

Environment Agency Permitting decisions

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

The permit number is EPR/HP3931LJ
Variation Notice number is EPR/HP3931LJ/V003

The operator is United Utilities Water PLC.

The facility is located at Davyhulme Waste Water Treatment works, Urmston, Marlborough, Manchester.

The decision was effective from 15/10/09

Summary of the decision

We have decided to grant a 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 operator has applied for a variation to vary the current permit to take into consideration the following operational changes;

1. The addition of 2 secondary sludge digesters with a capacity of 4878m³ each.
2. A change to the installation boundary to include the 2 secondary sludge digesters.
3. The limit on storage has been increased from 158,320 m³ to 168,076m³
4. The limit on waste throughput has been increased from 1,243,350 wet tonnes/year to 2,700,000 wet tonnes/year.

During the determination an application was received for an admin variation to the permit. The reason for the variation is to correct an omission in the original permit. This was agreed with the local Environment Agency Regulatory Officer for the site.

The variation makes an amendment to the reference conditions for reporting concentrations of substances in emissions to air, as shown in schedule 7 of the permit. The text at the end of schedule 7 to the existing permit reads;

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

(a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or

(b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content

The following text has been added to the above standards.

(c) in relation to spark ignition engines, an oxygen content of 5%, dry, the concentration at a temperature of 273K, for liquid and gaseous fuels.

The above reference conditions are taken from the Environment Agency's guidance document 'LFTGN08: Guidance for Monitoring Landfill gas Engines', which applies to the biogas engines at this facility.

Advertising

The application was advertised in the Stretford and Urmston Messenger on the 7th May 2009.

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; and
- justifies the specific conditions in the permit.

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;
- Annex 2 the consultation responses.

Key Issues of the decision

1. The addition of two secondary digesters that were omitted from the original application.

The key consideration for allowing the incorporation of the tanks in to the permit is whether adequate preventative measures are in place to ensure fugitive emissions from the tanks do not pollute groundwater, surface waters or sewers. The two additional secondary digesters are described as having a capacity of 4,878m³ and are located to the Northern extent of the installation boundary. The vessels are constructed from glass coated steel and situated on a concrete foundation. The operator contends that the additional tanks should be treated as 'existing infrastructure', as they were in the post- design but pre construction phase when the original permit was determined in October 2007. Therefore the tanks should be subject to the same requirements in terms of pollution prevention measures as that afforded to the digesters permitted in the original determination. The requirement does not insist that secondary containment is necessary.

The site already has 12 existing secondary digesters. None of the existing secondary digesters on site are individually bunded. The original permit (HP3931LJ) contains improvement conditions that require the operator to complete a Leak Detection Assessment (IC6) and a Secondary Containment Assessment (IC12) for all primary pipework (including drains) or sumps, storage and treatment vessels.

Both assessments have been completed, however they are yet to approved by the Agency. The assessments do not propose secondary containment of the digesters, this option will only be considered when the digesters are at the end of there design life and need to be replaced. The operator has stated that steel glass tanks have a life expectancy in the order of 25 years.

In the application the operator has described the existing pollution prevention measures that are in place for the 2 secondary digesters and associated pipework, these measures are;

- High and low level alarms
- The digesters are linked to the site's Supervisory Control and Data Acquisition (SCADA) system.
- Tertiary containment for the tanks is the site drainage system spillages entering the drainage system will drain back to the off installation Waste water Treatment works.
- Testing and inspection of primary containment is decribed as visual inspection.

The techniques listed above are appropriate and are currently employed on the other secondary digesters within the installation. However, as the current permit requires the operator to submit proposals for secondary containment

and leak detection the operator was asked in a letter dated 25th August 2009 to provide this additional information. In the response the operator contends that retrofitting secondary containment is not possible and they have presented alternative proposals for minimising the risk of loss of containment from these vessels. Table 1.1 below summarises the operators proposed techniques.

Table 1.1 Summary of operators response.

Environmental Quantitative Risk Assessment (EQRA)

The operator has developed an EQRA, which is used to assess all assets on permitted sites, based on an external inspection and desk top study. The output from the EQRA is a prioritised list of assets in A, B and C categories based on the potential risk they pose to the environment. The assets deemed to pose the highest risk to environment are classified as Band A or B, and those having no, or very low risk, are classified as Band C. The input data used in the EQRA for the secondary digesters includes consideration of:

Leak likelihood.
Leak severity
Pathways for any leaks.

The secondary digesters have been rated as Band C (very low risk)

The operator is developing Groundwater and Groundwater Risk Assessment Model, this will aid the operator to quantify the impact of potential leakage scenarios on an installation specific basis. This information will be used to update the EQRA.

Leak Detection.

The secondary digesters will be subject to a monitoring programme to detect leaks and prevent potential sources of pollution arising from them. It is proposed to use the following methodologies;

- A Weekly Visual Inspection; and
- Biennial Level Drop Test.

The weekly inspection will be carried out by a site operative. Any significant deterioration identified would trigger further investigation by a suitably qualified engineer or trained site operative.

In addition to the weekly visual inspections it is proposed that a biennial drop test will be performed on each digester. This will involve filling the tanks with post primary digested sludge to the normal maximum operating level and holding for a set period. Level variation will be assessed for unexpected fluctuations. If a leak is suspected arrangements will be made for an internal

inspection to take place within a reasonable timescale.

As already discussed the operators proposals do not include secondary containment for the 2 secondary digesters. Whilst the provision of secondary containment is a BAT requirement for new applications, the Agency accepts that the digesters are categorised as existing installation and also that retrofitting of secondary containment for these 2 digesters would not be practical.

As the tanks are new and are built to relevant industry standards, the Agency accepts that the loss of containment due to 'wear and tear' in the short to medium term is unlikely. Also due to the location of the tanks the risk of significant damage due to an accidental collision is also unlikely. The low risk nature of the material held in the tanks also means that any small leaks from the tanks are unlikely to have a significant impact on the environment if detected early.

There remains however a risk to the environment from a catastrophic failure of the tanks, the risk again is considered to be low and would be minimised through an effective monitoring and preventative maintenance regime. Any major spillage is likely to be contained within the installation boundary, with little likelihood of it escaping into water courses. As already mentioned the site drains are part of a closed system that would direct the flow of the sludge back to the treatment works. The operator has also stated that they are in the process of developing a Site Spillage Plan that will detail the measures to be taken in the event of a spillage, including catastrophic failure. The other significant risk could be from contamination of land around the digesters that is not covered by hard standing. The risk to groundwater is to be modelled and submitted as part of operators response to IP12, the operator has stated that the results of the modelling will improve their understanding of the need to provide any additional leak detection and ensure that the work planned is proportionate to the risk to the environment.

It is the Agency's view that a long term monitoring and preventative maintenance regime is appropriate to ensure that any deterioration of the tanks over time is recorded and acted up on. The operators proposals satisfies this requirement for the 2 secondary digesters only, and therefore the digesters will be incorporated into the permit as part of this variation. However as indicated above the overall proposals, which will include the proposals for the 2 digesters (responses to IP6 and IP12) are still to be approved by the Agency.

2. Change to installation Boundary

In order to accommodate the 2 additional digesters described above the installation boundary has been varied. This represents a relatively small addition to overall area of site. The application contains a revised version of

the Application Site Report to account for this additional area, this includes site reconnaissance for the additional area and the inclusion of the secondary digesters in the Assessment of Likelihood of Land Pollution. It was concluded that the extended installation boundary and processes make no change to the original conclusions of the ASR and do not pose a significant risk of pollution. The agency agrees with this assessment. The site plan in schedule 2 of the permit has been varied accordingly.

3. Increase in storage limit

The storage limit currently in the permit will be increased to accommodate the additional storage afforded by the 2 additional secondary digesters.

4 .An increase in the Maximum Quantity for Treatment from ‘No more than 1,243,350 wet tonnes per year’ to ‘No more than 2,700,000 wet tonnes per year

It was unclear in the application as to the reasons for and the nature of the increase. This however was later clarified after correspondence with the operator . The clarification reads as follows;

‘To confirm your query regarding sludge throughput, the reported figure of 1,297, 574.3 tonnes for Davyhulme in 2008 was based on the sludge being treated in the primary digesters only. This was reported in line with the figure provided within the original application and therefore it did not include the imported digested sludge from Oldham, Bury and Bolton being brought on to site for treatment after the primary digesters, within the strain presses and secondary digesters.

The requested increase in throughput to 2,700,000 tonnes is to take account of this digested sludge – in addition to the 807tonnes/day being treated with the two new secondary digesters, there is reported to be approximately 890,000 tonnes/ year of imported digested sludge. The annual return for 2009 will include the imported digested sludge figure once the permit has been amended to reflect this correct figure.

This therefore confirms that the request to increase the sludge throughput figure is based on sludge which does not pass through the primary digesters. There is therefore no resulting increase in biogas or odour issues relevant as part of this variation application’.

The clarification establishes that the increase in throughput reflects the existing situation at Davyhulme in respect of sludge throughput and corrects the throughput figure in the current permit that was based on a figure that was misreported in the original permit. We have checked the original application to establish whether any of the key decisions in the permit need to be revisited as a result of misreporting. A brief account of this is described below;

Emissions to air (including odour).

The increased throughput is attributed to pre treated sludge that has already been primary digested. This means that no additional biogas for utilisation by the CHP engines will be produced, therefore air emissions assessed during the original determination remain valid. Also any impact on odour will be insignificant as sludge for secondary digestion is inherently low in odour. There will however will be an increase in the amount of trace methane released from open top secondary digesters to that reported in the original application. This figure will increase from 38.5 tonnes/year to 83.7 tonnes/year. The original figure was considered to be insignificant in terms of global warming, this situation remains despite the increase.

Emissions to sewer

No impact. Point source emissions not associated with secondary digestion.

Emissions to surface water

No impact. There are no point source emissions to surface water.

Emissions to groundwater

No impact. There are no point source emissions to groundwater.

Summary of changes to the permit.

The following changes have been made to the current permit as a result of this variation.

1. Table S1.1 activities, in schedule 1 of the permit has been amended. The 'Limits of specified activity and waste types' for activity S5.3 A1 (c)(i) has been amended to increase the number of secondary digesters from 12 to 14.
2. Table S1.2 Operating techniques in schedule 1 of the permit has been amended to included the response to request for information received on the 21/05/09 & 25/08/09.
3. Table S3.2 Permitted waste types and quantities for storage, in schedule 3 of the permit has been amended to increase the storage limit from 158,320 wet tonnes to 168,076 wet tonnes, this to account for the additional storage afforded by the additional digesters.
4. Table S3.3 Permitted waste types and quantities for treatment, in schedule 3 of the permit has been amended to increase the waste quantity to 2,700,000 tonnes.
5. The site plan in schedule 2 has been amended to include the 2 additional secondary digesters within the installation boundary.

6. Schedule 7 has been amended to include the following text;

(c) in relation to spark ignition engines, an oxygen content of 5%, dry, the concentration at a temperature of 273K, for liquid and gaseous fuels.

Annex 1: decision checklist

Activity	Justification / Detail	Determination criteria met	
		No	Yes
Receipt of submission			
Application fee	The application fee is correct Charges are detailed in part F of the application form.		✓
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	<p>The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, RGN 9 Changes in operation and our Public Participation Statement.</p> <p>The consultation took place on 01/05/09 and comprised of sending copies of the application to the following;</p> <p>Environmental Health at Trafford Borough Council Food standards Agency HSE Planning Department Trafford Borough Council Director of Public Health NHS Manchester</p> <p>The application was advertised in the Stretford and Urmston Messenger on the 7th May 2009. No public responses were received during the determination.</p>		✓
Consultation responses	<p>The consultation responses (Annex 2) were taken into account in the decision.</p> <p>The decision was taken in accordance with our guidance.</p>		✓
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		✓

Activity	Justification / Detail	Determination criteria met	
		No	Yes
The facility			
The regulated facility	<p>The decision on the facility was taken in accordance with RGN [interpretation of installation], RGN [Interpretation of Schedule 1], RGN [Meaning of waste], RGN [Recovery of waste]</p> <p>The regulated facility is an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations and the following directly associated activities (DAAs).</p> <p>S5.3 A1 (c)(i) D8: Biological treatment (anaerobic Digestion) of sludge for the purposes of disposal.</p> <p>S5.3 A1 (c)(ii) D9: Physical and chemical treatment of sludge for the purposes of disposal</p> <p>S 1.1 A1(b)(iii) The combustion of fuel (biogas) for the purpose of generating electricity and heat for use within the installation.</p> <p>DAAs:</p> <p>Biogas Treatment Plant Combustion of standby gas oil United Utilities Industrial Limited ATF Plant Gas Flare Storage of waste Raw material storage Use of centrifuge</p>		✓
European Directives			
Applicable Directives	<p>The European Directives that apply are as follows:</p> <p>Habitats Directive – There are 2 SAC sites (Rixton Clay Pits & Manchester Mosses) and 6 SSSIs (Risley Moss, Dunham Park, Rixton Clay Pits, Brookheys Covert, Holcroft Moss and Astley Bedford Mosses) within 10km of the installation. An Appendix 11 HR01 form was completed which included an impact assessment on the the sites in question it was concluded thate the variation would have no significant effect on the sites. The form was sent to English Nature for information only.</p>		
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 permit at Schedule 2, and the operator is required to carry on the permitted activities within the site boundary.		✓
Planning permission	We are satisfied that planning permission is in place and it is appropriate for the relevant waste operation(s) applied for.		✓
Site condition report	The ASR was updated to include the increase in installation area due to the inclusion of the 2 digesters within the site boundary.		✓
Environmental Risk Assessment and operating techniques			
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment all emissions may be categorised as environmentally insignificant.		✓

Activity	Justification / Detail	Determination criteria met	
		No	Yes
Operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes.</p> <p>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.</p>		✓
The permit conditions			
Use of conditions other than those from the template	<p>The permit contains many conditions taken from our permit template. We developed these conditions in consultation with industry having regard to the relevant legislation. This decision document does not include an explanation for these usual conditions.</p> <p>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.</p>		✓
Waste types	There are no changes to waste types.		✓
Pre-operational conditions	No pre operational conditions have been included as part of this variation.		✓
Emission limits	Emission limits have not changed as a result of this variation		✓
Monitoring	No additional monitoring requirements have been included as part of the variation.		✓
Reporting	Reporting requirements have changed as a result of this application. Emissions to air will now be reported quarterly.		✓
Operator Competence			
Technical competence	<p>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.</p> <p>The decision was taken in accordance with RGN 5 on Operator Competence</p>		✓
Relevant Convictions	The National Enforcement Database has been checked to ensure that all relevant convictions have been declared. 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.		✓
OPRA			
Opra Score	<p>The Opra score is 147</p> <p>The Opra score has not changed from that set out in the application.</p>		

Annex 2: consultation responses

Advertising and consultation

Summary of responses to advertising and consultation and the way in which we have taken these into account in the determination process:

Response received from
Trafford NHS Trust – received 20 th May 2009
Brief summary of issues raised
<ol style="list-style-type: none">1. The regulator should confirm potential odour issues related to the new storage vessels, new waste types, increased quantities stored and point source emissions to air have been considered. Potential odour emissions should be modelled and it is expected that the operator achieve the highest level of protection possible. The regulator should confirm the operator has produced a new estimation of potential odour emissions based on the new maximum throughput.2. We recommend the regulator confirm changes in waste quantities and types treated at the site do not result in a change to the emissions predicted in the original application. Untreated sludges from other sites are being imported to the site therefore the potential for nuisance smells from the imported sludge should be addressed by the regulator along with plans for how the sludge will be handled.3. Estimations of emissions to air from biogas combustion provided in the original permit were based on the combustion units at the site running at maximum capacity rather than actual combustion which occurred. Therefore the application has concluded emissions resulting from the increased throughput at the site will not impact on emissions to air. The regulator should confirm emissions do not exceed ELVs especially because the site is situated on the boundary of an Air Quality Management Zone.4. The operator should confirm there will be no changes to the fugitive emissions to air and regulator should ensure the operator produces a new estimation based on throughput.5. The regulator should ensure the odour management plan is reviewed, following operation, to account for increased quantities stored on site.6. The regulator should ensure the nature of any recent complaints are supplied and have been appropriately dealt with as the installation does have a history of complaints. The issue needs to be clarified prior to permit issue.
Summary of actions taken or show how this has been covered
<ol style="list-style-type: none">1. The additional tonnage is the form of primary digested sludge which is inherently low in odour.2. As above3. The increased throughput is attributed to pre treated sludge that has already been primary digested. This means that no additional biogas for utilisation by the CHP engines will be produced, therefore air emissions assessed during the original determination remain valid.4. There will be an increase in the amount of trace methane released

from open top secondary digesters to that reported in the original application. This figure will increase from 38.5 tonnes/year to 83.7 tonnes/year. The original figure was considered to be insignificant in terms of global warming, this situation remains despite the increase.

5. No impact on odour is expected.
6. The agency have received no recent complaints for odour from the installation.

Response received from

Foods Standards Agency – Received 19th May 2009

Brief summary of issues raised

1. My main concern would be the possibility of deposition of potentially harmful substances such as heavy metals, dioxins and particulates in nearby watercourses or areas of food production as a result of the operation of this installation. The Operator should ensure that emissions from these substances are kept within the recommended limits.
2. The applicant should ensure that the frequency of monitoring is consistent with The Waste Incineration Directive, which states that 'Operators should take at least 2 measurements per year of heavy metals, dioxins and furans, dioxin like PCBs and PAHs'.
3. Pre-acceptance procedure - The Applicant should ensure that pre-acceptance procedures for waste being received at the site are suitable. Without appropriate pre-acceptance testing there is an increased risk that an uncontrolled release to air or controlled waters could occur and this in turn could have a direct or indirect adverse effect on the safety of the food chain.

Therefore, based on the information made available, provided that the Operator complies with Technical Guidance Note IPPC S5.06 (Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous Waste), it is unlikely that there will be any unacceptable effects on the human food chain.

Summary of actions taken or show how this has been covered

1. There will be no impact on emissions to water courses or areas of food production as a result of this variation.
2. Point source emissions to air will not change as a result of this variation. WID does not apply to combustion of biogas
3. The additional waste input described in the application will be subject to existing waste acceptance procedures.

Response received from

Trafford Council – 17th June 2009

Brief summary of issues raised

1. The Pollution and Licensing Section have historically been in receipt of complaints of odour relating to the premises and an extensive investment of £20 million was made to control odours relating to the site. The odour management plan referred to in the permit is not

appended with the application, however, it is understood that the plan will be reviewed to take account of the variation. The Council will require appropriate measures to be implemented to ensure that odour from the additional digesters and the increased sludge throughput is controlled and included in the odour management plan.

2. Although there is no obvious noise implication, I would recommend that any equipment associated with this variation complies with the following: All equipment shall be acoustically treated in accordance with a scheme designed so as to achieve a noise level of 10dB below the existing background (LA90) in each octave band at the nearest noise sensitive location. The existing background would need to be taken at the quietest time that the equipment would be operating.
3. I understand that you are seeking clarification from the applicant on the air quality aspect. Modelling undertaken for the original permit was based upon a worst case scenario and the applicant has indicated that the increase in throughput will be within the worst case scenario modelled previously. If that is the case then there is no change in circumstances and no further comments will be required from us. However, if there is a significant change I would appreciate it if you could inform me so that we can take a look the air quality aspect in further detail.

Summary of actions taken or show how this has been covered

1. The additional tonnage is the form of primary digested sludge which is inherently low in odour.
2. There will be no adverse impact due to noise as a result of this variation.
3. The increased throughput is attributed to pre treated sludge that has already been primary digested. This means that no additional biogas for utilisation by the CHP engines will be produced, therefore air emissions assessed during the original determination remain valid.