Natural Resources Wales Permitting Decisions

Radnor Hills Mineral Water Company Limited

Decision Document

Application for a Normal Variation

The application number is: PAN-024069

The permit variation number is: EPR/AB3697CN/V004

The operator is: Radnor Hills Mineral Water Company Limited

The Installation is located at: Radnor Hills Heartsease Knighton Powys LD7 1LU

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.

Contents

Definition

- BAT- Best available techniques (BAT) for Food, Drink and milk industries
- BRef – BAT references document for Food, Drink and milk industries
- EPR- Environmental Permitting Regulations 2016 (amended 2018)
- IBC- Intermediate bulk containers
- IED-industrial emissions directive
- HRA-Habitat regulations assessment
- SAC-Special area of conservation
- SSSI- Sites of Special scientific interest
- WFD- Water Framework directive

1. Executive summary

1.1. Application summary

Radnor Hills Mineral Water Company Limited have applied for a variation to allow the addition of a ferric chloride dosing system. The purpose of the ferric chloride dosing system is to reduce the phosphate through precipitation of the phosphate (as a result of the reaction between the iron) and removal of the solid precipitate using an ultrafiltration membrane. The sludge/precipitate is disposed of using existing sludge disposal methods. This method of removing phosphorous is a recognised best available technique (BAT) in the BAT conclusions for food, drink and milk industries.

1.2. Our decision

We are have decided to issue the permit variation for Radnor Hills operated by Radnor Hills Mineral Water Company Limited.

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.

2. Receipt of the application

The application was received on 06/12/2023. In order for us to be able to consider the application duly made, we needed more information. We requested the following:

- More information on storage arrangements (including primary/secondary/tertiary containment measures) for the storage of ferric chloride.
- Copy of the H1 tool used by the applicant.

A letter requesting this information was sent to the applicant on 02/05/2024. Upon receipt of this information, on 16/05/2024, we were able to consider the application duly made. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

3. Confidential information

The applicant made a claim for no claim for commercial confidentiality, and we have not received information in relation to the application that appears to be confidential in relation to any party.

4. Legislation

The variation will be issued, under Regulation 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed.

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that the decision on this application is consistent with its general purpose of pursuing the sustainable management of natural resources (SMNR) in relation to Wales and applying the principles of SMNR. In particular, NRW acknowledges that it is a principle of sustainable management to take action to prevent significant damage to ecosystems. We consider that, in issuing the variation a high level of protection will be delivered for the environment and human health through the operation of the Installation in accordance with the permit conditions. NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

As the EPR regulator in Wales, NRW are required to determine any duly made permit application. This means that we must decide either to grant, or to refuse the variation based upon an objective assessment of the proposals against the detailed legal requirements of EPR. Our public participation statement[1] gives more information on what can, and cannot, be taken into account when making our permitting decision.

[1] Natural Resources Wales / Public participation: how you can take part in our permit and licence consultations

The application, and this decision document, only considers the permitting of the facility under EPR as described throughout the document. We only assess the installation and its impacts and cannot take into consideration indirect impacts which are not as a direct result of activity within the installation boundary.

Any proposed development and wider associated activities will be required to be compliant with all relevant and applicable law, for example, environmental law, health and safety law, planning law. This other legislation acts largely independently of EPR (although they may be inter-related). Such other matters are beyond both the scope of this document, and of our regulatory remit and expertise and are not relevant to our EPR permitting decision. Ensuring compliance with all other regulation and obtaining any required consents (such as planning permission) is the responsibility of those undertaking the development and is regulated by the relevant appropriate authority for each.

3. Consultation

No consultation has been carried out on this application because it is not required for this kind of permit variation. This decision was made in accordance the Environment Permitting Regulations (EPR), our statutory Public Participation Statement[2] and our Regulatory Guidance.

4. The Installation

4.1. The permitted activities

The regulated facility is currently an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations:

- **Primary activity**: S6.8 A(1)(d)(ii) – treatment and processing, other than exclusively packaging, of the following raw materials, whether previously processed or unprocessed, intended to produce food or feed (where the weight of the finished

[2] Natural Resources Wales / Public participation: how you can take part in our permit and licence consultations

product excludes packaging) – only vegetable materials with a finished production capacity greater than 300 tonnes per day or 600 tonnes per day where the installation.

- **Effluent treatment plant**: S5.4 A(1)(a)(i) – Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (100 tonnes per day if the waste treatment activity is anaerobic digestion) involving one or more of the following activities; (i) biological treatment (Treatment of process effluent)

An installation may also comprise “directly associated activities”, which at this Installation include includes:

- Combustion plant- 6 x natural gas fired boilers (3 main and 3 as back up). 5 of these boilers are classed as medium combustion plants (above 1 MWth)
- Storage and handling of raw materials, chemicals, fuels and waste

Together, these listed and directly associated activities comprise the Installation.

4.2. Changes to the installation

The only changes to the site is the addition of the ferric chloride dosing system to the effluent treatment plant (activity AR2 in the permit). There are no new activities or any other major changes to the permitted site as a result of the variation.

5. Operation of the installation

5.1. Operator competence

The applicant is the sole operator of the Installation. We are satisfied that the applicant is the person who will have control over the operation of the Installation after the permit the variation is issued; and that they will be able to operate the Installation so as to comply with the conditions included in the permit, if issued. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator[3].

5.2. Environmental Management System

The applicant has stated in the application that they will implement an Environmental Management System (EMS) that will meet the requirements for an EMS in our “How to comply with your environmental permit” guidance[4]

[3] RGN 1 Understanding the meaning of 'operator' (naturalresources.wales)
[4] Natural Resources Wales / Guidance to help you comply with your environmental permit

The applicant has submitted a summary of the amendments to their EMS with the application.
This includes the following;

- EMF 004 (Bunding assessment)
- Supporting application document section : Environment management system

We have reviewed the application and are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions and BAT 1 of the Food, Drink and Milk BRef.

5.3. Operating techniques

Installation activities and assessment of Best Available Techniques

The applicant has described the proposed equipment and operating techniques and compared these against the relevant Best Available Techniques conclusions (BATc) which for an installation of this type is Best Available Techniques for the Food, Drink and Milk Industries.

The site had a full review against the relevant BAT conclusions for the Food, Drink and Milk industries which integrated the relevant BAT conclusions in the varied permit (V002) in 2022.
As the variation only concerns the water discharge and the rest of the had been subject to the BRef review, we have assessed the application against the following BAT conclusions;

- BAT 2 - Establish and maintain a waste water and waste gas inventory as part of the EMS - ALL of the following:
- BAT 3 -For relevant emissions to water as identified by the inventory of waste water streams (BAT 2): monitor key process parameters at key locations
- BAT 4 - Monitoring of water emissions: monitor emissions to water with at least the frequency given below and in accordance with EN standards:
- BAT 12 (h) -Reduce emissions to water, use an appropriate combination of the techniques given below: (h) Precipitation.

The applicant's use of ferric chloride for the removal of phosphorus by precipitation is a recognised technique within the BRef for Food, Drink and Milk industries[5].

We are therefore satisfied that the use of ferric chloride to reduce phosphate in water discharge proposed represent BAT at this installation.

We have specified that the applicant must operate the permit in accordance with descriptions in the application. See section 11.1 of this document for more information on how we have incorporated the variation into the permit.

Efficient use of raw materials, water and energy

The variation would not affect the use of raw materials, water or energy at the site and therefore was not considered further.

6. The site

6.1. Site Plan

There are no changes to the site boundary as a result of the variation. Therefore, an amended site plan was not required.

6.2. Site Condition Report

The proposal does not include the addition of any land and so a Site Condition Report was not required to support this application.

6.3. Site protection: potentially polluting substances and prevention measures

The operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED.

[5] Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries, Section 2.3.6.4.2 (Precipitation)

The ferric chloride solution used on the trial and to be initially used is placed on a spill tray and is located indoors on a hardstanding concrete surface within a sealed drainage system. The operator has supplied their bunding assessment for the ferric chloride which forms part of their environment management system (EMS) that outlines the assessment of the containment and monitoring to be carried out. Given the location and the volumes (25 litres) used we are satisfied that the arrangements will prevent pollution outside the site a potential spill event.

The operator had also stated that they would increase the volume of ferric chloride used and would replace 25 litres vessel with a 1 m^3 intermediate bulk container (IBC). The IBC for ferric chloride is to be located indoors on hardstanding ground with sealed drainage that provides secondary containment and will divert any spill to a holding tank (approximately 10 m^3). This is the same storage arrangements currently used for the IBC storage of acid, caustic and nutrient dosing substances.
As part of the pre-operational condition (See section 11.5) the operator is required to inform Natural Resources Wales in writing when they change the volume of ferric chloride from 25 litres vessel to the 1 m^3 IBC.

We are satisfied that the operator would have sufficient measures and containment in place to prevent any pollution from leaving the site in the event of a spillage or failure of primary containment of the ferric chloride solution.

7. Environmental Risk Assessment

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, water, sewer and discharges to ground or groundwater, global warming potential and generation of waste. All these factors have been considered during are determination and the relevant risks from this proposal are discussed in this and other sections of this document.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of emissions from the Installation on human health and

the environment and what measures we are requiring ensuring a high level of protection.

In line with our guidance, the applicant has provided an environmental risk assessment with the application which identifies and the sources of key risks from the variation, possible pathways and receptors. This risk assessment and further assessments provided by the applicant and/or completed by NRW will be discussed in further detail below.

7.1. Assessment of impact on air quality

The variation will not add any new emissions to air and will not result in any changes to any existing emissions points to air.

7.2. Assessment of impact to surface and ground water

The proposal includes the addition of substance to an existing direct discharge to surface water.

The addition of ferric chloride has the potential to add additional substances to the water discharge. The applicant has identified the following substances in the discharge

- Iron (dissolved)
- Chloride
- Lead and its compounds (as potential impurities in the ferric chloride solution).

The ferric chloride solution has the potential to contain metal impurities. With the exception of lead all of these are below the threshold of detection and are not likely to be present in any significant quantity/ concentration would be insignificant and therefore have not been assessed further (expect for lead)

The purpose of the ferric chloride solution is to reduce the phosphate being discharge to surface water. There are no changes to any other existing substances in the discharge as a result of the variation.

The applicant has completed a surface water pollution risk assessment in line with the relevant guidance. *Surface water pollution risk assessment for your environmental permit - GOV.UK (www.gov.uk)*

A Water Framework Directive Compliance Assessment has been completed and it has been concluded that the activity us considered as having no risk of causing deterioration or preventing any water body or WFD Protected Area from reaching its objectives. This assessment is available on the public register to view.

Emission Limits

We have not set any new emission limits but we have put in the requirements for the operator to monitor chloride discharge to surface water at emission point W1 as required by BAT conclusions, BAT 3 and BAT 4 of the food, drink and milk BRef.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent pollution of ground and surface water.

7.3 Fugitive emissions

The applicant has identified the following potential fugitive emissions in their environmental risk assessment:

- Overdosing of ferric chloride resulting in higher amounts of iron, lead and chloride in the watercourse

Fugitive emissions that could occur as a result of primary containment and mitigation measures in place to prevent these from entering the environment are discussed in more detail in section 8.3.
The application details measures which will be in place for preventing and minimising fugitive emissions. These include the use of control measures, in place the use of alarm system if there is a change in operation and daily inspections that will minimise the risk of an accidental overdoes.
Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions and to prevent pollution from fugitive emissions.

Permit condition 3.2.1 requires that emissions of substances not controlled by emission limits (i.e., fugitive emissions) shall not cause pollution. Condition 3.2.2 requires that a management plan shall be developed if pollution is subsequently identified.

7.4. Assessment of odour impact

The variation is unlikely to increase or change any risk of odour impacts from the site.

7.5. Noise and vibration assessment

The variation to add ferric chloride dosing system is unlikely likely cause noise impacts to receptors.

8. Impact on National Site Network Sites, SSSIs and non-statutory sites

The applicant has used the relevant screening distance criteria to identify relevant protected conservation sites which could be at risk from the proposal.

We are in agreement with the screening distances used.

A full assessment of the variation application and its potential to affect the identified sites identified has been carried out as part of the permit determination process. National Site Network sites, Sites of Special Scientific Interest (SSSI) and non-statutory conservation sites will be discussed separately below.

8.1. The National Site Network

The following National Site Network sites are located within 10 km of the installation:

- River Clum – edge of the SAC is hydraulically connected approximately 5.4 km downstream of the discharge point

- Downton Gorge is located within 10 km of the installation but was screened out as the only impact pathway was discharge to surface water and the site is hydrologically connected 13.5 km and therefore was outside the risk screening distance of 10 km.

A Habitats Regulations Assessment (HRA) is not required because there is no conceivable impact pathway to any of the National Site Network sites identified by virtue of the scale or location or nature of the project.
Although there are two SACs within 10 km of the site we have not deemed a HRA necessary for the following reasons

- Downton Gorge – Although the site is located within 10 km of the installation, the hydrological connection (via the River Teme) is 13 km and as such is deemed outside the risk screening distance
- River Clun- the SAC is located upstream of there the River Teme meets the River Clun (approximately 5.4 km from the installation/discharge point) therefore there is no pathway for the substances from the discharge to enter the River Clun.

This is outlined in detail in an OGN 200 form 1 which is available on our public register (PAN-024069 OGN 200 Form 1 on HRA)

8.2. Sites of Special Scientific Interest (SSSI)

The following SSSIs are located within 2 km of the installation:

- River Teme (England)
- Brampton Bryan Park SITE REF: 15WNT (England)

As a Section 28G Authority as defined in the Countryside Rights of Way Act 2000 permitting teams within NRW has a legal duty, under Section 28I of the Wildlife and Countryside Act 2981, to consult with Natural England for formal advice when permitting an activity which has been determined to be likely to damage the features of a SSSI.

To determine if consultation is required, a SSSI Assessment was completed. The assessment concluded that the proposed permission is not likely to damage any of the

flora, fauna or geological or physiological features which are of special interest. We send a copy to Natural England for consultation.

A copy of the assessment is available to view on the public register.

8.3. Non-statutory conservation sites

We did not identify any local wildlife site that was hydrologically connected within 2 km of the installation/discharge points.
Given that the only impact pathway is the discharge to surface water and the substances assessed (iron, lead and chloride) screen out at stage 2 we are satisfied that there will be no adverse impact to the non-statutory conservation sites identified.

9. The Permit Conditions

9.1. Incorporating the variation

We have specified that the applicant must operate the permit in accordance with descriptions in the application.

These descriptions have been specified in the Operating Techniques table (Table S1.2) in the permit.

9.2. Emission Limits

Article 14(3) of IED states that BAT conclusions shall be the reference for permit conditions. Article 15(3) further requires that under normal operating conditions; emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions.

BAT conclusions set out specific limits that the operator must comply with. Modelling has been used to demonstrate that the operator will be able to comply with the emission limits described as BAT.

There are no BAT-AELs in the Food, Drink and milk industries for the new substances (iron, chloride and trace amounts of lead) that would be present in the discharge as a result of the variation and as such no new emission limits set as a result of the variation but we have put in additional monitoring for chloride (see section 12.3).

There are no changes to any of the existing emission limits as a result of the variation.

9.3. Monitoring

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 of the permit using the methods and to the frequencies specified in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with the emissions limits in the permit.

For emissions to surface water, the methods for continuous and/or periodic monitoring are in accordance with BAT requirements set out in BRef for Food Drink and Milk industries. Monitoring frequencies have also been considered in line with BAT requirements.

Based on the information in the application and the requirements set in the conditions of the permit we are satisfied that the monitoring techniques, personnel and equipment employed by the Operator will have either MCERTS certification or MCERTS accreditation as appropriate.

We have put in the requirement for the monitoring of chloride to surface water as a result of the variation as required by BAT conclusions BAT 4. of the BRef for Food Drink and Milk industries.

We have also changed the monitoring parameters for the following substances from instantaneous.

- Biological oxygen Demand
- Chemical oxygen demand
- Total Ammonia as N
- Total Nitrogen

- Total Suspended Solids

These changes had previously been agreed in writing with NRW and have amended the permit to reflect this.

There are no other changes to any monitoring as a result of the variation.

9.4. Reporting

We have specified the reporting requirements in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions and to monitor the efficiency of material use and waste recovery at the installation.
We have included the requirements for reporting chloride monitoring in line with BAT for food, drink and milk industries.

There are no other changes to the reporting requirements as a result of the variation.

9.5. Pre-operational conditions

Based on the information in the application, we consider that we need to impose pre-operational conditions. Details of the pre-operational conditions used can be found in Annex 1.
The operator is to initially to use the ferric chloride solution in a 25 litre container but have considered increasing the amount by using 1 m3 intermediate bulk containers (IBC)s. As discussed in detail in section 10.2, we are satisfied with the arrangements but have put in the pre-operational condition so that NRW are to be made aware when the operator uses the IBCs.

9.6. Other changes to the permit

We have also removed the maximum abstraction capacity from the limits of specific activity in table S1.1. We have removed this from this permit as water abstraction is controlled by other legislation requirements and licences.

10. OPRA

The OPRA score has not been changed as a result of this variation and remains as 47. This will form the basis for ongoing subsistence fee's.

ANNEX 1: Pre-Operational Conditions

Table S1.4 Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational measures**
PO1	Ferric chloride dosing	The operator shall inform Natural Resource Wales in writing on the expansion of the ferric chloride solution storage from the 25 litres to the $1m^3$ IBC.

ANNEX 2: BAT Assessment

BAT Conclusions for Food, Drink and Milk Industries in the Official Journal of the EU on 12 November 2019. There are 37 BAT Conclusions. This checklist provides a record of decisions made in relation to each relevant BAT Conclusion applicable to this variation. As the only change to the site is the addition of ferric chloride, we have only reviewed this variation against the relevant BAT conclusions (BAT 2,4 and 12). The site has previously been subject to a permit review (EPR/AB3697CN/V002) against all of the relevant BAT conclusions and we are satisfied that the operator will remain complaint for all other relevant BAT conclusions not covered by this variation. For more information on these BAT conclusions see the decisions document for EPR/AB3697CN/V002. This annex should be read in conjunction with the permit. For definitions and acronyms see the BAT Conclusions Document: eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2031

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
2	**Establish and maintain a waste water and waste gas inventory as part of the EMS - <u>ALL</u> of the following:**		
	Information about the food, drink and milk production processes, including;		
	I.(a)	simplified process flow sheets that show the origin of the emissions	
	I.(b)	descriptions of process-integrated techniques and waste water/waste gas treatment techniques to prevent or reduce emissions, including their performance	
	II.	Information about water consumption and usage and identification of actions to reduce water consumption and waste water volume (BAT 7)	Currently Complaint – no changes as a result of the variation. For more details see Decision document for BRef Review (V002)
	Information on quantity and characteristics of the waste water streams, such as:		
	III.(a)	Average values and variability of flow, pH and temperature	

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	III.(b)	Average concentration and load values of relevant pollutants/parameters (e.g. TOC/COD, nitrogen species, phosphorus, chloride, conductivity) and their variability	Complaint- The variation will add chlorine monitoring as a requirement to meet this BAT. There are no other changes to the site which has previously been reviewed against these BAT conclusions (See decision document EPR/AB3697CN/V002)
	Information on characteristics of waste gas streams, such as:		
	IV.(a)	*Mean and variability of:*	Currently Complaint – no change to monitoring of waste gas stream as a result of the variation. For more details see Decision document for BRef Review (V002)
		Flow	
		temperature	
	IV.(b)	*Mean concentration, load and variability of relevant substances:*	
		Dust	
		TVOC	
		CO	
		NOx	
		SOx	
	IV.(c)	*Presence of other substances that may affect the waste gas treatment system or plant safety:*	
		O2	
		Water vapour	
		Dust	
	V.	Information about energy consumption and usage, the quantity of raw materials used, as well as the quantity and characteristics of residues generated, and identification of actions for continuous improvement of resource efficiency (BAT 6 and BAT 10)	
	VI.	Identification and implementation of an appropriate monitoring strategy with the aim of increasing resource efficiency, taking into account energy, water and raw materials consumption. Monitoring can include direct measurements, calculations or recording with an	

BATc number	Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	appropriate frequency. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level).	
MONITORING		
3	**For relevant emissions to water as identified by the inventory of waste water streams (BAT 2): monitor key process parameters at key locations**	
	Key process parameters	
	Waste water flow	Currently Complaint – no change to monitoring of key process parameters (Waste water flow, pH or temperature) as a result of the variation. For more details see Decision document for BRef Review (V002)
	pH	
	Temperature	
	Key monitoring locations	
	Pre-treatment inlet and/or outlet	Currently Complaint Applicant will be require to monitor for chloride as a result of the variation. No other change to key monitoring as a result of the variation. For more details see Decision document for BRef Review (V002).
	Final treatment inlet	
	Discharge point (to the environment)	
	Other location	
4	*Monitoring of water emissions: monitor emissions to water with at least the frequency given below and in accordance with EN standards:*	
	Refer to monitoring emissions to water table in BRef document	Currently Complaint – As a result of the variation the permit will now have monitoring for chloride emissions to surface water. no change to monitoring of waste gas stream as a result of the variation. For more details see Decision document for BRef Review (V002)
EMISSIONS TO WATER		
12	**Reduce emissions to water, use an appropriate combination of the techniques given below**	

BATc number		Summary of BAT Conclusion requirement	**Status/comment** **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Equalisation	Complaint – The variation to precipitate phosphorus using ferric chloride is a recognised technique in the BRef for food, drink and milk and aligns with BAT 12 h
	b.	Neutralisation	
	c.	Physical separation	
	d.	Aerobic and/or anaerobic treatment	
	e.	Nitrification and/or denitrification	
	f.	Partial nitrification	
	g.	Phosphorus recovery as struvite	
	h.	Precipitation	
	i.	Enhanced biological phosphorus removal	
	j.	Coagulation and flocculation	
	k.	Sedimentation	
	l.	Filtration	
	m.	Flotation	
	BAT-AELs for direct emissions to a receiving water body. Table 1 and associated notes. Associated monitoring given in BAT 4.		
	Chemical oxygen demand COD	25–100 mg/L	Complaint – No changes to any existing BAT-AELs as a result of the variation. Chloride has monitoring requirements but no limit. For more information on site compliance with BAT-AELs see Decision document for BRef Review (V002)
	Total suspended solids TSS	4–50 mg/L	
	Total nitrogen	2–20 mg/L	
	Total phosphorus	0.2–2.0 mg/L	