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1 Introduction

1.1 General

O.C.O Technology Ltd (the 'applicant') has requested that Reva Environmental Ltd (the 'agent') prepares an Environmental Permit (EP) variation application, for its aggregate production facility off Central Avenue, Hallen, Avonmouth, BS10 7SD.

The facility treats air pollution control (APC) residues to create an aggregate that can be used in block manufacture. This is achieved through the application of the proven Accelerated Carbonation Technology (ACT). The ACT process consists of three stages:

1) Carbonation of air pollution control residue (APCr) and incinerator bottom ash (IBA) in a specialist mixerusing carbon dioxide and water;

2) Blending of the carbonated material with fillers (e.g. sand/limestone dust/other) and binders(e.g. cement/other); and

3) Pelletisation of the mix in a carbon dioxide laden atmosphere.

The resultant aggregate is conveyed to a screener/crusher and then into product storage bunkers.

This is currently carried out in two production lines which can operate in parallel. APC residues are delivered in powder tankers and transferred into silos, then into a reactor where they are treated with carbon dioxide to lower the pH and reduce the leachability of some heavy metals. The material is then mixed with cement, sand, and water to turn it into pellets. The pellets are stored in covered bays and used to make blocks. Processing is all carried out in a building.

The facility is currently authorised by EP ref. EPR/HP3638WW which was originally granted in September 2015 and which allows the following activities to be carried out:

- 5.3 A(1)(a)(vi) – Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving the recycling or reclamation of inorganic materials other than metals or metal compounds (R5). This listed activity applies twice (A1 and A2) to reflect the two production lines and allows the applicant to treat certain hazardous wastes for the purposes of producing pellets; and
- 5.6 A(1)(a) – Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes (R13). The maximum storage capacity is given as 1750 tonnes, and a maximum storage time of 6 months is enforced, from the date of receipt of the waste.

Three directly associated activities (DAAs) are included as follows:

- Handling and storage of wastes, prior to treatment and recovery activities for hazardous wastes;
- Storage of raw materials for use within production lines A1 and A2 – this is limited to 150 tonnes of cement at any one time, 700 tonnes of sand at any one time, and 50 tonnes of carbon dioxide at any one time; and
- Surface water collection and storage (uncontaminated roof and site surface) in two above ground storage tanks for re-use within the facility.

The applicant wishes to install a third treatment line at the site. The line will be an exact duplicate of the two existing treatment lines, will process the same permitted wastes, and will utilise the same permitted raw materials to produce the aggregate. It will be located to the north of the two existing production lines, within the existing building footprint. It is proposed that the addition is addressed in the EP by way of the following changes:

- Inclusion of the third line as an additional listed activity under S5.3 Part A(1)(a)(vi) in Table S1.1;

- Increase of the total storage limit for hazardous waste specified against AR3 in Table S1.1. The current EP limits storage to 1,750 tonnes of waste at any one time. This is in 8 storage silos. The proposal includes the addition of 4 more storage silos, an increase of 50%. The storage limit is therefore to be increased by 875 tonnes to 2,625 tonnes. The additional storage silos would be located on a dedicated pad to the west of the existing silo pad, where the EP currently allows water and CO_2 storage;

- Increase of storage of binder. This is currently permitted in one silo, adjacent to the waste silos, which has a capacity of approximately 125 m^3. The proposal includes an additional binder silo to be placed on an extension to the existing silo pad foundation immediately to the south of the existing silo, increasing the total storage capacity to 400 tonnes;

- Increase of storage of filler. This is currently permitted in a storage bay that has a capacity of approximately 400 m^3 and two additional bays No.1 and No.2 which have never been used. This application seeks to surrender both the area of the primary storage bay and the unused areas. The currently used bay will become new Aggregate Storage Bay 1 (not covered by the EP as it is a product not a waste) and a new larger bay will be built for filler which will have a capacity of 880 m^3 (an overall increase of 480 m^3). Any one of the available Aggregate Bays 4 to 7 can also be used for filler storage; noting that only one would be used at any time. This would allow O.C.O to retain sufficient filler for the times when quarries close but the aggregate facility remains open. This is a further 400 m^3. This equates to a total filler capacity of 1,280 tonnes (compared to the current permitted limit of 700 tonnes);

- Increase of CO_2 storage. The current EP allows for two tanks although the applicant has only built one; the EP allows total storage of 50 tonnes. The existing tank will be removed and a new pad installed to the east of the process building which can accommodate 2 new tanks. The current storage limit is for 2 tanks so the physical permitted infrastructure will remain unchanged, however the capacity is doubled to 100 tonnes (each tank is 50 tonnes);

- Inclusion of new emission points in Tables S3.1 for the vents on the four new waste silos, and one new binder silo.

The existing EP boundary comprises four separate areas. Two of these are Additional Sand Bays No.1 and No.2. These have never been used for this purpose. This application seeks to surrender these as a low risk surrender (having never been used for the permitted activity) and includes this by way of completion of application form Part E2 for the partial surrender of the EP. The addition of new silos/tanks, the relocation of the primary filler storage bay, and the moving of the water and CO_2 tanks requires the boundary to be slightly amended. The proposed new boundary is defined on the site plan provided in **Appendix C** of this variation application.

As required by Question 3a of EA Application Form Part C3, a best available techniques (BAT) assessment is required to support the operating techniques set out in this application. The techniques that would be applied to the operation of the third production line are unchanged from those already permitted, therefore the techniques referred to in Table S1.2 of the permit remain relevant and applicable. Whilst a BAT assessment was written, provided and approved at the time of the original EP application, an updated BAT assessment is provided to clarify these techniques, capture changes implemented since the original EP, and to therefore comprehensively document the measures in place at the facility.

The activities have been assessed against indicative best available techniques (BAT), in accordance with the following guidance:

- EA Sector Guidance Note IPPC S5.06 "Recovery and Disposal of Hazardous and Non-Hazardous Waste, Version 5 dated May 2013 ('IPPC S5.06')

The BAT assessment has been written on the basis of information provided to the agent by the applicant.

2 Techniques for Pollution Control

2.1 In-Process Controls

BAT guidance IPPC S5.06 recognises that the implementation of pre-acceptance and acceptance procedures for waste, waste storage and waste treatment will prevent the acceptance of unsuitable wastes and therefore limit the likelihood of adverse reactions or uncontrolled emissions.

O.C.O recognises that in the hierarchy of the management of environmental impact, the first option is to identify ways in which to prevent the release of harmful substances. This can be achieved through the comprehensive characterisation of the incoming wastes, use of appropriate storage arrangements and selection of the most appropriate treatment technology. These are considered in turn below, in accordance with Section 2.1 of S5.06.

2.1.1 Pre-Acceptance Procedures

IPPC S5.06 refers to the need for a screening step whereby the operator obtains information on the incoming waste.

O.C.O has an inward specification for waste that is either used as is or is modified to be specific to the source mix based on the quantity (therefore the proportion of the totalwaste throughput that it will comprise) and sample analysis undertaken. The specification is provided by O.C.O to the waste producer and agreed with the contractor, and sets the basis of pre-acceptance.

O.C.O's procedure *OP_GEN_408 "Pre-acceptance Procedure"* sets out the specific requirements for pre-acceptance. The following information is obtained by O.C.O for each new waste producer:

- The nature of the process producing the waste, including the variability of this process;
- The composition of the waste (chemicals present and individual concentrations); and
- A representative sample of the waste will be taken and analysed.

All information relating to pre-acceptance is recorded and referenced to the waste stream so that it is available at all times. If any changes in the waste stream take place, this information is reviewed and updated.

All records relating to pre-acceptance are maintained on site for cross-reference and verification at the waste acceptance stage. These records are kept for a minimum of 6 years.

2.1.2 Waste Acceptance Procedures

Prior to acceptance of waste, the operator will ensure that it is accompanied by a written description (consignment note) of the waste describing:

- The physical and chemical composition of the waste;
- Hazard characteristics and handling precautions;
- Any compatibility issues; and
- Information specifying the original waste producer and process.

The waste is weighed at the site of waste production and is brought to site in sealed tankers. Upon arrival at the site, all documentation for the APCr is assessed to confirm that the waste can be accepted for processing. O.C.O's procedure *OP_GEN_301 "receipt of bulk powder tanker"* is followed and on site verification of the waste takes place as follows:

- The driver provides a sample of the load to the O.C.O laboratory technician;
- The technician undertakes analysis (in accordance with O.C.O's procedure OP_GEN_401 "sampling and testing of bulk powders") and compares the results against the specification. Part of that is visual inspection to check that it confirms to the documentation provided. The checks confirm:
  - The identity of the waste;
  - The description of the waste;
  - Consistency with pre-acceptance information and proposed treatment method; and
  - Compliance with the EP.

If the APCr arriving at the site does not confirm to the pre-acceptance and acceptance testing, it is rejected, in accordance with O.C.O's procedure OP_GEN_401 "sampling and testing of bulk powders". If the first sample fails it is re-sampled. If the second sample fails for reasons that mean it cannot be processed in the facility, the waste producer is informed that the load has been rejected and it is either returned to the producer or transferred elsewhere (to a suitably permitted facility).

If it fails but can be processed (as determined by the senior technician), it is discharged into a specified silo and the mix adjusted to enable it to be processed. The product testing regime can be altered to reflect the decision to process this waste to identify the impact of the variance found at waste acceptance stage. The waste producer is still informed of this such that the reason for the failure can be investigated.

A tracking system is in place which holds all documentation provided by the driver, written results of acceptance analysis and details of offloading point or off-site transfer location. Records relating to rejection of waste are also retained.

Following the completion of the waste acceptance procedures, the APCr is offloaded into one or more of the incoming waste silos. Level gauges on the silos identify what storage capacity is available in each, and offloading only takes place if there is sufficient storage space within the silo.

2.1.3 Waste Storage

The layout of the site activities, including waste storage areas, is shown on the Site Layout Plan provided in **Appendix C** of this variation application. APCr is currently stored in 8 silos; the 2022 variation application seeks to authorise the use of 4 more.

The silos are suitably sized (132 m^3 each) for the permitted volumes, including headroom to allow for extra storage to reflect seasonal variations or to provide emergency storage in the event of production breakdowns. They are situated in two areas, one adjacent to the southern side of the process building (the 8 existing silos) and the other to the southwest corner of the process building (the proposed additional 4 silos). They are designed in accordance with industry standards for the waste type and operational experience at the existing site; they have lightning protection (as does the process building).

The silos are set on elevated frames on a raised concrete plinth to protect them from vehicle movements. The tanker discharge points (for unloading of APCr) are fixed; the tanker connects its flexible hose to the fixed point. The load points are capped and locked when not in use. The design of the silos specifically excludes the use of flexible couplings (as these are prone to failure); any failure of automatic valves can be isolated via manual valve. Catastrophic failure of a silo would lead to the instigation of the site emergency plan.

High level alarms and over pressure alarms are in place for all the silos (audible and visual), and incorporate an automatic shut off. Exhaust air (the silos vent to enable filling to occur) is filtered for dust.

The silos are separately numbered and the contents and levels in each are recorded so the operator can track waste from separate sources once on site. A driver is given the key only for the relevant tank for discharge following confirmation of acceptance of the waste. Prior to discharge into any one silo, the tanker driver is required to perform a 'ground level test' which will check that the silo systems are correctly operatingand it's safe to discharge. The system is such that the driver will not physically be able to unload until this has been carried out.

The silos are subject to regular inspection and maintenance as part of the planned preventative maintenance (PPM) programme. This inspection regime extends to the overhead pipework that carries the material into the process building. Integrity testing is also carried out at a regularity defined by the risk assessment.

Once received, the APCr is processed as soon as possible so storage time is constrained by the storage capacity.

2.1.4 Waste Treatment – General Principals

IPPC S5.06 states that treatment involves a change in, or modification to, the characteristics of a substance to make it suitable for another means of disposal.

The proposed facility uses Accelerate Carbonation Technology (ACT) to recycle thermal treatment residues to produce an aggregate with 'End of Waste' status. It is a technology which is the outcome of extensive research by the University of Greenwich into the effect of carbonation on waste materials. Investment by Grundon Waste Management Ltd has allowed O.C.O to develop the ACT facilities that are currently operational in Brandon, Suffolk, Leeds and at the site subject to this application, in Avonmouth.

The treatment of APCr using ACT is well defined and established at the existing facilities. The nature of the waste is understood (and relatively homogenous) and the opportunity for up to 100% recovery of the constituents supports the chosen treatment process. If the resulting aggregate does not meet the End of Waste specification, it is re-processed.

The treatment process consists of three stages:

- Carbonation of air pollution control residue (APCr) in a specialist mixer using carbon dioxide and water;
- Blending of the carbonated material with fillers (e.g. sand/limestone dust/other) and binders (e.g. cement/other); and
- Pelletisation of the mix in a carbon dioxide laden atmosphere.

The resultant aggregate is conveyed to a screener / crusher and then into product storage bunkers.

Control of fugitive emissions to air has been considered for the site at the point of original permitting; this has been reviewed and updated, and presented in the Environmental Risk Assessment submitted as part of the variation application (Appendix E, ref. OCO_2020.03/04).

2.1.5 Record Keeping

Records are maintained at the site relating to the pre-acceptance, acceptance, storage, treatment and/or removal off-site of waste. These records are kept up to date on an on-going basis to reflect deliveries,on-site treatment and despatches. The record system includes, as a minimum, the following:

- Date of arrival on site;

- Producer's details;
- Pre-acceptance and acceptance analysis results (if applicable);
- Quantity of waste;
- The nature and quantity of wastes held on site, including all hazards and identification of primary hazards; and
- Where the waste is physically located (shown on a site plan).

The recording system will be capable of reporting on all of the following:

- The total quantity of waste present on site at any one time;
- Indication of where the waste is located on site (shown on a site plan);
- Comparison of the quantity on site against the total allowed by the EP; and
- Comparison of time the waste has been on site against any limit specified in the EP.

These records are maintained on the computer system within the site office and a backup copy of all computer records will be maintained off site.

2.2 Emissions Control

2.2.1 Point Source Emissions

There are no point source emissions to air or any direct emissions to groundwater from the site.

There is a single point source emission to sewer; the discharge of (treated) surface water from the attenuation tank to the public sewer on the adjacent road. There is no discharge consent required for this.

The surface water generated at the site comprises the following:

- Surface water run-off from the aggregate storage, screening and loading area (that could have come into contact with the aggregate);
- Surface water run-off from the rest of the site's hardstanding (uncontaminated rainwater); and
- Roof water collected from the process building.

The surface water run-off from the aggregate storage, screening and loading area may contain particulates so is directed to public sewer (no discharge consent is required) via a Wedge Pit for the separation of particulates (two-stage weir silt trap). There is also a three-stage oil/water interceptor on the site.

The uncontaminated surface water from the latter two sources is collected in two above ground storage tanks and can be pumped to the plant for use in the manufacturing process. The use of surface water run-off (and potentially the roof water) aims to reduce mains water usage. The current EP also allows uncontaminated water to be discharged off site into the River Rhine if needed, via an existing outfall pipe.

2.2.2 Fugitive Emissions

IPPC S5.06 recognises that the level of detail relating to fugitive emissions should be in keeping with the risk of causing annoyance at sensitive receptors. Common sources of fugitive emissions are storage areas, waste loading and unloading activities, transferring/bulking up of materials from one vessel to another, pipework and ductwork systems, poor building containment and extraction, wastewater storage, spillages and accidental loss of containment from failed plant and equipment.

There is the potential for the storage and treatment of the APCr to generate fugitive emissions to air, land, and surface water. The Environmental Risk Assessment included in Appendix E of the variation application details the measures that are taken to control these fugitive emissions.

APCr is not odorous and, given that the waste is delivered in sealed tankers, stored in silos and processed within the process building; it is deemed very unlikely that there will be odour detected beyond the site boundary, even if the weather conditions are not favourable.

Given the transportation, offloading procedure, storage arrangements, and processing procedures, it is also deemed very unlikely that the activity will generate dusts.

The site plant generates noise and vibration. The noise design specification for the plant is such that employees are protected; the plant does not exceed 80 dB(A) at 1 m from the noise sources. Operations are 24/7 but the process plant is within an enclosed building. Any complaints are recorded in the site diary, an investigation undertaken and findings acted upon. White noise reversing beepers utilised on plant. Audible high level alarms on process plant are within the confines of the building.

No specific fugitive emission management plans have been identified as being required. It is recognised that the EP includes a condition requiring the applicant to implement and maintain such management plans in future, should issues of odour, noise or dust arise.

2.2.2.1 Dust

Dust from the existing two lines has been assessed and considered in order to obtain the existing EP. This variation application does not amend these, nor the type of processes carried out within the building. Since that time, however, O.C.O has implemented a number of additional measures. These are as follows, and are reflected in the updated ERA:

- Dust covers have been installed on the 'exchange' points on both the sand delivery conveyor belt and the aggregate curing belt (this is where the conveyors change direction and drop material onto a new belt). The third line does not change the aggregate curing belt or the external elements of the sand delivery belt. There will be a new sand belt for the third line but it will be inside the building where it is not prone to wind dispersion;
- Steam / dust will be extracted from the hopper below the first stage mixer and filtered. The filtration unit (a wet wall filter system) produces a small volume of dirty water that can be added to the process water supply and does not need to be disposed of off-site. The filtration unit will use mains water supply however this is supplemented by harvested rain water; and
- Automatic water sprays have been installed for dust suppression in the aggregate yard and routes with high vehicle movements. The third line will not affect this arrangement.

2.3 Management

The applicant recognises that an effective management system is a key technique for ensuring that pollution prevention and control techniques are implemented and support compliance with BAT. IPPC S5.06 notes that the Environment Agency strongly supports the operation of a formal environmental management system (EMS) and recommends certification to a recognised standard such as ISO 14001 or EMAS.

O.C.O operates an integrated management system that is certified to ISO 14001 (EMS), ISO 9001 (QA), and OHSAS 18001 (H&S). The overarching policies and management procedures apply to all the existing operational sites, while local operating procedures are developed that are site-specific.

To confirm, effective operational and maintenance systems are employed which include:

- Documented procedures to control operations that may have an adverse impact on the environment;

- A defined procedure for identifying, reviewing and prioritising items of plant for which a preventative maintenance regime is appropriate; and
- A preventative maintenance programme covering all plant whose failure could lead to an impact on the environment.

The maintenance system includes the auditing of performance against requirements arising from the above and reporting the result of audits to top management. O.C.O's procedure is MP_GEN_019 "internal audit procedure".

A training system is in place which ensures that all staff are provided with relevant training such that they have an awareness of the regulatory implications of the EP for the activity and their work activities, an awareness of potential environmental effects from operation under normal and abnormal circumstances, and an awareness of the need to report deviation from the EP and to also prevent accidental emissions and to take action when accidental emissions occur. O.C.O's procedure is HR_GEN_023 "Training policy procedure".

A record is made of the skills and competencies necessary for key posts which includes contractors and those purchasing equipment and materials. The site is operated by competent personnel who hold the requisite WAMITAB certificate for the management of waste.

Procedures are in place to detail how to handle, investigate, communicate and report actual or potential non-compliance with operating procedures or emission limits. Procedures are in place to detail how to handle, investigate, communicate and report environmental complaints and implementation of appropriate actions; this is O.C.O's procedure MP_GEN_020 "Non-Compliance Procedure".

All management procedures are periodically reviewed and updated if necessary to ensure that they are up to date, in line with current EA guidance, and working effectively

2.4 Raw Materials

2.4.1 Raw Material Selection

The following raw materials are used at the site:

- Binder e.g. cement, ground granulated blast furnace slag (GBBF), or other similar cement extender material;
- Filler/fine aggregate e.g. sand, limestone dust, or other similar material;
- Water; and
- CO_2.

A list of the raw materials used at the site is maintained and usage on a batch by batch basis is recorded. Known weights are received (weighed prior to delivery). Raw material usage is reported internally on a monthly basis. O.C.O has developed a standard specification for raw materials that the supplier mustmeet and this is checked on a regular basis to ensure continued conformance.

The raw materials used at the site are periodically reviewed in order to identify alternative options that may present a more sustainable option e.g. with respect to location or grade of material. O.C.O looks to minimise the use of raw materials whilst still meeting the required aggregate specification.

Where potential reduction measures, and if possible any new raw materials which have an improved environmental profile, are identified these are implemented if assessed to be economically feasible.

2.4.2 Waste Minimisation

Waste minimisation is where a systematic approach is taken to reduce waste at source through an understanding of, and applying changes to, processes and activities in order to prevent and reduce waste. Section 2.4.2 of S5.06 requires consideration of waste minimisation in the context of the minimisation of the use of raw materials.

The nature of the site as a waste recovery facility means that 100% of the incoming waste is recovered by the process. The small quantity of waste likely to be generated at the site is limited to general waste from the office and welfare facilities, maintenance materials from the workshop, spent particulate filters from the silos, sludge from the oil/water interceptor, and sludge from the surface water weir. The latter will be mixed with the filler material for use in the process; all other waste generated will be appropriately stored and removed off-site to a suitably permitted facility for recovery, recycling or disposal.

All efforts are made to actively reduce the quantity of waste generated on site. This is achieved through the on-going identification and implementation of waste prevention opportunities, the monitoring of raw materials usage, and by the active participation and commitment of staff at all levels.

It is considered that the process is already very refined, as a result of the mixing specification being tailored to achieve the product quality requirements.

2.4.3 Water Use

Water is used within the process, for mixing Stages 1 and 2. The process water is stored in two 25 m^3 tanks that are located outside, adjacent to, the process building. These are filled from the mains supply but can be topped up with clean roof water (harvested rainwater).

Water usage is typically 0.3 m^3 per tonne of waste processed (30 tonnes/day per line) (this is based on water being added to the waste at a 1:5 ratio). Usage is recorded and regularly reviewed in accordance with the EP condition requiring it. Where this identifies viable opportunities for the reduction in mains water use, changes will be implemented. Mains water is metered so can be quantified, but also sub-meters enable O.C.O to quantify how much is used in each mix. Water usage is reported internally on a monthly basis. Water usage will increase proportionally with the addition of the third process line.

Water is also used for dust control as described in Section 2.2.2.2 above. The wet wall filter system for the first stage mixer will use mains water but this is supplemented by harvested rainwater from the roof of the building. The automatic water sprays in the aggregate yard and main vehicle routes will use mains water also supplemented by harvested rainwater.

In accordance with the standard requirements in the EP, a review of water use is carried out at least every four years. This analyses the use of water, assesses the opportunities for reductions and includes the generation of an action plan to implement identified improvements.

2.5 Waste Handling, Recovery and Disposal

See Section 2.1 above for details of waste pre-acceptance, waste acceptance and waste storage.

The fundamental purpose of the facility is to recover the incoming waste stream, enabling it to be placed back into the market in place of virgin materials. The nature of the site as a waste recovery facility means that 100% of the incoming waste is recovered by the process.

2.6 Energy

2.6.1 Energy Consumption

Energy use is monitored and energy consumption data provided to the EA as required by the EP.

Mains power is used for all the processing plant within the building, lighting, and in the offices and welfare facilities. Mains electricity usage is metered and O.C.O can track and interrogate energy usage at any time.

2.6.2 Energy Management Techniques

O.C.O recognises that the manner in which its activities are operated can have a significant impact on energy consumption and that the optimisation of operating procedures and equipment schedules, as well as maintenance and general housekeeping procedures, can lead to significant energy efficiency improvements.

O.C.O has established and implemented a servicing and maintenance schedule to ensure that equipment and infrastructure is subject to regular checks and works that are necessary to achieve optimum efficiency. In addition to this schedule, the applicant has taken the opportunity to identify and install energy management techniques prior to commencement of operations. These include the following:

- Use of low energy lighting;
- Use of lighting with motion sensors so lights are only on when personnel are in the area;
- Installation of clear wall panels in the process building to utilise natural day light and minimise the need for lighting;
- Mixers and motors (and other equipment) rated > 7 kW are all 'soft start' or inverter driven in order to minimise the peak loading;
- Electric motors are specified as class IE2 for energy efficiency (as set out in IEC 60034-30:2008) which is defined as 'high efficiency'; and
- Plant is controlled by a plc system which minimises power usage as items will be automatically turned off when not required.

2.6.3 Energy Efficiency Plan

O.C.O endeavours to be as efficient as possible with energy usage; this is in line with the nature of its business which seeks to offer a full recovery option for a hazardous waste. The site has been designed with this in mind.

The energy management techniques are reviewed on a regular basis, and inspection and maintenance programmes ensure that the techniques continue to be effective. The activities carried out on site do not require supply of hot gases, steam, or hot water; the energy requirements are limited to mains supply.

An energy efficiency plan has been written for the site which is periodically reviewed and updated.

2.6.4 Further Energy Efficiency Requirements

The applicant does not participate in a Climate Change Agreement nor is a Direct Participant in the Emissions Trading Scheme (ETS). The applicant commits, however, to undertake measures to ensure compliance with any further permit-specific requirements as determined by the EA.

2.7 Accidents

BAT requires the applicant to have an accident management plan that identifies the likelihood and consequence of accidents and action to prevent and mitigate these. BAT guidance also sets out the general management requirements for operators under the EP regime. This is based on three components: the identification of hazards posed by the permitted activities; an assessment of the risks of accidents and possible consequences; and the implementation of measures to reduce the risk, as well as consideration of contingency measures in the event that accidents do occur.

O.C.O operates the site in accordance with procedure MP_GEN_027 "Emergency Preparedness Response Procedure" which also includes the recording of near misses and small accidents. To summarise, the applicant completes a HAZOP review, reviews the relevant risk assessments (e.g. fire, flood), then develops procedures based on the outcome of the risk assessments to put in place appropriate mitigation measures to prevent accidents occurring. Audits are carried out to check that the procedures are being followed and tool box talks are employed to communicate and refresh employees of the requirements.

The procedures include the investigation of incidents (and near misses) including identifying suitable corrective action and follow up. Procedures and risk assessments are regularly reviewed during the operation of the site and following any incident or accident on site. They are updated as required following review.

2.8 Noise

BAT Guidance recognises that the level of detail relating to fugitive emissions e.g. noise and vibration should be in keeping with the risk of causing annoyance at sensitive receptors.

Potential noise emissions for the existing two lines are considered in the original qualitative environmental risk assessment and additional detail regarding the third line is provided here.

"The installed equipment shall be designed and constructed so as to:-

- Reduce the risk of damage to hearing, due to noise exposure, to the lowest level reasonably practicable.
- Eliminate at source any risk due to noise exposure or, where this is not reasonably practicable, the reduction of risk to as low a level as is reasonably practicable."

The site plant generates noise and vibration. The noise design specification for any plant is such that employees are protected. The proposed new plant shall be designed so that any externally located plant, either as a whole or any component of the plant, shall not exceed 80 dB (A) or a peak sound pressure of 130 dB (C) when measured at 1.0 m distance from the source of the noise as assessed by an independent and appropriately qualified expert.

Any complaints are recorded in the site diary, an investigation undertaken and findings acted upon. White noise reversing beepers are utilised on plant. Audible high level alarms on process plant are within the confines of the building.

In addition to this, the following is noted:

- The compressors and blower for the additional 4 APCr silos pneumatic conveying systems are situated on the silo plinth. These are all proprietary packaged units inside soundproof enclosures (the existing silos use sealed augers to move the material).
- The existing two lines run on one compressor with a standby so there is only one running at any given time. This was initiated as a result of energy efficiency audits but has the added benefit of reducing noise.
- The third line will bring a new dedicated air compressor, this will be in an acoustic enclosure.
- The second filler silo will have a transfer system to refill the existing silo. This will be a lean phase pneumatic system with a packaged blower equivalent or better than the existing cement blower.
- All point sources are at least 25 m from any site boundary.

With regards to noise, the potential noise sources, the pathway for propagation, and the sensitivity of the receptors have been considered in the updated qualitative risk assessment (a copy of which is provided in Appendix E of this variation application) and deemed not to warrant a full noise

assessment or management plan. The information provided in the qualitative environmental risk assessment is considered sufficient.

2.9 Monitoring

There are no point source emissions to air or any direct emissions to groundwater from the site that require monitoring. Monitoring in relation to the waste processes is limited to evaluation of the use of energy and water. These are discussed in turn in specific sections of this BAT Assessment above.

No monitoring is required beyond the EP boundary.

There is a single point source emission to public sewer; the discharge of water from the two-stage weir and oil/water interceptor. No discharge consent is required for this.

O.C.O monitors energy use, the quantity of raw material used and waste emissions, as set out in Section 2.4. The monitoring results are reported to the EA if required, at the frequency required by the EP.

2.10 Closure

There is a site closure plan for the site which details how the site would be decommissioned to return it to a satisfactory state upon the cessation of activities on the site.

It covers the following:

- References to plans showing the position of underground pipework, culverts or other structures, the location of watercourses and drains, and the permeability of the underlying ground structure;
- Identification of potentially hazardous materials located in above or underground structures;
- Identification of how those structures will be decontaminated, in addition to consideration of any other hazards that dismantling the structures may pose; and
- Identification of any other pertinent issues that might need addressing at the point of decommissioning.

This is subject to regular review and update, including after any significant changes to the site that could impact the context of the closure plan.

In order to provide a baseline against which the applicant can assess the site at the time of surrender of the EP in the future, a number of reports have been provided to the EA historically as part of the original EP application. These are as follows, in chronological order:

- Preliminary Geo-Environmental Assessment, TEC Ltd, Ref. 1204012.005.01A December 2014
- Remediation Strategy & Verification Plan, TEC Ltd, Ref. 1204012.006.01A February 2015
- Surrender Site Condition Report – TEC Ltd, Ref. 1204012.007.01A February 2015

O.C.O will implement the control measures that have been identified through risk assessment, throughout the duration of its operation under an EP in order to ensure that the site is returned to a ‘satisfactory state’ atclosure. Where instances arise that have, or could have, impacted on the state of the site, these will be recorded, detailed, and remediation undertaken where required and appropriate. This will ensure that a record is kept of the state of the site throughout the EP period.

3 Emission Benchmarks

3.1 Emissions Inventory

In accordance with EA guidance, the nature and sources of foreseeable emissions will be identified.

For the proposed activity to be undertaken on site, this is limited to the recording of the quantity and composition of any waste removed from the site, recorded as tonnes per month.

4 Impact Assessment

EA guidance indicates that an assessment is required to look at the significant environmental effects of foreseeable emissions. The EA guidance also indicates that the depth to which this assessment should go should be discussed with the Regulator.

It is considered that the nature of the proposed activities is such that emissions are very limited and thus the overall environmental impact of the site is minimal. As the site is operated with the purpose of recovering waste that would otherwise be disposed of, the site is having an overall positive impact on the environment. As such, it is not considered that an in-depth impact assessment is required.