	We are not required to consider technical competence for this type of Application.		✓
Relevant Convictions	We are not required to consider technical consider relevant convictions for for his type of Application.		✓
Financial provision	The Application does not require financial provision..		✓
OPRA			
Opra Score	The Opra score is 147 The Opra score has not changed from that set out in the Application.		