



Technical Assessment

Handling of Untreated Incinerator Bottom Ash

At the Planned Powerfuel Portland Incinerator Plant

Isle of Portland, Dorset

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Supporting Principles

1.10 Defining Project Boundaries

In Dorset Council's Adopted Waste Plan, 2019, under sub-heading Quality of Life, paragraph 12.38, the council states;

"Waste management development can nevertheless be of concern for local communities as a result of the potential effects that facilities and associated transportation can have on amenity and quality of life. Any potential adverse effects need to be addressed and carefully managed in accordance with the Waste Plan and other legislation. In accordance with national policy, the Waste Plan should ensure that potential impacts on amenity and quality of life from proposals for waste development are avoided or mitigated"

The statement reads that a planned facility and its associated transport must comply with national policy, the Dorset Waste Plan and any relevant legislation, irrespective of site boundaries as defined in a planning application, and whilst this principle is written with respect to Policy 13 – Amenity and Quality of Life, it is equally applicable throughout the plan.

In addition, the phrase *"associated transport"* is not limited to a specific vehicle, but in fact refers to the entire transportation chain and associated infrastructure from a point of acceptance from a supplier, movement and delivery to site, processing, the subsequent movement and delivery to a recipient in the case of residues, and all associated infrastructure and operations therein.

1.20 Significance of Project Boundaries With Respect to the Waste Plan

The significance of the boundary principle defined in 12.38 is demonstrated, though is not limited to, paragraph 12.42 of the waste plan, which comments in relation to fugitive emissions and other negative impacts of planned projects that;

"Applicants must demonstrate that such matters have been carefully considered and that impacts can be avoided or mitigated to an acceptable level, having regard to the proximity of sensitive receptors."

1.30 Significance of Project Boundaries – Handling of Untreated Incinerator Bottom Ash (uIBA)

As such, paragraph 12.38 of the Waste Plan defines in principle the requirement that any temporary storage of untreated incinerator bottom ash (uIBA) at the port and subsequent loading into ships for removal, whilst outside of the defined facility boundaries, would be subject to planning application approval under the Waste Plan, along with any shipping operations for the delivery of RDF to the facility.

As 12.38 states *"...and other legislation"*, the waste authority must also consider these external boundary operations with respect to any relevant legislation covering their actions, and if breach of legislation is found, the authority must, in accordance to their planning policy, reject the planning application.

We must therefore consider the storage of uIBA on the quayside, awaiting transportation to a reprocessing facility. As stated, paragraph 12.38 includes this operation within the planning application even though it lies outside the formal application site boundary.

In including this operation with respect to a planning application, the operation must conform to all relevant legislation, not just for the storage of materials on a quayside, but also as part of a waste incinerator operation as covered under the provision of the Industrial Emission Directive.

Paragraph 12.42 of the Waste Plan requires that applicants must demonstrate that such matters have been carefully considered such that impacts to sensitive receptors, as defined by any relevant legislation, can be avoid or mitigated to an acceptable level, the definition of “acceptable level” being of course, defined by the relevant legislation covering such operations, as enforced through the Environment Agency, and not the planning authority.

1.40 Environment Agency Consultation

As outlined by the Environment Agency consultation response dated 2 November 2020, EA document reference WX/2020/134578/01-L01, the agency has *“no objection to the proposed development subject to the following conditions and informatives being included in any planning permission granted.*

1.41 Surface water drainage

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The site must be drained on a separate system with all clean roof and surface water being kept separate from foul drainage. There must be no discharge of foul or contaminated drainage from the site into the local water environment.

1.42 Waste

INFORMATIVE

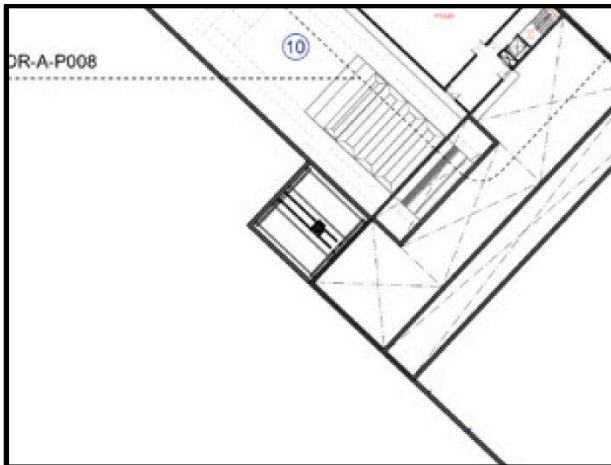
If any waste is to be removed from the site then the applicant needs to ensure that sufficient testing has been undertaken in line with Waste classification technical guidance WM3. This is to ensure all waste on the site is correctly classified and disposed of accordingly to a suitably authorised facility.

If any hazardous waste is to be removed offsite the site operator must ensure that consignment notes are completed correctly in accordance with the legislation.”

Installation Outline - Handling of Untreated Incinerator Bottom Ash (uIBA)

Without wishing to repeat information contained within the planning documentation, this report draws together the dispersed material relevant to the objection. Figures in brackets denote the source paragraph within Powerfuel's (PfP) Environmental Statement (ES). Special attention should be paid to box notes and questions raised therein, challenging PfP's statements.

2.0 The proposal is for an Energy Recovery Facility (ERF) processing 183,000 to 202,000 tonnes/annum of refuse derived fuel (RDF) (ES 2.13). Upon combustion, incinerator bottom ash (IBA) falls into a quench pit before being transferred to a "dedicated" IBA storage area (ES 2.54). This is fitted with an overhead crane to transfer the IBA to removal trucks (ES 2.62).



Box 1: The location of the "dedicated" IBA storage area" is not specified in the plans, though *Environmental Statement Figure 2.34a – Proposed floor plans: ERF building ground and first floors*, shows an area marked "8" on the ground floor schematic, marked as an IBA "collection area".

An overhead gantry crane is shown in the corresponding first floor plan. As such, the false impression is created that this is the "dedicated storage area" referred to in the planning application. This has a maximum working area of approximately 7m², allowing for vehicle and pedestrian access. It therefore appears to be a short-term transfer bay, considering that the mass of IBA generated daily is expected to be in the region of 125 to 138 tonne/day.

Question 1: What mechanism for de-watering the untreated IBA exists at the location?

Box 1 (continued):

Question 2: If the covered area marked "8" on floor plans is designed as the dedicated IBA storage area as implied in planning documentation, and is not simply a handling area, what mechanisms are put in place to ascertain the physical and chemical characteristics and the polluting potential of the residues, specifically concerning the total soluble fraction and heavy metals soluble fraction, prior to determining the route for disposal or recycling of the residue, as required by the Industrial Emissions Directive, Article 52 – Residues, paragraph 3?

2.1 IBA is a recyclable non-hazardous waste that will be stored in a designated area (ES 2.62)

Box 2: With reference to the section of planning documentation in which the sentence shown in 2.1 appears, and the condition of the uIBA it describes, this is a misleading statement based upon assumption, at worse, a deliberate attempt to deceive the planning authority and public.

At this point, uIBA will have been moved to the working area from the quench pit, presumably by means of a conveyor belt. It will be wet and leachate run-off containing high levels of heavy metals will be present. No mention of how this leachate will be handled is given in ES 2.62 (see 2.2 below), or a detailed explanation of the collection facility.

For uIBA to be classified as non-hazardous waste, its chemical composition, specifically in this case its heavy metal soluble fraction, must be ascertained prior to any movement off site to any treatment facility. Until such testing is undertaken, the uIBA cannot be classified as “non-hazardous waste” as PpP has done in planning documentation.

It should be noted that during the Weymouth Town Council public meeting of November 17th 2020, Steven McNab co-founder of PpP, stated on record the “...*intention is that specialised vessels will be used to store the IBA at the quayside, or stored in docked lighters*” prior to shipment for recycling. As such we can conclude that the covered area marked “8” in the floor plans is a collection area and not a covered IBA storage area as required by Planning Policy 6.

2.2 Process effluents, including boiler blow-down and wash down waters from internal process areas, will be discharged to a foul sewer in accordance with a trade effluent consent, which will be obtained from Wessex Water. (ES 2.40)

Subject to formal approval from Wessex Water, it is proposed to discharge all foul water from the proposed development, ..., to Wessex water’s sewer. The below ground foul water drainage system will be separated into domestic systems and trade effluent. This will ensure that liquid waste produced by the industrial processes is separated ... to enable sampling to comply with any requirements for trade effluent licences that may be imposed by Wessex Water. Domestic foul and trade effluent flows will be combined after passing through the sampling chamber, prior to connection with Wessex Water’s sewer. (ES 2.41)

Box 3: Paragraph ES 2.40 detailed above defines the drainage system within the IBA collection area will discharge to an internal foul sewer, mixing with other internal foul waters prior to testing to confirm compliance with conditions of the effluent discharge licence imposed by Wessex Water. It should be noted that any such waters in the collection area will be a heavy metal leachate, not simple wash down waters. The uIBA within the covered collection area must be assessed to confirm the soluble heavy metal fraction prior to transfer off-site, either to the quayside or to Avonmouth. This is done via assessment of leachate.

As shown in section 1.42 Waste, the EA informed the planning authority that any waste removal from site by the applicant “...*needs to ensure that sufficient testing has been undertaken...*”. In addition to Technical Guidance WM3, EA Technical Guidance Note (Monitoring) M4, Guidelines for Ash Sampling and Analysis should also be consulted by the applicant.

Box 3 (continued): Any IBA within the collection area in all PfP planning documentation is uIBA with an unknown hazardous nature until such testing is conducted. It is not and cannot be classified as “non-hazardous” as PfP seek to do, until such time that suitable testing has been carried out.

Wet uIBA straight from the quench pit, such as that found within IBA collection area, must be de-watered to ascertain its leachate potential and hence heavy metal soluble fraction, for classification as “non-hazardous waste” to be achieved. De-watering and any washing to reduce heavy metal soluble fraction for non-hazardous waste classification, takes significant time and must occur in an enclosed building, fitted with a closed drainage system. Leachate run-off from this area cannot be combined with other process runoff as stated in ES 2.40, prior to sampling of heavy metal soluble fraction and subsequent discharge to a foul sewer. To do so is to dilute test waters prior to testing to give a false sample result.

IBA accounts for approximately 25% by mass of original feedstock, as such we can calculate IBA production as between 45,750 – 50,500 tonnes/annum, a daily production between 125 – 138 tonnes. Considering the mass of untreated and uncategorised IBA produced, and in the light of Steven McNab’s public statements to Weymouth Town Council, it is clear the IBA collection area is not a “covered” and “dedicated storage area” required by Planning Policy 6, and as implied within PfP’s planning application documents.

2.2 The IBA will be taken to a facility at Avonmouth by road in sheeted trailers or by ship to a facility in Greenwich (2.62)

Box 4: As shown above, PfP’s “intention” is to transport uIBA waste by ship. We can therefore discount the transport by road statement as either a temporary measure, or deliberate misdirection so as to offer ship transportation as a solution to any environmental objections.

2.3 For removal by ship, the IBA would be loaded into a sheeted trailer and transported to the quayside, where it will either be tipped into a containment bay or steel container or directly loaded into the vessel using a grab machine. The maximum capacity of the container would not be exceeded (2.62)

Box 5: This statement refers to the suspected “dedicated storage area” for the potentially uncategorised uIBA waste. The “grab machine” being that of a “geared ship” discussed later, moored alongside the “steel container” or lighter anchored at the “50T RDF berth” in the PfP publicity literature. Again, an open storage facility is a breach of planning policy. Figure 1 shows the “import berth”. Figure 2 shows how this lies outside the defined boundaries of the development site.

It can also be concluded that for this grab machine to function, the IBA will be tipped on the quayside into a bunker and/or transferred into the lighters for open storage, whilst awaiting collection by geared ship for transportation to Greenwich. Something alluded to later in 2.62

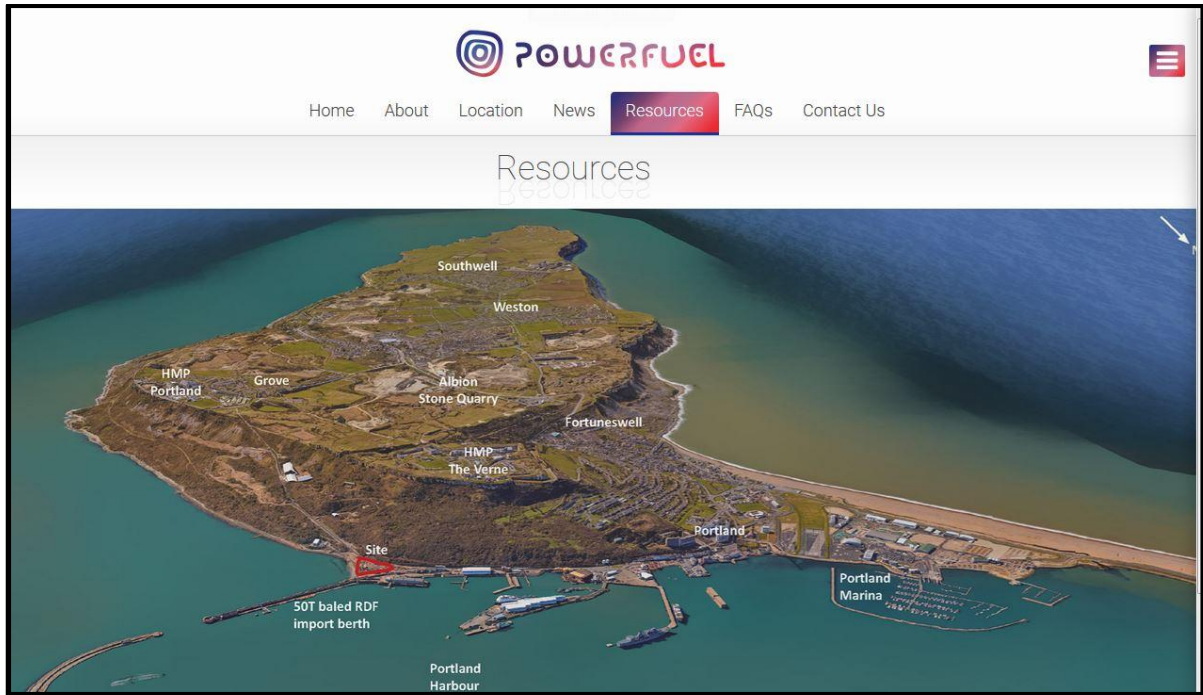


Figure 1: "50T baled RDF import berth" Source <http://www.powerfuelportland.co.uk/Resources>

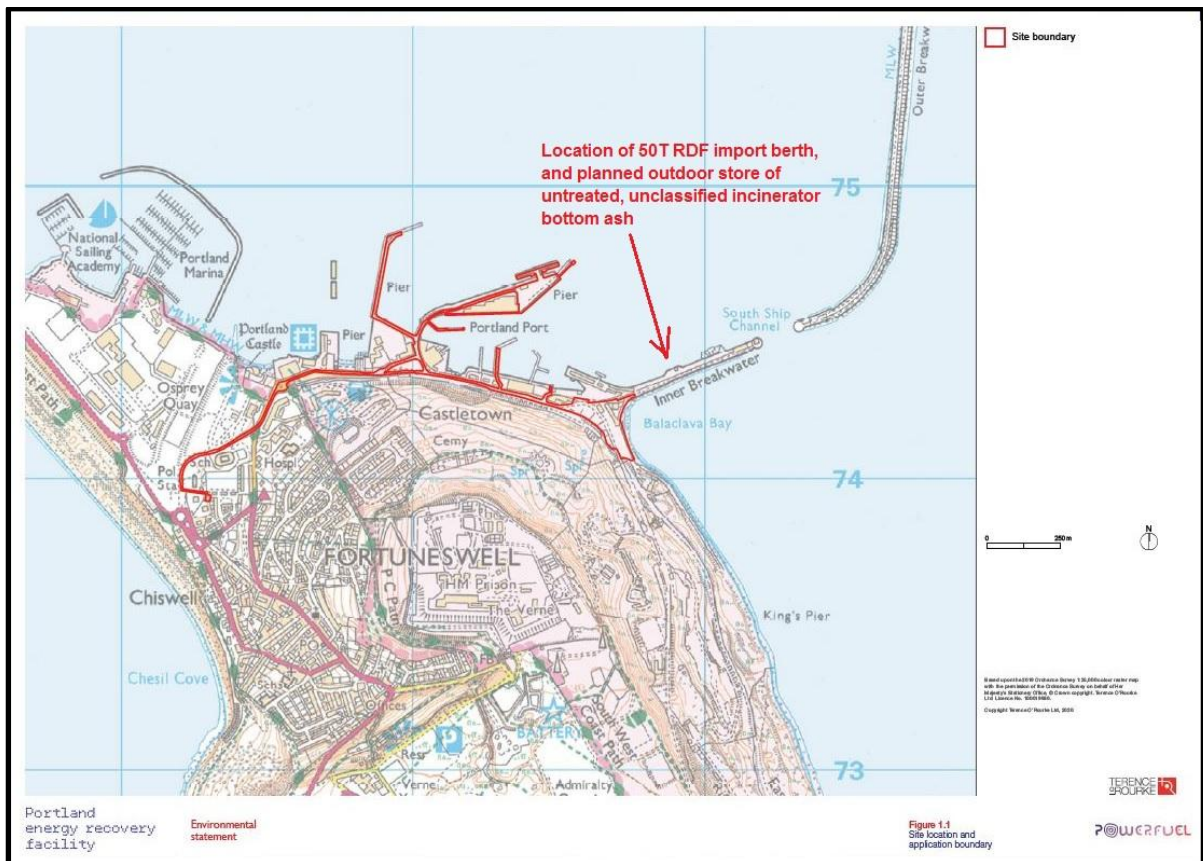


Figure 2: Location of proposed storage of unprocessed incinerator bottom ash, outside of the application boundary

2.4 Any spillage of the inert IBA would be dealt with promptly and appropriately (2.62)

Box 6: Waste is categorised as inert, non-hazardous or hazardous. As stated earlier, under Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control), commonly known as the Industrial Emissions Directive or IED, Article 43 defines a residue as *“any solid waste which is generated by a waste incineration plant”*, where *“waste”* is defined by Article 3(1) of Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008, to be *“any substance or object which the holder discards or intends or is required to discard”*. Incinerator bottom ash is defined in both EU and UK law as a waste residue, until such time that it is utilised as an aggregate i.e. at a construction site, IBA aggregate (IBAA) is still classed in law as *“waste”* and must be treated as such with regard to its transportation and interim storage. Only upon actual use is its waste classification removed.

In paragraph 2.62 PfP first describe unclassified uIBA as a *“non-hazardous”* waste. This applies a waste category to the material based upon nothing more than assumption and preference. Later in the same section, whilst referring to accidental spillage at the quayside or elsewhere, the company adopts a different waste category, referring to uIBA as *“inert”* waste. The intention it seems is clear. To deceive the public and the planning authority as to PfP’s responsibilities under the law and the risks of contamination posed by uIBA to sensitive receptors, for the sole intention of being granted planning permission.

The only alternative explanation for using differing waste categories to describe uIBA within the same paragraph, is if *“inert”* refers to a scientific or dictionary definition, rather than waste categories.

The dictionary definition of *“inert”*, an adjective means *“not moving or not able to move”*. The chemical definition, an adjective meaning *“substances which do not undergo a chemical reaction when another substance is added and/or are stable under specific conditions”*.

Whilst true IBA is incapable of unassisted movement, it seems clear that in the statement *“any spillage of the inert IBA would be dealt with promptly and appropriately”*, the chemical definition is used, and used to imply no risk to the wider environment exists from spillage during loading operations. This is manifestly untrue and in my opinion, another example of PfP’s attempts to deceive both the planning authority and the public.

As Covanta stated in their Environmental Permit application for the Rookery South incinerator project, Bedfordshire, and as the Environment Agency is fully aware, IBA, especially uIBA, contains significant quantities of heavy metal salts which upon exposure to moisture, are mobilised and pass into solution. For this very reason, the use of IBA aggregate (IBAA) is rigidly controlled by the Environment Agency to eliminate the risk of contamination of surface and ground waters with heavy metals.

Any open storage of untreated IBA at the quayside, and any subsequent spillage or migration of untreated IBA materials through loading vehicle movements, will create a toxic heavy metal rich slurry and leachate, that can and will contaminate coastal waters.

2.5 If an interim lighter vessel is used, the collecting ship would come alongside and transfer the IBA to the ship’s hold using a grab. (2.62)

Box 7: Piecing together Powerfuel's disjointed description of their untreated incinerator bottom ash handling and storage operation, we can conclude;

Hot IBA will fall into a quench pit. This quench pit will be topped up with mains water. No recirculation of quench pit waters is described in the planning documentation.

Untreated IBA will be moved by conveyor to a small covered handling yard for loading onto tipper trucks. The IBA will be wet and with limited space, will not have sufficient residence time for adequate de-watering prior to being loaded onto HGV tippers, with leachate draining into the plant foul water draining system. Only after mixing of foul waters will sampling be undertaken. No assessment of heavy metal soluble fraction of the uIBA or its leachate as required by law is described.

None waterproof tipper trucks may take the toxic uIBA to Avonmouth, though the stated intention is to move the material to the quayside for transportation by ship to Greenwich [1]

Following the route shown in Powerfuel's documentation, reproduced in Figure 3, tipper trucks will off-load at the area marked on Inner Breakwater Road as a 50 tonne RDF berth, into a "containment bay". It is envisaged for loading practicalities this will be an exposed containment bay on the quayside.

Material will then be tipped/moved, presumably using a motorised shovel plant or quayside grab, into permanently moored lighters referred to in the planning documentation as "a steel container", either directly or following a short period in the quayside containment bay.

Removal of the uIBA will occur from geared ships, moored alongside the lighters, transferring the uIBA into their own hold using an onboard grab, before transporting the material to Greenwich for treatment.

[1] It is believed that Powerfuel have entered into preliminary negotiations/agreement with the Day Group, to treat both their Air Pollution Control residues (APCr) and IBA.

2.6 Potential emissions of dust and fumes from the bottom ash discharger will be minimised by the quenching process and the storage system proposed (2.81). All vehicles carrying ... IBA/APCr out of the ERF will be covered or sheeted, thereby ensuring the potential for litter to escape is minimised (2.90).

Box 8: These sentences reinforce the idea that potentially unclassified uIBA, falsely described as it is at this point by the company as an "inert non-hazardous waste", is being carefully pre-treated to avoid dust contamination and handled in a dedicated storage yard, prior to movement off site and transportation by sea for recycling in a safe and lawful manner.

The reality is that the quench pit is designed to cool hot ash, not mitigate dust transmission. The ash as stated contains high levels of heavy metal salts that become mobilised in contact with the quench water. This gives rise to a heavy metal rich leachate which should by practice, be monitored to ascertain the IBA's soluble fraction, and therefore waste classification as either non-hazardous or hazardous prior to leaving the site.

Box 8 (Continued) Good practice is for the untreated IBA to be washed and de-watered until such time as the soluble fraction of heavy metals is reduced and non-hazardous classification is achieved. Alternatively the waste is treated as hazardous waste in all handling and transportation operations, with wash waters being collected in a sealed drainage system and either re-circulated through the quench pit, and/or removed from site as a hazardous waste for specialised treatment. No such operations are described in the planning documentation.

It is my opinion that the company seeks to transport wet, inadequately drained uIBA, in non water-proof tipper trucks, either by road to Avonmouth or by sea to Greenwich. This transportation will result in the spillage of heavy metal rich leachate/slurry onto internal site roads and/or the public highway in either case.

2.7 The proposed vehicle access arrangements are shown in PfP's documentation, reproduced in Figure 3 below.

10 HGV's per day will be removing ash (2.70). Vehicles will use the port's existing road system to reach the site via the Castletown and Dock Road one-way system and Main Road (2.27). A one-way system for HGVs will operate within the site (2.28). HGVs removing residues will circulate clockwise on the one-way system, around the ERF building onto Incline Road and then turn right into the service yard to the west of the building. On arrival, the gated access will be opened by a site operative and the vehicle will manoeuvre to the appropriate silo or collection point. (IBA collection area 8 as previously mention). Vehicles will pass through the service yard and exit back onto the Incline Road at the yard's northern end. Prior to leaving the port, all delivery and collection vehicles will be reweighed at the weighbridge (2.29)

Box 9: The route of wet unclassified uIBA, without adequate de-watering to eliminate the risk of toxic leachate spillage, will see 10 HGV tipper loads per day filled in the IBA collection yard. Assuming a load capacity of 15 tonne per 6 wheeled rigid body vehicle as shown in PfP schematics (Figure 4), this corresponds to a planned maximum daily handling of 150 tonnes through this facility.

On average IBA accounts for 25% by mass of original fuel. PfP state "*the plant will require an estimated 548 tonnes of RDF per day for continuous operation*" (2.70). As such we can calculate daily throughput of this handling facility as $548 \text{ tonnes} \times 0.25 = 137 \text{ tonne/day}$ of uIBA. A value corresponding to 10 x 15 tonne HGV tipper loads.

Estimated resident time in the collection yard/hopper for uIBA can be calculated from $24\text{hrs} / 10 = 2.4 \text{ hours}$. An insufficient period for de-water of uIBA/washing to reduce its heavy metal soluble fraction for non-hazardous classification.

In reality it is expected that uIBA removal operations will be restricted during the night and as such, resident times in the quench pit, uIBA collection yard and quayside containment bunker may vary.

Accurate assessment is not possible due to Powerfuel's failure to provide clear and detailed explanation of their toxic ash waste handling system.



Figure 3: Transportation route of wet untreated IBA (uIBA) from the collection area arrowed “uIBA”, to the open quayside storage area marked “12”. [Note arrowed “uIBA” was added by myself to show the position of the collection area marked “8” in previous PfP schematics]



Figure 4: 15 tonne tipper in IBA collection area

Box 10: As shown in Figure 3 above, the 15 tonne tipper vehicles, dripping toxic IBA leachate as they travel, will pass through the service yard, move down Incline road, through the weighbridge to “leave” the site and access Main Road. From there they will turn right onto Old Depot Road, leading onto Inner Breakwater Road, to access the “dedicated IBA storage area” alluded to by PfP but not detailed.

The IBA collection area drains into the foul water system (see 2.80). Tracking and leakage of uIBA slurry/leachate is foreseeable, within the service yard area and along the regular vehicle routes taken. Again discussed in 2.80 below.

Box 10 (Continued) Again it must be emphasised that at this point the uIBA is officially uncatagorised. It is not a “non-hazardous” waste, nor is it chemically “inert”. It is a waste stream that fresh from a quench pit, possess a high heavy metal soluble fraction and therefore potential for leaching when wet.

A “non-hazardous” waste category is achieved by the reduction of heavy metal soluble fraction, usually via washing and subsequent de-watering. Such pre-treatment must occur in an enclosed building.

No uIBA can be moved off-site for treatment without its soluble fraction being ascertained. In so doing, as an expected hazardous waste stream, it must be handled with the utmost care to eliminate, not mitigate, the contamination of surface waters and other sensitive receptors with heavy metal elements.

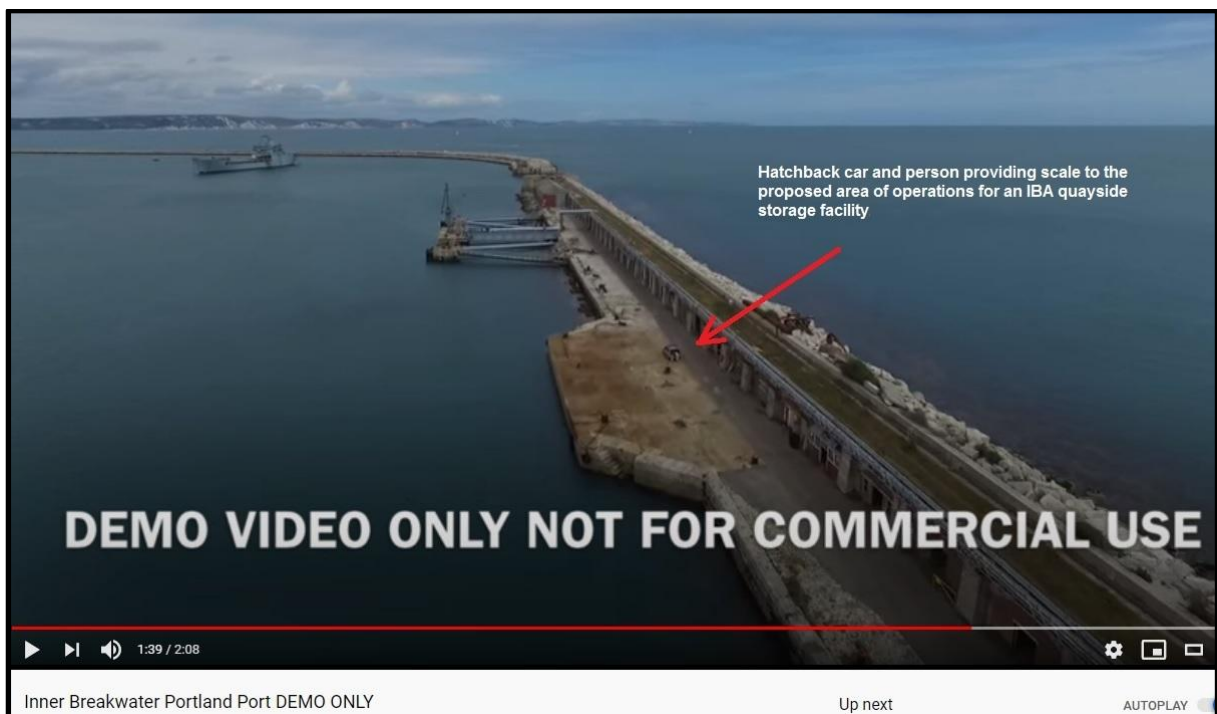


Figure 5: Dedicated area for untreated IBA quayside storage. Considering the available surface area, it is envisaged that any containment bunker would be temporary, used as a tipping point for material to be moved directly to the moored up lighters.

Box 11: Figure 5 above shows the location of the dedicated uIBA storage area. With a daily production of approximately 140 tonnes a day and an IBA bulk density of around 1.5 tonne/m^3 , a daily storage volume of $140 / 1.5 = 93.3 \text{ m}^3$ is required. As such, it would appear the existing area is insufficient to store such a volume of material, explaining PfP’s quoted intention of storing uIBA in the steel container/lighter/specialised vessel moored at this berth.

Obviously, the potential for contamination of coastal waters with heavy metals by this external handling and storage operation is significant.

2.80 The proposed development will give rise to surface water runoff from the roads within the site... Surface water runoff from roads and other areas of hardstanding (including car parking and the service yard) will be collected by linear drainage channels and external gullies and will be routed via a swale and oil bypass separator to provide treatment prior to discharging into the sea. The existing drainage outfalls into the sea will be used, with... treated runoff discharging into Portland Harbour to the north (ES 2.37). The proposed surface water drainage system will be designed and maintained in accordance with CIRIA (2015) C753: *The SuDS Manual*. Further details on the proposed drainage strategy are set out in the flood risk assessment submitted in support of the planning application (ES 2.39)

Runoff from highway or yard areas will drain through a separate system and will pass through rain gardens where practicable and a new SuDS swale and downstream oil bypass separator prior to reaching the existing outfall at Portland Port (Flood Risk Assessment 4.5)

The use of SuDS and the oil bypass separator, together with trapped gullies and silt trap manholes will mitigate the risk of pollution upstream of the Portland port outfall. (FRA 4.6)

The proposed surface water strategy can be see identified on the Preliminary Drainage Layout drawing 0979-PDL-101 (FRA 4.9)(See Figures 6, 7, 8, 9, 10)

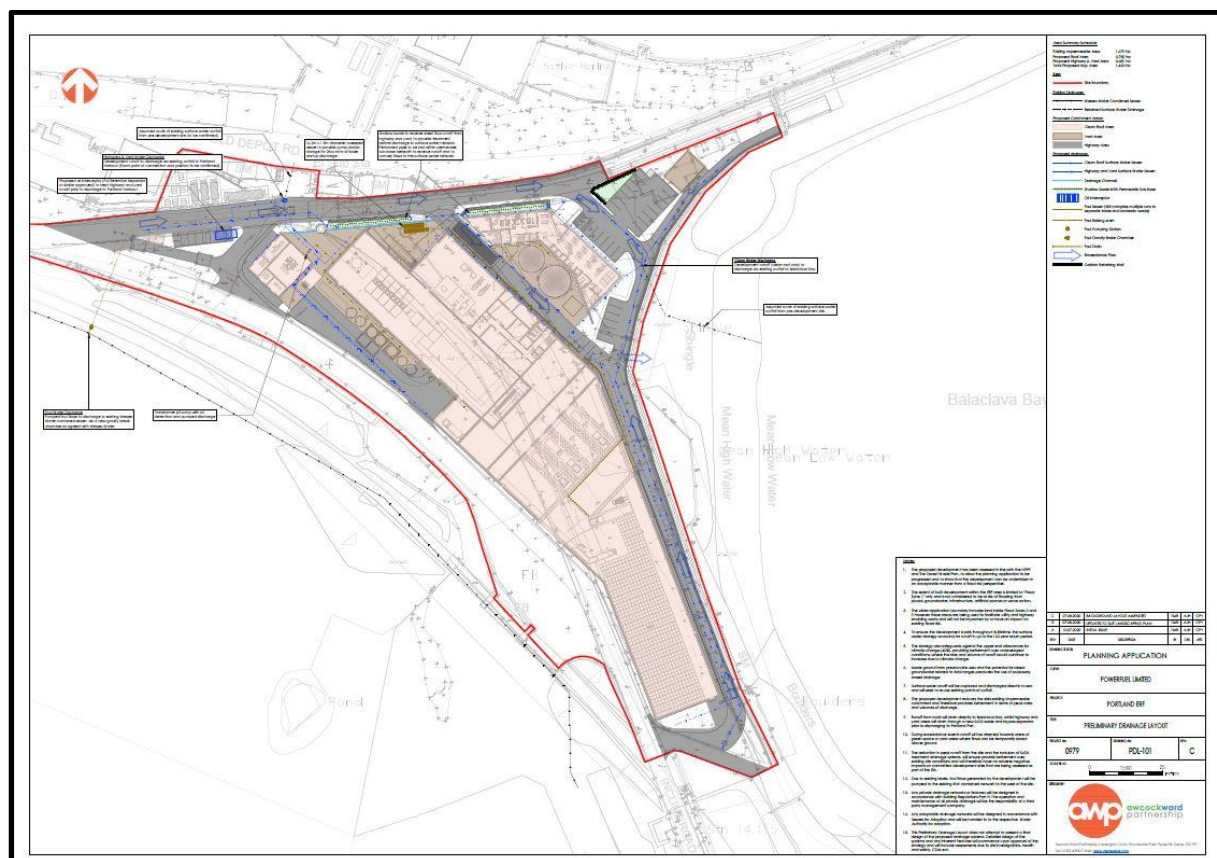
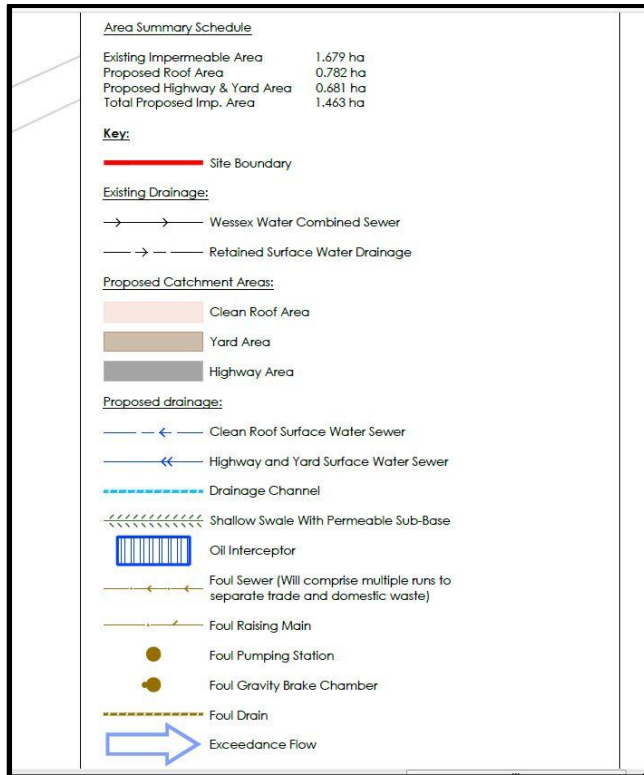


Figure 6: Boundary of the planned drainage scheme. As can be clearly seen, this excludes the quayside uBA storage facility. Therefore, this area will be exposed to untreated leachate runoff directly into Portland Port, or existing drainage.



Box 12 Three points of notes with the drainage system should be recognised.

1. The quayside IBA store is not included in the drainage scheme
2. All roadway and yard waters, in addition to some roof run-off, is discharged into Portland Port. The only treatment is via sediment and oil traps. Neither piece of equipment is capable of separating heavy metal salts in solution due to leachate tracking and/or leakage, from surface water runoff. Instead, any contamination is simply “diluted” with fresh rainwater prior to discharge.
3. The IBA collection facility drains untreated IBA leachate directly into the foul drain

Figure 7: Drainage Schematic Legend

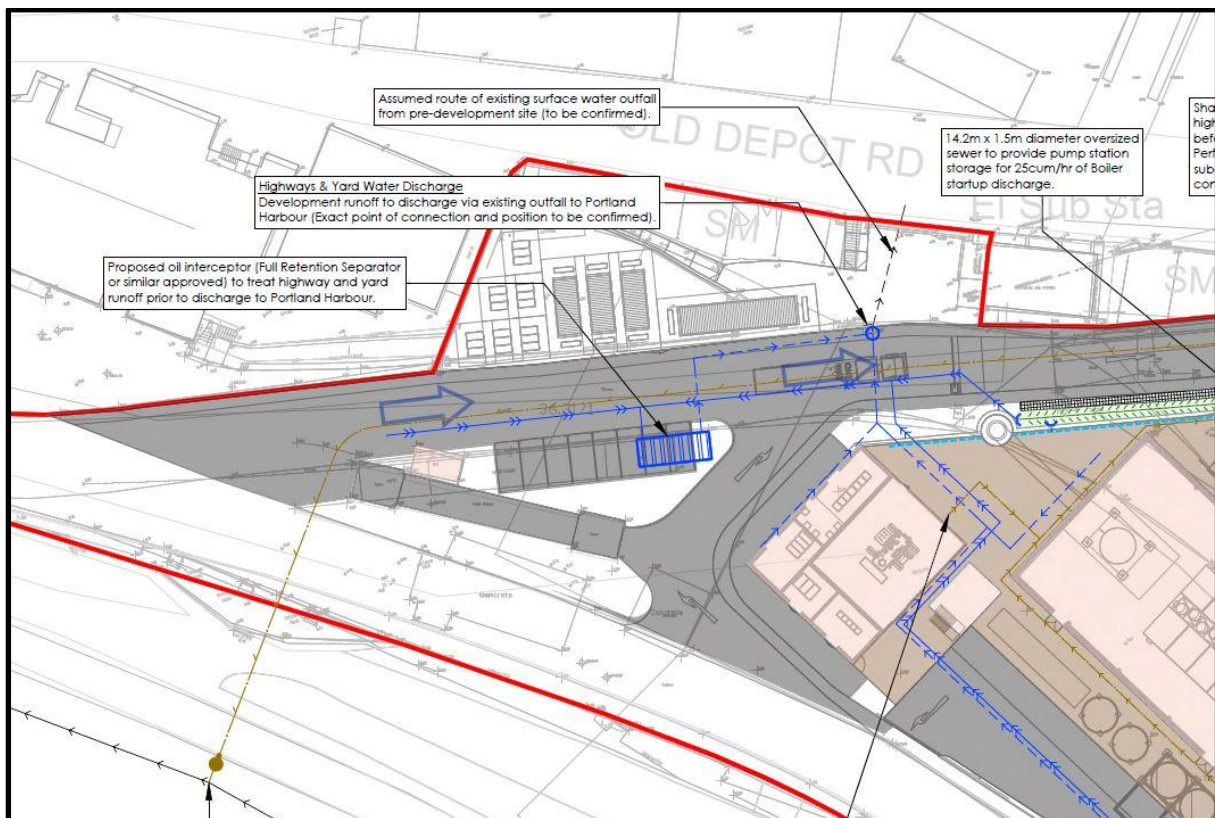


Figure 8: Highway and yard surface waters (blue twin arrow) are directed through an oil interceptor, prior to mixing with clean roof run-off and discharged directly into Portland Port.

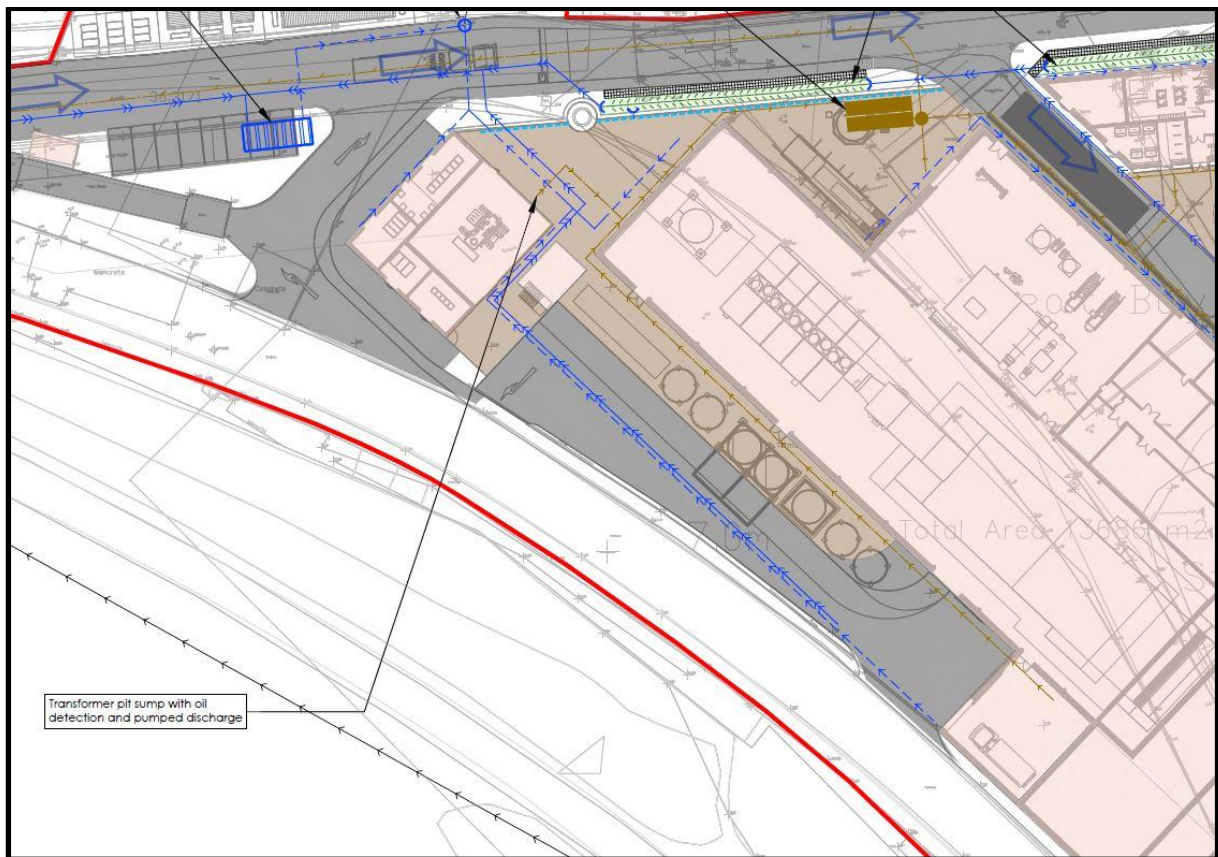


Figure 9: Highway and yard surface drainage within the service yard which may become contaminated by tracked uIBA leachate from the IBA collection area

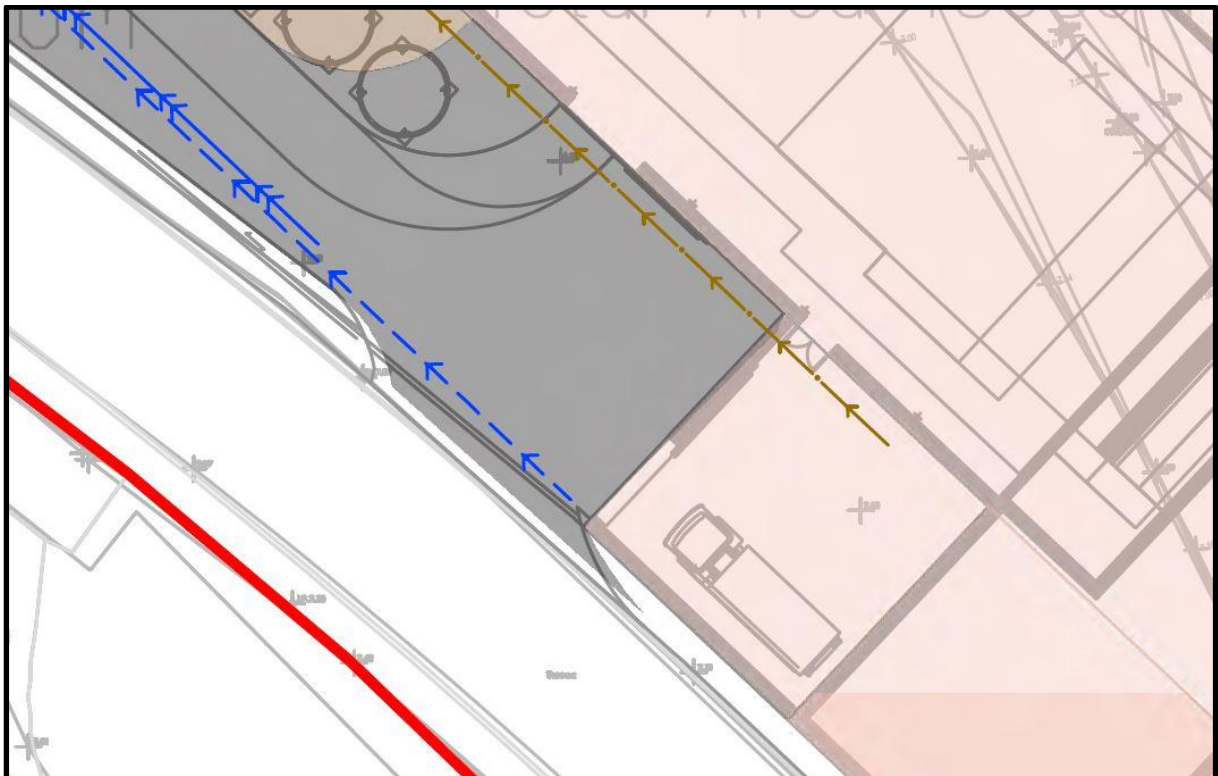


Figure 10: IBA collection area showing foul water drain. This confirms the belief that in the absence of a sealed IBA hopper and re-circulating quench water system, pooling heavy metal leachate will be drained into the foul water system

2.9 Environmental Statement Chapter 8 Ground Conditions and Water Quality

Paragraph 3.33: The site lies on the coast, with Portland harbour to the north and Balaclava bay to the east. The two waterbodies are divided by the inner breakwater.... Portland Harbour is a 110.2km² waterbody designated as 'shellfish waters'. This designation places specific restrictions on levels of microbial pollution in the water.

Paragraph 3.35: To the west of Portland Harbour is the Fleet Lagoon waterbody, which is bordered by the shingle beaches of Chesil Beach. This is a 4.9km² waterbody connected to Portland Harbour through a narrow channel, which at its closest point is approximately 2.5km to the north west of the site. Designations associated with this waterbody include:

- Chesil and the Fleet SAC, the area of which includes this waterbody, Chesil beach and the adjacent coastline to the south
- Chesil Beach and the Fleet Special Protection Area (SPA)
- The Fleet Shellfish Waters (2014)

Box 12: ES Ch08 3.33 & 3.35 highlights two key site specific concepts of note in relation to the risk of coastal water contamination, from PFP's planned quayside storage and handling of untreated IBA, in an open area without any surface water drainage for the capture, containment and treatment of resultant heavy metal rich leachate.

1. That Portland Harbour acts as a feed water for the Fleet lagoon
2. That Portland Harbour is a protected waterbody (Shellfish), along with Chesil Beach and The Fleet SAC and SPA

In addition, as some shellfish species are filter feeders and as it is known that microbial action can absorb and concentrate heavy metal elements, the planning authority should also consider shellfish designation in light of the risks of future heavy metal related contamination through bioaccumulation and biomagnifications events.

3.0 Dorset Waste Policy, Agencies and “Other Legislation”

3.10 Policy 4(d) – Applications for waste management facilities not allocated in the Waste Plan

“Proposals for waste management facilities on unallocated sites will only be permitted where it is demonstrated that they meet all of the following criteria: the proposal complies with the relevant policies of this plan.”

3.11 In addition, paragraph 9.20 states *“Residues from thermal treatment facilities include incinerator bottom ash (IBA), which can include hazardous and non-hazardous ash. Both require some form of further management. Proposals must also meet other relevant criteria of Policy 6 and other relevant policies in this Plan.*

Box 13: Policy 4(d) therefore places a requirement for full compliance with planning policies for Pfp’s ERF proposed on the unallocated Portland Port site. Further to this, 9.20 recognises that untreated incinerator bottom ash contains both hazardous and non-hazardous fractions. This is in complete contradiction to Pfp’s planning application documents, which claim an inert chemical characteristic for uIBA, and assert a non-hazardous waste category without any assessment of IBA being implemented. IBA collected from Pfp’s collection point, wet as it will be with limited to no de-watering and pre-treatment, will contain an unknown total soluble fraction and heavy metals soluble fraction which is liable to leaching.

As seen in section 1.10, under the Quality of Life sub-heading, paragraph 2.38 of the Pfp environmental statement:

“Any potential adverse effects need to be addressed and carefully managed in accordance with the Waste Plan and other legislation. In accordance with national policy, the Waste Plan should ensure that potential impacts on amenity and quality of life from proposals for waste development are avoided or mitigated”

With regard to the phrase “...and other legislation..” in ES 2.38; the planning authority must require that uIBA be handled in accordance with Articles 46(5) and 53(3) of the Industrial Emissions Directive;

Article 46(5) “Waste incineration plant sites and waste co-incineration plant sites, including associated storage areas for waste, shall be designed and operated in such a way as to prevent the unauthorised and accidental release of any polluting substances into soil, surface water and groundwater.

Storage capacity shall be provided for contaminated rainwater run-off from the waste incineration site or waste co-incineration plant site or for the contaminated water arising from spillage or fire-fighting operations. The storage capacity shall be adequate to ensure that such waters can be tested and treated before discharge where necessary.”

Article 53(3) “Prior to determining the routes for the disposal or recycling of the residues, appropriate tests shall be carried out to establish the physical and chemical characteristics and the polluting

potential of the residues. Those tests shall concern the total soluble fraction and heavy metals soluble fraction”

This requirement for testing is reinforced by the Environment Agency consultation response: *“Informative: If any waste is to be removed from the site then the applicant needs to ensure that sufficient testing has been undertaken in line with Waste classification technical guidance WM3. This is to ensure all waste on the site is correctly classified and disposed of accordingly to a suitably authorised facility.” If any hazardous waste is to be removed offsite the site operator must ensure that consignment notes are completed correctly in accordance with the legislation.”* (Ref 1.42)

Box 14: Transportation of uncatagorised waste is unlawful. Therefore considering PfP’s stated intention to store uIBA in port; the planning policy requirement for applications to be in accordance with all relevant planning policy and legislation; the Environment Agency planning policy and IED requirements for waste to be classified before transportation off site, the lack of any such testing regime/facility within the PfP application, and the IED article 46(5) requirement *“Waste incineration plant sites ..., including associated storage areas for waste”*; the planning authority must accept the quayside storage and handling operations are part of the development and subject to the same planning policy requirement and compliance. Waste cannot be moved off-site under an industry “assumed” waste category, as a means to avoid planning requirements for a covered building, with foul water drainage, and adequate ventilation to avoid Hydrogen gas build up.

3.12 Policy 6 states *“Proposals for the recovery of non-hazardous waste, including ... thermal treatment,... will be permitted where it is demonstrated that they meet all of the following criteria:*

(b) they will not displace the management of waste which is already managed, or likely to be managed, by a process which is further up the waste hierarchy that that being proposed, unless the Waste Planning Authority is satisfied that the proposal would result in benefits sufficient to outweigh the displacement;

(c) proposals will provide for all operations including the reception, handling, processing and storage of waste to take place within an enclosed building unless there would be no proven benefit from such an enclosure and demonstrate that the proposed operations will be compatible with existing or proposed neighbouring uses;”

Any residue (IBA) arising from the facility must be managed in accordance with the waste hierarchy and the proximity principle.

Processing facilities for the incinerator bottom ash must be located at or close to the source of the waste arising”

In addition paragraph 10.7 of planning policy states *“Disposal is at the bottom of the waste hierarchy and landfill of non-hazardous waste will therefore be resisted by the Waste Planning Authority”*

Paragraph 10.8 *“Disposal also includes incineration without efficient energy recovery, as defined through the R1 Energy Efficiency Formula set out by the Waste Framework Directive”*

Paragraph 10.9 *“Incineration breaks down waste through combustion, producing ash and potentially energy. Incineration without efficient energy recovery is at the bottom of the waste hierarchy and will be resisted by the Waste planning Authority, given that there are likely to be opportunities for recovery of energy from waste treatment facilities.”*

Box 15: Notes upon Planning Policy 6, Paragraphs 10.7, 10.8 and 10.9

6(b) states that the proposed ERF can only be approved if it holds the same position within the waste hierarchy, as the Syngas plant at Canford Magna. For this statement to hold true, the PfP proposal must achieve an R1 rating above 0.65

Whilst the applicant claims an R1 value of 0.68, this is questioned due to statements made by the applicant regarding the provision of 0.5MWe photovoltaic power, and its on-site use.

“2.20 The roof of the ERF, above the RDF storage area, will be fitted with 3,389m² of photovoltaic panels, which will generate electricity for use within the plant or for export independent from the plant.”

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$$R1 = \frac{(E_p - (E_f + E_i))}{(0.97 \times (E_w + E_f))}$$

E_p = Annual energy produced as heat or electricity. It is calculated with energy in the form of electricity being multiplied by 2.6 and heat produced for commercial use multiplied by 1.1 (GJ/year)

E_f = Annual energy input to the system from fuel contributing to the production of steam (GJ/year)

E_i = Annual energy imported excluding E_w and E_f (GJ/year)

E_w = Annual energy contained in the treated waste calculated using the net calorific value of the waste (GJ/year)

0.97 = The factor accounting for energy losses due to bottom ash and radiation

It is not clear from documentation if the R1 calculation has included the PV power as an energy input E_i to the plant as required, or, in supplying ARUP with a power output value E_p , this was based upon the provision of all on-site electrical power loads by the PV array but not disclosed as an E_i value. As a result the R1 value could be artificially high.

Note: Whilst I have every confidence in ARUP, considering the manner in which PfP has sought to mask data, plans and intentions throughout the planning application, I am sceptical of the quality of information supplied to ARUP to achieve an R1 value of 0.68. With no heat provision via a district heating network and without access to design data, the value 0.68 cannot be independently verified. I believe that all design data concerning the R1 value should be made publically available, so as to reassure both the public and the Waste Planning Authority that the output from the 0.5MWe solar array has been included as an energy input to the plant and not as part of the plant's electrical power output.

It should be remembered that planning policy paragraphs 10.7, 10.8 and 10.9 stipulate that without R1 classification, the plant would be considered as disposal and the application rejected. Therefore the validity of the R1 calculation and its supporting data must be independently verified.

Box 15 (cont): Notes upon Planning Policy 6, Paragraphs 10.7, 10.8 and 10.9

6(c) states that the proposed ERF can only be approved if it “...will provide for all operations including the reception, handling, processing and storage of waste to take place within an enclosed building unless there would be no proven benefit from such an enclosure and demonstrate that the proposed operations will be compatible with existing or proposed neighbouring uses;”

It is necessary to view this policy requirement in accordance with the IED Article 46(5) “Waste incineration plant sites and waste co-incineration plant sites, including associated storage areas for waste, shall be designed and operated in such a way as to prevent the unauthorised and accidental release of any polluting substances into soil, surface water and groundwater.

Storage capacity shall be provided for contaminated rainwater run-off from the waste incineration site or waste co-incineration plant site or for the contaminated water arising from spillage or fire-fighting operations. The storage capacity shall be adequate to ensure that such waters can be tested and treated before discharge where necessary.”

It should be remembered that the stated intention of PfP is that “specialised vessels” will be used to store the IBA within the port. These are the lighters referred to within the documentation. With a daily production of 137 tonne/day, assuming shipping to occur every 5 days[1], we have a maximum storage requirement of 685 tonne. An average bulk density for IBA of 1.5tonne/m³ therefore gives us a required storage volume of 457 m³.

It is debatable if a covered barge moored in Portland Port considered “an associated storage area for waste” under IED 46(5), can be considered to satisfy Dorset Council waste planning policy 6(c)... “all operations including the reception, handling, processing and storage of waste to take place within an enclosed building..”

6(c) does provide flexibility for the applicants through; “unless there would be no proven benefit from such an enclosure and demonstrate that the proposed operations will be compatible with existing or proposed neighbouring uses”

The onus is therefore on PfP to prove to planning that the handling and storage of untreated IBA in the manner they’ve alluded to is, “...designed and operated in such a way as to prevent the unauthorised and accidental release of any polluting substances into soil, surface water and groundwater” as required by IED 46(5). Yet the planning application describes no foul water drainage system design covering the quayside uIBA handling area, no explanation of how pooled IBA leachate in the holds of moored lighters would be drained or handled to guard against contamination of Portland Port. No explanation of how slurries generated in a quayside containment bay would be managed. As a source of both liquid contaminations of the port waters and of a source of dust contamination in dry periods, their control is essential. No pooling of leachate run-off from quayside containment bay can be tolerated.

[1] this is based upon an RDF shipload of 2500T lasting a calculated 4.5 days, a theoretical RDF cargo from London being off-loaded, and the geared ship returning to Greenwich carrying a cargo of untreated IBA.

Box 15 (cont): Notes upon Planning Policy 6, Paragraphs 10.7, 10.8 and 10.9

Policy 6(b) states that the proposed ERF can only be approved if it holds the same position within the waste hierarchy, as Advanced Thermal Treatment such as the Syngas plant at Canford Magna. For this statement to hold true, the PfP proposal must not only achieve an R1 rating above 0.65, it must also satisfy the planning authority that incineration is as clean in operation as advanced thermal treatment, yet paragraph 9.30 of the planning policy states that in the opinion of the Waste Planning Authority, advanced thermal treatment is a cleaner technology for the treatment of residual wastes, and that “adverse effects” may be ruled out with much greater confidence.

This apparent conflict might explain why in the planning documentation consideration of alternative technology, ES Chapter 2 Site Description and development Proposal 2.127, PfP compared their proposed plant to the failed vegetable/tyre crumb processing facility, concluding in ES 2.128 that the “...use of RDF as a fuel source is a more energy efficient, robust and widely used technology for the recovery of energy from waste than the technologies proposed in the consented applications.”

In this way they sought to imply that their proposal was more advanced than the successful Canford Magna Advanced Thermal Treatment facility, the favoured technology of the planning authority (9.30), whilst being careful to only reference the failed projects of previous consented applications.

PfP avoided any comparison to the Syngas operation at Canford Magna with whom they will compete for Dorset’s residual waste if they are to act in accordance with the proximity principle at the heart of Dorset’s waste management plan. As such their assessment of alternative technologies is flawed.

The only way that PfP can avoid this “preference in principle” for Advanced Thermal Technology held by the planning policy is by avoiding competing for Dorset residual waste streams. As they state, “the proposed development will be a merchant plant... it is not being built specifically to manage residual waste from Dorset and/or the wider South West...” *Portland ERF Environmental Statement Ch12 Effects post-construction, paragraph 12.31*

If PfP are principally designed to combust waste sourced from the European RDF market as they suggest in paragraph 12.31, then they breach the proximity principle of the Dorset Waste Plan, and if not, then they breach planning policy 6(b) in displacing ... *the management of waste which is... likely to be managed, by a process which is further up the waste hierarchy than that being proposed...*”.

PfP are obliged to demonstrate “the sufficient benefits” their incinerator proposal has over the application of ATT technology within the port, for the planning authority to overlook their assessment of ATT technology in 9.30. PfP have failed to do so.

Box 15 (cont): Notes upon Planning Policy 6, Paragraphs 9.34, 10.7, 10.8 and 10.9

Policy 6 also lays down further conditions for the treatment of waste IBA, namely that “any residue arising from the facility must be managed in accordance with the waste hierarchy and the proximity principle”, going on to explicitly state that “...processing facilities for the incinerator bottom ash must be located at or close to the source of the waste arising”

Further paragraph 9.34 “Applications will also be expected to demonstrate how residues, including IBA, ..., will be managed in accordance with the proximity principle and the waste hierarchy, minimising the use of landfill.”

The proximity principle being key to the Dorset waste plan therefore covers the processing and treatment of uIBA, but as we see, the intention of PfP is to export untreated IBA as non-hazardous waste, preferably by ship to Greenwich or by unsealed HGV tipper to Avonmouth.

3.13 Summing up the proposal to date, we have an incineration plant with a disputed R1 value of 0.68 competing with a waste management facility higher up the Dorset Council waste hierarchy. In addition, this potential deposal facility will import waste from the EU RDF market, before shipping its untreated IBA waste hundreds of miles from Dorset for treatment. And if competing against cleaner technology whilst running an waste import/toxic waste export business in defiance of the proximity principle, the applicant has an IBA waste handling and storage facility designed to by-pass the cost impacts of environmental legislation, not abide by them.

The threat of contamination of Portland Port with IBA leachate by the envisaged storage facility is sufficient grounds to deny this application

3.14 Under sub-heading “**Planning conditions**” paragraph 12.10 “Where significant adverse effects cannot be adequately controlled or prevented, or insufficient evidence has been supplied to demonstrate whether impacts can be adequately mitigated, planning permission will be refused. It is important to note that this process equally applies to all proposals being brought forward on allocated sites and unallocated sites.”

Box 16: The planning application and its associated quayside waste storage facility have the potential to pollute Portland Harbour with heavy metal leachate. Little to no evidence has been provided to about this facility or the preventative measures required, and as such planning permission must be refused under paragraph 12.10

In the accordance to Quality of life 12.37, the proposal would not seem appropriate for the location.

3.15 The proposal has not satisfied *Quality of Life* 12.38, “...potential adverse effects need to be addressed and carefully managed in accordance with the Waste Plan and other legislation. In accordance with national policy, the Waste Plan should ensure that potential impacts on amenity and quality of life from proposals for waste development are avoided or mitigated”

3.16 Policy 13 – Amenity & Quality of Life

“Proposals for waste management facilities will be permitted where it is demonstrated that any potential adverse impacts on amenity arising from the operation of the facility and any associated transport can be satisfactorily avoided or mitigated to an acceptable level, having regard to sensitive receptors, specifically addressing all, but not limited to, the following considerations: (b) airborne emission, including dust; (d) litter and windblown materials; (i) site related traffic impacts...”

The proposal, as shown, breaches Policy 13(a),(b),(d) and (i)

3.17 Policy 16 – “Proposals for waste management facilities will be permitted where all of the following criteria are met:

(a) it can be demonstrated that the quality of water resources (including coastal waters) would not be adversely impacted and/or would be adequately mitigated;”

The proposal has not demonstrated how heavy metals from IBA run-off leachate and other pollution events within quayside storage/handling operations, will not contaminate the “shellfish” designated Portland Bay, acting as it does as feed-water for The Fleet and Chisel beach SAC SPA.

The proposal, as shown, breaches Policy 16(a)

3.18 In addition to breaches of Policy 6, the proposal is shown as in breach of Article 46(5) of the Industrial Emission Directive.

The proposal, as shown, breaches Policy 4