Ridham P09- IBA Delivery, Stockpile Management and Aggregate Dispatch Procedure

Overview

1.1 This procedure covers the receipt of IBA, the stockpiling of IBA and aggregate and the dispatch of aggregate.

1.2 Incinerator Bottom Ash (IBA) is produced during the incineration of municipal waste at EFW/ERF plants. The incinerator operator is responsible for the hazard classification of IBA received following the ESA Protocol which assesses whether the IBA poses a risk to human health or pollution to the environment. The IBA is stockpiled until a report is received to confirm it is non-hazardous.

Non-hazardous IBA is processed following the factory control procedure and metals are recovered, and the remaining material formed into a manufactured aggregate known as Incinerator Bottom Ash Aggregate (IBAA).

1.3 The IBAA is stockpiled and aggregate highways specification is undertaken. IBAA may be blended with Limestone to meet highways specifications.

1.4 Orders for aggregate dispatch are processed via the Quarry Minder software which notifies the site teams. Incoming vehicles collecting aggregate present paperwork at the weighbridge which is verified against Quarry Minder. Site management ensure the correct aggregate is dispatched, and an advice / transfer note is issued and held by Site Management.

Receipt of IBA and Waste Acceptance Criteria

2.1 IBA deliveries arriving to site provide their conveyancing document to the weighbridge. Only waste EWC 19-01-12 (Wastes from waste management facilities, bottom ash and slag). The Advice/ Transfer note (conveyancing document) is checked to ensure the parameters in Table 1: Advice / Transfer note requirements are acceptable and if satisfactory, the load is instructed to tip at the end of the client specific IBA stockpile. Loads with unsatisfactory documents must be rejected.

Table 1: Advice / Transfer Note Requirements

Required parameters:
Customer Name
EWC Code
Haulier Name
Haulier Vehicle Registration Number
Haulier Drivers Name
Weighbridge Date and Time

2.2 The site TRAFFIC MANAGEMENT PLAN directs delivery lorries to the correct place to tip. Site RADIO PROTOCOLS provide the outline of the communication between the weighbridge and Yard staff is used to help manage and control vehicle movements on site.

2.3 No tandem tipping is allowed. During tipping, all other personnel and vehicles are to keep clear of the area, until the material is tipped, body lowered, tailgate secured, and vehicle driven forward.

2.4 The shovel driver or delegate is responsible for inspecting the IBA delivered for contamination, unexpected characteristic or undue amounts of unburnt waste. Allowable Variation in waste received is limited due to the preceding treatment process and the controlled nature of suppliers of waste.

2.5 Unburnt waste identified must be reported to site management immediately. Site management are responsible for organising quarantine, removal of the unburnt waste and raising a non-*conformance on EQMS*. Site management may contact the client to arrange collection of the quarantined IBA if deemed necessary.

2.5 Conforming IBA is then pushed back into the stockpile and delivery dates are recorded on the IBA stockpile management plan.

Figure 2. Example of IBA quarantining

Fire Risk

3.1 All IBA arriving to site is subjected to a quench bath on discharge from the incinerator. Some residual gases may develop with time in a sheeted vehicle. Gases are expected to dissipate quickly on tipping at site, however occasionally some of the material from the incinerator may re-ignite on the stockpile. If this happens, the excavator must leave the stockpile immediately and the site manager/supervisor informed.

IBA Stockpile Organisation

4.1 Stockpiles are arranged in windrows along the northern section of the site. During winter periods, the surface area may be reduced to reduce ingress of water by forming into regular trapezoidal structures. Base width of each pile is sufficiently wide to allow the excavator to receive delivered loads and stack to a maximum of 10m in height. Stockpiles are segregated by supplier as appropriate due to disparate commercial agreements and hazardous status requirements.

4.2 The ongoing arrangement of stockpiles is maintained in the IBA STOCK MANAGEMENT PLAN to indicate the IBA delivery dates and client segregation. The stockpile plans are used to identify which section of the IBA stockpile can be processed once IBA is confirmed as non-hazardous. If the IBA was deemed hazardous, further testing may be undertaken and the stockpile plan would be used to identify and quarantine the effected IBA. Hazardous status reports are received routinely from the incinerator operators. Hazardous status is recorded on the stock pile plan together with confirmation the IBA is permitted for processing.

4.3 IBAs suitability for processing is subject to it displaying satisfactory characteristics such as a suitable moisture content for optimum processing. During the time period prior to processing, the IBA is aging and chemically

stabilises. Calcined products rehydrate and absorb carbon dioxide and water. Heat is produced giving rise to steam. The alkalinity reduces during the aging process.

Formation of IBA Windrows

5.1 The excavator will be fitted with a range of buckets but only the grading bucket (no teeth) will be used when near to the floor to prevent any risk of damage to the yard surface.

Figure 3.

5.2 The incoming IBA lorries tip the material at the base of the open stockpile, then the loading shovel then pushes the loads together. Once the pile is together, the 360 excavator climbs on top of this pile and creates a working platform normally 4-5m high and the width of the windrow, they then pull the rest of the material from the floor height and stacks it up behind him allowing the IBA to fall at its natural angle of repose which is approx. 33°.

5.3 The 360 excavator dresses all faces making sure there are no sheer faces or overhangs.

5.4 The excavator operator must ensure the machine bucket does not pass above people or vehicles at any time. Prior to collecting IBA in the machine bucket and placing on windrow, the excavator operator must visually assess it.

Figure 4. Example of windrows

Preparation of IBA Stockpiles for Processing

6.1 Due to trafficking and the chemical reaction over the preceding weeks, some hardening of the IBA feed material may be experienced. In order to avoid introducing blockages into the processing plant, it is necessary to excavate from the pile and break up lumps so that the wheeled loader can transport and load into the plant. Care must be taken when approaching the yard contrete surface with the excavator bucket to avoid damage to the yard. It is normal practice to use a grading bucket when within approximately 1m off the road surface, unless extreme care is taken.

6.2 The excavator with a toothed bucket blends damp IBA with drier IBA from the core of the stockpile to produce a homogenous plant feed that maximises metal recovery and screening efficiency, whilst minimising environmental dust generation. Plant operators and excavator/shovel drivers organise this through effective communication and visually inspecting the IBA. The rain gun system may be required to provide additional water where the material is particularly dry.

IBAA Manufacture

7.1 Once the metals have been extracted from the IBA, the resulting IBAA is discharged via the plant exit conveyor then transferred into the 'new stock' section of the IBAA stockpiles .

Figure 6. Plant Exit Conveyor

7.2 The material is stockpiled in this way to a maximum height of 10m on the remote stockpile. The loading shovel transports the IBAA to be stockpiled by the 360 excavator. Wheeled loading shovels are not to be used on top of stockpiles, unless a purpose-built ramp and edge protection has been created.

IBAA and IBAA Limestone Blend Stockpiling

8.1 The IBAA stockpile is arranged into a regular trapezoidal structure along the South West of the site. The loading shovels and 360 excavator build ramps with sufficient edge protection and stack IBAA to approximately 10m in height.

8.2 IBAA Limestone Blend is stored in the labelled IBAA Limestone Blend area.

IBAA Aging and Highways Specification Testing

9.1 "Aging" – a natural chemical reaction resulting in the reduction of pH levels and crystallisation of aluminium sulphate, is sped up throughout the stockpile with the addition of water. This process typically lasts 6-8 weeks depending on stock levels.

The process generates heat which dries the IBAA. If the IBAA is stored in excess of 8 weeks, it can become dry and dusty making it more difficult to manage, although this is largely weather dependant.

9.2 Dust Hazard Assessment prior to excavation. Each morning, prior to the 360 commencing work, the 360 operator, will assess the conditions to determine any potential risk of dust leaving the site boundary. The weather conditions will largely dictate what operations are acceptable. If the material is extremely dry, or the wind speed / direction could result in dust leaving the site, DO NOT PROCEED. It may be possible to add water or to relocate the excavator onto a part of a windrow further away from the perimeter.

9.3 Continually wetting the IBAA can cause it to harden, which then results in more time to break up with the excavator prior to sale.

9.4 The aged IBAA is tested against applicable highways specifications. The IBA may also be blended with Limestone at approximately 20% by weight and tested against relevant highways specifications.

Aggregate for Dispatch

10.1 IBAA for dispatch is the oldest IBAA from the stockpile. If this material is stored for several days or weeks prior to loading it may require the excavator to break through the hardened crust of the material. The excavator will be fitted with the toothed bucket. The material may also dry out through this time, so additional water should be added to maintain the optimum moisture content.

10.2 Orders for aggregate dispatch are processed via the Quarry Minder software, which notifies the site teams.

10.3 Incoming vehicles collecting aggregate present paperwork at the weighbridge which is verified against Quarry Minder. The SITE TRAFFIC MANAGEMENT PLAN and RADIO PROTOCOLS are used to manage vehicle movements and to ensure that the correct material is loaded and despatched.

10.4 Site management ensure the correct aggregate is dispatched, as per the order.

10.5 An advice / transfer note (WTN) is issued and must include the customer name, waste/ product description, EWC code, the haulier name, waste carrier registration number, vehicle registration number, drivers name, and the weighbridge date, time and weights.

10.6 The advice / transfer notes are held by site management for a minimum of 6 years.

Records

11.1 IBA Stock management plans
11.2 IBAA Stock management Plans
11.3 Weighbridge advice / transfer notes (tickets)
11.4 Non-conformance log on EQMS
11.5 Waste Carrier Licenses

Related Documents

12.1 Safe Operation of Excavator / Conditioning IBA
12.2 Safe Operation of Wheeled Loading Shovel
12.3 Site Traffic Management Plan
12.4 Risk Assessment – RA12 Haulage Movements on site, loading and unloading
12.5 ESA Protocol
12.6 Site radio protocols

I acknowledge that I have read, understood and agree to follow this procedure.

NAME (Please print clearly)	SIGNATURE	DATE OF BRIEFING