Permit Variation
Supporting Statement & Non-Technical Summary

EPR/BJ5208IJ

Blue Haze IBA Recovery

Veolia ES Landfill Limited

July 2024

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1. Non-technical summary

1.1. Introduction

This non-technical summary supports the application for a variation application for an environmental permit held by Veolia ES Landfill Limited 'Veolia' referenced BJ5208IJ (as varied) at Blue Haze Landfill Site.

The site is located at:

Blue Haze Landfill
Somerley
Nr Ringwood
Hampshire
BH24 3QE

The site is permitted to accept non-hazardous waste. Waste disposal commenced in Cell 1 in April 2000 and is currently ongoing. The site comprises 9 cells. Some of the cells are now filled, capped and restored to final levels; some are partially filled; while others are fully operational and are still accepting waste.

The site is located approximately 1.5km southeast of Verwood and 2.5km northwest of Ringwood. It covers approximately 31 hectares and is centred on National Grid Reference (NGR) SU 119 074.

The landfill operations involve the filling of a former void created by sand and gravel extraction at the site.

The landfill is operated on the principle of engineered containment, incorporating low permeability basal and sidewall seals. As landfilling proceeds the site is progressively capped with an impermeable membrane and covered with a layer of restoration soils.

Activity duration

An agreed Cap Removal Management Plan (CRMP) is in place and agreed with the EA, the CRMP will be followed following cessation of the IBA activity for the removal of the temporary cap and final landfilling of the area, prior to this occurring the EA will be informed of an updated programme of works.

The IBA recovery activity is linked to the end date for landfilling activities, the IBA activity will be decommissioned approximately one year prior to the completion of the landfill to allow for final landfilling, capping and restoration of the area.

1.2. Permit Application

This application consists of the variation of Table S1.1 of permit BU5208IJ to add an additional part A activity, S5.4 A(1) (b) (iii) for the treatment of IBA from municipal waste

incineration to the landfill permit, the activity will be >75t/day and > 75 kt/annum for recovery.

The activity will be carried out on top of landfilled waste (cells 8 & 9) which currently benefit from an installed temporary cap along with leachate and landfill gas management systems, further details of the temporary cap can be found in section 5 below and details of the continuation of landfill gas and leachate control are detailed in section 6.

The proposed IBA processing activity will be linked to the life of the landfill. The operation will be fully decommissioned including the removal of IBA stockpiles, plant and associated equipment as well as surfacing prior to the end of the landfill life and cells 8 & 9 will be landfilled to final consented levels in accordance with the agreed Cap Management & Removal Plan. The Cap Management & Removal Plan will be updated immediately prior to recommencement of landfilling of the area to take account of prevailing conditions.

2. Management System & Technical Competence

2.1. Management system

The Veolia Management System is registered and approved to standards ISO 9001, ISO 45001 and ISO 14001. The operational, monitoring and management procedures implemented at the subject facility, are in accordance with the Veolia Management System and have been audited against the requirements of the standards detailed previously.

The proposed operation will be covered by group level and local procedures which form part of the Company's documented management system. A summary of Veolia's Business Management System is provided.

2.2. Technical competence

Certificates of Technical Competence (awarded by WAMITAB) are attached at Appendix A. Veolia considers there are sufficient suitably trained staff members to provide coverage at the subject facility during leave periods.

Current COTC holder for the Blue Haze Landfill Site is: Steven West

3. Application contact information

Main contact:

David Jebb
Veolia ES Landfill Limited
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mob: 07831 204923

4. Application Contents

App A - Application Form

- Forms A, C2, C3 and F
- Summary of Environmental Management System
- WAMITAB certificates of technically competent management

App B - Drawings

App C - Dust Management Plan

App D - BAT Assessment

App E - Flood Risk Assessment

App F - Environmental Risk Assessment inc. Habitats Review

5. Containment Engineering & Surface Water Control

5.1 Temporary Cap Construction Details

The IBA processing area will be located within areas of the landfill where a temporary cap is currently in place. The existing temporary cap will provide the sealing / separation layer between the process operations and the underlying landfill body of waste. The existing temporary cap comprises a 1mm welded LDPE geomembrane in the Phase 8 area of the site and a 0.4mm powerscrim LDPE geomembrane within the Phase 9 area. The temporary capping geomembranes were installed in 2020 and 2021. LDPE geomembranes exhibit good elongation properties and so are able to accommodate relatively large strains without tearing. These strains may be associated with settlement of the underlying waste from the processing and stockpiling of IBA, however this is predicted to be minimal, given the age of the underlying waste.

In areas where sumps and lagoons are to be constructed the existing temporary cap will be removed prior to the excavation of waste to achieve the required profile. These areas will then be reinstated using an enhanced composite lining system comprising a GCL and welded LDPE geomembrane.

These geomembranes along with appropriate surface water drainage measures, will ensure that any surface water collected within the IBA processing area is kept separate from the rest of the landfill site.

5.1a Waste Settlement Predictions

Based on settlement readings taken as part of the landfill permit requirements on the area adjacent to the proposed facility (Phase 7), the site is settling at a rate of up to 50mm per annum (or an average of 33mm per annum). Over a 5 year period we could expect settlements to be up to 250mm. Settlements of 250mm have been modelled across the entire IBA processing area and are shown on the attached Drawing.

Differential settlement may occur due to plant loading stockpiling etc although the extent and location of this loading will be variable. However as the plant and stockpiles locations will change throughout the IBA processing operation it is not possible to locate any areas of potential differential settlement. The proposed mobile plant to be used in the process has a load of approximately 30t. This loading will be distributed over the tracked footings producing a ground pressure of approximately 81KN/m2. Further to this, plant loading pressures will be reduced by the presence of a 1m deep layer of MOT Type 1 material, through which any point loading will further be dissipated, which will reduce the ground bearing pressure to approximately 12 KN/m2. This level of loading is similar to a 1m high IBA stockpile, or 1.2m of waste and could be considered as a low pressure scenario for typical landfill geomembranes.

Differential settlements observed over the Phase 7 area are in the region of 83mm. Maximum differential settlements recorded at the deepest parts of the landfill site, measured over a period of 7 years are up to 1m. The drainage falls over the proposed IBA plant area are approximately 2m on both the Cell 8 and Cell 9A areas. The current drainage falls are shown on the attached Drawing. It is therefore expected that this level of settlement could be accommodated comfortably within the proposed design without affecting the surface water drainage characteristics of the area. In the scenario where differential settlement did cause a restriction in drainage flows across the site, these could be remedied by installing additional drainage within the affected area, or through the addition of a further surface water pumping location.

The geomembranes installed offer a high degree of protection against failure under strain and are designed for use in landfill environments. Typically geomembrane extensions in the region of 12-20% can be accommodated prior to failure.

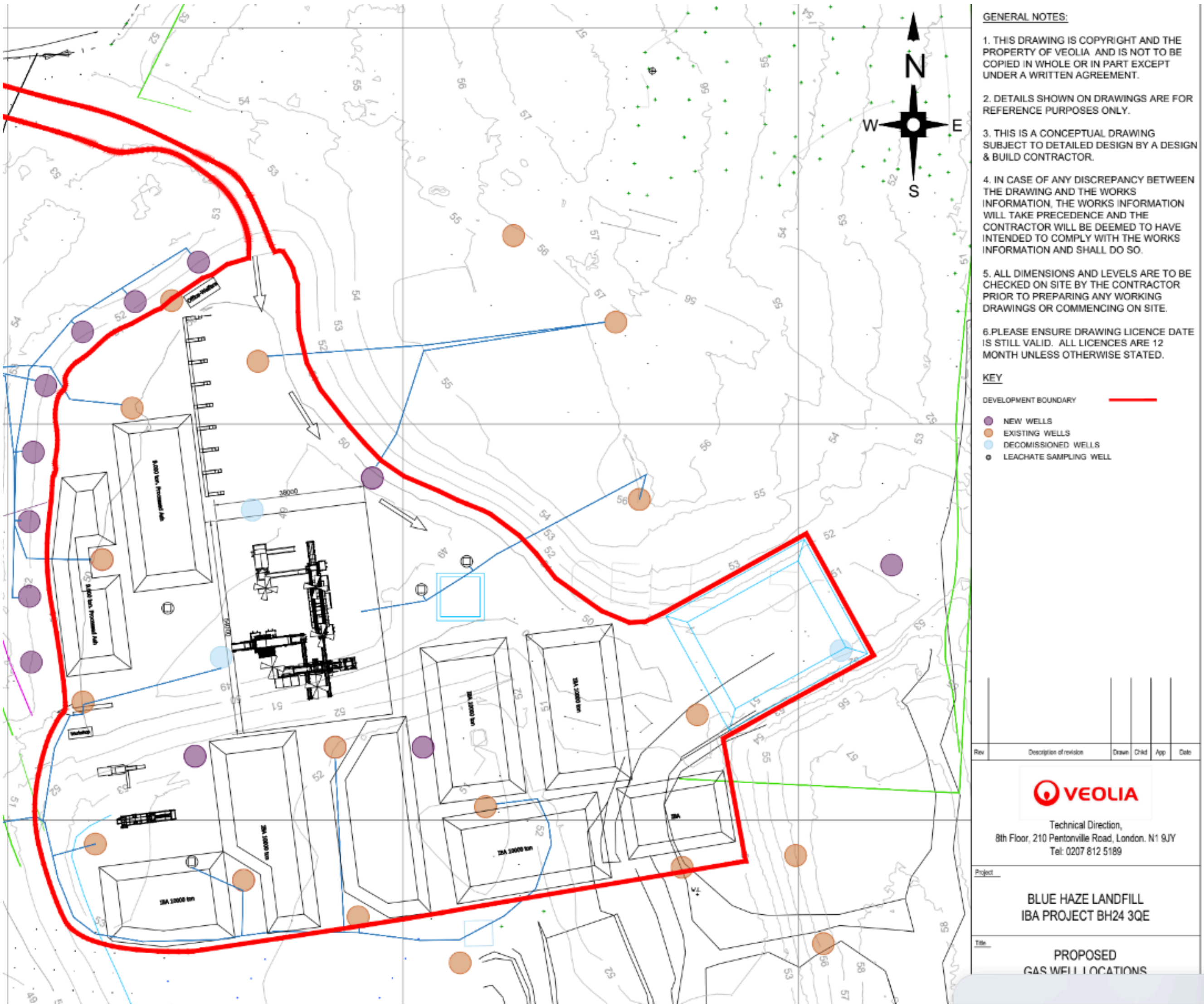
5.2 Cap Protection & Working Surface

Prior to placement of IBA equipment / stockpiles, a cover layer of MOT type1 material (or equivalent) will be placed above a drainage / protection geocomposite layer, which will be placed over the temporary capping geomembrane. The geocomposite material shall comprise an ABG Pozidrain material (or similar) and will provide the dual function of protection to the underlying temporary capping geomembrane and also drainage of any surface water that may collect within the IBA processing area. Upon placement of the geocomposite material, the cover layer will be placed using tracked plant over a minimum depth of 300mm of cover material, wheeled plant will only be allowed to traffic the area once a full thickness of 1m of cover material is in place.

Surface water will be managed within the process area through the installation of a series of bunds and channels diverting surface water to a collection sump from where it can be pumped to an adjacent storage lagoon. The surface water sump and lagoon will be double lined with an LDPE geomembrane overlaying a geosynthetic clay liner (GCL) to provide added protection against the potential for leakage of any collected surface water to the underlying landfill.

5.3 Surface Water Control within IBA Processing Area

All surface runoff water that falls onto the IBA work area will be collected in a sump in the lower level located as detailed in blue in the middle of the drawing below. This water will then be pumped to the surface water lagoon located as indicated in the East of the site where there is sufficient capacity to accommodate up to a 30 year storm event. In the case of a 100 year storm event plus climate change the work area itself would be flooded and the operation would cease until the water can be removed via tanker for off site treatment. In the event that local Sewage Treatment Works become unavailable to receive the contaminated surface water, additional haulage will be employed and the water taken to more remote treatment plants e.g. Avonmouth STW. Under normal operating conditions the water from the lagoon will be used in the site dust suppression and thereby manage the water level in the sumps to prevent flooding. The IBA work area will be separated from the rest of the landfill surface by a bund around the perimeter of the IBA area in the drawing below. The bund will be constructed using an impermeable material and will prevent the surface water inside and outside the IBA work area from coming into contact.



5.4 Surface Water Control External to IBA Processing Area

The water from outside the IBA work area will be directed to 2x external sumps from which it will be pumped to local surface water.

6. Landfill Gas & Leachate Control

Cells 8 and 9 benefit from an existing landfill gas and leachate extraction and control systems, the existing gas extraction and control infrastructure will be modified to allow the IBA processing and stockpiling activities to be carried out whilst maintaining effective gas extraction and control. The existing leachate management and control infrastructure will remain as currently installed but will be protected against potential damage caused by the IBA processing and stockpiling activity.

6.1 Description of Existing & Proposed Gas Control Infrastructure

The proposed area for the IBA processing plant primarily covers Cell 8 and partly over the edges of Cell 5 and Cell 9.

Cell 8 was filled between 2013 and 2015 with approximately 420,000 tonnes of domestic, commercial and industrial wastes. Cell 8 was temporarily capped with a plastic membrane in May 2021 and has a network of vertical gas collection wells and interconnecting pipes.

Landfill gas generated within the waste is extracted via this network of vertical wells and collection pipe via the Gas Utilisation Plan (GUP). The vertical wells are terminated above ground with a well head, which includes a sample tap and valve for monitoring gas concentrations within individual wells and the distribution of suction across the network. The interconnecting pipes are surface laid.

The GUP consists of 4 spark ignition reciprocating engines totalling 3.9MWe of capacity, along with a high temperature flare with a capacity of 2,500m3/hr to flare any excess gas during any planned or unplanned downtime of the engines.

The theoretical gas production rate from the whole of the Blue Haze landfill site is modelled using GasSim 2 and this indicates that the current rate of production is around 1,500m3/hr with around 1300m3/hr being collected and combusted within the GUP, equating to a capture efficiency of around 90%. Modelled gas generation from Cell 8 specifically is around 150m3/hr or about 10% of the overall gas production from the site. Prior to the commencement of the works a baseline flow will be collected from Cell 8 and used to assess the ongoing efficiency of the collection system.

Given the age of the waste within Cell 8 (c.10yrs+) combined with the monitoring from the existing collection infrastructure, indications are that gas generation rates are relatively low with the majority of the existing gas wells either turned off or with very low level of extraction. There is no evidence of gas pressurisation of the plastic membrane, indicating that data collected from the existing gas wells is representative of low gas generation rates.

In order that gas extraction is maintained within the waste below the proposed IBA plant, it is intended to retain the majority of existing gas wells and protect the well heads within a concrete ring or similar to ensure these are visible and protected from damage. The interconnecting pipe is to be run to the outside of the Cell and either surface laid and clearly marked or buried and protected within a conduit.

Previous experience at the site has shown that a full buried gas system did not enable suitable access to wells for monitoring performance. Hence, the proposal is for accessible well heads for monitoring and adjustment.

Several existing wells are to be decommissioned and re-drilled on the periphery of the IBA operation to enable gas extraction to be maintained whilst achieving a safe working area for the IBA activities. Details of the wells to be retained, decommissioned or new are shown on the drawing above.

The risk of lateral migration is relatively limited given the low partial pressures monitored from the existing infrastructure and the majority of the Cell 8 boundary is internal to the main waste body. Only portions of the northern and western boundaries of Cell 8 are facing the external perimeter.

In order to protect this boundary in the unlikely event of any increasing gas pressures within Cell 8, a line of shallow perimeter extraction wells is to be installed around the western and north-western perimeter to provide a contingency against any migration in this area, as shown on the drawing above.

6.2 Protection of gas control infrastructure during IBA activities

The existing and new gas wells in Cell 8, along with those around the edges of Cell 5 and Cell 9, are to be protected with c.1.0m diameter concrete rings. These will be clearly marked to provide both a visual warning for any plant movements and also a physical barrier.

Gas well heads will remain above ground to ensure that monitoring and adjustment can be made to ensure extraction is maintained within the waste below the IBA activities.

Interconnecting pipes to the outside of the Cell will either be via surface laid, where these are not at risk from plant movements, or buried and protected with a conduit to ensure these remain free flowing. Where monitoring data at the well head indicates an interconnecting pipe has failed, this will be relaid to ensure extraction can be regained at the wellhead.

Prior to the commencement of the works a baseline flow will be collected from Cell 8 and used to assess the ongoing efficiency of the collection system

In the unlikely event of a vertical gas well failing or being damaged beyond repair. A replacement well will be drilled at the nearest location possible, taking into account the IBA activities, within 2 months of this being identified. The remaining infrastructure will be closely monitored until a replacement is made to ensure that gas control is maintained via the remaining infrastructure. Should data indicate this is not possible or drilling rig availability means a replacement is not possible within the proposed time frame, a temporary replacement will be progressed using a shallow driven pin well system.

6.3 Monitoring and Management of the Gas Control Infrastructure during IBA Operations

In order that the ongoing performance of the gas extraction system under the IBA plant can be monitored and optimised throughout the operation of the IBA activity the following procedures will be implemented;

- Periodic monitoring of the aggregated flow of gas from the area under the IBA processing plant. Assessment of this flow data against the baseline to ensure there is not a significant decrease in the overall extraction rate observed;
- Monitoring at individual wells on a monthly frequency for bulk gases and suction. Adjustment of valves at individual gas well heads to ensure suction is distributed and optimised across the area and there is no material variation to the baseline observations, above those expected on a temporarily capped portion of landfill;
- Strategic monitoring of gas flow lines to determine if lines are free flowing between the well head and the connection point at the edge of the IBA plant;
- Monthly inspections at each individual well head to ensure structural integrity is maintained;
- The implementation of an Internal notification procedure with the IBA operators, to ensure immediate notification to the landfill management team, should any well be damaged. Repairs to be instigated as soon as practicable and in the interim surrounding gas wells to be monitored and adjusted to minimise risk of gas accumulation until such time as the repair is made. If it is not possible to repair a damaged well, a drilling rig will be mobilised as soon as practicable and a replacement installed;
- The addition of, closer spaced, shallow perimeter gas wells to the western boundary are to act as additional gas extraction to the current system. The purpose of these is a secondary means of control. Extraction on these wells can be increased should it become necessary as an additional measure to prevent subsurface gas migration. Other boundaries are internally facing to the main waste body and therefore prevent no additional risk to migration;

- Periodic surveys will be undertaken with a handheld Tunable Diode Laser (TDL) across the IBA processing plant to determine if there are any point source emissions that require investigation.

If at any point the above monitoring and inspections indicate there is a material decline in the performance of the gas extraction system, this will be investigated. Depending upon the results of this investigation, some or all the following actions will be progressed.

- Adjustment and rebalancing of the gas extraction system at an increased frequency;
- Dipping of gas wells to determine if there has been any subsurface collapse;
- Replacement or remediation to the gas wellhead;
- Relaying of the interconnecting pipe work from the gas wellhead to the perimeter collection pipework;
- Redrilling and replacement of individual wells and reconnecting to the gas extraction system.

6.4 Protection and Maintenance of the Leachate Management & Control Infrastructure

The existing leachate infrastructure within the proposed footprint comprises 4 wells, three of which are for monitoring purposes and one for monitoring and extraction. System control panels and surface laid extraction pipework will be re-routed as required to minimise the risk of any impact from the IBA processing operation. All infrastructure will be protected by physical exclusion barriers allowing maintenance tasks to be safely undertaken. The leachate header main around the site will remain unaffected, transmission pipework from the existing wells to the header main will be re-routed to avoid the IBA infrastructure & stockpiles. This is the only change to leachate management as a result of the IBA treatment proposals.

7. Testing protocols, quarantine and Turnaround Times, contingency provisions

7.1 IBA Characterisation Testing Protocols

All IBA will be managed in line with ESA Protocol requirements and associated quarantine process. This includes the twice monthly sampling of IBA at the ERF for key hazard properties and the quarantine storage of IBA at the Blue Haze operation pending the test results. The ESA Protocol and draft IBA quarantine procedure for the operation are provided in the Appendix.

7.2 IBAA Characterisation Testing Protocol

The Blue Haze IBA operation will produce two IBA Aggregate grades. A 4-60mm MOT Type 1 and a <4mm sand. Both fractions will be separately characterised to confirm their non-hazardous status following the start of the operation in line with WM3 or other approach approved by the Agency.

7.3 IBA Product Testing Protocol and Compliance with Regulatory Position Statement 247

The protocol for product testing to industry standards (BS EN 13242:2002) is provided below.

- Tests will be carried out quarterly by a UKAS accredited lab.
- Results are shared with potential customers along with a copy of the EA RPS 247 and sites are assessed for suitability and compliance.
- A signed letter of acceptance stating the terms of use under the RPS is received by the off-taker prior to delivery
- All addresses of sites where IBAA is distributed are recorded by Veolia on a spreadsheet with a separate agreement number, with which each load is recorded against for full traceability.
- All IBAA sold is for unbound application

1. Sampling Procedure:

- **Random Sampling**: Ensure that samples are collected randomly from different locations within the IBAA stockpile to represent its variability.
- **Sample Size**: Follow UKAS Accredited guidelines for the minimum sample size required for testing.
- **Handling**: Use clean equipment to prevent contamination during sampling. Avoid segregation during sample collection.

2. Physical Properties Testing:

- **Particle Size Distribution (PSD)**:
  - Use mechanical sieving or laser diffraction techniques to determine the PSD of the IBAA.
  - Follow ASTM D422 or equivalent standards for sieving procedures.
- **Density and Specific Gravity**:
  - Determine bulk density and specific gravity using ASTM C127 or equivalent standards.
- **Moisture Content**:
  - Conduct moisture content tests using ASTM D2216 or equivalent standards to determine the water content in IBAA.

3. Chemical Properties Testing: WRC on Campaign Basis (0-4mm)

- **Heavy Metal Content**:
  - Analyse the IBAA samples for heavy metal content including lead, mercury, cadmium, and chromium.
  - Follow EPA Method 3050 or equivalent for sample digestion and EPA Method 6010 or equivalent for analysis.
- **pH Level**:
  - Measure the pH level of IBAA using a calibrated pH metre following ASTM D1293 or equivalent standards.
- **Leachability Testing**:
  - Conduct TCLP (Toxicity Characteristic Leaching Procedure) tests as per EPA Method 1311 or equivalent to determine the leachability of heavy metals.

4. Mechanical Properties Testing: UK Accredited Lab

- **Compressive Strength**:
  - Prepare specimens following ASTM C39 or equivalent standards and test for compressive strength.
- **Los Angeles Abrasion Test**:
  - Determine the resistance of IBAA to abrasion using ASTM C131 or equivalent standards.
- **California Bearing Ratio (CBR)**:
  - Evaluate the strength of IBAA using the CBR test following ASTM D1883 or equivalent standards.

5. Environmental Performance Testing: UK Accredited Lab

- **Permeability**:
  - Measure the permeability of IBAA to assess its drainage characteristics using ASTM D2434 or equivalent standards.
- **Freeze-Thaw Durability**:
  - Perform freeze-thaw tests following ASTM C666 or equivalent standards to evaluate IBAA's resistance to freeze-thaw cycles.

6. Quality Control and Assurance:UK accredited Lab

- **Calibration of Equipment**:
  - Ensure all testing equipment is regularly calibrated and maintained according to relevant standards.
- **Repeat Testing**:
  - Conduct duplicate tests to ensure the accuracy and reliability of results.
- **Documentation**:
  - Maintain detailed records of sampling procedures, test results, and any deviations from the protocol.
- **Quality Assurance Plan**:
  - Implement a quality assurance plan to ensure consistent testing practices and compliance with Environmental Agency RPS guidelines.

7. Reporting:

- **Test Report Output File**
  - Compile all test results along with observations and interpretations into a comprehensive test folder
- **Compliance Assessment**:
  - Assess whether the IBAA meets the requirements specified in the Environmental Agency RPS document.
- **End use RPS Compliance**
  - Provide recommendations for any necessary adjustments or improvements based on the test results.
  - Assess site suitability against RPS including hazard property characterisation (as detailed above)
  - Request Letter from end user stating agreement to terms of RPS
  - Document end use site and quantities
  - Document material specification and use.

7.3 IBA and IBAA Contingency

In the case that Blue Haze is unable to receive IBA it will be diverted to an alternative third party outlet such as Day Group, Fortis or Veolia operations at Ling Hall or elsewhere. In a worst case scenario it would be landfilled on site at Blue Haze. In the case of a major downturn in the IBAA market the material would be landfilled. In the case that any fraction was confirmed to be hazardous it would also be landfilled but an appropriate facility for example Hills in Swindon or if necessary the Veolia operation at Whitemoss.

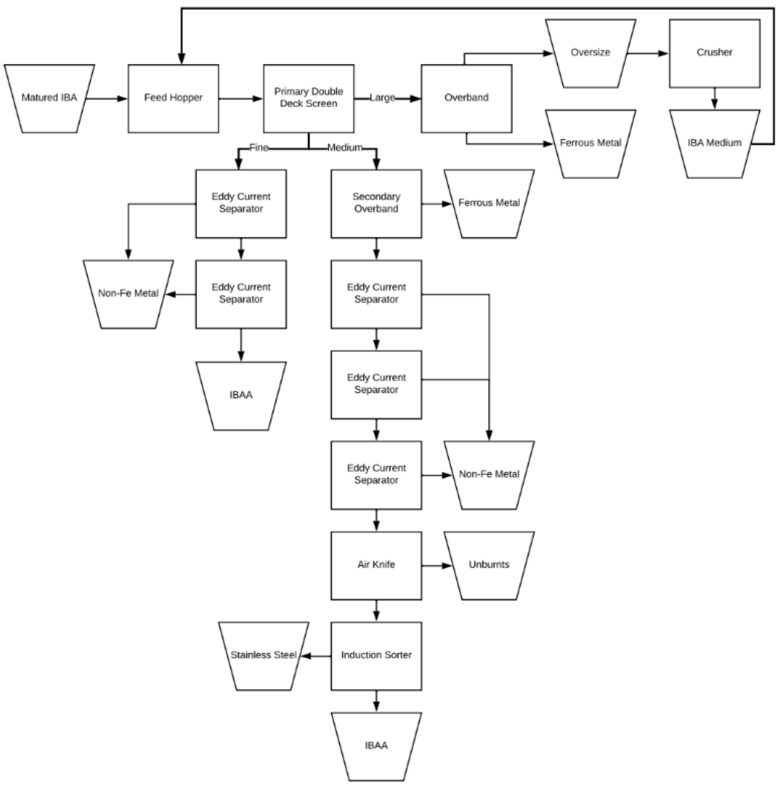
8. Enclosure of Waste Treatment activity

The Waste Incineration BREF 2019 came into force on the 3rd of December 2023 and details typical techniques for IBA processing operations including sorting equipment as well as measures for the management of dust.

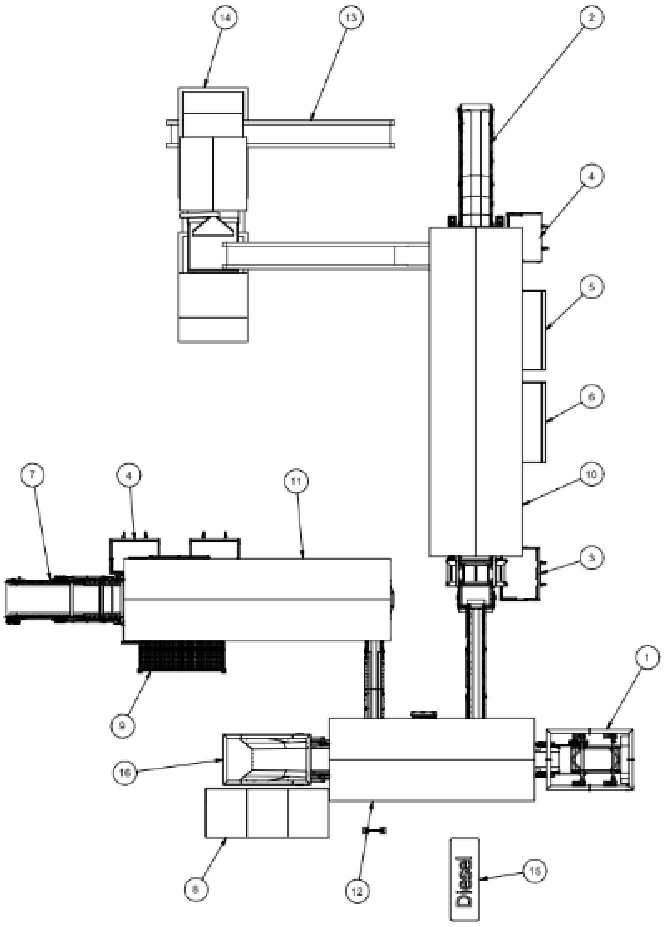
8.1 Operating Techniques

BAT 36 of the WI BREF details the types of equipment expected in order to meet BAT for IBA processing. The text of the BAT and the associated table can be found in the Appendix. The proposed process at Blue Haze landfill applies an appropriate combination of these techniques including a) screening and sieving, b) crushing, c) aeraulic separation, d) recovery of ferrous and non-ferrous metal and e) Aeging. The equipment intended can be seen in the process flow and configuration drawings below. The IBA is first matured (aged) for typically >4 weeks in stockpiles (stockpiles as detailed in the drawing in section 5.3) to allow the heat of reaction from the mineralisation processes to reduce the moisture content and condition the ash for optimum processing. Following maturation the IBA is fed into the plant which applies the techniques detailed to produce metals for recycling and a high quality IBA Aggregate for use in line with the Agency's RPS 247.

Process Flow



Process Configuration



Pos	Mng	Benævnelse	Materiale	Ident nr.
1	1	Fe magnet		2630-000-000
2	1	Trippel M1034800		M1034800-shrink wrap
3	1	High container		31-764-001
4	3	Heavies container		31-775-005
5	1	Tray 1		31-775-001
6	1	Tray 2		31-775-002
7	1	Double EDDY		2744-000-001_Simplify_1
8	1	Ramp tray EU		31-775-016
9	1	Platform		31-723-010
10	1	tent		Tripletent
11	1	tent		DDE tent
12	1	tent		Spalleck Tent
13	2	Conveyor		232-000-008
14	1	M760		M760 ISS
15	1	Oiltank		232-000-004
16	1	Triple		00000-m1428000_asm

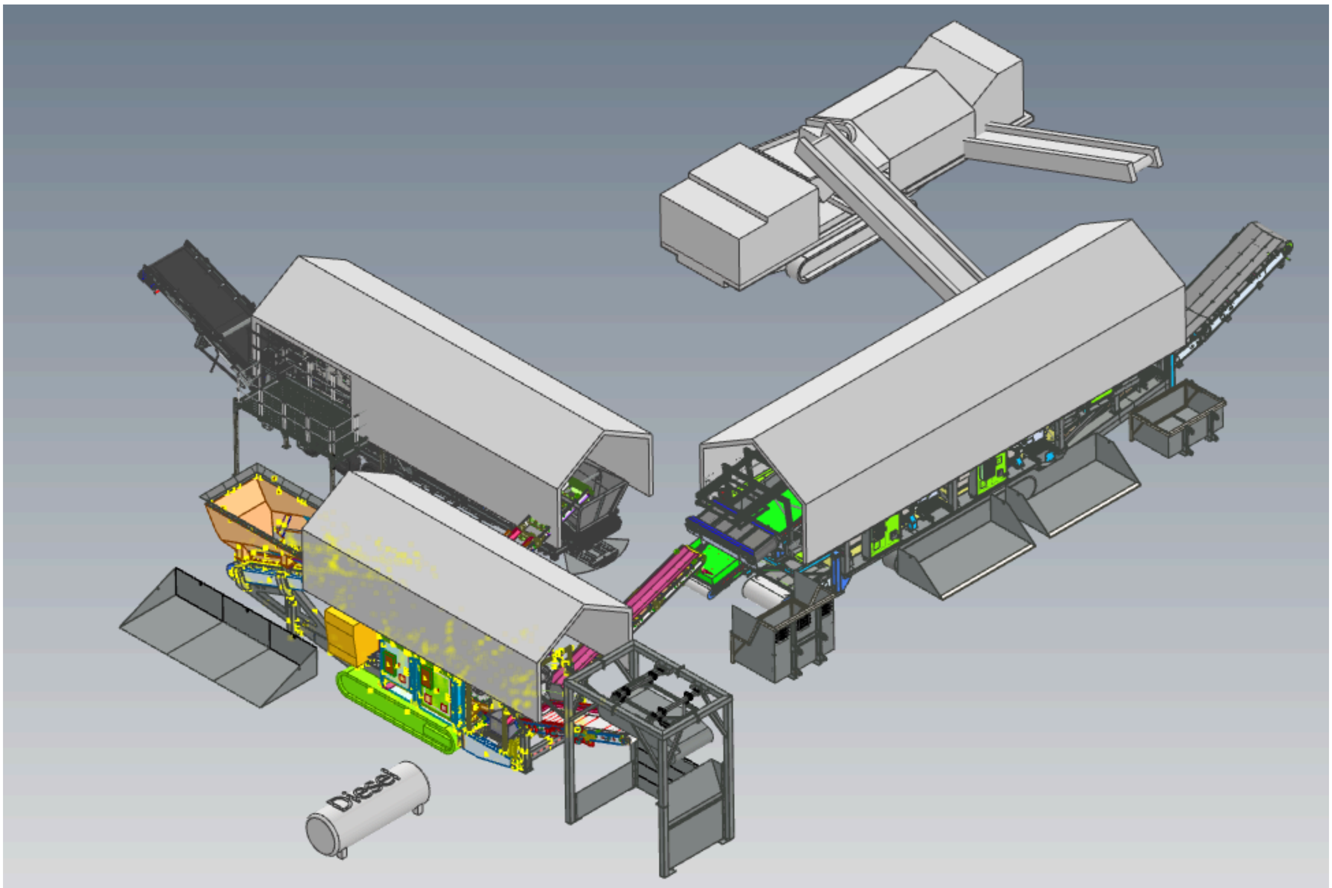
Note: Customer:

7.2 Dust Management Techniques

BAT 24 of the WI BREF also includes suggested techniques for the management of dust produced from IBA operations. These differ with respect to mobile operations compared to fixed plan operations with mobile operations offering greater flexibility to operate without a building (see BAT 24 text below). Nevertheless, Veolia intends to employ best practice and it is proposed that key dusty operations within the mobile plant are enclosed as recommended by technique a) of BAT 24 . A drawing of the proposed enclosure method for the mobile plant is provided below including the relevant operations contained within them. As can be seen all vibrating screens that have the potential to generate dust are fully covered as are the eddy current separators including the accelerated belts which also have the potential to generate dust. Only the feed hopper and overband magnet on the oversize/large fraction is external to the covers.

BAT 24. In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below.

	Technique	Description	Applicability
(a)	Enclose and cover equipment	Enclose/encapsulate potentially dusty operations (such as grinding, screening) and/or cover conveyors and elevators. Enclosure can also be accomplished by installing all of the equipment in a closed building.	Installing the equipment in a closed building may not be applicable to mobile treatment devices.



Plant Layout with Enclosure Tents

In addition to the enclosure methods detailed above the operation will employ the methods detailed below also recommended in BAT 24 of the BREF to provide further control of dust.

d) Use of water sprays: The operation will include a perimeter dust suppression system supplied with recycled water from the surface water lagoon to maintain the operational area dampened down at all times to prevent diffuse dust emission. This will be supplemented by mobile rain guns that can be positioned away from the perimeter.

e) Management of IBA Moisture: Visual inspection of the stockpiles is undertaken prior to processing to estimate moisture content. During dry/summer periods where stockpiles are drier IBA will be dampened down prior to processing to mitigate dust emissions.

8.3 Process Monitoring

In addition to the regular IBA characterisation and IBAA product quality monitoring the operation monitors the moisture content of the IBA and the surface water run-ff collected in the lagoon. Specifically,

- The moisture content of matured IBA is monitored via visual inspection using operator experience and the IBA is dampened down to mitigate dust emissions prior to processing.
- The surface water run-off collected in the lagoon is monitored on a monthly basis to ensure compliance with our trade effluent discharge.

Appendix

BAT 36. In order to increase resource efficiency for the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below based on a risk assessment depending on the hazardous properties of the slags and bottom ashes.

	Technique	Description	Applicability
(a)	Screening and sieving	Oscillating screens, vibrating screens and rotary screens are used for an initial classification of the bottom ashes by size before further treatment.	Generally applicable.
(b)	Crushing	Mechanical treatment operations intended to prepare materials for the recovery of metals or for the subsequent use of those materials, e.g. in road and earthworks construction.	Generally applicable.
(c)	Aeraulic separation	Aeraulic separation is used to sort the light, unburnt fractions commingled in the bottom ashes by blowing off light fragments. A vibrating table is used to transport the bottom ashes to a chute, where the material falls through an air stream that blows uncombusted light materials, such as wood, paper or plastic, onto a removal belt or into a container, so that they can be returned to incineration.	Generally applicable.
(d)	Recovery of ferrous and non-ferrous metals	Different techniques are used, including: — magnetic separation for ferrous metals; — eddy current separation for non-ferrous metals; — induction all-metal separation.	Generally applicable.

(e)	Ageing	The ageing process stabilises the mineral fraction of the bottom ashes by uptake of atmospheric CO_2 (carbonation), draining of excess water and oxidation. Bottom ashes, after the recovery of metals, are stored in the open air or in covered buildings for several weeks, generally on an impermeable floor allowing for drainage and run-off water to be collected for treatment. The stockpiles may be wetted to optimise the moisture content to favour the leaching of salts and the carbonation process. The wetting of bottom ashes also helps prevent dust emissions.	Generally applicable.
(f)	Washing	The washing of bottom ashes enables the production of a material for recycling with minimal leachability of soluble substances (e.g. salts).	Generally applicable.