TROWBRIDGE BC (11799) IED PERMIT

EPR/BB3934AG/V002

WESSEX WATER SERVICES LIMITED

NOT DULY MADE NOTICE RESPONSE

AUGUST 2024

ENVIRONMENTAL PERMITTING (ENGLAND AND WALES) REGULATIONS 2016

Questions received 9TH August 2024

Question Number	Question	Response
1	Payment for £2,018.90	PSCAPPINSTWESSE082 = £2,018.90. See attached email
2	Revised F1 form	See attached F1 form and CD authorisation
3	Revised C6 form	See below and attached C6 form and C6 supporting document
4	Provide a sampling and analysis summary	See below
5	Revised AERA for TVOCs from the upgrading plant exhaust and a revision of the CLO used for acidity relating to Salisbury Plain	Stantec report and modelling files will follow on from this submission.
6	Technical Competence	See attached Certificate no. 10546264 EU Skills version 5. File entitled = 00041593-CMS-ENGUS-UKAS
7	Revisions to the WWSL OMP to partition assets as per current permit not as future permit. Transfer of assets will take place once the initial installation permits has been completed	See attached: WWSL OMP TRTWP547 Revised plans pack Process description

Q3 – Provide a revised C6 Form that includes the emission points W3-W15 which are emissions from the chiller, belt press, gas mixing compressors, condensate and gas upgrading plant and emission points T1-T4 which are transfer points.
As these emission points are discharged into the works from each point then they need to include these in the C6 and be committed to assessing these emissions via appropriate sampling points. It is not clear if these are all separate emission points or if they channel to another point where they can be sampled in the site boundary before transfer to the wider Wastewater Treatment Works (WwTW) or to use Wessex Water's naming convention (WRC). Some of these emissions originate from gas infrastructure assets located within the site boundary for WWEL. We have sent a separate question in the request for information for WWEL asking that transfer points from WWEL assets into WWSL site drainage are identified on a site plan as per the approach we took with Poole BRC.

The points marked as W3 to W15 are assets with liquid emissions and have been labelled as per Poole BC approach; these flows are routed through the permitted area via different routes but will leave the boundary through the transfer points T1 to T4. As you mentioned in your commentary, some can be sampled individually, whilst others are not. Since the Trowbridge gaps submission in October 2023 there have been further communications with Clive Humphreys about sampling and sampling points for wastewater streams (see also answer to Question 4).

The sampling points have been revised and S1, S2, S3 and S4 marked on the plans are points where flows from the different assets are able to be sampled. Notes from the Task and Finish Group meeting are included below, where the EA have detailed this scenario where existing site design makes it impossible to separate streams.

Task and Finish Group Notes on Emissions: Return Liquors 15/05/2024
Clive and Dan visited ALS 1st May and found it very informative. The problem seems to be high suspended solids and labs have given this issue more consideration - noting there may be a lab capacity issue referring to 12 months of sampling then tailing off. … WASC's referred to previous feedback from labs including not being able to get results and / or issue with levels of certainty.
Clive said Labs advised initial treatment on site may be required in the case of particularly dirty samples, or the solid/liquid fractions can be segregated for separate analysis - separating streams out for analysis as required by BAT19f will give a much better chance of analysis. …
WASC's asked re the overall purpose and whether it was to assess permit emissions as a whole - given that all streams return to the UWWT process. Clive said in the case where whole site analysis breaches an ELV, separately sampled streams upfront will show the granularity of where the most problematic processes are and therefore mitigation can be easily focused there. However, if the whole site emissions are lower than the required ELVs, then no intervention is required. Clive referred to BAT 19f applicability for existing sites. ***Where current site design means it is not practical to sample processes separately within the site boundary, a mixed sample will be acceptable -*** *Clive accepts constraints are applicable to existing sites that have combined surface water/process drainage and would not expect a separation of surface water from process waters i.e. rebuild -combined samples will be acceptable. …*
Action on WASCs (JC) to collate a standardised list of liquor sources from the installations, and state where some are commonly combined - forward to Clive.

Aspects of the standard IC wording could change as communications between operators, laboratories and the EA covering wastewater liquors, their sampling methods and analysis develops, but as required Question 4 provides the summary.

Please note: the text highlighted in orange above wasn't included in the WWEL NDM dated 9 August 2024, however, the WWEL emission plans now reflect the two transfer points (T5 and T6) where drainage and wastewaters transfer from the WWEL area to the WWSL area.

Q4 - Provide a summary of the sampling and analysis methodology of the effluent discharged and an attempt to specify the likely pollutants.

Sampling and analysis method should be submitted at duly making in line with monitoring and surface water guidance Surface water pollution risk assessment for your environmental permit - GOV.UK and Monitoring discharges to water: guidance on selecting a monitoring approach - GOV.UK.

WWSL are committed to providing information about the characteristics of the wastewater streams being discharged back to Trowbridge WRC from the installation permitted area in accordance with the Standard Improvement Condition detailed in the EA/CEO letter received on 8 March 2024.

The sampling programme will be designed to fully characterise the wastewaters discharged to Trowbridge wastewater treatment works from sampling points S1, S2, S3 and S4 (Table 1).

The liquors are currently classed as Trade Effluent (analysis matrix). The sampling and analysis method will be in line with: Surface water pollution risk assessment for your environmental permit - GOV.UK & Monitoring discharges to water: guidance on selecting a monitoring approach - GOV.UK (www.gov.uk).

Plan Location & reference	Name	Waste type	Sampling point NGR
S1	Dewatering liquors	Centrate from the digestate dewatering assets	ST 84749 58862
S2	Thickening liquors	Gravity Belt Thickener liquors	ST 84822 58810
S3	Dewatering liquors	Filtrate from the digester dewatering assets	ST 84748 58828
S4	Wastewater liquors	Wastewaters consisting of condensate, chiller, gas compressors, GtG process clean up water, but will also contain site drainage	ST 84850 58804

Table 1: Trowbridge BC sampling points

Sampling Approach

The sampling will include a minimum of one sample a month from the four emission points for a period of 12 months. The samples will be a combination of composite and spot samples due to the nature and volume of flows and in conjunction with Clive Humphreys email extract and the GOV.UK monitoring approach document:

Clive Humphrey's email (referenced in Appendix 1):

- *For **intermittent emissions** to the works, you may need to use spot sampling methods rather than flow or time proportional techniques. However the sampling technique used for an emission point must be justified in line with our guidance Monitoring discharges to water: guidance on selecting a monitoring approach - GOV.UK (www.gov.uk).*

And an extract from the guidance on spot sampling from the above GOV.UK monitoring link:

> ***Spot sampling***
>
> *These are discrete samples taken from a discharge at random time intervals and are not related to the volume of discharge. They are best suited where:*
>
> - *the composition of the waste water is relatively constant*
> - *the discharge contains mineral oil or volatile substances*
> - *the target substances are not stable in the sample due to decomposition, evaporation or coagulation*
> - *separate phases are present (for example an oil layer floating on water)*
> - *you need to check the quality of the discharge at a particular moment, normally to assess compliance with permit conditions*
> - ***the discharge is not continuous (from batch or hold-up tanks) when the effluent is well mixed***

- *you are collecting larger object and floating matter that is not representative of the discharge*

Spot samples will only be used when the discharge is not continuous, as highlighted in bold above.

Analysis Approach

Sample analysis will be split between our internal laboratory (Wessex - Saltford) and an external laboratory (ALS). Both laboratories are UKAS accredited to ISO17025 to carry out chemical analysis of wastewater streams which will test for the pollutants as outlined in *Surface water pollution risk assessment for your environmental permit* - GOV.UK and *Monitoring discharges to water: guidance on selecting a monitoring approach* - GOV.UK.

We will ensure these laboratories will use an appropriate 'minimum reporting value' (usually 10% of the environmental quality standard (EQS).

Determinand Selection

The list of determinands has yet to be finalised, but will include analysis of COD, metals, priority substances and micropollutants as to be agreed with the EA. We are also taking the information in Appendix 1 into account.

In line with Clive Humphrey's email (referenced in Appendix 1):

- *You do not need to sample for the entire list of pollutants specified in our guidance. It is the responsibility of the operator producing the effluents/waste waters/liquors to understand what pollutants need to be assessed based on their understanding of the waste waters. You may be guided in part by what is received in tankers at the head of the works.*

BAT 6 Requirement

As per BREF and Appropriate Measures "Your facility's emissions inventory must include information about the relevant characteristics of point source emissions to water or sewer, such as:

- average values and variability of flow, pH, temperature and conductivity
- average concentration and load values of relevant substances and their variability, for example, chemical oxygen demand (COD) and total organic carbon (TOC), metals, priority substances or micropollutants
- data on bio-eliminability, for example, biochemical oxygen demand (BOD), BOD to COD ratio, biological inhibition potential (for example, inhibition of activated sludge)"

WWSL commit to meet the above BAT 6 requirements and Appropriate Measures as part of the characterisation for the standard improvement condition (Improvement

conditions for establishing an inventory of liquid waste water discharged from anaerobic digestion and associated activities).

- We will analyse for pH, temperature and conductivity and COD.
- We will provide data on bioeliminability, this will be the BOD to COD ratio.

BAT 7 requirement

WWSL commit to monitoring the characteristics of the point source emissions to water or sewer as part of the characterisation for the improvement condition using the list provided within BAT 7 with the waste treatment process of 'Treatment of water-based liquid waste'. As mentioned in the determinand selection section above, the BAT 7 list will be a starting point.

BAT 7 determinands are: Adsorbable organically bound halogens (AOX), Benzene, toluene, ethylbenzene, xylene (BTEX), COD (in order to meet BAT 6), Free cyanide, Hydrocarbon oil index (HOI), As, Cd, Cr, Cu, Ni, Pb, Zn, Mn, Hexavalent chromium (Cr(VI)), Hg, PFOA, PFOS, Total Nitrogen, Total Phosphorus, SS, and TOC.

Further Work and Developments

We continue to develop the specifics of the sampling and analysis approach for our BC sites including the development of the sampling programme as required by the standard Improvement Condition for Poole (IC5a, b, c), until the current discussion between Clive Humphreys of the EA and the WaSCs has been concluded.

There are ongoing issues yet to be resolved concerning the level of suspended solids contained in the sample causing analysis issues, flow measurement and the sample matrix used; as currently analysis is completed on a trade effluent matrix. The email in Appendix 1 and the extract from the Task and Finish Group 15 May 2024 detailed above in Question 3 reflect this. Wessex Water will continue the conversation with Clive Humphreys via Task and Finish Group and will need to modify our sampling and analysis plans to reflect any conclusions.

Appendix 1

Email from Clive Humphreys to WASC's – 13th May 2024

A quick update on our visit to the ALS labs which Dan and I found very informative. We have identified some aspects of the current sampling and analysis which are causing difficulties and have agreed with ALS the following actions.

- To enable the labs to analyse samples WaSCs will need to identify the types of liquid generated by the sludge treatment processes, the part of the process that generates them, and agree appropriate descriptions for all WaSCs to use so that there is consistency when they arrive at the lab regardless of the water company.
- For each of these liquors WaSCs need to select the appropriate analysis matrix which will be used. It is the responsibility of the operator to understand what the likely pollutants are in a waste water/liquor/effluent. A mixed sample with unclear information on the source of the sample, the process and no clear choice on the matrix will mean that labs are unlikely to be able provide accredited analysis data.
- BAT requires that liquors are not mixed, so the practice of combining liquors will need to end. Sampling effluents from sources separately will significantly reduce the likelihood of samples being unsuitable for analysis. However, for the purposes of permitting these sites and existing physical constraints, we understand that effluents are sampled from locations at sites such that they may be comprised of various sources from the overall sludge treatment. If this is what your application states you are sampling, you will be responsible for ensuring that these emissions are representative and are presented to labs in a form that will enable effective analysis.
- You do not need to sample for the entire list of pollutants specified in our guidance. It is the responsibility of the operator producing the effluents/waste waters/liquors to understand what pollutants need to be assessed based on their understanding of the waste waters. You may be guided in part by what is received in tankers at the head of the works.
- For intermittent emissions to the works, you may need to use spot sampling methods rather than flow or time proportional techniques. However the sampling technique used for an emission point must be justified in line with our guidance Monitoring discharges to water: guidance on selecting a monitoring approach - GOV.UK (www.gov.uk).

Suspended solids are the main cause of samples being unsuitable for analysis. ALS have said that if liquors are too dirty to be analysed it will be necessary for WaSCs to separate the solid and liquid fraction and present both for analysis. The results can then be combined.

There have been indications in various correspondence that due to these discussions with the laboratories, operators are waiting for the EA and the labs to produce a specific framework for operators to follow. Our discussions have not been to resolve these problems but to understand why the labs have struggled with the samples which have so far been trialled. There is no specific methodology that we are prescribing, issues will need to be resolved by ensuring that samples are correctly described (with separate sources clearly identified), inhibiting factors such as suspended solids separated (where relevant) and the correct matrix requested when samples are submitted for analysis. Consistent and clear information about the samples at the time of presentation will greatly aid the laboratories.

We raised the question of glass and plastic auto-samplers with the lab. They suggest approaching the suppliers of autosamplers to discuss your needs and explore whether they can adapt their kit to meet them.

Kind Regards

Clive

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