# Kirkby Environmental Permit Variation Application



# **Future Industrial Services Limited**

Date: January 2025

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# 1 INTRODUCTION

# **1.1 PURPOSE OF THE APPLICATION**

This application is for an Environmental Permit variation application for an air pollution control residue (APCR) mixing and pelletisation process to produce a material to be used as a construction aggregate. The facility is operated by Future Industrial Services Ltd (hereafter referred to as FIS) at Acomfield Road, Kirkby. The site's address is:

Future Industrial Services Ltd Acornfield Road Knowsley Industrial Estate Kirkby Liverpool L33 7UF

The site is used as a waste management centre. The current main process on the site is the treatment of (aqueous) waste streams through the site's pH adjustment plant to produce a hazardous filter cake which is transferred on to landfill; and a non-hazardous aqueous effluent which is discharged to foul sewer in accordance with the site's discharge consent and environmental permit. The site also incorporates a packaged waste transfer station and blending / storage facilities for waste solvents, waste oils and aqueous effluent.

FIS occupies three Zones within the wider Image Business Park (see site layout plan). The proposed Installation boundary can be seen in Figure 1.1 below.



The surrounding area comprises:

North: Commercial / Industrial premises which form part of the Knowsley Industrial Estate.

South: A wooded parkland area with Matalan warehouse beyond.

East: Bounded by Perimeter Road, beyond which is open farmland.

West: Commercial / industrial premises which form part of the Knowsley Industrial Estate.

Figure 1.2 shows the location of the site in red boundary in relation to the surrounding area as described above.

#### Figure 1.2 Site Location



The site grades gently to the southwest and is at an elevation of between approximately 41m and 46m above Ordnance Datum (aOD).

The nearest surface watercourse is a small drainage ditch situated on the edge of woodland (Charley Wood) 30m to the south of the Site. No other significant surface water features have been identified within a 500m radius of the study area.

#### **Designated Ecological Sites**

The site itself is not subject to any statutory or non-statutory nature conservation designations.

There are no SSSIs (Site of Special Scientific Interest), Special Protection Area (SPA) or Special Area of Conservation (SAC) within 2km of the Installation.

There is one Local Nature Reserve within 2km of the installation:

Acornfield Plantation;



# Figure 1.3 Ecological Sites close to Kirkby Installation (ref: MAGIC website, Defra)

All aqueous discharges from the installation are to the Fazakerley Wastewater Treatment Works (WwTW). The discharge from the Fazakerley WwTW will not be in hydraulic continuity with the habitat features within this assessment.

# **1.2 PROPOSED CHANGES SUBJECT TO THIS VARIATION**

The proposed changes by FIS to which this application is subject are detailed in turn below:

- Addition of an APCR pelletisation activity to produce an aggregate substitute product; and
- Extension of the permit boundary to cover the whole pad area rather than just a proportion of it as it currently stands within the environmental permit. The proposed extended area of the installation boundary is shown in Fig 1.1 above.

The pad area is to be used for the APCR treatment and pelletisation process. There is a discharge point in one corner of the pad which has been bunded to prevent any waters being able to discharge to it. There is a tank installed on the pad area where the pad water is pumped to for treatment elsewhere rather than using this discharge point.

The proposed indicative layout is shown in Figure 1.4 below.



#### Figure 1.4 Indicative APCR Treatment Layout

### **1.3 REGULATORY CONTEXT**

This document has been developed to provide the key information required for an Environmental Permit variation application.

Basic pre-application advice was requested from the Environment Agency (EA). The key requirements from that advice were:

- Non-Technical Summary
- Site plan
- Habitats risk assessment
- Environmental Risk Assessment
- Technical Description and BAT assessment

- Risks from Noise and Vibration, Industrial and Commercial Sound and Noise Management Plans
- Amenity management plans
- Fire Prevention Plan (FPP)
- Accident prevention and management plan
- Site condition report (SCR)
- Water Discharges

APCR is not combustible and therefore does not require inclusion in the FPP. The other management plans within the IMS will be updated to reflect the changes from this variation prior to operation.

As can be seen in Figure 2.1 there are a number of pre-existing activities in place for the washing of APCR and the treatment of effluents generated. These are:

Activity reference	Description of activities for waste	Limits of activities
	operations	
A11	Section 5.3 A(1)(a)(vi) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving recycling or reclamation of inorganic materials other than metals or metal compounds. R5: Recycling/ reclamation of other inorganic materials.	Recycling/reclamation of inorganic materials consisting of washing, dewatering, neutralisation and filtration of wastes to produce synthetic gypsum. Alkaline Powder Recycling Plant as shown on drawing Figure 1_Var including the associated emission abatement and control equipment. Including storage of wastes prior to treatment in Silos S1, S2, and storage of recovered gypsum as a directly associated activity.
		Maximum treatment capacity: 150
A17	Storage of APC residues that have been converted to Synthetic Gypsum.	Product gypsum stored in a covered storage area in the Soil Treatment Area as shown on drawing Figure 1_Var. Maximum capacity: 600 tonnes.
A20	Storage of non-hazardous filter cake and sludges pending disposal D1 to D12 or recovery R1 to R13.	Maximum storage capacity 1000 tonnes. Storage undertaken in Area 1, shown on Site Plan.

**Table 1.1 Existing relevant Permitted Activities** 

The proposed changes will result in additional activities to be included within the environmental permit and is expected to be as per Table 1.2 below.

Activity reference	Description of activities for waste operations	Limits of activities
A25	Section 5.3 Disposal or recovery of hazardous waste Part A(1)(a) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving one or more of the following activities- physico-chemical treatment	Recycling/reclamation of inorganic materials consisting of mixing with cement and sand as well as pelletising to produce an aggregate product.
A26	Section 5.4 Disposal, recovery or a mix of disposal and recovery of non-hazardous waste Part A(1)(a) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (or 100 tonnes per day if the only waste treatment is anaerobic digestion) involving one or more of the following activities and excluding activities covered by Council directive 91/271/EEC concerning urban waste water treatment	Recycling/reclamation of inorganic materials consisting of mixing with cement and sand as well as pelletising to produce an aggregate product.

 Table 1.2 Indicative Activity to be included within the environmental permit

Figure 2.1 below shows how the proposed process intersects with already permitted activities and that the whole activity should not be considered as new - only the mixing, pelletising and screening are activities that have not previously been determined and therefore the variation application will consider only risks associated with those activities.

## **1.4 APPLICATION STRUCTURE**

The application for an Environmental Permit consists of Forms A, C2, C3 and F as required under the EPR. The forms are supported by this report which comprises the main application detailing key best available techniques (BAT) assessments as well as impact assessment summaries which are supported by a number of appendices to provide further supporting information and detailed environmental assessments. This report has been structured in accordance with the relevant technical guidance for the proposed activities, namely:

- EA web guidance Chemical waste: appropriate measures for permitted facilities <u>https://www.gov.uk/guidance/chemical-waste-appropriate-measures-for-permitted-facilities;</u> and
- COMMISSION IMPLEMENTING DECISION (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council

# ADDITION OF APCR MIXING AND PELLETISATION ACTIVITY

The APCR treatment, mixing and pelletisation activity is described in detail below. The description of the process below includes equipment already permitted in activities A11 and A17. The existing permitted activity includes:

- Air Pollution Control residues (APCR) accepted into sealed ash silo with weigh scales.
- APCR metered into stirred reaction vessel and water added approximately 1 part ash to 5 parts water, subject to the nature of the APCR. For example, APCR with higher soluble contamination (higher TDS/Chloride) requires a higher water ratio to ensure solubilisation. There is also a requirement to ensure a mobile slurry, which typically gives a lower bound of 3:1 water to ash. This water may be recycled process water.
- Slurry stirred for approximately 20 minutes then pumped to plate press for dewatering.
- Effluent from plate press collected in dedicated effluent tank.
- Cake within filter press may be washed with fresh water if recycled process water utilised for slurrying.
- Filter cake that exhibits reduced leaching properties for chloride and heavy metals as well as reduced heavy metal content is dropped from filter press into skip. This washed APCR may be hazardous or non-hazardous (19 02 05\* / 19 02 06), depending on the initial levels of heavy metals in the incoming APCR stream.
- Effluent is tested and process modelled in on-site laboratory to determine treatability for on-site discharge under existing consent.
- Process modelling consists of bench-scale replication of effluent plant treatment process and testing generated output effluent against discharge requirements. If final effluent is suitable, chemists sign off on batch for treatment. If treatable, effluent is fed to a reaction tank and acid added to adjust pH and precipitate heavy metals (lead/zinc) using lime addition or sodium sulphite but no coagulants.
- Treated effluent is then fed to the filter press for dewatering. There is the potential for the untreated/first pass effluent from the ash washing to instead be re-used as process water for slurrying of the next ash washing batch.
- Wastewater treatment cake sent to hazardous landfill.
- If effluent is unsuitable for on-site discharge then it is sent to a third party treatment facility.
- Process development in-line dosing of effluent with acid, lamella separator, centrifuge/press for dewatering to allow continual processing of effluent

#### **Process occurring outside of existing plant:**

- Washed APCR in the skip is then transferred to the pit area and stored within a covered • bay.
- Sand (raw material) is stored in an adjacent bay and cement (raw material) stored in a silo . with silo emission control.
- Washed APCR, sand and cement are fed in set ratios to a single shaft concrete mixer. Sand and filter cake by shovel via hoppers and cement by screw feed. Ratios may vary during process development, but laboratory scale trials indicate a ratio of 1/0.5/0.2APCR/Sand/Cement produces appropriate strength aggregate. Clean water is added as required to ensure appropriate consistency.
- The output from the concrete mixer is dropped into a pan mixer to be mixed further to produce rough rounded pellets.

- The output from the pan mixer is transferred via belt conveyor to a rotary pelletiser to produce a smoother, rounded aggregate.
- These pellets are then screened (whilst damp) to remove oversize and left to cure under cover for up to 28 days. Oversize pellets are stored in a separate pile as lower grade product as it will still have some value as larger aggregate.

This pelletising process is very similar to that undertaken by O.C.O Technology Ltd (OCO) to produce their final End of Waste (EoW) pellet product (with 'carbonated APCR' in the OCO process replacing the 'Washed APCR' in this process) and is a similar process to that followed by Castle to produce their 'Lego blocks' and the output from ENVA's ash washing process whereby the washed APCR cake is used as a fine aggregate replacement in concrete manufacture. This indicates that the process is technically feasible, can be operated compliantly, produces an output that is compliant with EoW requirements (although it is noted that End of Waste is not the subject of this application and the output shall continue to be treated as waste. However once the process is optimised and further data collated, we intend to investigate the option of EoW for the output) and has been previously permitted by the EA, Natural Resources Wales (NRW) and Scottish Environment Protection Agency (SEPA).

The process flow diagram for this activity can be seen in Figure 2.1 below and how this links in with activities already included within the environmental permit.



#### **Figure 2.1 Process Flow Diagram**

# 2.2 ADDITIONAL ACTIVITIES

The proposed additional waste operations and scheduled activities are detailed within Section 1.3 of this application document.

## 2.3 WASTE TREATMENT ACTIVITIES

The proposed additional waste treatment activities are activities under:

- Section 5.3 Disposal or recovery of hazardous waste Part A(1)(a) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving one or more of the following activities- (vi) recycling or reclamation of inorganic materials other than metals or metal compounds; and
- Section 5.4 Disposal, recovery or a mix of disposal and recovery of non-hazardous waste Part A(1)(a) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (or 100 tonnes per day if the only waste treatment is anaerobic digestion) involving one or more of the following activities and excluding activities covered by Council directive 91/271/EEC concerning urban waste water treatment.

# 2.4 CHANGES TO STORAGE

Figure 2.1 shows that the proposed storage is already permitted under the directly associated activities A17/A20 within the current environmental permit.

The quantities expected to be stored are shown below:

- Untreated APCR 200 tonnes in 2 silos maximum
- Washed APCR Cake 400 tonnes (80 tonnes per day, 5 days shutdown for maintenance)
- Final pelletised product approximately 5,000 tonnes

# MANAGING YOUR ACTIVITIES

# GENERAL MANAGEMENT APPROPRIATE MEASURES

This section provides a description of the measures in place to minimise the risks and effects of accidents together with general management requirements.

## 3.1.1 ENVIRONMENTAL MANAGEMENT SYSTEMS

FIS operates an Integrated Management System (IMS) across their sites, including this one. As part of the IMS there is a UKAS certified accreditation to ISO14001 (BSI certificate reference number EMS795458). The scope of the accreditation covers the following:

- Treatment and recovery/transfer of hazardous and non-hazardous waste.
- Industrial services: Industrial cleaning and specialist chemical transport.
- The manufacture of printed circuit board etchants.
- The recovery of the constituents of used printed circuit board etchants.
- The design and development of manufacturing and recovery processes for the production of inorganic chemicals derived from printed circuit board etchants.
- The collection of used printed circuit board etchant for reclamation.
- The removal and recovery of mercury from contaminated materials.
- The management of the collection and brokerage of waste and the operation of a waste treatment facility.

The IMS will be amended, where appropriate, to incorporate the any new procedures required for processes that are proposed as part of this variation.

FIS has sufficient competent and qualified staff to deliver manage the proposed pelletisation activity included as part of this variation application as can be seen in Figure 3.1 below.

#### Figure 3.1 Operational Site Staff Organisational Chart

#### **Organisational Chart**



Table 3.1 below details the appropriate measures with regard to management systems and how FIS complies with these measures.

EPR Requirements	Current Arrangements	BAT?
1. You must have and follow an up- to-date, written management	FIS has in place a certified HSEQ integrated management system (IMS).	Yes
system that incorporates the following environmental performance features:	The top management take overall accountability and responsibility for ensuring that policies and objectives are established and are compatible with the strategic direction of the organisation; for ensuring the provision and allocation of resources in order to ensure that each department and/or site is able to operate effectively; for promoting and encouraging	
You have: management	continual improvement to ensure the IMS achieves its' intended outcomes; and for directing and supporting managers and staff to contribute to the effectiveness of the Integrated Management System (IMS).	
including from senior managers an environmental policy that is approved by	Local objectives are set via consultation with the relevant General Manager and via the output of Management Review and other meetings. Group objectives are set by the Senior Management Team with local site involvement in line with the HSEQ	

Table 3.1	Chemical	waste app	oropriate	measures f	or manag	ement systems

senior managers and includes the continuous improvement of the facility's environmental performance

You plan and establish the resources, procedures, objectives and targets needed for environmental performance alongside your financial planning and investment.

You implement your environmental performance procedures, paying particular attention to:

staff structure and relevant responsibilities staff recruitment, training, awareness and competence communication (for example, of performance measures and targets) employee involvement documentation effective process control maintenance programmes managing change emergency preparedness and response making sure you comply with environmental legislation You check environmental

performance and

Policy and linked to the strategic direction of the company.

Specific roles and responsibilities for the senior management team, functional managers, and staff are outlined in FG\_QHSE\_Man.01 APP.01 Organisation Roles, Responsibilities and Authorities in relation to the IMS.

Competence awareness and training requirements are co-ordinated in accordance with the FG\_QHSE\_P.07 Training & Competence.

The group procedure FG\_QHSE\_P.09 Communication has been introduced to ensure that local site arrangements are in place for effective internal and external communication for various levels and functions of the organisation. This includes receiving documents and responding to relevant communications from external parties.

Temporary and permanent changes to processes, working conditions, equipment, etc are risk assessed according to the FG\_QHSE\_P.12 Management of Change Procedure. The QHSE representative reviews the consequences, taking action to mitigate any adverse effects if necessary.

Emergency Preparedness and Response of activities which are undertaken at our sites are controlled by trained personnel. In addition, each site must keep its own emergency plan for reasonably foreseeable emergency scenarios specific to that site and include details of the specific actions to be taken in the event of emergency conditions.

Environmental monitoring and sampling programmes have been developed and equipment selected and maintained at each operational site to ensure that EPR permit requirements are met and compliance is achieved.

Monitoring and measurement of operations and activities with significant impact are built into the IMS documentation and are controlled by FG\_QHSE\_P.02 Control of Documented Information Procedure.

The site has in place a climate change risk assessment in procedure CP-RA-013.

Kirkby has the following plans in place:

- o inventory of emissions to air and water
- o residues management procedure
- accident management plan (emergency plan)
- site infrastructure plan
- o site condition report
- o odour management plan, if required
- climate change risk assessment
   Site process flow procedure (FL\_NWTR\_P.10 FORM.01 Kirkby Treatment and Recovery Process Map V2). FL\_NWTR\_P.09 - Treatment Plant Operation
- FL\_NWTR\_P.11 Emergency Plan FIS Kirkby HWTS Fire Prevention Plan has been prepared for the permitted activities on site which include; Alkaline powder recycling, oil/water separation, solvent

take corrective or		bul
preventative		reco
action, paying		naz
particular	0	Du
attention to:		IOr
		Doc
monitoring and	0	res
measurement		mot
learning from		not
incidents near		
missos and		
mistolzos		
including those of		
other		
organisations		
Gamsations		
records		
maintenance		
independent		
(where		
practicable)		
internal or		
external auditing		
of the		
management		
system to		
confirm it has		
been properly		
implemented and		
maintained		
Senior managers		
review the		
management		
system to check it		
is still suitable,		
adequate and		
effective.		
You review the		
development of		
cleaner		
technologies and		
their		
applicability to		
site operations.		
When designing		
when designing		
new plant, you		
make sure you		
assess the		
impacts from the		
nlant's operating		
life and eventual		
decommissioning		
You consider the		
risks a changing		
climate poses to		
your operations.		
You have		

bulking, tanker dig out, pH adjustment, oil recovery, sludge bulking and recovery, and hazardous waste transfer.

- Dust Management Plan has been developed for the activities to be undertaken as part of this variation.
- Pest control contractor sets and regularly monitors traps on a monthly basis, although not necessary for the washed APCR.

appropriate plans in place to assess and manage future risks.

You compare your site's performance against relevant sector guidance and standards on a regular basis, known as sectoral benchmarking.

You have and maintain the following documentation: inventory of emissions to air and water residues management plan accident management plan site infrastructure plan site condition report odour management plan, if required noise and vibration management plan, if required dust management plan, if required pest management plan, if required fire prevention plan, if required climate change risk assessment, if required Your management system can also include, for example, product or service quality,

operational efficiency and health and safety in the workplace.		
Staff Competence		
1. Your site must be operated at all times by an adequate number of staff with appropriate qualifications and competence.	Competence awareness and training requirements are co-ordinated in accordance with the FG_QHSE_P.07 Training & Competence. The site has in place sufficient qualified staff as can be demonstrated by the organogram. In addition, the site can draw on skills and knowledge from the wider Augean group.	Yes
2. The design, installation and maintenance of infrastructure, plant and equipment must be carried out by competent people.	The proposed waste activity is developed in a modular fashion by experienced staff with the appropriate knowledge of the proposed waste treatment activity.	Yes
3. You must have appropriately qualified managers for your waste activity who are members of a government- approved technical competency scheme.	The site has sufficient CoTC qualified staff who are members of a WAMITAB accredited scheme.	Yes
4. The person carrying out the technical appraisal of a waste's suitability for receipt at pre acceptance must have the minimum of a Higher National Certificate (HNC) in chemistry (or equivalent qualification). For the following wastes, technical appraisals must be carried out by a person who has had enough training to determine the suitability of the	Pre-acceptance for the APCR is carried out by the Technical Assessment team, which is separate to the Operations team at site level. Pre-acceptance checks would be undertaken by a member of staff with at least a HNC in Chemistry.	Yes

#### asbestos

contaminated clothing and rags 'articles', for example waste electronic equipment or batteries contaminated wood solid nonhazardous waste other than 'mirror entries' (where waste may be allocated to a hazardous entry or to a nonhazardous entry according to the **European List of** Waste)

5. If you need to sample, check (other than visually), or test a hazardous waste when you accept it, acceptance must be supervised by someone with the minimum of an HNC in chemistry (or equivalent qualification). At sites where the waste needs only a visual check, the person who receives the waste must have had enough training to be able to identify and manage any nonconformances in the load received.

6. You must make sure that any required sample is representative of the waste and has been taken by someone technically Analysis for the APCR to be received would be undertaken by a member of staff with at least a HNC in Chemistry.

This would be undertaken in accordance with procedures FL\_NWTR\_P.02 Sampling and Analysis V6 and FL\_NWTR\_P.03 Accepting and Storing Waste V6

Sampling would be undertaken by a suitably trained member of staff under the supervision of a member of staff with at least a HNC in Chemistry. Yes

Yes

competent to do so.		
7. Any required analysis must be done by someone with the minimum of an HNC in chemistry (or equivalent qualification).	Analysis for the APCR to be received would be undertaken by a member of staff with at least a HNC in Chemistry.	Yes
8. Non- supervisory staff must be reliable and technically skilled. Their skills may be based on experience and relevant training.	Competence awareness and training requirements are co-ordinated in accordance with the FG_QHSE_P.07 Training & Competence.	Yes

### 3.1.2 ACCIDENT MANAGEMENT PLAN

The company has established procedures for the identification and response to potential emergency situations. The emergency response of the main industrial waste management activities is controlled through the process of risk assessment, production of method statements and emergency plans for each job.

Emergency Preparedness and Response of activities which are undertaken at the site is controlled by trained personnel. The site has its own emergency plan for reasonably foreseeable emergency scenarios specific to that site and includes details of the specific actions to be taken in the event of an emergency.

After an emergency situation, an accident or a near miss, the company will, if necessary, review and revise the response procedure and emergency preparedness in light of the incident. This would only be done in light of the investigation of an event that demonstrated in the findings that an improvement was required to the emergency preparedness and response procedure

FIS will test whether the emergency procedures are practicable at least once per year.

Any accidents, incidents or near misses will be reported, recorded and investigated in accordance with AG\_HSEQ\_P.01 "HSEQ Events Non-conformities and Complaints reporting and investigation" onto the event management software which applies to all FIS sites and all other sites within the Augean group. The Lead HSEQ Manager authorises and initiates detailed investigations where necessary. Corrective and preventative actions are detailed when an assessment of the cause of the incident or near-miss is ascertained. All investigations are undertaken to determine root causes and identify actions necessary to reduce the likelihood of recurrence, thereby driving continuous improvement. Investigations will not be undertaken to apportion blame in any way.

Table 3.2 below details the appropriate measures with regard to accident management and how FIS complies with these measures.

# Table 3.2 Chemical waste appropriate measures for accident management

EPR Requirements	Current Arrangements	BAT?
1. As part of your written management system you must have a plan for dealing with any incidents or accidents that could result in pollution.	The site has in place the following procedure for dealing with incidents AG_HSEQ_P.01 "HSEQ Events Non-conformities and Complaints reporting and investigation".	Yes
2. The accident management plan must identify and assess the risks the facility poses to human health and the environment.	The Emergency Plan FL_NWTR_P.11 has a range of different potential risks to the environment or human health and how to respond to these risks.	Yes
3. Particular areas to consider may include: waste types vessels overfilling failure of plant and equipment (for example over-pressure of vessels and pipework, blocked drains) failure of containment (for example, bund failure, or drainage sumps overfilling) failure to contain firefighting water making the wrong connections in drains or other systems preventing incompatible substances coming into contact with each other unwanted reactions and runaway reactions checking the composition of an effluent before emission vandalism and arson extreme weather conditions, such as flooding or very high	<ul> <li>The Emergency Plan covers:</li> <li>Fire or Explosion</li> <li>Serious Leakage, Spillage or Damaged Container</li> <li>Serious Injury</li> <li>Toxic gas release</li> <li>Waste arriving in a dangerous condition</li> <li>Bomb threat</li> <li>Cyber threat</li> </ul> The plan will be updated to incorporate the activities to be undertaken as part of this variation.	Yes
4. You must assess the risk of accidents and their consequences. Risk is the combination of the likelihood that a hazard will occur, and the severity of the impact resulting from that hazard. Having identified the hazards, you can assess the risks by addressing 6 questions: how likely is it that the accident will happen? what may be emitted and how much?	Risk assessments are conducted in line with 'FG_QHSE_P.04 Hazard Identification & Risk Assessment' procedure which assesses the likelihood and severity from a relevant hazard. Where relevant, 'FG_QHSE_P.03 Evaluation of Environmental Aspects and Impacts' is used to identify the environmental hazards, types of emissions, pathways, consequences and control measures required to reduce the risk.	Yes

where will the emission go – what are the pathways and receptors? what are the consequences? what is the overall significance of the risk? what can you do to prevent or reduce the risk? 5. In particular, you must identify any fire risks, for example from:

arson or vandalism self-combustion, for example due to chemical oxidation plant or equipment failure and electrical faults naked lights and discarded smoking materials hot works (for example welding or cutting), industrial heaters and hot exhausts reactions between incompatible materials neighbouring site activities sparks from loading buckets hot loads deposited at the site 6. The depth and type of accident risk assessment you do will depend on the characteristics of the plant and its location. The main factors to take into account are the:

scale and nature of the accident hazard presented by the plant and its activities risks to areas of population and the environment (the receptors) nature of the plant and complexity of the activities, and how difficult it is to decide and justify adequate risk control techniques 7. Through your accident management plan, you must also identify the roles and responsibilities of the staff involved in managing accidents. You must give them clear guidance on how to manage each accident scenario, for example, whether to use containment or The Emergency Plan details how to respond to the fire but not identification of the source of risks.

The emergency plan doesn't have its own risk assessment, however all activities have relevant risk assessments - are compliant with Chemical waste appropriate measures and is therefore considered BAT.

The Emergency Plan does not include a risk assessment. The emergency plan doesn't have its own risk assessment, however all activities have relevant

risk assessments - are compliant with Chemical

waste appropriate measures and is therefore

considered BAT.

Yes

Yes

The Emergency Plan details the roles and responsibilities of key staff such as the incident controller and emergency controller. Yes

dispersion to extinguish fires, or let them burn. 8. You must appoint one facility employee as an emergency co-ordinator who will take lead responsibility for implementing the plan. You must train your employees so they can perform their duties effectively and safely and know how to respond to an emergency.

9. You must also:

establish how you will communicate with relevant authorities, emergency services and neighbours (as appropriate) both before, during and after an accident have appropriate emergency procedures, including for safe plant shutdown and site evacuation have post-accident procedures that include making an assessment of the harm that may have been caused by an accident and the remediation actions you will take test the plan by carrying out emergency drills and exercises

Accident Prevention Measures 1. You must keep apart incompatible or segregated wastes and substances by their hazardous properties.

2. You must segregate incompatible waste types into bays or store them in dedicated buildings. The minimum requirement is to use a kerbed perimeter and separate drainage collection. You must also have measures in place to prevent containers falling over into other storage areas.

3.You must make sure you contain the following (where appropriate) and route to the effluent system (where necessary):

process waters

The Emergency Controller shall have absolute control of the company action in an emergency. There will be no conflict of interests or responsibility at such times and the Emergency Controllers decision shall be final.

The Emergency Plan has details with regards to emergency contacts and the responsibilities for the emergency controller to notify them in the event of an emergency.

The APCR will be kept apart from the existing	Yes
waste transfer station as it is in its own area.	
Furthermore, any acids/waste acids will be kept	
away from the APCR near to the effluent	
treatment process.	
The APCR will be stored in a dedicated silo	Yes
away from any other waste.	

All process and drainage water within the pit area will be pumped to dedicated tanks.

Yes

Yes

Yes

site drainage waters emergency firefighting water chemically contaminated waters spillages of chemicals		
4. You must be able to contain surges and storm water flows. You must provide enough buffer storage capacity to make sure you can achieve this. You can define this capacity using a risk-based approach, for example, by taking into account the: nature of the pollutants effects of downstream waste	The APCR is stored in a silo which would mean that it is protected from any high intensity rainfall events. Furthermore, the pit area acts as a self-contained bunded area.	Yes
water treatment sensitivity of the receiving		
5. You can only discharge wastewater from this buffer storage after you have taken appropriate measures, for example, to control, treat or reuse the water.	Any collected water will be tested for reuse if process water or used if collected rainwater.	Yes
6. You must have spill contingency procedures to minimise the risk of an accidental emission of raw materials, products and waste materials, and to prevent their entry into water.	The APCR to be accepted as part of this variation is a solid which can be easily swept up if spilled and would not mobilise to water.	N/A
7. Your emergency firefighting water collection system must take account of additional firefighting water flows or firefighting foams. You may need emergency storage lagoons to prevent contaminated firefighting water reaching a receiving water body.	The APCR to be accepted as part of this variation is not combustible so would not need to collect fire waters.	N/A
8. You must consider and, if appropriate, plan for the possibility that you need to contain or abate accidental emissions from:	The APCR to be accepted as part of this variation is a solid which can be easily swept up if spilled and would not mobilise to water.	N/A
overflows vents safety relief valves bursting discs If this is not advisable on safety grounds, you must focus on reducing the probability of the emission.		

9. You must have security measures (and staff) in place to prevent:	The site is located on a secure industrial estate with fencing and gated access maintained by security personnel.	Yes
entry by intruders damage to equipment theft fly-tipping arson		
10. Facilities must use an appropriate combination of the following measures:	The site is located on a secure industrial estate with fencing and gated access maintained by security personnel.	Yes
security guards total enclosure (usually with fences)		
adequate lighting warning signs 24-hour surveillance, such as		
CCTV 11. There are 3 fire prevention objectives. You must:	The APCR is not combustible.	N/A
minimise the likelihood of a fire happening aim for a fire to be extinguished within 4 hours minimise the spread of fire within the site and to neighbouring sites		
12. You must have appropriate systems for fire prevention, detection and suppression or extinction.	The APCR to be accepted as part of this variation is not combustible so would not need fire prevention measures	N/A
13. You must have suitable procedures and provisions (such as fire resistant stores, automatic alarms and sprinklers) to store certain types of hazardous waste.	The APCR to be accepted as part of this variation is not combustible so would not need alarms and sprinklers.	N/A
14. Your facility must have enough water supplies to extinguish fires. You must have an alternative type of fire protection system if you store or treat any water-reactive waste, for example dry powdor optimuichors	The APCR to be accepted as part of this variation is not combustible so would not need an extensive supply of fire water.	N/A
15. You must isolate drainage systems from flammable waste storage areas to prevent fire spreading along the drainage system by solvents or other flammable hydrocarbons.	The APCR to be accepted as part of this variation is not combustible so would not need isolated drainage systems.	N/A

16. You must regularly inspect and clean your site to prevent the build-up of loose combustible material (including waste and dust), particularly around treatment plant, equipment and other	Any spilled APCR would be swept up by the operator and returned to the process for treatment.	Yes
potential sources of ignition. 17. You should share and communicate accident management and fire prevention plans with your local fire and rescue service.	Augean are committed to sharing these with relevant services before application is determined.	Yes
18. You must assess areas of the site where explosive atmospheres could occur and, where appropriate, classify them into hazardous zones in accordance with the Dangerous Substances and Explosive Atmospheres Regulations. Plant and equipment used in these zones	The site where the activity is to take place would be assessed for explosive dust risk but as most of the conveyance and vessels are enclosed this risk is considered highly unlikely. Furthermore, APCR is non-combustible and does not oxidise, therefore could not from an explosive dust atmosphere.	N/A
must be ATEX compliant. 19. You must maintain plant control in an emergency – use one or a combination of the following measures: alarms process trips and interlocks automatic systems based on microprocessor control and valve control tank level readings such as ultrasonic gauges, high level warnings, process interlocks and process parameters	The plant and equipment are batch activities and can be easily turned off collectively or individually by the operator.	Yes
20. You must: make sure all the measurement and control devices you would need in an emergency are easy to access and will operate in an emergency maintain the plant so it is in a good state through a preventive maintenance programme and a control and testing programme use techniques such as suitable barriers to prevent moving vehicles damaging equipment have procedures in place to avoid incidents due to poor communication between	The plant and equipment are batch activities and along with any monitoring devices can be easily turned off collectively or individually by the operator.	Yes



### 3.1.3 CONTINGENCY PLAN

The site has an emergency accident plan taking into account various scenarios i.e. flood, spill, and gas release etc., and in the event of a significant environmental incident this would be initiated and resources would be assigned in line with the various scenarios.

In the event that the incident was of an environmental nature or there was risk that the incident had caused a release of material, the incident would be reported to the Environment Agency at the first available opportunity.

Environmental consequence would be minimised by whatever means available. i.e. utilising onsite tankers in relation to spill clean-up.

The industrial service team employed by FIS at the nearby Kirkby IS depot on Charley Wood Road, would be utilised in the event of an incident or spill clean-up.

The incident would be fully recorded on the company's electronic event management system in accordance with event reporting procedures. After the incident had been reported an investigator would be assigned in order to ascertain the root cause if the incident and the preventative action would be implemented in order to prevent reoccurrence. This is in line with the incident and

accident and near miss reporting procedure AG\_HSEQ\_P.01 "HSEQ Events Non-conformities and Complaints reporting and investigation".

The Emergency Plan is reviewed every three years as a minimum, also after any significant change in operation or in the event of a significant incident outside of the scope of the existing plan.

Operational instructions and procedures are available to address accidents, incidents and nonconformities. A formal written procedure is in place for recording all incidents, near misses, findings of inspections and changes to procedures on IMS.

The responsibilities of personnel involved in responding to incidents is defined within the IMS.

A procedure to record complaints, incidents, non-conformances and breaches is in place and all non-compliances will be recorded and subject to the measures below.

The non-compliance and complaints procedure includes details on identifying the cause, how corrective action was implemented and the outcome of the complaint.

Where issues are identified they are recorded on the corrective action register for addressing.

There is a procedure within the IMS AG\_HSEQ\_P.01 "HSEQ Events Non-conformities and Complaints reporting and investigation" for addressing non-conformities which includes measures for corrective action.

Complaints are recorded as NCRs and subject to investigation in line with AG\_HSEQ\_P.01 "HSEQ Events Non-conformities and Complaints reporting and investigation".

Table 3.3 below details the appropriate measures with regard to contingency planning and how FIS complies with these measures.

EPR Requirements	Current Arrangements	BAT?
1. You must have and implement a contingency plan, which makes sure you: comply with all your permit conditions and operating procedures during maintenance or shutdown at your site, or elsewhere do not exceed storage limits in your permit and you continue to apply appropriate measures for storing and handling waste stop accepting waste unless you have a clearly defined method of recovery or disposal and enough permitted storage capacity	In event of shutdown of this process FIS would divert APCR to Augean's other processing facilities at Port Clarence and East Northants resource Management Facility (ENRMF). Both sites have available processing capacity in processes permitted to receive APCr. These facilities are fully authorised for APCr treatment under environmental permits. This would be a standard consideration as part of the site booking and technical assessment procedures of which customers are aware.	Yes
2. You should have contingency procedures to make sure that, as far as possible, you know in advance	As above. Supplier outlets inform site if they have planned shutdown periods.	Yes

#### Table 3.3 Chemical waste appropriate measures for contingency plan

about any planned shutdowns at waste management facilities where you send waste. 3. You must make your As above. Yes customers aware of your contingency plan, and of the circumstances in which you would stop accepting waste from them. 4. You should consider As above. Yes whether the sites or companies you rely on in your contingency plan: can take the waste at short notice are authorised to do so in the quantities and types likely to be needed – in addition to carrying out their existing activities 5. You should not discount As above. Yes alternative disposal or recovery options on the basis of extra cost or geographical distance if doing so means you could exceed your permitted storage limits, or compromise your storage procedures. 6. You must not include As above. Yes unauthorised capacity in your contingency plan. If your contingency plan includes using temporary storage for additional waste on your site, you must make sure your site is authorised for this storage and you have the appropriate infrastructure in place. 7. Your management Yes procedures and contingency Technology involved is simple - paddle mixers, conveyors etc. and current spare parts held on plan must: site (e.g. spare pipework, pumps, motors) should be sufficient to cover added plant. Site identify known or predictable malfunctions associated with has a dedicated maintenance engineer, who is your technology and the competent to maintain and repair plant. Defined procedures, spare parts, tools Preventative Maintenance regime that is and expertise needed to deal recorded on our internal database. with them include a record of spare parts held, especially critical spares – or state where you can get them from and how long it would take have a defined procedure to identify, review and prioritise items of plant which need a

preventative maintenance regime include all equipment or plant whose failure could directly or indirectly lead to an impact on the environment or human health identify 'non-productive' or redundant items such as tanks, pipework, retaining walls, bunds, mobile plant, reusable waste containers (for example wheeled carts), ducts, filters and security systems make sure you have the spare parts, tools, and competent staff needed before you start maintenance		21/4
8. If you produce an end-of- waste material at your facility, your contingency planning must consider issues with storage capacity for end-of- waste products and materials that fail the end-of-waste specification	An End of Waste material is not produced as part of this variation.	N/A
9. Your management system must include procedures for auditing your performance against all of these contingency measures and for reporting the audit results to the site manager.	IMS system is operated in accordance with ISO 9001, including auditing.	Yes

#### 3.1.4 PLANT DECOMMISSIONING

Table 3.4 below details the appropriate measures with regard to plant decommissioning and how FIS complies with these measures.

 Table 3.4 Chemical waste appropriate measures for plant decommissioning

EPR Requirements	Current Arrangements	BAT?
1. You must consider how you will decommission the plant at the design stage, and plan how you will minimise risks during decommissioning.	The plant is all individual pieces of equipment put together in a modular fashion for the activity and can be easily disassembled.	Yes
2. For existing plants where potential risks are identified, you must have a programme of design improvements. These design improvements need to make sure you: avoid using underground	The new activity to be included as part of this variation will be a new activity and not classed as existing.	Not applicable
tanks and pipework – if it is not economically possible to		

replace them, you must protect them by secondary containment or a suitable monitoring programme drain and clean out vessels and pipework before dismantling use insulation which you can dismantle easily without dust or hazard use recyclable materials, taking into account operational or other environmental objectives Yes 3. You must have and Decommissioning plan is provided with the maintain a decommissioning application. plan to demonstrate that: plant will be decommissioned without causing pollution the site will be returned to a satisfactory condition 4. Your decommissioning plan Decommissioning plan is provided with the Yes should include details on: application and includes these points. whether you will remove or flush out pipelines and vessels (where appropriate) and how you will empty them of any potentially harmful contents site plans showing the location of all underground pipes and vessels the method and resources needed to clear any on-site lagoons the method for closing any onsite landfills how asbestos or other potentially harmful materials will be removed, unless we have agreed it is reasonable to leave such liabilities to future owners methods for dismantling buildings and other structures, and for protecting surface water and groundwater during construction or demolition at your site any soil testing needed to check for pollution caused by site activities, and information on any remediation needed to return the site to a satisfactory state when you stop activities,

as defined by the initial site condition report the measures proposed, once activities have definitively stopped, to avoid any pollution risk and to return the site of operation to a satisfactory state (including, where appropriate, measures relating to the design and construction of the plant) the clearing of deposited residues, waste and any contamination resulting from the waste treatment activities 5. You should make sure that equipment taken out of use is decontaminated and removed from the site.

All plant will be cleaned in situ to ensure they are fully decontaminated before removal off-site the cleaning and inspection of the equipment will be recorded. Yes

#### **3.2 PROCESS EFFICIENCY**

The energy requirements of the APCR treatment process is relatively low and can be seen in Table 3.5 below for the initial small scale plant. Total energy usage will be better understood when the full-scale plant is operational.

Energy Source	Current Delivered Energy Consumption (MWh)	Current Primary Energy Consumption (MWh)	Future Delivered Energy Consumption (MWh)	Future Primary Energy Consumption (MWh)
Electricity from public supply	255	612	329	790
Gas	0	0	0	0
Oil (diesel)	0	0	73	73
Waste	0	0	0	0
Steam from ring main	0	0	0	0
Other (Specify)	0	0	0	0

#### Table 3.5 Energy Usage

Table 3.6 below details the appropriate measures with regard to process efficiency and how FIS complies with these measures.

Appropriate Measure	Actual Parformanca	RAT2
Appropriate Measure		DAT
energy efficiency plan at your facility. This must:	reviewed for anomalous results and potential for improvements. The site is part of FIS review for ESOS commitments.	Yes
define and calculate the specific energy consumption of the activity (or activities) you do and waste stream(s) you treat set annual key performance indicators – for example, specific energy consumption (expressed in kWh/tonne of waste processed) plan periodic improvement targets and related actions		
2. You must regularly review and update your energy efficiency plan as part of your facility's management system.	See response above – annual reviews. Every 4 years for ESOS.	Yes
3. You must have and maintain an energy balance record for your facility. This must provide a breakdown of your energy consumption and generation (including any energy or heat exported) by the type of source (electricity, gas, conventional liquid fuels, conventional solid fuels and waste). You should	The site is a hazardous waste treatment and transfer station and as such key energy consumption is through the use of electricity by plant and equipment and diesel within the mobile plant. The usage figures will be updated after introduction of the APCR treatment activity.	Not applicable
<ul> <li>provide Sankey diagrams or energy balances to show how energy is used in your waste treatment processes.</li> <li>4. You must regularly review and update your energy balance record as part of your facility's management system, alongside the energy efficiency plan.</li> </ul>	Energy usage is monitored but the proposed process is too simple for there to be any benefit from a Sankey diagram. The energy used is recorded monthly and reported to the EA on an annual basis as part of the reporting requirements within the environmental permit. This will continue to be reported in line with the permit upon issue as a result of this variation	Yes
5. You must have operating, maintenance and housekeeping measures in place in relevant areas, for example for:	The APCR treatment activity is in an external yard area outside and none of these measures apply.	Not applicable
air conditioning, process refrigeration and cooling systems (leaks, seals, temperature control, evaporator or condenser maintenance) the operation of motors and drives compressed gas systems (leaks, procedures for use) steam distribution systems (leaks, traps, insulation) space heating and hot water systems lubrication to avoid high friction losses		
example, optimising excess air		

#### Table 3.6 Chemical waste appropriate measures for process efficiency

# **3.3 EFFICIENT USE OF RAW MATERIALS AND WATER**

This section identifies the raw and ancillary materials which are proposed to be used as part of this variation application.

The mass balance can be seen below in Figure 3.2.



#### Figure 3.2 APCR Treatment Process Mass Balance

The overall raw materials used within the process per annum based on 20,000 tonnes of throughput for the pelletisation activity would be:

- APCR 20,000 tonnes
- Sand 11,000 tonnes
- Cement 4,400 tonnes

This produces approximately 37,400 tonnes of pelletised waste aggregate product. Note that as this is a developmental process, mix ratios and therefore raw material usage may vary as operations are refined.

Water use would be 26,000-98,000 tonnes per year based upon the level of water recirculation which is dependent on the level of contamination of the APCR.

Table 3.7 below details the appropriate measures with regards to raw materials and how FIS complies with these measures.

# Table 3.7 Chemical waste appropriate measures for raw materials

Appropriate Measure	Actual Performance	BAT?
1. You must maintain a list of the raw materials used at your facility and their properties. This includes auxiliary materials and other substances that could have an environmental impact.	The list of materials for the APCR treatment process is detailed above.	Yes
2. You must regularly review the availability of alternative raw materials and use any suitable ones that are less hazardous or polluting. This should include, where possible, substituting raw materials with waste or waste-derived products.	Alternatives would be reviewed periodically but no longer than once every 4 years.	Yes
3. You must justify the continued use of any substance for which there is a less hazardous alternative.	The hydrochloric acid is typically used in the existing wastewater treatment activity for pH adjustment for neutralisation of aqueous liquids and would have a similar environmental impact as to other acids which could be used for this purpose.	Yes
4. You must have quality assurance procedures in place to control the content of raw materials.	Raw materials are purchased from approved suppliers to a pre-defined specification	Yes

Table 3.8 below details the appropriate measures with regard to water use and how FIS complies with these measures.

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Table 3.8	Chemical	waste ap	propriate	measures	tor w	ater use

Appropriate Measure	Actual Performance	BAT?	
1. You must make sure you optimise	Water is recirculated within the treatment	Yes	
water consumption to:	activity.		
reduce the volume of waste water you	Where levels of contamination allow, water		
generate	shall be recycled from previous washes to be		
prevent or, where that is not	utilised for slurrying up new APCR batches		
practicable, reduce emissions to soil	for processing. Use of a cross-flushing press		
and water	is being considered to aid this process to		
	allow flushing of APCR within the press with		
	clean water to remove final contaminants		
	from washed cake.		
2. Measures you must take include:	Water is recirculated within the treatment	Yes	
	activity to reduce clean water make-up		
implementing a water saving plan	requirement as can be seen in Figure 3.1.		
(involving establishing water efficiency			
objectives, flow diagrams and water	Collected rainwater will be used in the first		
mass balances)	instance where there is sufficient available		
optimising the use of wash waters (for	prior to using any mains water.		
example, dry cleaning instead of hosing			
down and using trigger controls on all	The rainwater will be stored in a new tank in		
washing equipment)	the pit area- 360m <sup>3</sup> . Alternatively, in existing		
recirculating and reusing water	press tank farm 4x125m <sup>3</sup> tanks.		
streams within the plant or facility, if	<u>`</u>		
necessary after treatment			
3. You must review water use (a water efficiency audit) at least every 4 years.       Yes         4. You must also:       year usage will be reviewed every 4 years.       Yes         balances for your activities establish water efficiency objectives and identify constraints or reducing water use beyond a certain level (usually this will be site specific) identify the opportunities for maximising reuse and minimising use of water       Water is reused within the process without       Yes         5. To reduce water use and associated emissions to swater, you should apply these general principles in sequence:       Water is reused within the process without       Yes         use water efficient techniques at source where possible reuse water in the process, phy treating it first if necessary — if not practicable, use it in another part of the process or facility that has a lower water quality requirement if you cannot use uncontaminated roof and surface water in the process, you should keep it separate from other discharge streams - at least until after you have treated the contaminated streams.       Water is reused within the process without       Yes         6. You should stablish the water quality requirement plan.       Water is reused within the process without the need for treatment.       Yes         7. Where there is sociated with each activity and identify whether you can substitute water from reprecied sources. Where you can, include it in your improvement plan.       Water is reused within the process without the need for treatment.       Yes         8. You must minimise the volume of water you use for cleaning and washing down by;       Any dry spills of APCR, cement o	reducing the use of water for vacuum generation (for example, using liquid ring pumps with high boiling point liquids), where relevant		
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efficiency audit) at least every 4 years. 4. You must also: balances for your activities establish water efficiency objectives and identify constraints on reducing water use beyond a certain level (usually this will be site specific) identify the opportunities for maximising reuse and minimising use of water have a timetabled improvement plan for implementing additional water reduction measures 5. To reduce water use and associated emissions to water, you should apply these general principles in sequence: use water efficient techniques at source where possible reuse water within the process, by treating it first if necessary – if not practicable, use it in another part of the process or facility that has a lover water quality requirement if you cannot use uncontaminated roof and surface water in the process, you should leep it separate from other discharge streams – at least until after you should stablish the water quality requirement associated with cach activity and identify whether you can substitute water from eycled sources. Where you can, include it in your simprovement plan. 7. Where there is scope for reuse (possibly after some form of treatment) separate from more contaminated streams. 8. You must minimise the volume of water you use for cleaning and washing down by: vacuuming, scraping or mopping in preference to hosing down vacuuming, scraping or mopping in preference to hosing down vacuuming, scraping or mopping in preference to hosing down vacuuming, scraping or mopping in preference to hosing down vacuuming.	3. You must review water use (a water	Water usage will be reviewed every 4 years	Yes
produce flow diagrams and water mass balances for your activities establish water efficiency objectives and identify constraints on reducing water use beyond a certain level (usually this will be site specific) identify the opportunities for maximising reuse and minimising use of water have a timetabled improvement plan for implementing additional water reduction measures 5. To reduce water use and associated emissions to water, you should apply these general principles in sequence: use water efficient techniques at source where possible reuse water within the process, by treating it first if necessary – if not practicable, use it in another part of the process or facility that has a lower water quality requirement system and have carried out final monitoring 6. You should keep less contaminated streams. A sooling waters, seeparate from more contaminated streams.Water is reused within the process without the need for treatment.Yes water is reused within the process without the need for treatment.Water is reused within the process without system and have carried out final monitoring 6. You should keep less contaminated streams.Water is reused within the process without the need for treatment.Yes water is reused within the process without the need for treatment.Water is reused within the process without water streams, such as cooling waters, separate from more contaminated streams.Water is reused within the process without the need for treatment.Water is reused within the process without water streams, such as cooling waters, separate from more contaminated streams, such as cooling waters, separate from more contaminated streams, such as cooling waters, separate from more contaminated streams, such as cooling wa	efficiency audit) at least every 4 years. 4. You must also:	as per the environmental permit requirement. See Figure 3.1 which shows water use and wastewater generation within the waste	Yes
balances for your activities establish water efficiency objectives and identify constraints on reducing water use beyond a certain level (usually this will be site specific) identify the opportunities for maximising reuse and minimising use of water have a timetabled improvement plan for implementing additional water reduction measures 5. To reduce water use and associated emissions to water, you should apply these general principles in sequence: use water efficient techniques at source where possible reuse water within the process, by treating it first if necessary – if not practicable, use it in another part of the process or facility that has a lower water quality requirements and surface water in the process, you should keep it separate from other discharge streams – at least until after you should establish the water (possibly after some form of treatment)Water is reused within the process without the need for treatment.Water is reused within the process or facility that has a lower water quality requirements associated with each activity and identify whether you can substitute water from recycled sources. Where you can, include it in your improvement plan. 7. Where there is scoop for reuse (possibly after some form of treatment) yu should keep less contaminated streams. S. You must minimise the volume of water you use for cleaning and washing down by:Water is reused within the process without the need for treatment.Yee washing down by:Yee washed down.Any dry spills of APCR, cement or sand would be shovelled up without the need to be washed down.	produce flow diagrams and water mass	treatment activity.	
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vacuuming, scraping or mopping in preference to hosing down	washing down by:	washed down.	
preference to hosing down	vacuuming scraping or mopping in		
	preference to hosing down		

reusing wash water (or recycled water) where practicable using trigger controls on all hoses, hand lances and washing equipment 9. You must directly measure fresh water consumption and record it regularly at every significant usage point, ideally on a daily basis

All water used within the process will be metered.

Yes

# **3.4 AVOIDANCE RECOVERY AND DISPOSAL OF WASTE**

This section provides a description of the different waste streams that are expected to be generated from the activities undertaken within the installation associated with this variation.

The wastes to be generated each year from the treatment activity are:

- 100 tonnes of sludge to be sent to hazardous waste landfill; and
- 25,900 tonnes of wastewater

Table 3.9 below details the appropriate measures with regard to waste minimisation and how FIS complies with these measures.

Appropriate Measure	Actual Performance	BAT?
1. You must have and implement a	The process is about minimising waste	Yes
residues management plan that:	generation and producing a recovered output	
	from waste which could be deemed end of	
minimises the generation of residues	waste (subject to assessment – this is not part	
from waste treatment, optimises the	of this variation application) and usable as	
reuse, regeneration, recycling or energy	aggregate. Delivery of raw materials	
recovery of residues, including packaging	(sand/cement) shall be in bulk (tipper/tanker	
makes sure you properly dispose of	respectively) to avoid production of	
residues where recovery is technically or	contaminated packaging.	
economically impractical		
2. Where you must dispose of waste, you	The sludge is deemed to be hazardous waste	Yes
must do a detailed assessment to identify	and will be disposed of to a suitable facility	
the best environmental options for waste	for disposal or should it not meet WAC it can	
disposal.	be used for stabilisation processes at other	
	Augean sites.	
3. You must regularly review options for	All waste to be disposed of for the APCR	Yes
recovering and disposing of waste	treatment activity will be reviewed every four	
produced at the facility. You must do this	years as to whether there are alternate options	
as part of your management system to	for its disposal.	
make sure you are using the best		
environmental options and promoting the		
recovery of waste where technically and		
economically viable.		

#### Table 3.9 Chemical waste appropriate measures for waste minimisation

# 4

# BEST AVAILABLE TECHNIQUES WASTE MANAGEMENT

# 4.1 **PRE-ACCEPTANCE PROCEDURES**

Waste pre-acceptance procedures to assess waste will be reviewed and updated to ensure that they remain compliant with appropriate measures guidance and are detailed in Table 4.1 below. Table 4.1 Chemical waste appropriate measures for waste pre-acceptance

EPR Requirements	Current Arrangements	BAT?
<ul> <li>1. You must implement waste pre-acceptance procedures so that you know enough about a waste (including its composition) before it arrives at your facility. You need to do this to assess and confirm the waste is technically and legally suitable for your facility. Your procedures must follow a risk-based approach, considering:</li> <li>the source and nature of the waste</li> <li>potential risks to process safety, occupational safety and the environment (for example, from odour and other emissions)</li> <li>knowledge about the previous waste holder</li> </ul>	Procedure FL_NWTR_P.02 describes a risk based approach which is based on the information given in the Waste Specification Declaration, considering the source and nature of the waste, potential risks to occupational safety, process safety and to the environment. The information is initially assessed by a technical assessor before sample is analysed by a HNC qualified chemist.	Yes
<ul> <li>2. When you receive a customer query, and before the waste arrives at your facility, you must obtain the following in writing or in an electronic form:</li> <li>details of the waste producer including their organisation name, address and contact details the source of the waste (the producer's business and the specific process that has created the waste)</li> <li>where the holder of the waste is not the producer, details of the waste holder including their organisation name, address and contact details</li> </ul>	As per FL_NWTR_P.02 Sampling and Analysis V6 , FG_QHSE_P.04 FORM.03 Waste Specification Form must be submitted prior to pre-acceptance analysis which requires all information to be submitted from Chemical waste: appropriate measures.	Yes

information on the nature and variability of the waste production process and the waste

You must also obtain (in writing or electronic form) details about the waste including:

#### a description

the List of Waste code (European Waste Classification (EWC) code)

its physical form

its composition (based on safety data sheets, where appropriate, or representative samples and robust laboratory analysis)

any hazardous properties

any persistent organic pollutants (POPs) present

the potential for self-heating, selfreactivity or reactivity to moisture or air

any odour

its age, that is when it first became waste

the type of packaging

an estimate of the quantity you expect to receive in each load and in a year

You must also obtain confirmation that the waste does not contain a radioactive source. If there is a risk of radioactive contamination you must obtain confirmation that the waste is not radioactive, unless your facility is permitted to accept such waste.

3. You must consider whether specific wastes, from among those you are permitted to receive, have properties that can pose unacceptable risks to the site or process, for example due to:

a risk of explosion (for example, if ammunition or aerosol canisters are present, or mixing processes that could lead to explosion)

corrosion caused by strong acids

a risk of uncontrolled reactions (for example, if peroxides or strong oxidants are present, or polymerising components such as certain isocyanates)

a risk of the evolution of gases (for example if cyanides, sulphides or dissolved gas are present) Only Air Pollution Control Residues (APCR) to be received for conversion to pelletised aggregate as part of this variation.

Not applicable

These wastes will not pose an unacceptable risk.



(except for mirror entries when the waste composition is unknown) The waste to be received is APCR and not laboratory smalls.

Not applicable

The waste to be received is APCR and not waste oil.

Not applicable

# contaminated wood and roofing material

produced in an emergency – you must not treat or offload such wastes until you have completed a full characterisation

6.1 You also may not need a representative sample if the waste is laboratory smalls in containers of less than 5 litres.

Laboratory smalls generally contain pure chemical elements and compounds from laboratories or arise when laboratory stores are cleared.

When drums are used for laboratory smalls, a list of the contents must be stored within the drum below the lid, or attached to the drum. Similarly for other types of packages containing laboratory smalls, a list of contents is appropriately stored within (or attached to) the packaging. Each packed drum (or other package) is then labelled with the hazard for carriage, for example under the International Carriage of Dangerous Goods by Road (ADR) treaty.

You should provide packaging guidance to your customer or their intermediary if the person packing the laboratory smalls does not work for you.

6.2 You also may not need a representative sample of waste oil for treatment. Pre acceptance sampling is not critical for a waste oil treatment plant, but it would be required if the waste will be treated at a mineral oil refinery. Typically waste oil comes from a large number of small volume sources, such as garages, but its composition is essentially fixed. Waste oil is any mineral-based or synthetic lubrication, or industrial oil which has become unfit for its original use. Waste oil includes:

used combustion engine oils gearbox oils mineral lubricating oils oils for turbines The waste to be received is APCR and not waste oil.

Not applicable

ner to the:use dioxin<br/>ubsequentte oil has<br/>for<br/>tetrol or<br/>by thepre-<br/>ny<br/>nust recordAs detailed above it is considered that for this<br/>activity the chemical composition or variability of<br/>the waste is clearly understood and that a pre-<br/>acceptance sample would be needed for new waste<br/>streams to characterise it and model it through the<br/>process.a number<br/>he same<br/>the same<br/>sampling<br/>using a<br/>is waste<br/>the waste<br/>the wasteIf requiring a pre-acceptance sample then this<br/>methodology would be used.Yes<br/>methodology would be used.Yes<br/>the waste<br/>the waste<br

hydraulic oils

Waste oil contaminated with more than 50 ppm of polychlorinated biphenyls (PCBs) is not included as a waste oil.

6.3 You should obtain a representative sample of the following types of waste oil, from:

industrial sites that do not normally produce waste oil

other sources where chemicals and potential contaminants may be handled, for example from chemical manufacturing

You should advise your customers that they must avoid contaminating waste oil. This is because during treatment low flashpoint solvents or petrol will cause handling difficulties, increase volatile organic compound (VOC) emissions and increase the risk of accidents.

Contamination with PCBs can transfer those PCBs either to the:

product (which may cause dioxin formation if used in a subsequent combustion process)

tank bottom oil sludges

## effluent

If you suspect that waste oil has become contaminated, for example by solvents, petrol or PCBs, you must identify the contamination.

6.4 If you do not take a preacceptance sample of any hazardous waste you must record the reason.

6.5 If the customer has a number of containers holding the same waste, you can apply 'the square root of (N) + 1' rule to sampling those containers. Producing a composite sample of this waste may be appropriate. If the waste is variable you will need a sample from each container.

7. After fully characterising a waste, you must technically assess the waste's suitability for treatment or storage to make sure

you can meet permit conditions. You must also do this to meet any Control of Major Accident Hazards (COMAH) requirements, because wastes, raw materials and end-of-waste materials all contribute to COMAH limits. You must make sure that the waste complies with the site's treatment capabilities. In the case of water based liquid waste, you may perform laboratory scale tests to predict the treatment's performance, for example on breaking of emulsion or biodegradability.	ensure that the transfer stock plus the APCR on site doesn't exceed the lower tier threshold	
8. You can use material flow analysis to help identify the flow and fate of the components in the waste. This analysis can be helpful in choosing the most appropriate forms of treatment for the waste, either directly at the site or at any subsequent treatment site.	Waste treatment for the APCR is well understood without the need for material flow analysis.	Not applicable
9. You must keep pre-acceptance records for at least 3 years (in a computerised waste tracking system) following receipt of the waste. If an enquiry from a waste producer does not lead to the receipt of waste, you do not need to keep records.	All pre-acceptance records will be kept for a minimum of 3 years. Augean uses a computerised waste tracking system (currently Weighsoft5).	Yes
10. You must reassess the information required at pre- acceptance if the:	Should the waste producer change their process which could impact upon the APCR then a review of the waste characterisation would be undertaken.	Yes
waste changes process giving rise to the waste changes waste received does not conform to the pre-acceptance information In all cases, you must reassess the information required at pre- acceptance on an annual basis.	This would be undertaken on an annual basis for the APCR received.	
11. You must apply odour criteria to decide whether to accept wastes that are already releasing, or have the potential to release:	None of these would be applicable to the received APCR.	Not applicable
mercaptans or other VOCs low molecular weight amines acrylates other similarly highly odorous materials		

These substances are only suitable for acceptance under special handling requirements.

technical staff separate. If sales staff are involved in waste enquiries then technical staff must do a final technical check before approval. You must keep this final technical check independent of commercial considerations, to make sure you:

only accept wastes that are suitable for the site avoid accumulating waste

have enough storage and treatment capacity

13. Fully characterising the waste's composition is an essential step in the preacceptance procedure because hazardous wastes can be very complex. You must be sure you know what is in the waste so that vou can safely handle or treat it. You must select analytical tests based on knowing the process that generates the waste. You must characterise the waste's composition at the pre-acceptance stage. You need to do this to make sure you comply with regulatory requirements and to work out the most appropriate waste storage, transfer or treatment route.

14. For liquid waste, any or all of the following may be appropriate:

measure the density of the sample

measure the water content

measure the ash content after calcination at 550°C

test whether the stream might inhibit biological treatment

test for cyanide, and if present determine the free and complexed cyanide levels

test for POPs

check the content of volatile and semi volatile substances

check the mass balance of liquid waste

Augean's Technical Assessment team is independent of the Commercial team and has separate reporting lines

Pre-acceptance samples of the waste are received and subject to laboratory analysis and then technical assessment by the Technical Assessor team to fully characterize the waste.

APCR is a solid waste.

Not applicable

Yes

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You can also measure the pH, redox potential and electrical conductivity of liquid wastes. For pastes and oils, perform these measurements on a water extract of crude sample using a ratio of 10 l/kg of dry matter. You should mix the water with the sample in a closed container to limit exchanges with the atmosphere.

You can also test for the 12 heavy metals (As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn) and determine their levels individually and quantitatively. You may use any specific classical method of (partial) extraction of these metals. Where it is present, check specifically for chromium (VI). If the waste is saline (conductivity > 0.15 S/m), measure the chlorides and preferably all the halogens that are soluble in water to make sure you correctly speciate the metals.

You can also test for other metal content and other elements (for example silicon, sulphur and phosphorous).

15. If you suspect the analysis methods applied to a liquid sample will not extract and quantify the compounds present in any solid particles or in any separate phases, separate the sample into 2 fractions by a suitable method. For example, this could be by filtration, centrifugation or decantation. Then you can determine the mass of each fraction, and perform a comprehensive analysis of the separated liquid fraction and solid fraction, or of each phase.

16. For solid waste, any or all of the following may be appropriate:

measure the bulk density of the sample, without pre-treatment of the sample

measure the water content

measure the ash content after calcination at  $550^{\circ}\mathrm{C}$ 

test for cyanide, and if present determine the free and complexed cyanide levels APCR is a solid waste.

Not applicable

APCR is assessed for TPH, PAH and heavy metal content as well as bulk density, moisture content and pH as part of the pre-acceptance testing. It is also tested for soluble contaminants and the treatment process modelled at bench scale to determine the expected effluents that are produced.

criteria could lead to further

test for POPs

check the content of volatile and semi volatile substances

check the mass balance of solid waste You can also measure the pH, redox potential and electrical conductivity on a water extract of crude sample using a ratio of 10 l/kg of dry matter. You can also test for the 12 heavy metals (As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn) and determine their levels individually and quantitatively. You may use any specific classical method of (partial) extraction of these metals. Where it is present, check specifically for chromium (VI). If the waste is saline (conductivity > 0.15 S/m), measure the chlorides and preferably all the halogens to make sure you correctly speciate the metals. You can also test for other metal content and other elements (for example silicon, sulphur and phosphorous).		
17. When multiple immiscible phases or fractions are present in a waste, you can perform the analysis on each phase and combine them to provide the final result.	APCR is a solid waste.	Not applicable
18. Analyses must be carried out by laboratories that have robust quality assurance procedures and use recognised test methods. The EN ISO 17025 accreditation represents best practice.	Augean's laboratory at ENRMF is UKAS accredited.	Yes
19. When you agree that you will accept waste from a customer, you should decide and record what parameters you will check at the acceptance stage. The checks could be visual (for example colour, phase, fuming), physical (for example pumpability, form), chemical (for example pH range, maximum acceptable metals content) or odour based parameters. You should define the acceptable tolerance for each acceptance test	Acceptance testing is defined by the Technical Assessor's at the pre-acceptance stage.	Yes

testing, non-conformance or rejection. The person checking the waste for acceptance can also decide on their own additional parameters.

# 4.2 ACCEPTANCE PROCEDURES

Waste acceptance procedures to assess waste will remain unchanged from that assessed during previous environmental permit determinations. These are detailed in Table 4.2 below.

Table 4.2 Chemical waste appropriate measures for waste acceptance

<b>EPR Requirements</b>	Current Arrangements	BAT?
1. You must follow waste acceptance procedures to check that the characteristics of the waste you receive match your pre-acceptance information. This is to confirm that the waste is as expected and you can accept it. If it is not, you must confirm that you can accept it as a non- conforming waste, or you must reject it.	FL NWTR P.02 Sampling and Analysis V6 states that verification samples are taken upon the arrival of the waste to site and analysed to ensure the composition of the stream matches that of the pre- acceptance sample. Results of analysis will be compared with previous pre- acceptance results. Any discrepancies between the pre-acceptance sample analysis results and the results of the verification testing will result in the suspension of the intended process routing of the waste and the completion of a non-conformance report. A record of the Non-conformance will also be made on event management software where a risk based decision will be taken if there is a need to investigate the non conformance. If the material cannot be accepted as per the site's permit and processing capability, FL_NWTR_P.04 Rejecting Incoming Loads V4 will be followed.	Yes
2. Your procedures should follow a risk-based approach, considering: the source, nature and age of the waste the waste's hazardous properties potential risks to process safety, occupational safety and the environment (for example, from odour and other emissions) potential for self-heating, self- reactivity or reactivity to moisture or air knowledge about the previous waste holder(s)	All analysis will be performed in accordance with Laboratory Analysis Procedures (refer to FL_NWTR_P.02 App.01, FL_NWTR_P.02 App.02 and FL_KLAB_P.21 GEN.01 Sampling Procedure). The information from analysis and accompanying paperwork is used to assess compatibility, risks to occupational and process safety and to the environment.	Yes
3. Other than in an emergency (for example, taking waste from an emergency incident clean-up), you must only receive pre- booked wastes onto site that have	Pre-booked waste will only be accepted to site in accordance with pre-acceptance procedures as detailed in Table 4.1.	Yes

been adequately pre-accepted and are consistent with the pre- acceptance information.		
4. All relevant storage areas (quarantine, reception and general) and treatment processes in your facility must have physical capacity for the waste you receive. You must not receive wastes if this capacity is not available. The amount of waste you receive must also comply with storage limits in your permit and the limits set under COMAH.	FL_NWTR_P.03 Accepting and Storing Waste V6 states that after a booking is received, a member of the Technical Team will liaise with the Plant Manager or Plant Chemist, if the load is in bulk, to establish if there is sufficient capacity within the intended storage vessel. For containerised loads, the Transfer Station Manager or Transfer Station Chemist will be contacted to ensure there is sufficient capacity in the intended storage area.	Yes
5. You must visually check wastes or their packaging and verify them against pre- acceptance information and transfer documentation before you accept them on site. The extent of the initial visual check is determined by the waste type and how it is packaged.	FL_NWTR_P.03 Accepting and Storing Waste V6 states that all waste must be visually checked prior to offloading by a HNC qualified chemist.	Yes
6. You must check and validate all transfer documentation and resolve discrepancies before you accept the waste. If you believe the incoming waste classification and description is incorrect or incomplete, then you must address this with the customer during waste acceptance. You must record any non- conformances. If you have assessed the waste as acceptable for on-site storage or treatment, you must document this.	Where discrepancies are found, the Operations Manager/Technical Assessor will liaise with the waste producer and/or customer to determine the missing or incorrect information and complete suitable corrective action. If the anomalies are suitably rectified, the load may be accepted at the discretion of the Operations Manager with, if necessary, agreement from the Plant Manager or Transfer Station Manager.	Yes
7. You must have clear criteria for non-conforming wastes including rejection of such waste. You must also have a written procedure for recording, reporting and tracking non-conforming wastes, including notifying the relevant customer or waste producer, and the regulator.	FL_NWTR_P.03 Accepting and Storing Waste V6 and FL_NWTR_P.04 Rejecting Incoming Loads V4 state the procedure for recording, reporting and tracking non-conforming wastes, including notifying the relevant customer or waste producer, and the regulator.	Yes
8. You must weigh each load of waste on arrival to confirm the quantities against the	All loads are weighed prior to offloading and after. The net weight is kept with the accompanying paperwork and is stored	Yes

accompanying paperwork, unless alternative reliable systIMS are available (for example, based upon density and volume). You must record the weight in the computerised waste tracking	on the computerised waste tracking system.	
system		
0 The newson community out	The staff undertaking waste acceptance	Vac
9. The person carrying out	checks will have a minimum HNC in	105
waste acceptance checks must	Chemistry or related subject.	
identify and manage any non	5 5	
conformances in the loads		
received complying with this		
guidance and your permit		
conditions.		
10. If there is a known risk of	APCR would not contain radioactive	N/A
radioactive contamination,	contamination.	
you must check the waste to		
determine that it does not		
include radioactive material,		
unless you are permitted to		
accept these materials.		
11. You must minimise the	All APCR discharged directly to silo	Yes
manual handling of waste.	with no manual handling.	
You should use mechanical		
it is possible safe and		
nracticable to do so		
12. Offloading, sampling.	All areas where APCR will be handled.	Yes
general storage, reception	stored and treated are on an impermeable	
and quarantine areas must	surface.	
have an impermeable surface		
with self-contained drainage,		
to prevent any spillage		
entering the storage systems		
or escaping off site.		37
13. The designated sampling	The sampling area will be in proximity	Yes
point or reception area must	to the sho for receiving the AFCK.	
checking area and needs to be		
visible.		
Acceptance of containerised wa	ste	
14. After you have completed	The waste to be received is not	N/A
the initial visual inspection	containerised.	
and confirmatory checks, you		
must offload waste containers		
into a dedicated reception		
area to await detailed checks		
or sampling. Wastes that do		
not require further checking		
annronriate storage area		
You must not unload wastes		
if you do not have enough		
space.		

15. All waste containers must The waste to be received is not N/A containerised. be fit for purpose, and, where appropriate, be: in sound condition undamaged not corroded, if metal have well-fitting lids suitable for the contents with caps, valves and bungs in place and secure You must risk assess containers, particularly those made of plastic, if they have exceeded the manufacturer's use by date. You must quarantine nonconforming containers and deal with them immediately and appropriately. You must record all non-conformances. 16. You must check, and The waste to be received is not N/A containerised. where appropriate sample and analyse, the contents of all containers in the reception area within one working day of receipt. You must then transfer compliant containers to the relevant appropriate storage area on site. N/A 17. You must move non-The waste to be received is not containerised. compliant containers to a dedicated quarantine area unless you can safely store the waste in a general storage area with other compatible wastes whilst you investigate the non-conformance. You must label non-compliant containers to identify that they are guarantined. You must record the nonconformance and where the waste is stored. If you use a dedicated quarantine area, you must segregate or isolate incompatible wastes. You must contain and abate wastes which are quarantined due to odour. The waste to be received is not N/A **18.** Quarantine storage must containerised. be for a maximum of 5 working days. You must have written procedures for dealing with wastes you hold in quarantine, and a

N/A

N/A

The waste to be received is not packaged.

The waste to be received is not

containerised or laboratory smalls.

The waste to be received is not containerised or laboratory smalls.

N/A

The waste to be received is not containerised or laboratory smalls.

N/A

maximum storage volume. For some limited and specific cases (for example the detection of radioactivity), you can extend quarantine

**Environment Agency agrees.** 

**19. Where containers hold laboratory smalls, you must** 

open each container held in reception within one working day of receipt to check that

storage time if the

the contents remain undamaged and that the inventory is as expected. All of the contents in each drum must be compatible. Once checked the container can be moved to the appropriate storage area. Laboratory smalls that need to be sorted must be moved to a dedicated

repackaging area and repackaged immediately.

all waste packages you receive are marked or

labelled with:

and composition

reference

symbol)

information.

20. You must make sure that

a description of the waste that also gives its chemical <u>identity</u>

a unique tracking system

the date of arrival on site a hazard code or codes (using a product or transport

The unique reference must allow you to track the waste and easily identify the producer of the waste.

21. If waste containers are

received shrink-wrapped on pallets, or you shrink-wrap containers, you can label the shrink wrap with all the relevant information. If a shrink wrapped load is split, you must make sure you mark or label each individual container with all the relevant

22. Where bar code systems

are used for labelling, the hazardous property of the waste and the date of receipt



of the container must be directly visible. 23. You should, wherever possible, keep wastes segregated in reception, to minimise the risk of incompatible materials reacting together. Acceptance of bulk wastes 24. Bulk loads (liquid or solid) can only be offloaded after they have been fully verified as compliant. You must not accept a noncompliant bulk load for interim storage except in an emergency. Verification testing should include:

checking consistency with the pre-acceptance information compatibility with the receiving vessel contents where appropriate, checking treatability by using laboratory scale simulation 25. Deliveries in a tanker must be accompanied by a 'wash out' certificate or a declaration of the previous load so that contamination by this route can be checked. 26. Samples from tankers should wherever possible be taken representatively by taking a core sample from the top hatch and from a suitable gantry. You must sample from each compartment where the tanker is divided into multiple compartments. If you have to take a sample from the back valve, you must take precautions to avoid spillages. Acceptance sampling 27. You must representatively sample all wastes, bulk or containerised (including from every container) at the acceptance stage, and carry out verification and compliance testing. You must not just rely on the written information supplied. The requirement to sample does

FL\_NWTR\_P.02 Sampling and Analysis V6 states that all waste must be sampled at acceptance stage for verification and compliance testing.

subject to the nature of the waste and its suitability to be sampled from the top

hatch, based on hazards and

composition.

example:

pure product chemicals asbestos contaminated clothing, packaging or rags 'articles' laboratory smalls packaged cosmetics and pharmaceuticals solid non-hazardous waste (except for mirror entries when the waste composition is unknown) contaminated wood and roofing material waste received directly from a householder green wastes and food wastes Where a sample is not required, you must still visually check the waste is as expected and that no contrary materials are present. You must record the reason why you did not sample the waste in your computerised waste tracking system.

You must empty and repack containers of contaminated clothing, packaging or rags to check for items that should not be there.

You must obtain a representative sample and analyse waste oil, from:

industrial sites that do not normally produce waste oil other sources where chemicals and potential contaminants may be handled, for example from chemical manufacturing For other waste oil you must obtain a representative sample of the waste but you do not have to analyse it unless a problem is found at the treatment plant. 28. A representative sample is one that takes account of the full variation and any partitioning of the load so you

FL\_NWTR\_P.02 Sampling and Analysis V6 procedure describes how to take an appropriate representative sample.

can account for worst case		
29. You must take a sample from every container. You can make a composite sample if each of the containers making up the composite holds the same waste and the waste is known not to be variable. You must obtain a representative sample by taking a core sample down to the base of the container. You must make sure you replace lids, bungs and valves immediately after sampling	The waste will be tanker delivered direct to silo and the samples taken will be in accordance with FL_NWTR_P.02 Sampling and Analysis V6 procedure.	Yes
30. On-site sampling must take place under the supervision of the site's qualified staff. Where a driver arrives at the site with a sample taken elsewhere, the sample: must be verified as representative, reliable and obtained by a person technically competent to take it is only acceptable if it was taken for specific health or safety purposes	On site sampling is conducted by a HNC or higher qualified chemist.	Yes
31. Sampling must not increase the risk of incompatible substances coming into contact with one another, for example within a sump serving the sampling point, or due to contaminated sampling equipment.	Sampling is conducted in the reception area with an enclosed sump which is emptied regularly. Dedicated sampling poles are used for specific waste types.	Yes
32. You must have suitable absorbents and spill kit material available to deal with any spills.	Spill kits are tactically based throughout the site and are inspected on a daily basis to ensure they are stocked well. Additional monthly inspections are conducted by the HSEQ team to ensure the spill kits are stocked and easily accessible.	Yes
33. You must keep a record of the sampling regime, process and justification in your computerised waste tracking system.	All records are kept on Weighsoft5 and the site's waste management stock sheet.	Yes
34. You should keep acceptance samples on site for at least 2 working days after you have:	All samples after transfer and treatment are kept for 4 weeks prior to disposal.	Yes

treated a waste and removed its treatment residues from the facility		
transferred a waste from your site		
Where you are transferring waste oil from your site you		
must keep acceptance		
days after the waste has been		
treated off site. You must		
analyse the waste oil sample if a problem is found at the off-		
site treatment plant. You only		
need to keep samples that you		
35. You must have a sampling	FL NWTR P.02 Sampling and Analysis	Yes
and analysis procedure. You	V6 procedure describes the different	
must design it based on the	sampling and analysis techniques based on the type of waste, packaging, and	
risk factors for the waste, for example:	planned treatment or disposal route.	
	When analysing samples, the chemist	
the type of waste (for example	will follow the precautions stated in the	
knowledge of the customer	relevant risk assessments at all times (refer to FL HS RISK.01 General	
(for example waste producer)	Laboratory Hazards Risk Assessment).	
the impact of potential mixing		
possibilities for subsequent		
treatment		
36. You must check any relevant physical chemical	All analysis is conducted in accordance with current analytical laboratory	Yes
parameters using, for	methods (see relevant onsite lab	
example, viscometry,	procedures). These methods are primarily current best laboratory practise	
infrared, chromatography and mass spectrometry	and are recognised, standard methods for	
and mass speece oncer y.	the determinant in question. Where in house methods are utilised, they are	
	documented and fully validated before	
	employed as an in-house test method.	
<b>37. Sampling procedures</b>	FL_NWTR_P.02 Sampling and Analysis	Yes
must be customised for:	methods for bulk liquids, containers and	
bulk liquid	solids. Container samples are taken	
bulk solids	based on the square root of containers + 1.	
large and small containers or vessels (the number of		
samples increases with the	A minimum 500ml sample is taken for liquids. A minimum 200g sample is	
number of containers or	taken for solids.	
vessels and the variability of the waste)		
laboratory smalls		
<b>38.</b> You must determine and	FL_NWTR_P.02 Sampling and Analysis	Yes
record the following	regime for each type of waste. This is	
	recorded in the site's 'stock control' spreadsheet.	

the sampling regime for each load, together with your justification for selecting each option where and how the sample was taken the capacity of the sampled vessel (for samples from drums, an additional parameter would be the total number of drums) the number of samples and degree of consolidation the operating conditions at the time of sampling **39.** Wherever possible you should sample waste in accordance with:

**EN 14899 Characterization of** waste. Sampling of waste materials. Framework for the preparation and application of a sampling plan **CEN/TR 15310-1** Characterization of waste. Sampling of waste materials. Guidance on the selection and application of criteria for sampling under various conditions **CEN/TR 15310-2** Characterization of waste. Sampling of waste materials. **Guidance on sampling** techniques **CEN/TR 15310-3** Characterization of waste. Sampling of waste materials. Guidance on procedures for sub-sampling in the field **CEN/TR 15310-4** Characterization of waste. Sampling of waste materials. Guidance on procedures for sample packaging, storage, preservation, transport and delivery **CEN/TR 15310-5** Characterization of waste. Sampling of waste materials. Guidance on the process of defining the sampling plan For more information see guidance on the classification and assessment of waste

FL\_NWTR\_P.02 Sampling and Analysis V6 procedure has been developed in line with best industry practice and the relevant guidance documents. Yes

**WM3**.

Testing and analysis 40. You must test each waste for acceptance according to the parameters decided at pre-acceptance, plus any appropriate additional checks. You should record the results of the tests in the computerised waste tracking system. You should note and investigate any discrepancies. 41. Analysis of waste must be carried out by a laboratory with suitably recognised test methods. Where the waste received is hazardous, the laboratory should be on site, or routinely available at another site capable of providing test results within one working day of receipt of the waste at your site.

 FL\_NWTR\_P.02 Sampling and Analysis
 Yes

 V6 procedure states that incoming loads
 must be tested to the same parameters as

 must be tested to the same parameters as
 pre-acceptance to determine if the waste

 is the same as the pre-acceptance
 enquiry sample.

 All analysis is conducted in accordance
 Yes

 with current analytical laboratory
 Yes

 methods (see relevant onsite lab
 procedures). These methods are

 primarily current best laboratory practise
 and are recognised, standard methods for

# 4.3 WASTE TRACKING

Waste tracking procedures will remain unchanged from that assessed during previous environmental permit determinations. These are detailed in Table 4.3 below.

the determinant in question. Where in

documented and fully validated before

employed as an in-house test method.

house methods are utilised, they are

#### Table 4.3 Chemical waste appropriate measures for waste tracking

<b>EPR Requirements</b>	Current Arrangements	BAT?
1. You must use a computerised tracking system to hold up-to-date information about the available capacity of the waste quarantine, reception, general and bulk storage areas of your facility, including treatment residues and end-of-waste product materials.	The site's local 'stock control' spreadsheet is updated daily with the available capacity of the quarantine, reception, and storage areas. This is consulted to determine if the site has enough capacity when enquiries are sent to site.	Yes
2. Your waste tracking system must hold all the information generated during: pre-acceptance acceptance non-conformance or rejection storage repackaging treatment removal off site	The 'stock control' spreadsheet and Weighsoft5 tracking system keep records of information generated at each stage from the pre-acceptance stages through to removal off site which can be easily accessed and traced throughout the process lifecycle.	Yes

Yes

# This information must be easily accessible.

3. You must create records and update them to reflect deliveries, on-site treatment and despatches. Your tracking system will also operate as a waste inventory and stock control system. It must include this information as a minimum:

the date the waste arrived on site

the original producer's details the previous holder

a unique reference number waste pre-acceptance and acceptance information any analysis results the package type and size the intended treatment or transfer route accurate records of the nature and quantity of wastes held on site, including all hazards – and identifying the primary hazards where the waste is located on site

where the waste is in the designated treatment or transfer route the names of staff who have taken any decisions about accepting or rejecting waste streams and who have decided on recovery or disposal options details that link each container accepted to its consignment or transfer note details of any nonconformances and rejections 4. The tracking system must be able to report:

the total quantity of waste present on site at any one time a breakdown by type of the waste quantities you are storing pending treatment or transfer The Weighsoft system can handle the tracking and inventory of waste by using its specialized modules for waste management and compliance. Here's how it can achieve the required tasks:

- Record Creation and Updating
- Waste Inventory and Stock Control
- Date of Arrival
- Producer and Previous Holder Information
- Unique Reference Number
- Pre-acceptance and Acceptance Information
- o Analysis Result
- Package Type and Size
- Intended Treatment or Transfer Route
- Hazard Tracking
- Consignment/Transfer Note Linking
- Non-conformance and Rejections

For location tracking within site, the 'stock control' spreadsheet is used and is updated daily by the site chemists.

The "stock control" spreadsheet can manage waste tracking and reporting by using the following simple features:

Total Quantity of Waste: It sums up all waste quantities in a specific column to show the total waste present on-site at any time.

Breakdown by Type: Different types of waste are listed in separate rows or categories, allowing the spreadsheet to calculate totals for each type.

a breakdown of the waste		
quantities by hazardous	Breakdown by Hazardous Property:	
property	Waste is classified by hazard type, and the approachest totals the quantities for	
an indication of where a	and hazard estagent	
batch or consignment of	each hazard category.	
waste is located on a site plan	Location on Site: A column indicates the	
the quantity of waste on site	location of each batch or consignment.	
compared with the limits	which can be linked to a site plan for	
authorised by your permit	easy identification.	
the length of time the waste	-	
has been on site	Comparison with Permit Limits: The	
the quantity of end-of-waste	spreadsheet includes a column for	
product materials on site at	permitted waste limits, allowing it to	
any one time, where	automatically calculate and display	
applicable	whether the current waste quantity is	
	within limits.	
	Time on Site: A column records the	
	arrival date of each waste batch and	
	formulas calculate how long it has been	
	on-site.	
	End-of-Waste Product Quantities: If	
	applicable, the spreadsheet has a section	
	to track the quantity of end-of-waste	
	product materials, keeping this separate	
5 Mars moret atoms hash and	from raw waste totals.	Var
5. You must store back-up	control' spreadsheets are stored on the	res
copies of computer records	company's server which is backed up on	
off site. Records must be	a daily basis.	
easity accessible in an	, ,	
emergency.	All records are stored in definitely on the	Vas
o. You must hold acceptance	Weighsoft system and company's	1 05
records for a minimum of 2	servers	
years after you have treated		
the waste or removed it off		
site. You may have to keep		
some records for longer if		
they are required for other		
purposes, for example,		
hazardous waste consignment		
notes.		

# 4.4 WASTE STORAGE, SEGREGATION AND HANDLING

Waste storage, segregation and handling procedures for the proposed activity are detailed in Table 4.4 below.

### Table 4.4 Chemical waste appropriate measures for waste storage segregation and handling

Appropriate Measures	Actual Perfrmance	BAT
1. You must store waste in	All APCR waste will be received	Yes
locations that minimise the	into a dedicated silo adjacent to the	
handling of waste. Waste	treatment process.	
handling must be carried out		

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by competent staff using appropriate equipment.		
2. Where possible, you should locate storage areas away from watercourses and sensitive perimeters (for example, those close to public rights of way, housing or schools). You must store all waste within the secure area of your facility to prevent unauthorised access and vandalism.	The waste treatment activity is undertaken in an area which is within a secured business area and away from watercourses.	Yes
3. Where relevant, you must conform to HSE standards and in particular to:	None of these are relevant to the APCR.	Not applicable
HSG51 Storage of flammable liquids in containers HSG71 Chemical warehousing: storage of packaged dangerous substances HSG76 Warehousing and storage: a guide to health and safety HSG140 Safe use and handling of flammable liquids HSG176 Storage of flammable liquids in tanks CS21 Storage and handling of organic peroxides		
4. You must clearly document the maximum storage capacity of your site and the designated storage areas. You must not exceed these maximum capacities. You should define capacity in terms of, for example, maximum tank or vessel capacities, tonnage and numbers of skips, pallets or containers. You must regularly monitor the quantity of stored waste on site and designated areas and check against the allowed maximum capacities.	The maximum proposed storage for the APCR is 200 tonnes and this will be documented in company procedures.	Yes
5. You must clearly mark hazardous waste storage areas and provide signs showing the maximum quantity and hazardous properties of wastes that can be stored there.	The APCR storage area will be marked for hazardous waste, include maximum storage volumes and key risks associated with the waste.	Yes

6. Storage area drainage	The pit area where the activity is to	Yes
infrastructure must:	take place is a below ground area	
contain all possible	with thick concrete walls and no	
contaminated run-off	ramps and the only drain point is	
nrevent incomnatible wastes	bunded to prevent any water	
coming into contact with each	discharging via without first being	
other	tested and pumped.	
make sure that fire cannot	1 1	
spread		
7. Secondary and tertiary	The concrete walls of the pit area act	Yes
containment systems must	as a large secondary bund which	
conform to CIRIA guidance	would act as containment for any	
C736 Containment systems	liquid release.	
for the prevention of		
pollution. 8 Vou must store	APCP to be accepted as part of this	Not applicable
containerised wastes that are	Ar CK to be accepted as part of this	Not applicable
sensitive to air, light, heat.	variation is not containensed waste.	
moisture or <u>extreme ambient</u>		
temperatures under cover		
protected from such ambient		
conditions. Covered areas		
must have good ventilation.		
This applies to any such		
container:		
held in general storage		
reception storage (nending		
acceptance) or quarantine		
being emptied, repackaged or		
otherwise managed		
For example, waste held in		
fibre or cardboard primary		
or secondary packaging		
should be stored under cover		
in a dry area and not exposed		
be kept off floors to prevent		
damage by damp.		
9. You must store wastes in	APCR to be accepted as part of this	Not applicable
sealed metal containers under	variation is not self-heating or self-	
cover if they have the	reactive.	
potential for self-heating or		
self-reactivity. You must		
monitor the containers for		
heat build-up. Such wastes		
materials contaminated with		
metal swarf, low hoiling noint		
oils or low flash point		
solvents.		
10. Wherever practicable you	The APCR accepted into sealed ash	Yes
should store all other wastes	silo with weigh scales. The washed	
under cover. Covered areas	APCR and the final aggregate	
must have good ventilation.	pellets will both be stored under	
	cover	

eeld in general storage, ecception storage (pending acceptance) or quarantine being emptied, repackaged or otherwise managed Under cover storage provides better protection for ontainers than open air torage and minimises the generation of contaminated water. Covered storage also:		
owers temperature luctuations that can cause pressure build up in ontainers educes the degradation of ontainers through veathering		
1. You must not store lazardous waste in open- opped containers. Empty open-topped containers hould be kept in a building or undercover to prevent ainwater ingress.	As above the APCR is accepted into sealed ash silos with weigh scales. The washed APCR and the final aggregate pellets will both be stored under cover.	Yes
2. You must not store or hold wastes on site in vehicles or vehicle trailers unless you are receiving them or preparing them for imminent ransfer (meaning that you will remove them from site within 24 hours, or 72 hours f over a weekend).	None of the APCR will be stored in vehicles or vehicle trailers.	Not applicable
3. You should pay particular attention to avoid the build- up of static electricity when you are storing or handling lammable wastes and naterials. You should use eak detection systems and larms (for example VOC larms) and automatic fire uppression equipment based on a recorded risk assessment.	The APCR is not flammable.	Not applicable
4. You must provide dequate bunding of all torage areas, and ontainment and treatment of my water run-off.	The pit area acts as one large bund which would be more than sufficient to contain any release from the slurry tank or other liquid release.	Yes
5. You must not accumulate vaste. You must treat wastes.	All of the APCR would be treated within 6 months of receipt	Yes

## This applies to any such container:

f T

or remove them from the site, as soon as possible. Generally you should do this within one month of receipt but all wastes must be removed within 6 months of receipt. This applies even when the waste might be used as a reactant. Where a shorter time period is given in a permit condition you must comply with the permit for that waste. Where a waste is stored for longer than allowed you must inform the Environment Agency.	The pellets have a 28 day curing process after which they are suitable for onwards transfer.	
16. All stored containers must keep the labelling they had at acceptance. If the label is damaged or no longer legible you should replace the label with that same information.	The APCR is not within containers.	Not applicable
17. You must handle and store containers so that the label is easily visible and continues to be legible.	The APCR is not within containers.	Not applicable
18. You should keep solid waste dry and avoid the dilution of hazardous waste.	The APCR is received to a silo and kept dry until treated.	Yes
19. You must keep clean rainwater and clean cooling water separate from wastes and waste waters.	The rainwater is kept away from the waste as the key parts of the process where waste is stored will be covered such as the washed APCR. The final pelletised product is also	Yes
20. You must keep incompatible wastes segregated so that they cannot come into contact with one another. You must store flammable wastes apart from other wastes to prevent fire	covered.Only waste to be received as part of this variation for treatment is APCR and therefore would not be incompatible.Waste acid may be used from existing permitted activities where	Not applicable
spreading between them and other materials. You must use sealed drainage systems to prevent leaks and spillages contaminating other wastes.	suitable for effluent treatment where clean enough but not in the first instance.	
21. There must be pedestrian and vehicular access (for example, forklift) at all times to the whole storage area so that you can retrieve containers without removing others that may be blocking access – other than removing	Pedestrian and vehicular access will be maintained. Waste APCR is not containerised.	Yes

22. You must store all waste containers in a way that	Waste APCR is not containerised.	Not applicable
allows easy inspection. You		
must maintain safe access,		
with a gap of at least 0.7m		
between rows of bulk		
containers or palletised		
wastes. 23 Vou must move drums	Waste APCP is not containerised	Not applicable
and other mobile containers	waste ATCR is not containensed.	Not applicable
hetween different locations		
(or loaded for removal off		
site) following written		
procedures. You must then		
amend your waste tracking		
system to record these		
changes.		
24. You must stack bags and	Waste APCR is not in bags or boxes.	Not applicable
boxes of waste no more than		
1m high on a pallet. You must		
not stack pallets more than 2		
nign. 25 Vou must staak aantainars	Wasta ADCD is not in hags or haves	Not applicable
25. 100 must stack containers	waste AFCK is not in bags of boxes.	Not applicable
stacking and no more than	APCR is delivered into a silo	
2.2m high on a nallet.	All Cit is derivered into a sho.	
26. You must store all other	Waste APCR is not in bags or boxes.	Not applicable
containers on pallets. You		i tot application
must not stack these pallets	APCR is delivered into a silo.	
more than 2 high, except for		
empty containers which can		
be stacked 3 high.		
27. Stacked bags, boxes and	Waste APCR is not in bags or boxes.	Not applicable
containers must be stable.		
They must be secured with,	APCR is delivered into a silo.	
for example, banding or		
snrink-wrap, ii required. The		
here have been been been been been been been be		
of the nallet Any shrink-		
wrap used must be clear or		
transparent so that you can		
identify waste types, damaged		
containers, leaks or spillages		
and incorrectly stacked		
containers. You must be		
careful not to damage any		
packages during stacking.		NT ( 1' 11
28. All waste containers must	waste APCK is not in bags or boxes.	not applicable
must check any containers	APCR is delivered into a sile	
(and nallets they may be		
stored on) daily and record		
non-conformances. Non-		
compliant containers and		
pallets must be made safe.		
You must immediately and		



bung, and the lid or bung must be closed except when the container is being sampled, having waste added into it or having waste removed from it	APCR is delivered into a silo.	
34. You must not stack skips containing waste. Skips containing hazardous waste must be enclosed when not being loaded or unloaded. You should store loose bulk	Waste APCR is not stored in skips. APCR is delivered into a silo.	Not applicable
hazardous wastes under cover. 35. You can use racking systems to store waste but you must consider segregation, ability to inspect, concertion and fire	APCR is delivered into a silo.	Not applicable
separation and fire suppression measures. Racking systems must be designed and constructed in accordance with HSG76 Warehousing and storage.		Ver
36. You must: contain wash waters within an impermeable area and either discharge them to foul sewer or dispose of them appropriately off site. prevent run-off into external areas or to surface water drains	All washwater is stored in an output tank prior to wastewater treatment and either disposal to sewer or tankered off-site.	Yes
37. You must manage waste in a way that prevents pests or vermin. You must have specific measures and procedures in place to deal with wastes that are identified as causing pests or vermin.	APCR would not attract pests as a food source and is also stored in a silo.	Yes
38. You must inspect storage areas, containers and infrastructure daily. You must deal with any issues immediately. You must keep written records of the inspections. You must rectify and log any spillages of waste	All storage areas would be added to the operational checklist for when the site is open.	Yes
39. You must train forklift drivers in the handling of palletised goods, to minimise forklift truck damage to the integrity of containers and infrastructure.	Waste not palletised.	Not applicable
40. You must not carry out activities that represent a	None of these activities will take place in proximity to the APCR silo	Yes

clear fire risk within any	without a permit to work being in	
storage area. Examples	place and the situation controlled for	
include:	grinding, welding or other hot	
	works.	
grinding		
welding or brazing of		
metalwork		
smoking		
narking normal road vehicles		
excent while unloading or		
loading		
recharging hatteries		
Rulk storage		
41 Where relevant hulk	The APCR will be stored in a silo	Ves
storage systems must	which would be in accordance with	105
conform to CIRIA guidance	C598 Any release would be solid	
and in particular to	not liquid and would have little	
and in particular to.	chance of escape for pollution	
C535 Above ground	enunce of escape for pollution.	
proprietary prefabricated oil		
storage tank systems		
C598 Chemical storage tank		
systems - good practice		
C736 Containment systems		
for the prevention of		
pollution		
42 You must use tanks and	The silo and process vessels will be	Ves
associated equipment that are	appropriately designed constructed	105
suitably designed	and maintained to ensure their	
constructed and maintained	integrity	
Vou must do a risk	integrity.	
assessment to validate the		
design and operation of bulk		
storage systems. Refore you		
use new tanks and equipment		
you must check they are		
working correctly. You must		
periodically examine and test		
that your tanks meet the		
standards set out in EEMUA		
Publication 231: The		
mechanical integrity of plant		
containing hazardous		
substances.		
43. You should vent bulk	Reaction vessels routed to existing	Yes
storage tanks and silos	scrubber emission point.	
through suitable abatement.		57
44. You must locate bulk	The silo for APCR storage and	Yes
storage vessels on an	treatment activity is undertaken on	
Impermeable surface which is	an impermeable surface with sealed	
resistant to the material being	Joints in an area which acts as a	
stored. The surface must have	wider bund.	
self-contained drainage to		
prevent any spillage entering		
the storage systems or		
escaping off site.		

Impermeable surfaces must have sealed construction joints.

45. You must provide bunds for all tanks containing liquids (whether waste or otherwise) which could be harmful to the environment if spilled. Bunds must meet the CIRIA C535 or C736 standard and:

be impermeable, stable and resistant to the stored materials have no outlet (that is, no drains or taps), and drain to a blind collection point have pipework routed within bunded areas with no penetration of contained surfaces be designed to catch leaks from tanks or fittings have a capacity calculated following the relevant CIRIA guidance have regular visual inspections – you must pump out or remove any contents under manual control after you have checked for contamination be fitted with a high level probe and an alarm (as appropriate) if not frequently inspected have tanker connection points within the bund where possible – if not possible you must provide adequate containment for spillages or leakage have programmed engineering inspections (extending to water testing if structural integrity is in doubt) be emptied of rainwater regularly to maintain the containment capacity 46. You must control sludge build up and foam in tanks, for example by regularly sucking out the sludge and using anti foaming agents. 47. You should equip storage

47. You should equip storage and treatment tanks with an automatic level monitoring system and an associated alarm or trip system. These The pit area acts as a wider bunded area for the activity and is impermeable, stable and resistant to the stored materials.

The discharge point in the corner of the pit area is bunded to prevent any liquids entering and is not being used for any water in the pit area.

Any water from the pit area is pumped to a tank and tested for reuse or for treatment on site prior to discharge to sewer.

Reactors are agitated and emptied fully during processing, so no sludge build-up. Regular cleaning schedule for storage tanks to drain and desludge. Cement silo has high/low level indicators with siren (high), fill pipe with electrically operated safety Yes

Yes

systems must be sufficiently	butterfly valve and roof mounted	
robust (for example, be able	relief valve.	
to work if sludge and foam		
are present) and regularly	Liquid storage and reactors have	
maintained. You must fit	suitable high level alarms. Fly ash	
tanks with suitable overfill	silos do not have high level alarm.	
protection.		
	The process is a batch process and	
	will be supervised by operators	
	during treatment.	
		**
48. You must be able to close	All tanks have valves capable of	Yes
all connections to vessels,	closing connections to vessels.	
containment via suitable		
valvas. Von must fit a valva		
close to the tank if you have		
bottom outlets, and have at		
least 2 isolation points in case		
of valve failure.		
49. You must direct overflow	No overflow pipes within the	Not applicable
pipes to a contained drainage	treatment activity.	11
system (for example the	-	
relevant secondary		
containment) or to another		
vessel where suitable control		
measures are in place.		
50. Tanks, pipework and	The treatment activity and all	Yes
fittings must be examined by	vessels used within the process will	
a competent person, following	be inspected by a qualified engineer	
a written scheme. The scope	prior to operation.	
and frequency of examination	The written scheme and frequency	
must also be deter innied by a	The written scheme and neuteney	
compatent person. Vou must	of inspection will be determined by	
competent person. You must work out how often to carry	of inspection will be determined by a suitably qualified engineer	
competent person. You must work out how often to carry out these internal	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on:	of inspection will be determined by a suitably qualified engineer.	
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competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack You should also do intermediate optempal	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack You should also do intermediate external organizations. You must out	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack You should also do intermediate external examinations. You must act on the results of the	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack You should also do intermediate external examinations. You must act on the results of the examinations and do any	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack You should also do intermediate external examinations. You must act on the results of the examinations and do any necessary repairs to ensure	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack You should also do intermediate external examinations. You must act on the results of the examinations and do any necessary repairs to ensure the tanks remain fit for	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack You should also do intermediate external examinations. You must act on the results of the examinations and do any necessary repairs to ensure the tanks remain fit for service. You must keep the	of inspection will be determined by a suitably qualified engineer.	
competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on: tank service maintenance history known and potential damage mechanisms and their rates of attack You should also do intermediate external examinations. You must act on the results of the examinations and do any necessary repairs to ensure the tanks remain fit for service. You must keep the results of examinations and	of inspection will be determined by a suitably qualified engineer.	

All APCR is unloaded to silo by a pipework fitting. There is only one connection route and the connection point will be locked off when not unloading APCR to the silo.	Yes
The treatment activity will include some open topped activities such as the pan mixer and rotary pelletiser but these are required to be open topped due to the nature of the process.	Yes
All pipework and connections used for transfer are regularly inspected for integrity.	Yes
Staff will supervise offloading of APCR.	Yes
APCR is only substance transferred as part of this variation and is not incompatible.	Yes

51. You must have system's in place to make sure that

storage are safe, considering

any associated risks. This can

instrumentation diagrams using ticketing systems using key locked coupling

having colour coded points,

using specific coupling or hose sizes for certain waste

52. As a general rule, you

must not use open topped

pits to store or treat

53. All pipes, hoses,

colour coding).

via CCTV.

specify:

tanks, containers, vessels or

hazardous or liquid wastes.

connections, couplings and

transfer lines must be fit for

purpose and resistant to the wastes being stored. You must use a suitable pipework coding system (for example, **RAL European standard** 

54. Site staff must supervise

55. You must make sure that

tankers only take place after

loading and unloading activities, either directly or

transfers into and from

you have completed any relevant verification and compatibility testing, and then only with the approval of an appropriate chemist or manager. The approver must

which batch or load of material is to be transferred the receiving storage vessel the equipment required, including spillage control and

recovery equipment any special provisions

relevant to that batch or load

Transfer waste into and from tankers

process.

loading, unloading and

having piping and

fittings and hoses

include:

systems

transfers

including minimising odour		
56. You must have in place	All drivers are appropriately trained	Yes
systems to prevent 'tanker	and deliveries supervised to prevent	
drive off' (a vehicle pulling	this occurrence.	
away whilst still coupled). 57 You must make sure that	All deliveries are undertaken and	Ves
the transfer of waste from	supervised by appropriately trained	105
tankers is only carried out by	staff. This will be recorded in their	
competent staff. You must	personnel files along with the	
give them enough time, so	requirements for the job role.	
to work more quickly than is		
deemed acceptable.		
58. You must have measures	Tankers will be 3rd party vehicles	Yes
in place to make sure that	and the drivers will not be Augean	
couplings are a correct fit.	(FIS) staff. However, this waste has	
from loosening or becoming	other Augean sites and there are	
detached. You should	contractual requirements with the	
provide, maintain and clean	3rd party hauliers to provide	
your own couplings and hoses	competent tanker drivers.	
to guarantee their integrity		
and fitticss. Fou should also.	are standard for the industry and	
make sure you take special	materials being transferred.	
care so that a coupling is able		
to withstand the maximum		
shut valve pressure of the		
maintain a sound coupling at		
each end of the transfer hose,		
even when a gravity feed		
system is in place, and protect		
the transfer nose control potential leaks from		
coupling devices by using		
simple systems such as drip		
trays		
59. You must make sure that	The pit area acts as a wider bunded	Yes
tankers only take place in	any release. The APCR is a solid	
bunded areas designed to	and would not release outside of the	
contain a worst case spillage.	area.	
You must have emergency		
storage for leaking vehicles to minimise any acute incidents		
caused by a seal on a tanker		
failing.		
60. You should have systems	The company has a procedure in	Yes
and procedures in place to	place to ensure that all wastes are	
make sure that wastes due to be transferred comply with	carried in accordance with	
the carriage of dangerous	Procedure FL NWTR P.05	
goods when they are	Transfer of Waste to Third Party	
packaged and transported.	Disposal Sites V5 covers the main	
	steps about who is responsible for	
---------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------
	each step.	
	The company also has specialist	
	staff employed as dangerous goods	
	assessors	
61. You must make sure that	Only transfer is to a silo and not	Not applicable
the transfer of waste from a	drums	rot appricable
tanker to a drum or vice		
versa is done in a dedicated		
area. A minimum of 2 trained		
and competent staff, working		
to formal written		
instructions, must perform		
the transfer. They must check		
any pipes and valves before		
and during the transfer. You		
must fit dip pipes with a shut-		
off valve to control the		
dispensing into containers		
and prevent overfilling.		
62. You must make a record	All spillages, where not APCR	Yes
of any spillages. You must	which is a solid and can be easily	
retain spillages within the	swept up, will be recorded as part of	
bunded areas and collect	the IMS.	
averable numbers of		
example, pumps of		
63 Vou must make sure that	Tankers not being used as reaction	Ves
tankers are not used as	vessels. The treatment activity will	105
blending or reaction vessels	have dedicated equipment.	
as this is not their designed	1 1	
purpose.		
64. You must take	All waste to be received and treated	Not applicable
operational and design	as part of this application is APCR	
precautions when mixing or	so will not be mixed.	
blending wastes, depending		
on the composition and		
consistency of the wastes (for		
example when vacuuming		
dusty or powdery wastes).	N.D. ( and a construction of the construction	
65. Where you use rotary-	No Rotary pumps in use on site.	N/A
cype pumps, they must be		
control system and safety		
valve		
66 Vou must numn sludges	All sludges are numped during the	Ves
Do not nour them.	process, outputs from the process are	105
20 not pour mom	all solids.	
67. When loading and	Only waste to be received as part of	Not applicable
offloading odorous,	this variation application is APCR.	**
flammable or volatile liquids	**	
between bulk storage tanks		
and tankers, you must use		
vapour balance lines to		
transfer the displaced		
vapours from the receiving		

vessel to the vessel you are		
68 Vou must follow safe	All staff supervising and unloading	Ves
onerating procedures	APCR to silo will have appropriate	105
designed to reduce the risk of	training. This will include	
evolosion and fugitive	appropriate measures to earth all	
emissions when you transfer	equipment used in transfer of	
wasta from nowdar tankars	powders	
into silos. Vou must uso	powders.	
trained and compatent		
nersonnel		
60 Vou must carry out	All equipment will be included in	Vec
routine maintenance to	the preventative maintenance	105
nrevent failure of the plant or	programme	
equinment This may include	programme.	
the failure of a numn seal or		
the blockage of a filter not		
commonly used at transfer		
noints		
70. You must continue using	All waste will be tracked until it is	Yes
the waste tracking system	dispatched from site	105
that hegan at the nre-	disputened from site.	
accentance stage for the		
whole time waste is kent at		
the site.		
Aerosol storage		
71. You must store aerosol	Only waste to be accepted under this	Not applicable
canisters under cover in	variation is APCR	ree approvere
secure, well-ventilated		
containers, and within caged		
storage areas. You must also		
store them in a well-vented		
place that is not subject to		
extreme temperatures or		
direct sunlight. You must not		
store canisters in open		
containers to prevent the risk		
of them spreading fires by		
'missiling' or 'ejection'.		
72. You must segregate	Only waste to be accepted under this	Not applicable
aerosol canisters from other	variation is APCR	
flammable wastes and		
potential sources of ignition.		
Preferably put them in a		
separate building, or use a		
fire resistant enclosure or fire		
wall. You must not hold any		
combustible material within		
the storage area, other than		
the canister's packaging,		
containers and the pallets on		
which they stand.		N
75. You must provide suitable	Universities in APCP	not applicable
containment measures (for	variation is APCK	
example unp trays) for		
acrosof callisters field fil		
containers which cannot		

collect and hold free liquids released from the canisters. Or you should transfer them to secure containers that are able to hold free liquid.		
74. During storage, lids on containers holding aerosol canisters must remain securely closed at all times when not being filled, emptied or internally inspected. When not in use, the doors or hatches of cages must remain closed and locked.	Only waste to be accepted under this variation is APCR	Not applicable
75. You must not overfill containers used to store canisters. Overfilling can result in canisters being actuated and discharging their contents, either: under the weight of the canisters above them when the container lid is closed when containers are stacked	Only waste to be accepted under this variation is APCR	Not applicable
76. Cages used to store aerosol canister containers must be robust, fire resistant and of an appropriate mesh size (based upon the size of the canisters being stored). This is to constrain the canisters and prevent any ejection. Where the cage is not constructed with a mesh roof, the mesh wall panels must extend into the roof space of the storage area to make sure that the structure is completely enclosed.	Only waste to be accepted under this variation is APCR	Not applicable
77. You should store aluminium canisters separately from steel canisters (especially rusting canisters). This will: prevent thermite sparks during storage, handling and treatment allow the different metals to be more easily recovered Sorting repacteeing and bulki	Only waste to be accepted under this variation is APCR	Not applicable
Sorting, repackaging and bulki 78. Sorting is the placing together of containers with	Only waste to be accepted under this variation is APCR. This will be	Not applicable
other waste containers of the	stored in a silo.	

January 2025

84. You must not mix, bulk or	Only waste to be accepted under this	Yes
repackage:	variation is APCR. This will be	
	stored in a silo prior to treatment.	
wastes which could be		
recovered with other wastes if		
this means that the waste		
must now be sent for disposal		
or a lower form of recovery		
liquid wastes or infectious		
wastes with other wastes for		
the purpose of landfilling		
oils where this could affect		
their regeneration or		
recycling wester containing Dorsistant		
Organia Pollutants (POPs)		
with another material solely		
to generate a mixture below		
the defined low POPs content		
waste to deliberately dilute it		
85. You must transfer wastes	No waste in containers as part of this	Not applicable
from containers into other	variation application.	The application
storage vessels using a dip	11	
pipe, not by pouring.		
86. Repackaging or mixing		
must only take place in a		
dedicated area or store which		
has the plant and equipment		
needed to deal with the		
specific risks of that process.		
For example, this could		
include abatement or local		
exhaust ventilation.		NT 4 1' 1 1
87. Except for small packages	No waste in containers as part of this	Not applicable
litros or demograd containers	variation application.	
vou must move containers,		
using mechanical means For		
example, use a forklift truck		
with a rotating drum		
handling fitting, or using		
pumps for liquids.		
88. You must label containers	No waste in containers as part of this	Not applicable
of repackaged or mixed	variation application.	
wastes so that you can		
identify their contents and		
origin through the tracking		
system. After repackaging,		
you must move the bulked		
materials and emptied		
containers to an appropriate		
segregated storage area.	Only wests to be received and a this	Not applicable
ossessment and comment	variation is APCP which will not be	Not applicable
assessment and carry out	incompatible	
testing to make sure that	moompatiole.	
bulked wastes will not react		

75

with each other, or with the container into which they are being placed.		
Laboratory smalls		
90. Where possible, you	No laboratory smalls as part of this	Not applicable
should sort and segregate	variation application.	
laboratory smalls at source so		
that you do not need to		
reopen or re-sort containers.		
91. If you sort laboratory	No laboratory smalls as part of this	Not applicable
smalls for compatibility	variation application.	
reasons you must carry this		
out in a dedicated area of a		
building, with self-contained		
drainage.		
92. You must write and follow	No laboratory smalls as part of this	Not applicable
procedures for the	variation application.	
segregation, sorting and		
repackaging of laboratory		
smalls.		

#### 4.5 WASTE TREATMENT

Waste treatment details for the proposed activity are detailed in Table 4.5 below.

#### Table 4.5 Chemical waste appropriate measures for waste treatment

Appropriate Measure	Actual Performance	BAT?
Appropriate Measure 1. Waste treatment must have a clear and defined benefit. You must fully understand, monitor and optimise the waste treatment process to make sure that you treat waste effectively and efficiently. You must not treat waste to deliberately dilute it. The treated output material must meet your expectations and be suitable for its intended disposal or recovery route. You must identify and characterise emissions from the process, and take appropriate measures to control them at source.	Actual Performance The waste treatment of the APCR is a recovery activity designed to produce an aggregate product from APCR that is akin to other products such as OCO [England], Castle [Wales], Levenseat [Scotland] and Enva [Scotland]. The treatment process will be monitored at its inputs and outputs and the testing done on the treated APCR and final product to demonstrate that it has been recovered. The principal potential emissions from the activity are likely to be from the reactor vessels under Activity A11 within the current environmental permit which are vented via the pre-existing scrubber unit and emission point in the area. This is part of the already permitted activity- see Figure 2.1 and are not considered further. The silos installed have appropriate dust filters on the vents to prevent any dust release during filling operations.	BAT? Yes
	The effluent generated is treated via the wastewater treatment plant which is part of the pre-existing permitted activity. See Figure 2.1.	

2. You must have up-to-date written details of your treatment activities, and the abatement and control equipment you are using. This should include information about the characteristics of the waste you will treat and the waste treatment processes, including:

simplified process flowsheets that show the origin of any emissions details of emission control and abatement techniques for emissions to air and water, including details of their performance

diagrams of the main plant items where they have environmental relevance, for example, storage, tanks, treatment and abatement plant design details of chemical reactions and their

reaction kinetics and energy balance details of physical treatment processes for example thermal desorption, distillation, phase separation, shredding, filtration, compaction, centrifuging,

heating, cooling or washing details of biological treatment processes details of any effluent treatment a description of any flocculants or

coagulants used an equipment inventory, detailing plant type and design parameters, for example, time, temperature, pressure

waste types to be subjected to the process

the control system philosophy and how the control system incorporates environmental monitoring information process flow diagrams (schematics) venting and emergency relief provisions a summary of operating and maintenance procedures

process instrumentation diagrams monitoring points and monitoring schedules

3. You must have up-to-date written details of the measures you will take during abnormal operating conditions to make sure you continue to comply with your permit. Abnormal operating conditions include:

unexpected releases start-up momentary stoppages shut-down 4. You should use material flow analysis for relevant contaminants in the waste to Emissions to air/water will only be generated Yes in the washing process, which are already permitted as part of the existing process. See Figure 2.1.

A process flow diagram is included as Figure 2.1.

The process is a batch treatment process and any one of the steps in the treatment activity can be stopped immediately independently of any other equipment.

See process flow diagram in Figure 2.1.

Yes

help identify their flow and fate. You should use the analysis to determine the appropriate treatment for the waste either directly at the site or at any subsequent treatment site.

Material flow analysis considers the contaminant quantity in the:

#### waste input

different waste treatment outputs waste treatment emissions You should use the analysis and your knowledge of the fate of the contaminants to make sure you correctly treat and either destroy or remove them.

The use of material flow analysis is riskbased, considering:

the hazardous properties of the waste the risks posed by the waste in terms of process safety occupational safety and environmental impact

knowledge of the previous waste holder(s)

A treatment process may destroy certain substances in the waste. It could also put substances into the air, water or ground, or have residues which are sent for disposal. The weight of these outputs should be minimised. The treatment may produce residues for recovery or reuse and the weight of these substances should be maximised.

5. You must not proceed with the treatment if your risk assessment or material flow analysis indicates that losses from a process will cause:

the breach of an environmental quality standard

the breach of a benchmark

a significant environmental impact 6. You must clearly define the objectives and reaction (chemical, physical or biological) processes for each treatment process. You must define the end point to the process so that you can monitor and control the reaction. You must define the suitable inputs to the process, and the design must take into account the likely variables expected within the waste stream. You must sample and analyse the waste to check that an adequate end point has been reached. The treatment of the APCR will not breach an Yes environmental quality standard, breach any benchmark or a permit condition.

The APCR treatment activity is designed to produce an aggregate product and there is a final specification to which the recovered product must achieve.

Yes

assess the proposed mixes of wastes and reagents before treatment by carrying out a scale laboratory test mix of the wastes and reagents to be used. You must predetermine a batch 'recipe' for all reactions and mixes of wastes. You must also take into account the potential scale up effects, for example, the increased:

7. For each new reaction, you must

heat of reaction with increased reaction mass relative to the reactor volume residence time within the reactor and modified reaction properties Your treatment must comply with HSG143 Designing and operating safe chemical reaction processes. 8. The reactor vessel and plant must be specifically designed, commissioned and operated to be fit for purpose. The designs need to consider chemical process hazards and a hazard assessment of the chemical reactions. They also need to consider prevention and protective measures and process management, such as:

working instructions staff training appropriate process control measures monitoring systems, alarms and interlocks plant maintenance checks audits emergency procedures 9. To track and control the process of change, you must have a written procedure for proposing, considering and approving changes to technical developments or procedural or quality changes.

10. Where an emission is expected, all treatment or reactor vessels must be enclosed. Only vent them to the atmosphere via an appropriate scrubbing and abatement system (subject to explosion relief).

11. You must monitor the reaction to make sure it is under control and proceeding towards the anticipated result. Vessels used for treatment must be equipped appropriately, for example with high level, pH and temperature monitors. These monitors must be automatic and continuous, linked to a clear display in the control room or

The process is only for the treatment of APCR and would be only one set of reactions.

Yes

The treatment activity will be subject to an initial small scale trial prior to full scale treatment with each piece of equipment designed appropriately for the duty to be performed.

The activity will be included within the certified IMS to include but not limited to:

- Preventative maintenance
- Monitoring
- Accident and emergencies
- Audit

The IMS includes a management of change Yes procedure FG QHSE P.12.

No emissions expected. Cement mixer is N/A enclosed, rest are not - after cement mixer mixture is damp and therefore dust not produced. No VOC's present in process.

This is an aggregate production process – there are no chemical reactions occurring other than the cementitious interactions. Pelletising process is to produce a concrete mix - this cannot be monitored except by ensuring correct ratios of material added during operation. Pellet formation monitored by eye in pan mixer and rotary pelletiser.

N/A

#### 4.6 BAT CONCLUSIONS FOR WASTE TREATMENT

Compliance with regards to the BAT conclusions for waste treatment is shown in table 4.6 below.

Table 4.6 BAT Conclusions from COMMISSION IMPLEMENTING DECISION (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council

<b>EPR Requirements</b>	Current Arrangements	BAT?
BAT 1. In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:	The site has an appropriate certified IMS in place compliant to this BAT condition.	Yes
I. commitment of the management, including senior management;		
II. definition, by the management, of an environmental policy that includes the continuous improvement of the environmental performance of the installation;		
17.8.2018 L 208/45 Official Journal of the European Union EN		
III. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment;		
IV. implementation of procedures paying particular attention to:		
<ul><li>(a) structure and responsibility,</li><li>(b) recruitment, training,</li><li>awareness and competence,</li></ul>		
<ul><li>(c) communication,</li><li>(d) employee involvement,</li></ul>		
(e) documentation,		
(f) effective process control,		
(g) maintenance programmes,		
(h) emergency preparedness and response,		
(i) safeguarding compliance with environmental legislation;		

V. checking performance and taking corrective action, paying particular attention to:

(a) monitoring and measurement (see also the JRC Reference Report on Monitoring of emissions to air and water from IED installations – ROM),

(b) corrective and preventive action,

(c) maintenance of records,

(d) independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;

VI. review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;

VII. following the development of cleaner technologies;

VIII. consideration for the environmental impacts from the eventual decommissioning of the plant at the stage of designing a new plant, and throughout its operating life;

IX. application of sectoral benchmarking on a regular basis;

X. waste stream management (see BAT 2);

XI. an inventory of waste water and waste gas streams (see BAT 3);

XII. residues management plan (see description in Section 6.5);

XIII. accident management plan (see description in Section 6.5);

XIV. odour management plan (see BAT 12);

XV. noise and vibration management plan (see BAT 17).

BAT 2. In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given below.

a.	Set up and implement	The site has waste pre-acceptance criteria	Yes
	waste characterisation	in place.	
	and pre-acceptance		
	procedures		
b.	Set up and implement	The site has a waste acceptance procedure	Ves
	waste acceptance	in place.	105
	procedures	-	

c.	Set up and implement a waste tracking system and inventory	The site has a waste tracking system in place.	Yes
d.	Set up and implement an output quality management system	The output from the process will be tested and the results used to identify suitable recovery options.	Yes
e.	Ensure waste segregation	The APCR treatment activity is located in the pit area and is away from other waste storage and treatment activities at site.	Yes
f.	Ensure waste compatibility prior to mixing or blending of waste	The only waste to be received as part of this variation is the APCR which would not be incompatible.	Not applicable
g.	Sort incoming solid	Only APCR to be received direct to silo.	Not applicable

BAT 3. In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of waste water and waste gas streams, as part of the environmental management system (see BAT 1), that incorporates all of the following features:

<ul> <li>(i) information about the characteristics of the waste to be treated and the waste treatment processes, including:</li> <li>(a) simplified process flow sheets that show the origin of the emissions;</li> <li>(b) descriptions of process-integrated techniques and waste water/waste gas treatment at source including their performances.</li> </ul>	The proposed variation is for the APCR treatment activity and this is shown in the process flow diagram Figure 3.1 along with potential releases off-site or to sewer.	Yes
<ul> <li>(ii) information about the characteristics of the waste water streams, such as:</li> <li>(a) average values and variability of flow, pH, temperature, and conductivity;</li> <li>(b) average concentration and load values of relevant substances and their variability (e.g. COD/TOC, nitrogen species, phosphorus, metals, priority substances/micropollutants);</li> <li>(c) data on bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. inhibition of activated sludge)) (see BAT 52);</li> </ul>	Any discharge to sewer is from the washing and wastewater treatment activities which are already permitted as per Figure 2.1.	Not applicable
<ul> <li>(iii) information about the characteristics of the waste gas streams, such as:</li> <li>(a) average values and variability of flow and temperature;</li> <li>(b) average concentration and load values of relevant substances and their variability (e.g. organic compounds, POPs such as PCBs);</li> </ul>	There are no additional channelled emissions to air as part of this variation.	Not applicable

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<ul> <li>(c) flammability, lower and higher explosive limits, reactivity;</li> <li>(d) presence of other substances that may affect the waste gas treatment system or plant safety (e.g. oxygen, nitrogen, water vapour, dust).</li> </ul>		
BAT 4. In order to reduce the envir techniques given below.	ronmental risk associated with the storage o	f waste, BAT is to use all of the
Optimised storage location	The APCR is located in a secure area away from other waste at site and at a part of the site furthest away from the nearest sensitive receptors.	Yes
Adequate storage capacity	The APCR will be stored in the silo and only sufficient waste to fill the silo will be received at any one time. This will be managed by the waste tracking system.	Yes
Safe storage operation	See optimised location above.	Yes
Separate area for storage and handling of packaged hazardous waste	No packaged hazardous as part of this variation application.	Not applicable
BAT 5. In order to reduce the envir to set up and implement handling a	ronmental risk associated with the handling Ind transfer procedures.	and transfer of waste, BAT is
Handling and transfer procedures aim to ensure that wastes are safely handled and transferred to the respective storage or treatment. They include the following elements: — handling and transfer of waste are carried out by competent staff; — handling and transfer of waste are duly documented, validated prior to execution and verified after execution; — measures are taken to prevent, detect and mitigate spills; — operation and design precautions are taken when mixing or blending wastes (e.g. vacuuming dusty/powdery wastes). Handling and transfer procedures are risk-based considering the likelihood of accidents and incidents and their	All handling of APCR is undertaken by trained and competent staff. All waste received is in accordance with the transfer documentation as detailed by the waste carriers in accordance with pre- acceptance notifications. Any spills of APCR can be swept up and would not escape off-site. No mixing or blending of waste occurring only treatment of APCR. The risks are considered with the environmental risk assessment associated with this application.	Yes
environmental impact. BAT 6. For relevant emissions to water as identified by the inventory of waste water streams (see BAT 3), BAT is to monitor key process parameters (e.g. waste water flow, pH,	Water is reused as can be seen in Figure 3.1. The washing and wastewater treatment that occurs are already permitted activities and will be monitored for the pollutants	Yes

temperature, conductivity, BOD) at key locations (e.g. at the inlet and/or outlet of the pretreatment, at the inlet to the final treatment, at the point where the emission leaves the installation).	and frequency as detailed within the current permit.	
BAT 7. BAT is to monitor emissions to water with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.	The washing and wastewater treatment that occurs are already permitted activities and will be monitored for the pollutants and frequency as detailed within the current permit. There are no direct releases to water as part of this variation.	Not applicable
BAT 8. BAT is to monitor channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality	There are no additional channelled emissions to air associated with this application.	Not applicable
BAT 9. BAT is to monitor diffuse emissions of organic compounds to air from the regeneration of spent solvents, the decontamination of equipment containing POPs with solvents, and the physico-chemical treatment of solvents for the recovery of their calorific value, at least once per year using one or a combination of the techniques given below.	The site does not regenerate or accept solvents as part of this variation application. The only wastes to be received as part of this variation is APCR.	Not applicable
BAT 10. BAT is to periodically monitor odour emissions. The applicability is restricted to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated.	The APCR is not considered odorous nor are there any nearby sensitive receptors and the site has not had complaints with regards to odour an OMP is not required.	Not applicable
BAT 11. BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and wastewater, with a frequency of at least once per year.	All energy, water use, wastewater generated and discharged as well as waste generated and disposed of are recorded and reported annually to the Environment Agency.	Yes
BAT 12. In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management	The APCR is not considered odorous and as the site has not had complaints with regards to odour an OMP is not required.	Not applicable

system (see BAT 1), that includes all of the following elements:

— a protocol containing actions and timelines;

— a protocol for conducting odour monitoring as set out in BAT 10;

— a protocol for response to identified odour incidents, e.g. complaints;

— an odour prevention and reduction programme designed to identify the source(s); to characterise the contributions of the sources; and to implement prevention and/or reduction measures

The applicability is restricted to cases where an odour nuisance at sensitive receptors is expected and/or has been substantiated.

BAT 13. In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques given below.

- A) Minimising residence timeB) Using chemical
- treatment
- C) Optimising aerobic treatment

The APCR is not considered odorous and as the site has not had complaints with regards to odour an OMP is not required.

Not applicable

BAT 14. In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below.

Depending on the risk posed by the waste in terms of diffuse emissions to air, BAT 14d is especially relevant.

A) Minimising the number of potential diffuse emission sources	<ul> <li>The only source of diffuse emissions is dust from the proposed activities.</li> <li>The site minimises the potential sources of diffuse emissions by:</li> <li>Setting speed limits on site;</li> <li>The siting of the waste treatment activity in a below ground area.</li> <li>The use of equipment which is mainly enclosed.</li> <li>Treatment of the APCR in a wet/damp state</li> </ul>	Yes
b) Selection and use of high- integrity equipment	The equipment used is modular and dedicated to its individual task and will be subject to an integrity check before being used.	Yes
c) Corrosion prevention	The equipment to be used will be resistant to the APCR and minimise corrosion.	Yes
d) Containment, collection and treatment of diffuse emissions	There are no additional channelled emissions to air associated with this application.	Not applicable

e) Dampening	The APCR will be washed with a high moisture content prior to being dewatered so will be damp/wet which would minimise dust emissions.	Yes
f) Maintenance	All equipment is maintained in accordance with preventative maintenance programme.	Yes
g) Cleaning of waste treatment and storage area	The waste storage and yard areas are regularly cleaned to ensure there are no build ups of dust/APCR.	Yes
h) Leak detection and repair (LDAR) programme	No organic compounds emitted as part of this variation application.	N/A
BAT 15. BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given below.	Flaring is not undertaken at the installation.	Not applicable
BAT 16. In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given below	Flaring is not undertaken at the installation.	Not applicable

BAT 17. In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:

I. a protocol containing appropriate actions and timelines; II. a protocol for conducting noise and vibration monitoring; III. a protocol for response to identified noise and vibration events, e.g. complaints; IV. a noise and vibration reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures.	The site is in a very large industrial area with a large amount of industrial processes all of which will contribute some degree of industrial noise. There are also busy roads within the industrial area (Lees Road, Acornfield Road, CharleyWood Road, etc.) with a very busy road (Perimeter Road) on the eastern edge of the industrial area generating significant local noise through vehicle movements. The siting of the process in a pit reduces the line of sight with any local receptors. Local residential receptors are over 1km from site in a downwind direction.	Yes
The applicability is restricted to cases where a noise or vibration nuisance at sensitive receptors is expected and/or has been substantiated.	The site has been operating since 2007 and there have been no noise complaints for the duration of that time. Therefore, it is not considered necessary to have a noise and vibration management plan.	
BAT 18. In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given below.		
Appropriate location of equipment and buildings	The equipment is located more than 1km away from the nearest residential receptor and is located within a below ground pit	Yes

	area which would minimise any potential	
	noise release.	
<b>Operational measures</b>	The equipment is maintained in	Yes
	accordance with manufacturer's	
	recommendations.	
	The site operates during normal office	
	hours which limits the potential exposure	
	of nearby noise receptors to any noise	
	nuisance outside of normal working hours.	
Low-noise equipment	The site is in a very large industrial area	Yes
• •	with a large amount of industrial processes	
	all of which will contribute some degree of	
	industrial noise. There are also busy roads	
	within the industrial area (Lees Road,	
	Acornfield Road, CharleyWood Road,	
	etc.) with a very busy road (Perimeter	
	Road) on the eastern edge of the industrial	
	area generating significant local noise	
	through vehicle movements.	
	The siting of the process in a pit reduces	
	the line of sight with any local receptors.	
	Local residential receptors are over 1km	
	from site in a downwind direction.	
	The site has been operating since 2007 and	
	there have been no noise complaints for	
	the duration of that time.	
Noise and vibration control	The site operates within a below ground	Vas
Noise and vibration control	pit area and would break line of site with	Tes
equipment	any noise sensitive receptor and would act	
	as noise attenuation.	
Notes attacastics	The site operates within a below ground	Var
Noise attenuation	nit area and would break line of site with	Yes
	any noise sensitive recentor and would act	
	as noise attenuation	
<b>BAT 10</b> In order to entimize water	consumption to reduce the volume of west	to water generated and to
BAT 19. In order to optimise water	consumption, to reduce the volume of was	<b>BAT</b> is to use on annumiste
combination of the techniques give	n below	, DAT is to use an appropriate
combination of the techniques give	li below.	
a) water management	Where levels of contamination make	Yes
	possible, water shall be recycled from	
	previous washes to be utilised for slurrying	
	up new APCR batches for processing. Use	
	of a cross-flushing press is being	
	considered to aid this process to allow	
	flushing of APCr within the press with	
	clean water to remove final contaminants	
	from washed cake.	
b) water recirculation	Where levels of contamination make	Yes
	possible, water shall be recycled from	
	previous washes to be utilised for slurrying	
	up new APCR batches for processing. Use	
	of a cross-flushing press is being	
	considered to aid this process to allow	
	flushing of APCR within the press with	
	clean water to remove final contaminants	
	from washed cake.	
c) Impermeable surface	All operations take place on an	Yes
	impermeable concrete hardstanding.	
d) Techniques to reduce the	Pelletising plant has limits in mix	Yes
likelihood and impact of	production software so that total volume of	- •••
	production software so that total volume of	
overflows and failures from	mix cannot exceed volume of mixer.	
overflows and failures from tanks and vessels	mix cannot exceed volume of mixer.	

	Pan mixer is larger volume than first	
	mixer, therefore cannot overflow.	
	Other vessels have high level alarms and	
	all vessels suitably bunded.	
e) Roofing of waste storage and	The APCR will be stored in a silo and the washed APCP storage and final pelletised	Yes
treatment areas	product storage areas are covered	
f) Segregation of water streams	Surface water is kept separate to process	Ves
i) Segregation of water streams	water used to treat the APCR.	105
g) Adequate drainage	The pit area acts as a bund and any surface	Yes
infrastructure	water can be pumped to the bunded	
	discharge point in the corner of the area	
	The site will be subject to a daily	<b>X</b> 7
n) Design and maintenance	inspection which would identify any	Yes
renair of leaks	repairs required for the surfacing or	
- opani of round	equipment.	
i) Appropriate buffer storage	The pit area can store a significant amount	Yes
capacity	or water prior to it being needed to be	
DAT 20 In code to d	Water is treated and reused within the	N/
BAI 20. In order to reduce emissions to water <b>BAT</b> is to	process by neutralisation and heavy metal	Yes
treat waste water using an	precipitation. Site process is modelled on	
appropriate combination of the	effluent before treatment to ensure that	
techniques given below	treatment can comply with BAT-AEL	
	discharge levels to be implemented as part of proposed Pag61 permit review. Metal	
	precipitation with leachate adjustment and	
	sulphide addition is well-established	
	technique to achieve this. Final effluent	
	will not be discharged without testing to	
	demonstrate appropriate levels reached.	
	This is surroutly permitted within the	
	existing activities (See Figure 2.1) and is	
	not part of this variation application.	
BAT 21. In order to prevent or lim	it the environmental consequences of accide	ents and incidents. BAT is to
use all of the techniques given belo	w, as part of the accident management plan	
Protection measures	The pit area is in a secure site with	Ves
r otection measures	controlled entry to prevent accidental or	105
	malicious damage.	
	All aquinment is madular and can be shut	
	off independently without affecting the	
	other equipment.	
Management of	All non-conformances, corrective and	Ves
incidental/accidental emissions	preventative actions are handled in	105
	accordance with the	
	FG_QHSE_P.06 Non- Conformity	
	Any accidents.	
	incidents or near misses will be reported.	
	recorded and investigated in accordance	
	with	
	FG_QHSE_P.01 Accident incident and	
	near miss reporting.	
Incident/accident registration	preventative actions are handled in	Yes
and assessment system	accordance with the	

	FG_QHSE_P.06 Non- Conformity Corrective Action and Preventive Action. Any accidents, incidents or near misses will be reported, recorded and investigated in accordance with FG_QHSE_P.01 Accident incident and near miss reporting.	
BAT 22. In order to use materials efficiently, BAT is to substitute materials with waste.	APCR to produce an aggregate product, utilising less raw sand/aggregate.	Yes
BAT 23. In order to use energy efficiently, BAT is to use both of the techniques given below.		
Energy efficiency plan	The site reports annual energy usage which are reviewed for anomalous results and potential for improvements. The site is part of Futures review for ESOS commitments.	Yes
Energy balance record	The site records, monitors and reports energy use as part of its permitted requirements.	Yes
BAT 24. In order to reduce the quantity of waste sent for disposal, BAT is to maximise the reuse of packaging, as part of the residues management plan	No packaging received at the site as part of this variation.	N/A

BAT 25. In order to reduce emissions to air of dust, and of particulate-bound metals, PCDD/F and dioxin-like PCBs, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.

Cyclone	No channelled emission point as part of this variation.	Not applicable
Fabric filter	No channelled emission point as part of this variation.	Not applicable
Wet scrubbing	No channelled emission point as part of this variation. Scrubber part of existing permitted activity.	Not applicable
Water injection into the shredder	No shredding taking place.	Not applicable
BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from the mechanical treatment of waste Dust 2-5 mg/Nm <sup>3</sup>	No channelled emission point at site.	Not applicable
BAT 40. In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures	The received APCR is subject to the sites pre-acceptance and acceptance testing which will include laboratory testing of the received waste.	Yes
BAT 41. In order to reduce emissions of dust, organic compounds and NH <sub>3</sub> to air, BAT is to apply BAT 14d and	The mixing and pelletisation activity is a moist process which will not generate dust due to the water content and nature of the materials being pelletised.	Not applicable
to use one or a combination of the techniques given below.		
Adsorption		
Biofilter Fabric Filter		
Wet Scrubbing		

Dust 2-5 mg/Nm<sup>3</sup>

With the exception of BAT conditions 40 and 41 BAT conditions 26 to 53 are not considered relevant as part of this variation application.

# **EMISSIONS AND MONITORING**

### EMISSIONS CONTROL

Installation justifications with regards to emissions to air are detailed in Table 5.1 below.

 Table 5.1 Chemical waste appropriate measures for emissions to air

<b>EPR Requirements</b>	<b>Current Arrangements</b>	BAT?
1. You must contain storage tanks, silos and waste treatment plant (including shredders) to make sure you collect, extract and direct all process emissions to an appropriate abatement system for treatment before release.	Existing plant is abated. New plant - cement silo vents via dust filter. Rest of plant, no process emissions are expected as the material is treated moist and would not generate dust.	Yes
2. You must identify the main chemical constituents of the site's point source emissions as part of the site's inventory of emissions to air.	The only constituent of potential emissions from the treatment of APCR will be dust.	Yes
3. You must assess the fate and impact of the substances emitted to air, following the Environment Agency's risk assessment methodology.	See environmental impacts Section 6.	Yes
4. To reduce point source emissions to air (for example, dust, volatile organic compounds and odour) from the treatment of waste, you must use an appropriate combination of abatement techniques, including one or more of the following systems:	Existing plant is abated. New plant - cement silo vents via dust filter. Rest of plant, no process emissions are expected as the material is treated moist and would not generate dust.	Yes
adsorption (for example, activated carbon) biofiltration wet scrubbing fabric filters high efficiency particulate (HEPA) filtration condensation and cryogenic condensation cyclonic separation electrostatic precipitation thermal oxidation		
5. You must assess and design vent and stack locations and heights to make sure	Existing plant is abated. New plant - cement silo vents via dust filter. Rest of plant, no process emissions are	Yes

dispersion capability is	expected as the material is treated	
adequate. Where monitoring	moist and would not generate dust.	
is required, including for		
odour, you must install		
suitable monitoring points.		
6. Your procedures must	Existing plant is abated. New plant -	Yes
make sure you correctly	cement silo vents via dust filter. Rest	
install, operate, monitor and	of plant, no process emissions are	
maintain abatement	expected as the material is treated	
equipment. For example, this	moist and would not generate dust.	
includes monitoring and		
maintaining:	All monitoring will be undertaken in	
	accordance with the requirements	
appropriate flow and	oof the environmental permit when	
chemical concentration of	issued.	
scrubber liquor		
the handling and disposal or		
regeneration of spent		
scrubber or filter medium		
7. You should design and	No heated emission stream with	Not applicable
operate abatement systems to	moisture content so plume will not	
minimise water vapour	occur.	
plumes.		

### 5.2 FUGITIVE EMISSIONS TO AIR

Installation justifications with regards to fugitive emissions to air are detailed in Table 5.2 below.

#### Table 5.2 Chemical waste appropriate measures for fugitive emissions to air

EPR Requirements	Current Arrangements	BAT?
1. You must use appropriate measures to prevent omissions of dust mud and	The APCR will not produce litter as it is delivered directly to the silo.	Yes
litter and odour.	The APCR is not odorous and will be stored in a silo and treated in appropriate vessels.	
	The APCR will be diluted at least 1 tonne to 3-5 tonnes water, dependent on the substances present within the APCR, to make a slurry for washing. This will then be dewatered but the treated APCR will be moist to wet which would eliminate the potential for dust generation.	
2. You must design, operate and maintain storage and treatment plant in a way that	The equipment will be enclosed wherever possible.	Yes
prevents fugitive emissions to air, including dust, organic compounds and odour.	However, the APCR is not odorous or have organic compounds.	
Where that is not possible, you must minimise these emissions. Storage and treatment plant includes	The APCR will be diluted 1 tonne to 3-5 tonnes water, dependent on the substances present within the APCR, to make a slurry for washing This	
- treatment plant includes	will then be dewatered but the	

## associated equipment and infrastructure such as:

shredders conveyors skips or containers building fabric, including doors and windows pipework and ducting 3. To make sure fugitive emissions are collected and directed to appropriate abatement, your treatment plant must use high integrity components (for example, seals or gaskets). Your treatment plant must be fully enclosed, with air extraction systems located close to emission sources where possible.

4. You must use your waste pre-acceptance, waste acceptance and site inspection checks and procedures to identify and manage wastes that could cause, or are causing, fugitive emissions to air. When you identify any of these wastes you must:

take appropriate, risk assessed measures to prevent and control emissions prioritise their treatment or transfer 5. Where necessary, to prevent fugitive emissions to air from the storage and

handling of wastes, you should use a combination of the following measures:

store and handle such wastes within a building or enclosed equipment keep buildings and equipment under adequate negative pressure with an appropriate abated air circulation or extraction system

where possible, locate air extraction points close to potential emissions sources use fully enclosed material transfer and storage systems treated APCR will be moist to wet which would eliminate the potential for dust generation.

Where risk of dust or emissions, plant is enclosed with filters for dust - pan mixer and rotary pelletiser not enclosed due to their nature material in this part of the process is damp post washing so no dust emission and no VOC's present in process.

Only APCR as part of this variation and associated risks are known and controlled.

This application in Appendix A includes a risk assessment associated with this new activity.

It is not considered necessary to enclose the waste treatment process for the following reasons:

The majority of the equipment capable of generating dust is enclosed;

The only potential risk from the APCR is dust generation and it is stored in a silo prior to washing which means it is then moist/wet which would minimise any potential dust generation;

The pit area is below ground level and prevents any wind whip; The receptors downwind from site are over 1km away and is a local farm which would generate dust emissions of its own with its farming activities so would not be considered particularly sensitive; Yes

Yes

and equipment, for example,	TGN M17 states that dust over 10	
conveyors, hoppers,	$\mu$ m, as would be the case from the	
containers, tanks and skips	treatment activity, falls out between	
doors that default alosed	a couple of hundred metres and	
keen building doors and	event of dust being generated it	
windows shut to provide	would not reach any of the nearby	
containment other than when	receptors to cause nuisance	
access is required	receptors to cause nuisance.	
minimising drop height		
use misting systems and wind		
barriers to prevent dust		
6. You must set up a leak	The APCR is a solid material and	Yes
detection and repair	would not leak.	
programme and use it to		
promptly identify and	The slurry tank would be monitored	
mitigate any fugitive	as part of daily checklist for the area	
emissions from treatment	and under the preventative	
plant and associated	maintenance programme.	
infrastructure (for example,		
pipework, conveyors, tanks).		
7. You must regularly inspect	All equipment would be subject to a	Yes
and clean all waste storage	preventative maintenance	
and treatment areas,	programme.	
equipment (including		
conveyor belts) and	The area would also be inspected as	
containers. You must have an	spills of A DCB swont up	
appropriate regular	spins of AFCK swept up.	
covering all buildings plant		
and equinment This must		
also include protective		
equipment such as air		
ventilation and extraction		
systems, curtains and fast-		
action doors used to prevent		
and contain fugitive releases.		
8. Your inspection,	The area would also be inspected as	Yes
maintenance and cleaning	part of the daily inspection and any	
schedules must make sure	spills of APCR swept up.	
that tanks and plant are		
regularly cleaned to avoid		
large-scale decontamination		
activities.		V
9. You must take measures to	for the task being performed	Yes
and equipment (for example	resistant to the waste being treated	
conveyors or nines) This	and subject to a preventative	
includes selecting and using	maintenance programme	
appropriate construction	programme.	
materials, lining or coating		
equipment with corrosion		
inhibitors and regularly		
inspecting and maintaining		
plant.		
10. If you wash containers or	Not washing containers as part of	Not applicable
tanks, you must design and	this variation application.	

operate the washing process and associated equipment in a way that prevents fugitive emissions to air. For example, you could do this activity in a contained or enclosed system.		
11. You must fully enclose and contain pre- and post- treatment shredder plant to prevent emissions. You must design and operate the shredder plant using appropriate process interlocks. The plant should not operate unless it is enclosed and contained, for example, only working when the loading door on the hopper has been closed or sealed. Dust and microbial emissions from the shredder plant must be contained and extracted to an appropriate abatement system, for example HEPA air filtration.	No shredder used.	Not applicable
12. Where a dust management plan is required, you must develop and implement it following our guidance.	A dust management plan is not required as part of this variation application.	Yes
13. You must have procedures to minimise the amount of time odorous wastes spend in your storage and handling systems (for example, pipes, conveyors, hoppers, tanks). In particular, you must have provisions to manage waste during periods of peak volume.	The APCR waste is not odorous and would be stored in a silo prior to treatment.	Not applicable
14. You must have measures to contain, collect and treat odorous emissions, including using contained buildings and plant or equipment with appropriate air extraction and abatement. We do not consider masking agents to be appropriate measures for the treatment of odorous emissions.	The APCR waste is not odorous and would be stored in a silo prior to treatment.	Not applicable
15. You must monitor and maintain odour abatement systems to ensure optimum performance. For example, you should make sure that	The APCR waste is not odorous and would be stored in a silo prior to treatment.	Not applicable

scrubber liquors are		
and replenished or replaced		
at an appropriate frequency.		
16. You must store	There is no contaminated water	Yes
contaminated waters that	associated with the activity as part of	
have potential for odours in	this variation that could be odorous.	
covered or enclosed tanks or		
containers vented through	However, all treated wastewater is	
suitable abatement.	collected after treatment prior to	
17 Where adour pollution of	disposal.	Nat ampliashia
17. Where outfour pollution at	would be stored in a sile prior to	Not applicable
expected or has been	treatment	
substantiated, you must	ireatment.	
periodically monitor odour	Furthermore, any receptors in a	
emissions using European	downwind direction are over 1km	
(EN) standards, for example	away and would not be impacted.	
either:		
dynamic olfactometry		
according to EN 13725 to		
determine the odour		
concentration		
EN 16841-1 or -2 to		
If you are using alternative		
methods for which no EN		
standards are available (for		
example, estimating odour		
impact), you should use ISO,		
national or other		
international standards to		
make sure you use data of an		
equivalent scientific quality.		
You must set out the		
adour management plan		
18. Where odour pollution at	The APCR waste is not odorous and	Not applicable
sensitive receptors is	would be stored in a silo prior to	
expected, or has been	treatment.	
substantiated, you must also		
set up, implement and	No substantiated odour complaints	
regularly review an odour	from current operations.	
management plan. It must be		
part of your management		
following elements:		
- tonowing elements.		
actions and timelines to		
address any issues identified		
a procedure for odour		
monitoring		
a procedure for responding to		
odour incidents, for example,		
complaints		

an odour prevention and reduction programme designed to identify the source(s), characterise the contributions of the sources and prevent and reduce them 19. Where an odour management plan is required, you must develop and implement it following our guidance.

The APCR waste is not odorous and Not applicable would be stored in a silo prior to treatment. No substantiated odour complaints from current operations.

Installation justifications with regards to EA web guidance control and monitor emissions from your activities that may cause pollution are detailed in Table 5.3 below.

#### Table 5.3 Control and monitor emissions from your activities that may cause pollution

EPR Requirements	Current Arrangements	BAT?
Emissions management plan		
If your risk assessment shows	Dust management plan not required	Yes
you have a risk of these types	as part of this variation.	
of emissions you may need to		
provide an emissions		
management plan when you		
apply for your permit to		
demonstrate how you'll		
control them.		
Site levent bousekeeping and	The treatment activity is undertaken	Vac
operations. Appropriate	at a part of site that is away from	1 05
measures include:	sensitive recentors with the nearest	
	such receptor more than 1km	
	downwind.	
$\circ$ designing the layout of		
your site to prevent	All APCR would be swept up by the	
emissions and limit the	operator where there is evidence of a	
emissions sensitive	spillage.	
receptors are exposed to -		
for example homes,	Road sweeper would be used in the	
schools, hospitals or	pit area should there be any coating	
nursing homes, food	of the yard area with mud or APCR	
preparation facilities or	that could generate dust.	
similar		
• using good housekeeping	Existing plant is abated. New plant -	
practices to make sure	cement silo vents via dust filter. Kest	
your site is clear of dust,	or prant, no process emissions are	
debris	moist and would not generate dust	
$\sim$ using road sweeners to	monst and would not generate dust.	
remove dust, mud, litter		
and other debris		
• erecting litter fences or		
micro-netting around the		
site		
• avoiding activities that		
could spread dust and		

particulates, mud or litter during high winds – for example, loading and unloading waste from vehicles outside buildings or treating waste materials outside buildings

- making sure treatment process parameters, such as temperature or moisture, are set at the right level
- -making sure abatement systems are designed to treat and minimise releases
   - these systems must be monitored and maintained following the designer's or manufacturer's recommendations

Enclosure in buildings-Appropriate measures include:

- carrying out operations inside buildings using negative pressure dust extraction systems whenever possible
- installing PVC strip curtains to reduce emissions through doorways
- installing automatic, fastclosing doors and designing doorways and openings in a way that prevents through-drafts
- enclosing conveyors and minimising drops, or using pneumatic or screw conveying systems
- installing filters to vents on silos, building extractors and conveying systems
- using abatement systems that are designed, monitored and maintained by qualified personnel

Vehicle movement-Appropriate measures include: It is not considered necessary to enclose the waste treatment process for the following reasons:

The majority of the equipment is part of sealed systems. The only potential risk from the APCR is dust generation and it is stored in a silo prior to washing which means it is then moist/wet which would minimise any potential dust generation;

The pit area is below ground level and prevents any wind whip; The receptors downwind from site are over 1km away and is a local farm which would generate dust emissions of its own with its farming activities so would not be considered particularly sensitive;

TGN M17 states that dust over 10  $\mu$ m, as would be the case from the treatment activity, falls out between a couple of hundred metres and 1km. Therefore, in the unlikely event of dust being generated it would not reach any of the nearby receptors to cause nuisance.

The roadways are all paved.

Tankers will be used to deliver the APCR which would then be pumped to silo.

Not applicable

 using enclosed vehicles, skips or containers wherever possible, or covering them if this is not possible (unless they're empty)

- enforcing speed limits and reducing vehicle movements and idling on site
- minimising the number of access points to your site from public roads
- surfacing or paving your roadways suitably (ideally with concrete) to make them easy to clean
- making sure vehicles keep to paved roads
- regularly cleaning and dampening roadways
- using wheel wash systems to slow trucks – wash wheels and keep roadways damp
- making sure road-going vehicles do not enter unmade ground and muddy areas (including the tipping piles) to reduce muddy track-out

Dust suppression and monitoring-Appropriate measures include:

- using appropriate dust suppression systems (such as mist sprays, bowsers, water cannons, chemical suppressants, heavy water and foam suppressants) at appropriate locations and times
- installing dust and particulate monitors with trigger alarms

Stockpiled wastes and open ground

 You must keep stockpile levels at least 0.5m below the top of structures holding the The APCR is stored in a silo prior to treatment and the treatment process is a wet process which would negate the need for dust suppression.

There is an onsite speed limit of 10

A road sweeper would be used if it

is observed that road surfaces are soiled and could generate dust.

mph.

Not applicable

Yes

The treated APCR will be stored as aggregate in covered bays which are in a below ground area which would prevent wind whip.

Furthermore, the treatment activity is a wet treatment process which

waste to minimise wind- whipping at all times.	should keep the material damp throughout.	
Other appropriate measures include:		
<ul> <li>controlling the moisture content of the material in the stockpile to prevent materials becoming friable</li> <li>planting grass or trees on open ground to reduce dust (hydro-seeding can rapidly establish vegetation on waste tips, slag heaps or other apparently infertile ground)</li> <li>not positioning stockpiles outdoors or leaving them uncovered</li> <li>If you cannot avoid positioning stockpiles outdoors, or leaving them uncovered, you should take steps to prevent material escaping from them. For example by:</li> <li>using sprays and binders</li> <li>appropriately positioning bay walls or windbreaks</li> <li>making sure stockpiles do not face the direction of the prevailing wind</li> <li>minimising waste storage heights and volumes</li> <li>covering</li> <li>minimising stockpile volumes</li> </ul>		
Emissions management plan for dust You must provide a dust management plan if you are applying for a bespoke permit for any of the activities listed below and your site is in	Knowsley Metropolitan Borough Council does not have a declared air quality management area for $PM_{10}$ .Not applicThe site is not within 500m of a home, school, hospital or nursing home, food preparation facility orNot applic	able
either of the locations listed below.	similar. Therefore, a dust management plan	
If you carry out any of these activities:	is not required.	

- keeping or treating (or both) aggregates, soils, ashes or similar materials
- keeping or treating (or both) wood
- keeping or treating (or both) household, commercial or industrial waste in a waste transfer station
- keeping or treating (or both) household, commercial or industrial waste in a materials recycling facility
- keeping or treating (or both) scrap metal
- keeping or treating (or both) biowaste in the open, including the finished material
- o disposing of household, commercial or industrial waste in a landfill
- recovery of household, commercial or industrial waste by deposit for recovery
- receiving, processing or producing fine or dusty materials

And you are in either of these locations:

- in, or within 2km of, an air quality management area for PM10
- within 500m of a sensitive receptor such as a home, school, hospital or nursing home, food preparation facility or similar
- within 250m of a sensitive receptor when treating biowaste

Emissions to water You must make sure any rainfall collection systems are kept separate from areas of the site which are or may be contaminated.

Make sure your surfaces and containment or drainage

The pit area is a self-bunded area made from thick concrete slabs and walls which are impermeable and resistant to the APCR.

All water from the pit area is collected in a tank and tested prior to reuse or disposal.



- resistant to any materials you're going to store in them
- You must make sure sumps and bunds do not become contaminated or blocked as this may cause them to leak.

#### You must:

- check that sumps and bunds are working correctly, for example that there are no cracks
- hydraulically test any sump or bund if you're worried it is not working correctly
- fit a high-level probe to any sumps or bunds that you cannot check with an alarm to alert you before waste begins to escape containment

Your bunds must also have a capacity larger than both of the following:

- 110% of the largest tank the bund is protecting
- 25% of the combined volume of all the tanks the bund is protecting

Storage areas for intermediate bulk containers, drums, bags

You must bund or kerb any area where environmentally harmful substances are stored (for example acids, chemical solvents, milk, lubricating oils and styrene).

You must store substances separately if it may be risky to store them too near each other, for example because they're flammable or if 2 substances spilled and mixed could cause an explosion or harmful fumes. No IBCs, drums or bags to be accepted as part of this variation.

Do not use plastic intermediate bulk containers (medium-sized containers that can be moved easily and are made out of plastic or metal) to store flammable materials.

You must also:

- locate storage areas away from watercourses, sensitive groundwater areas such as Source Protection Zone 1, unprotected drainage systems and sensitive boundaries, for example near areas where people live or nature reserves
- clearly mark your storage areas, and any containers and packages in them
- define the maximum storage capacities for each of your storage areas and containers and stick to them
- store containers, including empty containers, with lids, caps and valves secured and in place
- inspect your containers, drums and small packages at least once a week to check they're not damaged or leaking and put a procedure in place to replace or repair damaged or leaking containers

Volatile Organic Compounds You must take the following steps to prevent emissions of VOCs:

- enclose any containers on your site
- fit equipment to capture VOCs on any vents on your site (such as scrubbers or filters)

No wastes to be accepted as part of this variation will release VOCs.

- install sealed transfer
- (vapour balance) systems
   use sub-surface filling via
   (anti synhon) filling nines
- (anti-syphon) filling pipes extended to the bottom of the container
   use floating roof tanks
- and bladder roof tanks
- use tank vent systems that minimise breathing losses, for example pressure or vacuum valves, and fit knock-out pots where necessary

If VOCs are released on your site, you must counter the release with techniques like adsorption (using a substance like a solid or liquid to absorb another substance, like a liquid or gas) or condensation (cooling or compressing a liquid to its saturation point) to capture the VOCs.

You must also prevent vapour and fluid emissions by:

- o managing inventories
- preventing leaks from any pipework or fluid transport systems
- using white paint, insulation and active temperature controls to reduce the temperature in any storage tanks

#### Odour

You must prevent or, where that is not possible, minimise odour if you have a waste, mining waste or installation permit. To do this you must use all appropriate measures, normally including:

- restricting raw materials that are likely to cause odour, like putrescible or already putrid biodegradable waste
- minimising quantities and storage times for

The APCR is not odorous.

# odorous or potentially odorous materials

- managing materials and processes in ways which minimise the production of odorous chemicals
- working within the effective operational capacity of your site
- providing effective containment and abatement for odorous materials and activities

You must respond effectively and proportionately to any process monitoring which indicates a problem, or reports from the community of odour pollution. Odour management plan You must write an odour management plan that explains how you will prevent or minimise odour if your site causes odour pollution, or if you carry out:

• landfilling of biodegradable waste

- household, commercial and industrial waste transfer station activities
- materials recycling and handle odorous inputs or reject streams (or both)
- composting in open windrows
- composting in vessels
   mechanical biological
- treatment
- sewage sludge treatment
- clinical waste treatment
- animal carcass incineration
- mobile plant activities for landspreading, treatment of land for land reclamation, restoration or improvement and landspreading of sewage sludge
- anaerobic digestion
- mobile plant activities for the treatment of waste soils and contaminated material, substances or

The APCR activity is not one of these activities and therefore an odour management plan is not required.
<ul> <li>products manufacture, use or recovery of compounds containing sulphur, ammonia, amines and amides, aromatic compounds, styrene, pyridine and esters</li> <li>intensive farming</li> <li>abattoirs and rendering operations</li> <li>food production involving any form of cooking or heating and brewing</li> <li>refinery activities</li> <li>distilling or heating of tar or bitumen</li> </ul>		
<ul> <li>Noise and vibration management</li> <li>When applying for a permit</li> <li>the Environment Agency may</li> <li>ask you to submit a noise and</li> <li>vibration management plan</li> <li>if:</li> <li>• we think there may be a risk of noise and vibration pollution</li> <li>beyond the site boundary</li> <li>• you have done a noise</li> <li>impact assessment as part of your risk assessment</li> <li>You must consider the</li> <li>findings from any noise</li> <li>impact assessment you do as part of your risk assessment.</li> <li>We may also ask you to</li> <li>submit a noise and vibration management plan after we have issued your permit if</li> <li>you cause noise or vibration pollution beyond the site boundary, and either of these apply. You:</li> <li>• have not already done a noise and vibration management plan after we have issued your permit if</li> <li>you cause noise or vibration pollution beyond the site boundary, and either of these apply. You:</li> </ul>	<ul> <li>The site is in an industrial area with many different industrial process operators generating noise and busy internal roads within the industrial estate and a very busy road (Perimeter Road) on the eastern edge of the industrial estate generating significant local noise through vehicle movements.</li> <li>The siting of the process in a pit reduces the line of sight with any local receptors.</li> <li>Local residential receptors are over 1km from site in a downwind direction.</li> <li>The site has been operating since 2007 and there have been no substantiated noise complaints for the duration of that time.</li> <li>Therefore, it is not considered necessary to have a noise and vibration management plan.</li> </ul>	Not applicable
Pest Management Plan		

If you have a waste, mining waste or installation permit and your activity causes pests (such as scavenging animals like birds or flies) you must control them by: • carrying out regular inspections • securing and removing waste that attracts scavengers or flies • employing professional pest controllers • using deterrent methods, such as scaring netting You must write a pest management plan explaining how you'll prevent or minimise pests if your risk	The site employs a pest control contractor for the control of ground vermin who visits on a monthly basis. The APCR is not attractive to pests as a food source and would not cause any pest issues.	Yes
assessment shows that your		
operation is likely to cause		
pests. Review and undate plans and p	rocedures to control emissions	
Any plans or procedures	The site has in place an operational	Yes
about how you prevent or	plan which details how all treatment	
minimise emissions, including	activities on site are undertaken and this will be undertaken to reflect the	
vibration and nests, are part	changes proposed as part of this	
of your management system.	variation.	
You must review these if your		
circumstances change, for		
example if:		
<ul> <li>you receive complaints</li> <li>you exceed the emission limits in your permit</li> <li>you introduce activities that could create more emissions</li> <li>the environment you're operating in changes, for example if a school or residential development is built nearby</li> </ul>		
<b>N</b>	Monitoring	
Your permit may say what monitoring you need to do to make sure you are not exceeding any limits in your permit, or to check emissions	All monitoring will be undertaken in accordance with the environmental permit when issued by appropriately qualified staff.	Yes
you're not causing pollution,		
or to take action if you are.		

### You may need to monitor:

- pollutants within a water discharge activity or groundwater activity, such as ammoniacal nitrogen in sewage discharge
- groundwater around a discharge area to check it's not being polluted by your site
- pollutants in an air emission, such as sulphur dioxide from a chimney
- bioaerosols from open sources or stacks to ensure the agreed mitigation measures are effective

You should use equipment, staff, laboratories and systems that are certified or accredited (as appropriate) under the Monitoring Certification Scheme (MCERTS) for monitoring emissions to air, land and water, unless otherwise agreed in writing by the Environment Agency.

### 5.3 EMISSIONS OF NOISE AND VIBRATION

Installation justifications with regards to noise and vibration is detailed in Table 5.3 below.

 Table 5.3 Chemical waste appropriate emissions of noise and vibration

<b>EPR Requirements</b>	Current Arrangements	BAT?
1. You should design the facility so that potential sources of noise (including building exits and entrances) are away from sensitive receptors and boundaries. You should locate buildings, walls, and embankments so they act as noise screens.	The site is in a very large industrial area with a large amount of industrial processes all of which will contribute some degree of industrial noise. There are also busy roads within the industrial area (Lees Road, Acornfield Road, CharleyWood Road, etc.) with a very busy road (Perimeter Road) on the eastern edge of the industrial area generating significant local noise through vehicle movements. The siting of the process in a pit reduces the line of sight with any local receptors.	Yes

Local residential receptors are over 1km from site in a downwind direction.

The site has been operating since 2007 and there have been no noise complaints for the duration of that time.

Furthermore, the pit area where the waste treatment activity takes place is a below ground area with thick concrete walls out of line of sight with all noise sensitive receptors.

This would limit any potential for noise impact from the activity. The pit area where the waste treatment activity takes place is a below ground area with thick concrete walls out of line of sight with all noise sensitive receptors.

All plant and equipment is subject to a preventative maintenance programme.

The waste treatment activity would be part of the daily site inspection and any unusual noises identified and rectified in line with procedure FG\_QHSE\_P.06 Nonconformity, Corrective and Preventative Action. Yes

2. You must employ appropriate measures to control noise, for example, including:

adequately maintaining plant or equipment parts which may become more noisy as they deteriorate - for example, bearings, air handling plant, building fabric, and specific noise attenuation kit associated with plant or machinery closing doors and windows of enclosed areas and buildings avoiding noisy activities at night or early in the morning minimising drop heights and the movement of waste and containers using broadband (white noise) reversing alarms and enforcing the onsite speed limit using low-noise equipment, for example, drive motors, fans, compressors and pumps adequately training and supervising staff where possible, providing additional noise and vibration control equipment for specific sources of noise – for example, noise reducers or attenuators, insulation, or sound-proof enclosures 3. Where noise or vibration pollution at sensitive receptors is expected, or has been substantiated, you must

The site is in a very large industrial area with a large amount of industrial processes all of which will contribute some degree of industrial Not applicable

create, use and regularly review a noise and vibration management plan. This must be part of the environmental management system, and must include: actions and timelines to address any issues identified a procedure for noise and vibration monitoring a procedure for responding to identified noise and vibration events, for example, complaints	<ul> <li>noise. There are also busy roads within the industrial area (Lees Road, Acornfield Road, Charley Wood Road, etc.) with a very busy road (Perimeter Road) on the eastern edge of the industrial area generating significant local noise through vehicle movements. The siting of the process in a pit reduces the line of sight with any local receptors.</li> <li>Local residential receptors are over 1km from site in a downwind direction.</li> <li>The site has been operating since 2007 and there have been no noise complaints for the duration of that time.</li> <li>Furthermore, noise is not expected to be considered an issue for the waste treatment activity given the pit area where the waste treatment activity takes place is a below ground area with thick concrete walls out of line of sight with all noise sensitive recentors</li> </ul>	
4. Your noise and vibration management plan should also include a noise and vibration reduction programme designed to:	Noise and vibration management plan not required.	Not applicable
identify the sources of noise and vibration measure or estimate noise and vibration exposure characterise the contributions of the sources implement prevention and reduction measures 5. Where a noise and vibration management plan is required, you must develop and implement it following our guidance.	Noise and vibration management plan not required.	Not applicable

### 5.4 EMISSIONS TO WATER AND SEWER

Installation justifications with regards to emissions to water and sewer is detailed in Table 5.4 below.

### Table 5.4 Chemical waste appropriate emissions to water and sewer

EPR RequirementsCurrent ArrangementsBAT?	
------------------------------------------	--

1. You must identify the main chemical constituents of the site's point source emissions to water and sewer as part of the site's inventory of emissions.	The wastewater treatment activity takes place as part of the existing permitted process. See Figure 2.1. The main chemical constituents of the wastewater discharge from the existing activity are understood and is designed to meet BAT-AEL or is sent to third party treatment and disposal.	Yes
2. You must assess the fate and impact of the substances emitted to water and sewer, following the Environment Agency's risk assessment guidance.	The wastewater treatment activity takes place as part of the existing permitted process. See Figure 2.1. The wastewater discharge from the activity is designed to meet BAT- AEL or is sent to third party treatment and disposal.	Yes
3. Discharges to water or sewer must comply with the conditions of an environmental permit or trade effluent consent. Relevant sources of waste water include: water or condensate collected from treatment processes waste compactor run-off vehicle washing vehicle oil and fuel leaks washing of containers spills and leaks in waste storage areas loading and unloading areas	The wastewater treatment activity takes place as part of the existing permitted process. See Figure 2.1. The wastewater discharge from the activity is designed to meet BAT- AEL or is sent to third party treatment and disposal.	Yes
4. To reduce emissions to water and sewer, if you need to treat waste water before discharge or disposal, you must use an appropriate combination of treatment techniques, including one or more of the following: preliminary or primary treatment – for example, equalisation, neutralisation or physical separation physico-chemical treatment – for example, adsorption, distillation or rectification, precipitation, chemical oxidation or reduction,	The wastewater treated as part of the existing permitted activity is undertaken via neutralisation with hydrochloric acid and through precipitation of metals. Treated effluent is fed to the filter press for dewatering with the treated water being reused within the treatment activity, discharged to sewer after appropriate testing to confirm it meets BAT-AEL or sent to third party treatment and disposal.	Yes

evaporation, ion exchange, or stripping biological treatment - for example, activated sludge process or membrane bioreactor nitrogen removal – for example, nitrification and denitrification solids removal – for example, coagulation and flocculation, sedimentation, filtration or flotation 5. You must direct wash waters from cleaning containers to a foul sewer or sealed drainage system for on-site re-use or off-site disposal. You may need to pre-treat the waters to meet any limits on the effluent discharge consent. Discharges of wash waters to surface water or storm drains are not acceptable.

The wastewater will be treated via neutralisation with hydrochloric acid and through precipitation of metals.

Treated effluent is fed to the filter press for dewatering with the treated water being reused within the treatment activity.

The wastewater could also be tankered off-site for treatment and disposal.

### 5.5 FUGITIVE EMISSIONS TO LAND AND WATER

Installation justifications with regards to emissions to land and water is detailed in Table 5.5 below.

### Table 5.5 Chemical waste appropriate emissions to land and water

<b>EPR Requirements</b>	<b>Current Arrangements</b>	BAT?
1. You must use appropriate measures to control potential fugitive emissions and make sure that they do not cause pollution. See the guidance on emissions to water and leaks from containers.	There are no containers to be used as part of this variation. See Table 5.2 with regards to emissions to water and leaks from containers.	Not applicable
<ul><li>2. You must have these in all operational areas of the facility:</li><li>an impermeable surface spill containment kerbs scaled construction joints a sealed drainage system</li></ul>	There is no drainage system where the treatment activity is taking place as all water in the pit area is contained and pumped to a tank. The waste treatment activity is taking place in a pit area with thick concrete walls and sealed joints which acts as a bunded area. The only drain point in the area is protected by a bund. The surface is reinforced concrete and is impermeable	Yes
3. You must have measures in place to prevent overflows	The APCR mixing and pelletisation activity is a moist and not wet	Yes

Yes

and failures from tanks and	process and any spill or overflow	
vessels, including where	would be confined to the locality of	
relevant:	the equipment and can be swept up.	
overflow detectors and	The area is a self-contained bunded	
alarms	area 68m x 68m and any overflow	
directing over-flow pines to a	would not have any route to water or	
contained drainage system	land	
locating tanks and nackaged	lund.	
liquids in suitable secondary		
containment (hunds)		
nroviding isolation		
mechanisms (for example		
closing valves) for tanks		
vessels and secondary		
containment		
4 Vou must collect and treat	Surface run-off is kent separate from	Ves
senarately each water stream	any process water	1.05
generated at the facility for	any process water.	
example surface run off	All process water and surface water	
water or process water	are collected and treated prior to	
Senaration must be based on	discharge to sewer or disposal off-	
nollutant content and	site to an appropriate treatment	
treatment required In	facility	
narticular vou must make	lacinty.	
sure von segregate		
uncontaminated water		
streams from those that		
require treatment.		
5. You must use suitable	Surface run-off is kept separate from	Ves
drainage infrastructure to	any process water.	100
collect surface drainage from	<i>J</i> 1	
areas of the facility where you	All process water and surface water	
store, handle and treat waste.	are collected and treated prior to	
You must also collect wash	discharge to sewer or disposal off-	
waters and occasional	site to an appropriate treatment	
spillages. Depending on the	facility.	
pollutant content, you must	,	
either recirculate what you	Treated process water is recirculated	
have collected or send it for	and reused.	
further treatment.		
6. You must have design and	All equipment is subject to a	Yes
maintenance provisions in	preventative maintenance	
place to detect and repair	programme.	
leaks. These must include		
regularly monitoring,	The waste treatment activity is	
inspecting and repairing	subject to a daily site inspection	
equipment and minimising	which would identify any leaks	
underground equipment and	which would be repaired.	
infrastructure.		
7. You should provide	The pit area is a large area,	Yes
appropriate buffer storage	approximately 68 x 68m, which	
capacity at your facility to	would be sufficient to contain all	
store waste waters, taking	slurry, process water and wastewater	
into account:	should all equipment have a	
	simultaneous failure which is	
	extremely improbable.	

potential abnormal operating scenarios and incidents the nature of any polluting substances and their impact on the downstream waste water treatment plant and receiving environment		
8. You must have appropriate measures in place to monitor, treat and reuse water held in the buffer storage before discharging.	The site has an onsite laboratory to be able to tests any collected water and arrange for appropriate disposal.	Yes
9. You must take measures to prevent emissions from washing and cleaning activities, including:	All process effluent is captured, treated and reused where practicable. The rest of the treated water is disposed to sewer or for off- site treatment as appropriate.	Yes
directing liquid effluent and wash waters to foul sewer or collecting them in a sealed system for off-site disposal – you must not discharge them		
to surface or storm drains where possible, using biodegradable and non- corrosive washing and cleaning products		
storing all detergents, emulsifiers and other cleaning agents in suitable bunded or containment facilities, within a locked		
storage area, or in a building away from any surface water drains preparing cleaning solutions in contained areas of the site		
and never in areas that drain to the surface water system		
10. Where relevant, you must have measures to prevent pollution from the on-site storage, handling and use of oils and fuels.	No storage of oils and fuels as part of this variation.	Not applicable
11. You must produce and implement a spillage response plan and train staff to follow and test it.	Staff are trained in spill response in line with the emergency plan for Kirkby.	Yes
12. Your procedures and associated training must make sure you deal with spillages immediately.	All spillages will be dealt with immediately in accordance with the emergency plan for Kirkby.	Yes
13. You must keep spill kits at locations close to areas where a spillage could occur and make sure relevant staff know how to use them. Make	The APCR is a solid and can be swept up. A chemical spill kit will be maintained with the waste treatment	Yes

sure kits are replenished after	area for any slurry or wastewater	
use.	spills.	
14. You must stop spillages	The only drain within the pit area	Yes
from entering drains,	has a bund surrounding it so there is	
channels, gullies,	no potential for accidental release to	
watercourses and unmade	it	
ground Vou must make	11.	
ground. Tou must make	The estivity talves along on	
proprietary sorbent		
materials, sand or drain mats	hardstanding which would prevent	
available.	any release to ground.	
15. You must make sure your	The site is a hazardous waste	Yes
spillage response plan	transfer station with onsite	
includes information about	laboratory which would be able to	
how to recover, handle and	assess any spilled material for	
correctly dispose of waste	hazard status and contain and	
produced from a spillage.	dispose of any spillage	
t B	appropriately	
	uppi sprincery.	
	The site has an industrial convisor	
	float which could	
	neet which could vacuum any	
	spillage to tanker pending disposal.	
16. Container washing	No container washing as part of this	Not applicable
equipment must be contained	variation.	
and located in a designated		
area of the facility that has		
self-contained drainage. The		
equipment must be designed		
to collect and contain all wash		
waters including any snrav		
Trained staff must operate		
increase and maintain it		
inspect and maintain it		
regularly.		
17. For sub-surface	The only subsurface structure in the	Yes
structures, you must:	pit area is the drain point to surface	
	water in the corner which is	
establish and record the	protected by a bund. The bund wall	
routing of all site drains and	is subject to periodic inspection.	
sub-surface pipework		
identify all sub-surface sumps		
and storage vessels		
engineer systems to minimise		
leakages from pines and		
make sure they are detected		
anickly if they do occur		
narticularly whore begardous		
particularly where hazardous		
substances are involved		
provide secondary		
containment or leakage		
detection for sub-surface		
pipework, sumps and storage		
vessels		
establish an inspection and		
maintenance programme for		
all sub-surface structures. for		
example, pressure tests, leak		
tests material thickness		
checks or CCTV		
CHECKS OF CC I V		

18. For surfacing, you must design appropriate surfacing and containment or drainage facilities for all operational areas, taking into account:	The surface and walls are thick reinforced concrete which was designed for heavy industrial use and is impermeable and resistant to the waste being treated.	Yes
collection capacities surface thicknesses strength and reinforcement falls materials of construction permeability resistance to chemical attack inspection and maintenance procedures		
19. You must have an inspection and maintenance programme for impermeable surfaces and containment facilities	All surfacing is included on the infrastructure maintenance programme.	Yes

### 5.6 EMISSIONS MONITORING AND LIMITS

Installation justifications with regards to emissions monitoring and limits is detailed in Table 5.6 below.

### Table 5.6 Chemical waste appropriate emissions monitoring and limits

EPR Requirements	Current Arrangements	BAT?
Emissions to Air 1. Your facility's emissions inventory must include information about the relevant characteristics of point source emissions to air, such as the: average values and variability of flow and temperature average concentration and load values of relevant substances and their variability flammability, lower and higher explosive limits and reactivity presence of other substances that may affect the waste gas treatment system or plant safety – for example, oxygen, nitrogen, water vapour, dust	Existing plant is abated. New plant - cement silo vents via dust filter. Rest of plant, no process emissions are expected as the material is treated moist and would not generate dust. All monitoring will be undertaken in accordance with the requirements oof the environmental permit when issued.	Yes
Emissions to Water 1. Your facility's emissions inventory must include information about the relevant characteristics of	The wastewater treatment activity takes place as part of the existing permitted process. See Figure 2.1. The wastewater discharge from the activity is designed to meet BAT-	Yes

#### 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, **COD** (chemical oxygen demand) and TOC (total organic carbon), nitrogen species, phosphorus, metals, priority substances or micropollutants data on bio-eliminability – for example, BOD (biochemical oxygen demand), BOD to **COD** ratio, Zahn-Wellens test, biological inhibition potential, for example, inhibition of activated sludge 2. For relevant emissions to water or sewer identified by the emissions inventory, you must monitor key process parameters (for example, waste water flow, pH, temperature, conductivity, or **BOD**) at key locations. For example, these could either be at the:

inlet or outlet (or both) of the pre-treatment inlet to the final treatment point where the emission leaves the facility boundary AEL or is sent to third party treatment and disposal.

The wastewater from the existing activity, See Figure 2.1, will be monitored prior to discharge from the final effluent tank in accordance with requirements in the sites environmental permit and discharge consent. Yes

# 6

## **ENVIRONMENTAL IMPACTS**

### 6.1 INTRODUCTION AND OVERVIEW OF SECTION

This section provides an assessment of the potential environmental effects of the foreseeable emissions from the activities to be included within this environmental permit variation application for the mixing and pelletisation of sand and cement with washed APCR into an aggregate product.

The emissions detailed below are with respect to the mixing of the washed APCR with sand and cement as well as its pelletisation. The other activities in the washing and treatment of the APCR, wastewater treatment and storage of washed APCR are already taken into consideration within the existing permit. This is detailed within Section 1.1 and Figure 2.1.

### **6.2 EMISSIONS TO AIR**

The APCR and cement are stored in silos which are fitted with filters on their vents to prevent any dust release during filling operations. As the material is used it would draw air in to fill the void and would not generate dust during those circumstances which would be captured by the filter.

The cement feed from the silo to the mixer is enclosed. Sand/washed APCR feed is undertaken by open hopper. The pan mixer is not enclosed as the process needs to be visible to allow tracking of pellet formation. The rotary pelletiser is also not enclosed due to the nature of the process being rotating tubes on a continuous basis.

The APCR is moist having previously been washed up to 5x the quantity of water to APCR prior to being dewatered and therefore would not generate dust. The moist nature of the APCR would help it to bind with the cement and sand to produce the final aggregate pellet.

Existing plant such as the reactor vessels are abated.

New plant - cement silo vents via dust filter. The rest of the plant, no process emissions are expected as the material is treated moist and would not generate dust.

Therefore, it is considered that the pelletisation process would not generate dust likely to cause an impact for the following reasons:

- The majority of the equipment is in a sealed system;
- The only potential risk from the APCR is dust generation and it is stored in a silo prior to washing which means it is then moist/wet which would minimise any potential dust generation;
- The pit area is below ground level and prevents any wind whip;
- The receptors downwind from site are over 1km away and is a local farm which would generate dust emissions of its own with its farming activities so would not be considered particularly sensitive;
- TGN M17 states that dust over 10 µm, as would be the case from the treatment activity, falls out between a couple of hundred metres and 1km. Therefore, in the unlikely event of dust being generated it would not reach any of the nearby receptors to cause nuisance.

### **6.3 EMISSIONS TO WATER**

There is no discharge to water or sewer from the pelletisation process.

The wastewater treatment activity takes place as part of the existing permitted process under activity A11. See Figure 2.1.

The wastewater discharge from the existing activity is designed to meet BAT-AEL for discharge too sewer or is sent to third party treatment and disposal.

### 6.4 EMISSIONS TO LAND AND GROUNDWATER

The proposed changes have no direct impact upon land and groundwater.

### 6.5 NOISE

The site has had an environmental permit under EPR since 2007 and there have been no noise complaints during that time which demonstrates that the environmental receptors in the surrounding area are not particularly sensitive to noise generated by the site.

The main noise generating equipment are the trommel, rotary and pan mixers as well as the pelletiser.

The proposed treatment activity is to take place in a below ground pit area which has thick concrete surrounding walls backed by earth which would act as a complete acoustic shield.

The site is in an industrial area with many different industrial processes operating that generate noise, and the industrial estate has busy internal roads and a very busy road (Perimeter Road) on the eastern edge of the industrial estate generating significant local noise through vehicle movements.

Local residential receptors are over 1km from site in a downwind direction.

Given the location and local factors the following factors would help to reduce the noise output from the site which are:

- Atmospheric absorption- 1.3 to 25 dB dependent on frequency
- Ground attenuation- 9 dB as over 1km to nearest residential receptor
- Acoustic barriers- full 20 dB is allocated due to lack of direct line of sight, reinforced concrete walls and earthen backing

All of the above factors should give a significant degree of attenuation of the noise from the process. Noise is therefore not expected to be considered an issue for the mixing and pelletisation activity given the pit area for the above reason.

Furthermore, the site is a batch process and will only operate during the site operational hours which precludes evening and nighttime operation further eliminating the risk of complaints.

### 6.6 HABITATS REGULATIONS ASSESSMENT

UK government guidance <u>https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site</u> states that a habitats regulations assessment applies to European sites in England and Wales and their inshore waters (within 12 nautical miles of the coast).

A European site is protected by the Conservation of Habitats and Species Regulations 2017 as amended (known as the Habitats Regulations). Under these requirements the EA must carry out an assessment under the Habitats Regulations to test if a plan or project proposal could significantly harm the designated features of a European site.

The following European sites are protected by the Habitats Regulations and any proposals that could affect them require an HRA:

- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)

Any proposals affecting the following sites would also require an HRA because these are protected by government policy:

- proposed SACs
- potential SPAs
- Ramsar sites wetlands of international importance (both listed and proposed)

After reviewing the Defra portal Magic it was found that there are no SPA, SAC or Ramsar sites or proposed European sites within 2km of the FIS site.

It is considered that as TGN M17 states that dust over 10  $\mu$ m falls out between a couple of hundred metres and 1km that there would be no potential for the site to have an impact upon a European designated site and therefore a habitats regulation assessment is not required and this has not been considered further.