Buckfastleigh Community Forum
www.community.buckfastleigh.org

Neil Smith
Chairman, Buckfastleigh Community Forum

31st January 2012

The Environment Agency
Board Members
Lord Smith, Chairman of the Board
Dr Paul Leinster, Chief Executive
Chris Howes, Head of Performance and Engagement
Mat Crocker, Head of Illegals and Waste
Richard Cresswell, Director South West
Martin Weiller, Devon and Cornwall Area Manager
Ed Mitchell, Director Environment and Business
EA Permitting Office
via email

Dear Board Members and executive officers of the Environment Agency,

RE:

(i) Environmental Permit Number EPR/WP3833FT, Devonport Energy from Waste CHP

& (ii) National issues with regard to due process in the categorisation of Incinerator Bottom ash

I am writing as Chairman of the Community Forum in Buckfastleigh, Devon. We are a community group who have serious concerns over the proposals to build and operate a combined EfW CHP incinerator in Devonport, Plymouth. We wish to make both representations and requests for detailed clarification regarding concerns the public have in relation to environmental issues relating to this permit request.

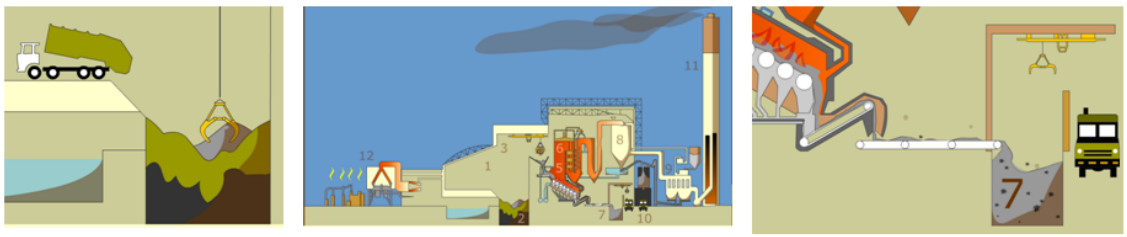
This letter of representation relates specifically to issues of due process surrounding the classification and processing of Incinerator Bottom Ash (referred to as IBA, bottom ash, or slag ash). Research on a local issue has unearthed what could be described as one of the greatest environmental policy conundrums currently existing, and **demonstrates implications for national policy issues within the context of European legislation. A matter that is of serious and wide enough national interest that it is an appropriate concern of board level accountability.**

We believe that there is a legal basis to require very clear and public clarification of these issues before any permit at Devonport can be issued.

This representation may be over 20 pages long with several appendices, but it still not comprehensive enough to explain the serious issues - apparently unaddressed - surrounding Incinerator Bottom ash. Please note that for simplicity I have also included a schematic of examples of a non-precautionary and a precautionary approach to this issue in, both in this letter and attached as Appendix 2.

(1) EfW Permitting Process with respect to IBA

Proposed 'expedient' approach – lacking in precaution



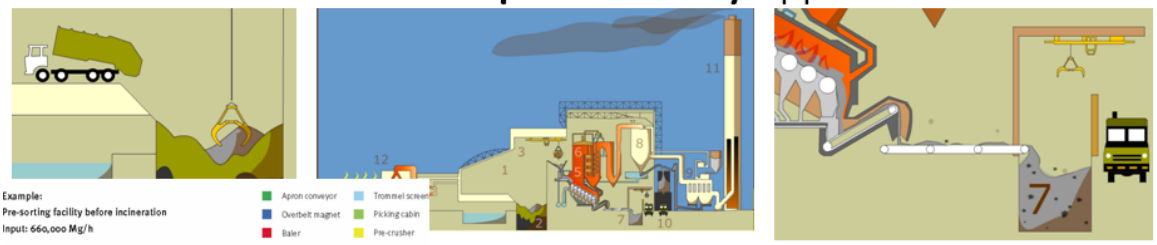
Source: Greenpeace

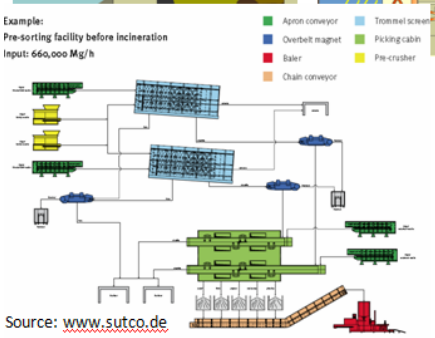
•Unsorted kerbside waste trucked to site.
•No geographic restriction on imported waste.
•Spurious assumptions about recycling are made with respect to the nature of the waste.
•Only a grab crane to sort before incineration.
•Large quantities of potentially recyclable material are burned.
•More fuel accelerant required to maintain temperature of burn.
•Higher CO2 emissions.
•Totally unnecessary quantities of pollutants are irreversibly released into the environment.

•IBA is collected from quench bath and swiftly moved offsite to processing plant.
•Testing carried out monthly
•Reporting carried out quarterly.
•Quality and comprehensiveness of testing highly questionable with pressure from industry/operator to lower standards.
•Multiple test fails required before hazardous.
•Political and commercial pressure to ensure that ALL residue is put to reuse.
•Presumption of suitability for reprocessing.
•Processing plant is considered 'low risk' by operator and EA despite evidence to the contrary.
•Processing involves weathering and grading.
•Quality of processed aggregate is of no concern to Environment Agency.

(2) EfW Permitting Process with respect to IBA

The correct **precautionary** approach





Source: www.sutco.de

•Unsorted kerbside waste trucked to site, and subjected to rigorous and systematic mechanical, biological sorting and treatment and recovery for further recycling off site.
•Waste restricted to locality. No importation.
•A well-specified Refuse Derived Fuel is created, giving cleaner, more consistent residues, releasing less pollutants and toxins.

•IBA is collected from quench bath and moved to intermediate storage area on site permitted to store hazardous waste.
•Testing is carried out systematically to the highest possible standard, testing for all appropriate hazard properties as detailed in WM2 (including H14 and H15).
•Reporting is real-time and on-line with detailed clarity for public information.
•Single failures mean waste is hazardous until subsequent testing proves otherwise, leading to hazardous landfill.
•Operator fined for failing tests.
•Processing sites regarded as potential threats to health and environment, maintained in existing industrial areas away from housing and protected sites.
•State of the art processing undertaken.
•No outlet to watercourse.
•Substances registered with REACH if to be reused.

Outline Statement

Environmental issues surrounding production of bottom ash from municipal waste incinerators designed as Energy-from-Waste (EfW) plants are some of the more obvious examples today of where not only is use of the precautionary principle clearly necessary, but where it is potentially **relatively simple and cost effective to address** if there is an appetite to do so. The Environment Agency has a duty to publicly demonstrate that they are adhering to the precautionary principle and effectively performing their responsibility for protecting the environment from either significant and **or** irreversible harm. The principle is a notable aspect of international and domestic environmental legislation. In the UK the Interdepartmental Liaison Group on Risk Assessment (ILGRA) noted that the precautionary principle dictates that:

"Action in response to the precautionary principle should accord with the principles of good regulation, i.e. be proportionate, consistent, targeted, transparent and accountable." [i]

We believe the obligation for the EA to overtly demonstrate actions to the public, to be transparent and accountable, is also underlined from the priorities set by the government and detailed in the EA's document *Our Corporate Plan 2011-2015*:

"Whoever you are – it's important to us to provide you with an excellent service making sure we listen to what you say and engage with you whether you are a partner, stakeholder or a community with an environmental concern. That's why we put our customers at the heart of everything we do…. It is very important to us that, as a customer, you understand what we do and why we do it."

Unfortunately, there is little clear information the EA provide to the public in relation to the issue of increasingly widely-held concerns regarding bottom ash, other than the statement on the website that[ii]:

"Through the Waste Protocols Project we are in the process of gathering evidence on standards the material meets, markets it may be able to exploit, and most importantly any potential impacts on human health and the environment. The aim is to establish whether the waste can be considered to be fully recovered and used as a quality product."

In summary we wish to address 9 broad points:

1. Claims that bottom ash is inert

2. Conflict between political and commercial expediency and the precautionary principle

3. Sampling and testing protocols of bottom ash

4. Hazardous status of bottom ash and ecotoxicity

5. Hazardous properties and exploding aggregate

6. Bottom ash leachate and risks of re-use

7. Heterogeneous and unnecessarily polluted waste streams

8. Intermediate term storage for bottom ash at Devonport

9. MVV's environmental record

Each points has specific requests seeking answers and clarifications.

Background to this proposal

The proposals at Devonport docks in Plymouth include trucking Incinerator Bottom ash from the Devonport EfW incinerator to be stored and processed at a disused quarry in Buckfastleigh. We understand the testing of the bottom ash is required to be carried out at the Devonport facility under conditions specified in any Permit that the EA may seek to give. The Planning Officers' Report on the Devonport plant states on page 156[iii] that:

"The EA advises that Incinerator bottom ash is classified in the European Waste Catalogue as a 'mirror entry', that is a waste stream that can be either hazardous or non-hazardous dependent on the chemical constituents within the waste. In order to determine whether the waste is hazardous an assessment must be made using the guidance set out in technical guidance document WM2 'Interpretation of the definition and classification of hazardous waste'. As this waste stream is subject to change dependent on the make up of the source waste, a continuing programme of assessment will be required. Systems will need to be in place to ensure that IBA will be adequately tested, and that the waste will always go to an appropriately permitted site."

In addition, the draft permit drawn up by the EA makes several mentions in relation to bottom ash which I include here for context:

PO4	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a protocol for the sampling and testing of incinerator bottom ash for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.

Table S3.4 Residue quality

Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method *	Other specifications
Bottom Ash	TOC	<3%	Monthly in the first year of operation. Then Quarterly	Environment Agency ash sampling protocol.	
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.		Monthly in the first year of operation. Then Quarterly	Sampling and analysis as per Environment Agency ash sampling protocol.	
Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route	Sampling and analysis as per Environment Agency ash sampling protocol.	

Schedule 4 - Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1	A1	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
Emissions to sewer Parameters as required by condition 3.5.1	S1	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
TOC Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Bottom Ash	Before use of a new disposal or recycling route	

Issues of Specific Concern

1. Claims that bottom ash is inert

Our initial concern relates to the specification of bottom ash and how the planning procedure (to process this residue in Buckfastleigh) is being undertaken. Planning Conditions for the Devonport plant specify that a permitted site for processing or disposal of bottom ash has to be formally adopted before any work can be carried out at Devonport[iv], so the two sites are inextricably linked at present.

Only bottom ash classified as "Non-hazardous" would be trucked to Buckfastleigh if planning permission were given and a permit granted. Any bottom ash classified at testing as "Hazardous" would need to be disposed of as hazardous waste elsewhere.

However, the planning application in Buckfastleigh specifically refers to bottom ash as "inert". The former County Waste Manager for Devon, Ben Jennings (who was a big champion of the Devonport EfW proposals) stated in a representation to the planning authority in a memorandum of 1st September 2011 that the Buckfastleigh *"planning application is predicated on the presumption that IBA is inert."*[v]

The County Waste Manager Ben Jennings continued in his memorandum that:

"The Environment Agency has since 2007 been reconsidering this issue and whether the material should be classified as a hazardous waste and if so, how it should be categorized. This raises potential health issues which have yet to be addressed and it would be interesting to know how this issue is to be dealt with in the necessary EA permitting process."

A claim that bottom ash is inert has been repeated by the applicant, MVV Environment, on numerous occasions in public, in marketing material, and in official correspondence with the planning authority. In their Planning Supporting Statement (paragraph 4.3.5) MVV claim that:

"IBA is classified as an inert material under Regulation 7(4) of the Landfill (England and Wales) Regulations 2002. The high temperatures used in the EfW CHP process destroy any organic compounds making IBA chemically stable. This means that it does not undergo any significant physical, chemical or biological transformations, does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and its total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water or groundwater."[vi]

This unsubstantiated claim is made despite numerous, comprehensive scientific studies that refute it which suggested that even highly weathered bottom ash continues to leach significant quantities of environmental toxins above threshold requirements (see attached Appendices). We are not aware of any scientific study that actually supports this claim of bottom ash being inert. The claim has also been made on at least one occasion by consultants working for MVV in a private meeting with the EA in September 2011[vii] when a URS/ScottWilson consultant stated that:

"Going back to first principles the material which will brought in will be inert therefore there is no additional risk over and above what is currently permitted in the ROMP [Review of Old Mineral Permissions which is the extant planning permission at the quarry]."

This factually incorrect statement which is attempting to lead the EA and pressure them to accept the developer's proposals is not only clearly wrong, it clearly contradicts a response that DEFRA made to us in relation to a letter we wrote to the Secretary of State Caroline Spelman last year. DEFRA's position on this matter, as detailed to us in an email response on behalf of the Secretary of State in November 2011, is that[viii]:

"For waste to be classified as hazardous, it must exhibit one of the properties defined in the revised Waste Framework Directive. The only IBA that is currently classified as hazardous is a small quantity (less than 700 tonnes) from hospital and animal waste incinerators. The presence of a toxic substance in a material does not necessarily make the whole material toxic – it depends on the concentration and availability of the toxic constituent – and nor is IBA inert, a category that only applies to virgin material e.g. soil."

Notwithstanding that DEFRA appear to espouse a prejudgement towards bottom ash as non-hazardous (which lacks a sense of precaution), **DEFRA specifically state that bottom ash is not inert**. We believe that the EA should urgently re-iterate this position publicly, particularly as the lobby group the Environmental Services Association (ESA) describe bottom ash as *"essentially inert"* on their website.[ix] Attempting to label any form of bottom as inert is clearly misleading the public.

Points of Response:

#1, Public statement from the EA confirming bottom ash's status, that it is indeed NOT inert as MVV and other parts of the industry are attempting to argue.

#1.1, Perhaps the EA should go one step further and caution industry for presenting this argument.

2. Conflict between political and commercial expediency and the precautionary principle

There are significant political, legal, financial, economic and operational incentives to **ensure** not just that bottom ash is categorised as non-hazardous rather than hazardous, but also to presume that (regardless of how marginal a demonstrated non-hazardous status is) that it will be suitable for reprocessing into a useable construction aggregate.

The whole concept of waste incineration (either as a solution to waste management, or as a source of renewable energy) **fails to meet standards for European directives** if bottom ash were to be land-filled rather than re-processed for use as an aggregate. Approximately 25-30% in weight of incinerated waste would still end up in landfill if it were deemed unsuitable (or merely had no sustainable demand) as a construction aggregate.

There is a specific Planning Condition in Devonport that MVV **must** achieve a minimum landfill diversion target of 95%. i.e. the bottom ash **has** to be reprocessed for use as construction aggregate, regardless of its suitably for this purpose or demand for it.[x] There are even financial incentives to achieve this objective. Quite how the planning authority can specify a planning condition which is clearly not within the control of the applicant is a moot point here, but again it **indicates an attitude of presumption and prejudgement** about the environmental status of the residue which cannot be justified.

This clearly biased incentive structure was emphasised when local government (in the form of the Local Authority Recycling Advisory Committee, LARAC) and the industry lobby group the Environmental Services Association (ESA) campaigned and lobbied hard in 2009 to ensure that no special tax was placed on bottom ash.[xi] This was despite government guidance that bottom ash did **not** meet the standards of European legislation for an inert or inactive material and hence should be taxed as active waste. The article states that:

"While LARAC acknowledged that some material could be recycled into secondary aggregate, thereby avoiding the tax, it claimed that not enough research had been done to establish whether the market could cope. It also said that there was at present no "coherent and established" protocol for the recovery of the material."

This lobbying successfully stopped a higher, more appropriate rate of landfill tax on bottom ash. This has had a detrimental impact on waste recycling rates by offering a tax-payer financed subsidy to increase the relative attractiveness of incineration to deal with municipal waste. Notwithstanding the fact that the Treasury have ignored requests to review this, neither the EA or DEFRA can abrogate their responsibility for this issue as the incentive structure it fosters clearly has significant impacts on how waste is processed in this country and the subsequent environmental implications. Subjects which are some of the most important aspects of DEFRA's and the EA's responsibilities.

Industry has also repeatedly lobbied against thresholds for hazardous testing of bottom ash as they feel corporate profitability would not bear the burden of environmental regulation that does not **systematically** allow the vast majority of this residue to be deemed as re-usable.[xii]

The fact there are significant incentives to ensure bottom ash is categorised as non-hazardous and capable of being re-used conflicts with the EA's obligation of ensuring that the precautionary principle is followed - i.e. that when scientific evidence suggests that a waste stream has potential to cause significant or irreversible environmental harm, **unless it is demonstrated otherwise**, it must be presumed that this is the case.

"Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."[xiii]

Clearly scientific evidence abounds (see notes in the attached appendices for some examples) that bottom ash has the potential to cause irreversible environmental harm not just in its raw form, but also in its "weathered" form, and also the leachate that is the by-product of the weathering process. **The precautionary principle dictates that evidence needs to be provided to demonstrate why harm is not being caused and it is not clear that this evidence exists.**

As the EA's own website states, *"we are in the process of gathering evidence."* This gathering of evidence appears to have been going on for at least nine years now (dating back to at least 2002's *Solid Residues from Municipal Waste Incinerators in England and Wales, A report on an investigation by the Environment Agency* May 2002)[xiv], and demonstrates the conundrum faced. Clearly, until this situation is finalised, the precautionary principle is being ignored and opens the EA and its board members up to legal challenge. Even the industry lobby group the Environmental Services Association (ESA) currently state that[xv]:

"The development of an end-of-waste position for incinerator bottom ash remains unfinished… Government must continue support for the development of the Incinerator Bottom ash Quality Protocol."

According to the EA's annual report, one of the key targets is to ensure that:

"4.2a More waste is fully recovered to the standards defined in the Quality Protocols, such that it is no longer classed as waste"

The annual report claims that 65,000 tonnes of waste were diverted from landfill in 2010-2011. However, this one plant in Devonport alone would produce 65,000 tonnes of waste bottom ash annually (with several million tonnes ultimately likely to be produced nationally each year), so **it would appear that the bottom ash protocols are likely the single most important ones to establish.**

DEFRA is supposedly run on the basis of *"evidence based policy making"*[xvi] and the public must be assured that the EA works to the same standards. The longer this situation persists, the more likely we must assume that evidence of lack of harm is increasingly less likely to be proven. It appears that industry has tried to find the evidence and failed, and now concentrates on attempts to water down the testing regime.

In the context of **a political/legal system that now necessitates a predetermined outcome to a purportedly unbiased scientific process** this should be of concern. If the EA fail to clearly

demonstrate to the public that they are being proactive, and proceeding with the utmost regard to the precautionary principle in this regard, they will be perceived as a mere rubber stamp to the political process, and risk bringing the **whole** regulatory framework into disrepute.

Points of Response:

#2, A public comment and official position from the EA is needed as to how this apparent dilemma can exist between the political/legal/commercial obligation to categorise bottom ash as non-hazardous and the requirement for the testing of the residue material to be unbiased in a transparent system that the public can have faith in.

#2.1, The end-of-waste position for incinerator bottom ash needs to be finished before further permitting can be deemed to be lawful.

3. Sampling and testing protocols of bottom ash

The sampling and testing regime for bottom ash is a very complicated and opaque process. It is incredibly difficult for a layperson to understand. However, it appears that in the UK there is essentially a three layered approach.

I. At the top, the Waste Incineration Directive (WID) (2000/76/EC)[xvii] is the overall conceptual guide to the process. It is highly conceptual, and lacking in detail, with the two brief sections Article 6.1 and Article 9 laying the basis for the requirement[xviii];
II. The second filter in this process is provided by the *Guidelines for Ash Sampling and Analysis Version 6, March 2011*, produced by the EA[xix]. It is much more detailed, stating that technical guidance WM2 must be applied, and giving details on certain analytical methods, but it still remains conceptual in nature.
III. The final part of the jigsaw **appears** to be the protocols provided by the Environmental Services Association (ESA)[xx]. The legal onus is then on the individual waste companies to interpret and apply whilst the EA monitor at a distance and await any failings that they can take action against.

However, this final part in the jigsaw does not appear to have been publicly validated by the EA. The latest public record of correspondence between the EA and the ESA on this matter was in November 2010 when Martin Bigg, the EA's Head of Industry Regulation, stated that:

"We have reviewed the document and have no comments on the content...We would like to review the progress with the sampling of IBA in about 6 months."

There does not appear to have been any further progress on this issue, as indicated by the previous quote (seeking Government help to finish development of the protocols) which is still displayed on the ESA's website today.

Does this mean that the ESA's protocols have now been rejected and the EA's March 2011 document supersedes anything previously published? If not, can the EA assure the public that they have assessed the sampling protocol for its efficacy and reliability? Has this work been followed up by the

EA with the ESA? It is concerning to the public that the EA delegate this to the industry lobby group. There are numerous questions of public concern here which include (but are not limited to):

I. Are the protocols being applied by all waste incinerator operators across England?
II. If not all, who is not and why?
III. When did operators commence working to the protocol?
IV. What if any difficulties are being / have been encountered?
V. Do the ESA and EA receive periodic reports from waste incinerator operators?
VI. At what regularity are exceedances being reported for individual samples?
VII. What has been the incidence of multiple exceedances resulting in bottom ash being classified as hazardous?

Unless these sort of questions can confidently be publicly addressed by the EA taking responsibility for them (**not** the ESA), there must be reasonable doubt about the protocols' value in classifying bottom ash as hazardous/non-hazardous, and hence the system would not appear to be functioning properly.

The EA's apparent recalcitrance on public validation sends all the wrong signals to members of the public who have concerns. It suggests that the perceived legal onus on the EA in terms of liability is not so much ensuring that there are standards, but that any standards the industry may **choose** to adopt, once adopted, must be adhered to. The EA's perceived obligation is then to pursue legal action against failure to adhere to these procedures, after the fact.

This may be regarded as post-caution, as opposed to the legally mandated precaution.

The ESA protocols argue (Section 5.1) that *"If six or fewer of the 24 samples in the first year of monitoring are classed as exceedances, the IBA should be classified as non-hazardous."* It is not clear what evidence is being used to justify this number. A single exceedance means the bottom ash in question is hazardous. Raising the threshold of testing to be greater than 25% of the time is a *de facto* re-writing of the rules as outlined in the EA's own guidance document and again disregards the precautionary principle. It is clearly an attempt to water down the rules and pushing the boundaries for the sake of commercial expediency.

Further, in relation to our earlier correspondence with DEFRA, answered on behalf of the Secretary of State, we were told that:

"A protocol is under development that, if agreed, would enable IBA, when processed to an agreed standard, to cease to be waste when it presents no greater risk to the environment than the virgin material it replaces. Regular testing will be carried out by accredited laboratories using established techniques, and if any samples are found to be hazardous, appropriate off-site disposal will be required until the EA is satisfied that the IBA has returned below the hazardous threshold."

Despite the lack of detail that we were seeking in this paragraph, it is clear on at least three points:

i. *"A protocol is under development"* and does not appear to have been agreed nor endorsed;
ii. Bottom ash **must** be processed to a standard that *"presents **no greater risk** to the environment than the virgin material it replaces";* and

iii. That *"if **any** samples are found to be hazardous, **appropriate off-site disposal will be required** until the EA is satisfied that the bottom ash has returned below the hazardous threshold"*

With respect to point ii, it should be noted that one piece of research (*Environmental Assessment of Ash Disposal* Theis & Gardner 1990)[xxi] concluded that municipal-waste-derived bottom ash had 10-100 times more toxic metal content than virgin soil. Despite claims about the increased cleanliness of the stack emissions of modern incinerators, there are no claims that the quality of the residues, including bottom ash, are any different than from 20 years ago.

With respect to point iii, this statement categorically implies the expectation of **immediate** reporting to the EA, followed by **hazardous disposal** of **all** the bottom ash until subsequent testing results return to below threshold levels.

Points of Response:

#3.1, Rather than maintaining an apparent arm's length approach to testing and sampling (which is of great concern from the perspectives of legality and accountability), the EA should publicly confirm (or not) that the Protocols for sampling and testing bottom ash as detailed by the ESA are accepted and validated by the EA, along with their reasons for doing so.

#3.2, Additionally, the EA should explain and justify why they feel it is appropriate to only require MVV to sample their bottom ash once a month (as stated in the draft permit), rather than twice a month as detailed in the ESA protocols. Are there also other relaxations of the ESA protocols being offered to MVV?

#3.3, The requirement for quarterly reporting at Devonport again fails to respect the precautionary principle and the applicant should be required to make available continual reporting of its sampling regime both to the EA and members of the public via their website, with disposal of all bottom ash if a single hazardous reading is obtained.

#3.4, Until testing has confirmed that a batch of waste is non-hazardous it is clear that the bottom ash in question cannot be moved to a site that is only licensed to receive non-hazardous bottom ash. As such the bottom ash should be held on the primary site (Devonport, with the appropriate hazardous waste permit issued) until relevant test results are confirmed. If a hazardous reading is obtained, this bottom ash held in storage can then be disposed of appropriately. All this should be clarified in any permit that the EA feel minded to issue in Devonport.

4. Hazardous status of bottom ash and ecotoxicity

There still remains lack of clarification on the status of bottom ash and ecotoxicity, specifically in relation to the H14 Ecotoxic category under Technical Guidance WM2. According to WM2:

"Hazardous waste is defined as a waste possessing one or more of the 15 hazardous properties set out in Annex III of the rWFD. The hazardous properties are detailed here in Table 2.1."

One of the 15 hazardous properties detailed is H14 Ecotoxic waste.

This has been an area of particular public concern and contention historically as ecotoxicity is one of the most obvious impacts bottom ash can have on the environment in terms of long-term irreversible damage that is difficult to disprove. Although bottom ash is known to have the potential for containing ecotoxic elements and compounds within it, it is still not clear there is comprehensive guidance at to the sampling and testing for this. An article in *The ENDS Report* in March 2009 (full article attached as Appendix 4)[xxii] outlines the concern:

"Incinerator operators could have to treat bottom ash as hazardous waste because of doubts over its ecotoxicity. This could substantially increase the costs of incineration. The Environment Agency has admitted it does not "have 100% confidence" in its classification of incinerator bottom ash (IBA) as non-hazardous waste."

"Concern over its [IBA's] ecotoxicity dates from October 2005 when the Health and Safety Executive reclassified zinc oxide, a potential compound in ash, as ecotoxic, joining zinc chloride and all lead compounds. At the same time, the Agency drafted new guidelines for testing ecotoxicity. These said ecotoxic compounds could not make up more than 0.25% of wastes. If a laboratory cannot determine what compounds are present or it is unclear from scientific literature, the "worst case" should be assumed."

The EA's stance is not any clearer today on this issue. Within the EA's guidance document, paragraph 3.1.5 indicates a flexibility in applying sampling and testing:

"Knowledge of the process or activity that produced the waste, as well as the results from previous testing help to inform the decision making process. The information or data can be used to ***focus effort on where it is required****, thus enabling best use of effort and financial resource in the sampling exercise.*

"Example 1: interested parties may agree that there is sufficient evidence to conclude that a certain determinand will not be present in the waste. Consequently, ***interested parties may agree that the specific determinand need not be tested for****. The Sampling Plan will document the justification for removing the testing of the determinand from the analytical suite."*

This appears to give a great deal of leeway to what testing is applied, and there is a clear commercial and political pressure to drop tests regarded as "unnecessary".

This is of particular concern in Devonport because the operators MVV have no history of operating in the UK waste market and have demonstrated what may be called an "aggressive" attitude towards pushing the limits of the regulations in their favour (see point 7 below).

Neither the industry or the EA appear to have demonstrated any process or protocol where H14 Ecotoxicity testing is routinely required as part of the procedure for hazardous properties. It does not appear to be detailed in the ESA's Protocols, nor is it mentioned in the draft permit for Devonport, although it does clearly state in the draft permit that compounds of metals should be tested. This does not seem to correspond with the ESA protocols which implies that only metals and not their compounds are required to be tested.

What is even more deeply concerning is that testing for *"total soluble fractions"* is only specified to take place **ONCE** in this draft permit when a new route for disposal or processing is required. This clearly contradicts evidence which indicates that:

"The total soluble fraction of a residue is an important consideration for evaluating potential groundwater impacts from disposal and the physical and environmental suitability for utilisation."[xxiii]

To only require this test once, far from precautionary, is rash and irresponsible. How can evidence of harm be disproved if the evidence is never sought?

Technical guidance WM2 states that:

"Waste holders have a duty to determine if a "mirror entry" waste is hazardous or non-hazardous. The waste can only be classified as non-hazardous where there is sufficient information to support assessment and demonstrate that the waste has no hazardous properties."

In the context of these comments, it should be emphasised that the waste stream to be delivered to Devonport is far more heterogeneous than the applicant implies, and the existence of dangerous of hazardous substances in the waste stream **cannot** be precluded (see point 7 below).

It must be assumed that **a heterogeneous mix of waste is likely to end up in the incineration process**, and again, the environmental permit should consider this as a significant factor, especially when another waste company Veolia have previously indicated that around 40% of their bottom ash would be classified as hazardous should H14 ecotoxicity testing be routinely applied[xxiv].

The law dictates that onus is on the waste producer to demonstrate there is no harm.

Points of Response:

#4, A public statement from the EA is required that confirms the specific status of H14 Ecotoxicity testing for bottom ash in the UK and how this could impact the likelihood of municipal/commercial & industrial waste streams being re-categorised as hazardous and sent to landfill.

#4.1 Public confirmation that due to the heterogeneous nature of its waste stream any Devonport permit requires (as detailed in the EA's guidelines) that: "'Mirror entries' that contain a general reference to 'dangerous substances' should be assessed to determine if any dangerous substances are present and whether the waste possesses any hazardous property…<u>all hazardous properties</u> should be considered."

#4.2 Any permit the EA choose to issue should take the most precautionary approach possible based on the facts: MVV have never operated in the UK waste stream before; the low recycling rates in areas where waste will be sourced from; the inclusion of C&I waste; the lack of any pre-sorting of the waste; and lack of any historical data. All this would suggest that the most comprehensive sampling and testing regime possible under European law should be enforced.

5. Hazardous properties and exploding aggregate

H15 Testing for hazardous properties relates to the question *"Can the Substance Produce Another Hazardous Substance after Disposal?"* There have been numerous reports of exploding foamed concrete where bottom ash had been used in the mix. This was due to build-ups of hydrogen related

to aluminium in the waste stream[xxv]. These explosions have caused injury and led to a temporary suspension of use of this aggregate and now a number of restrictions on its use. This again is clearly another route for classifying bottom ash as Hazardous which does not appear to have been addressed within the proposed protocols.

Under the WM2 guidance it is clear that:

"…there are a number of unassigned or associated risk phrases which may cause hazard H15 to arise. The most likely are:
R1 Explosive when dry
R4 Forms very sensitive explosive metal compounds
R5 Heating may cause explosion
R6 Explosive with or without contact with air
R16 Explosive when mixed with oxidising material
R18 In use may form flammable/explosive vapour-air mixture
R19 May form explosive peroxides
R44 Risk of explosion if heated under confinement"

This is obviously not an exhaustive list of "risk phrases". If any one is associated with the product then it **has** to be classified as Hazardous waste. There is an issue here as bottom ash aggregate has been reported to explode and cause injury and now has restrictions on its use such as not being allowed to be worked in a confined area. Clearly the system is failing as (by unambiguous definition in the WM2 guidance) hazardous waste has been incorrectly classified as "Non-Hazardous" and already found its way into post-waste usage.

Both DEFRA and the EA have recently expressed prejudging attitudes lacking in precaution both to me and to Alison Seabeck MP (in whose constituency Devonport is located), that *"The only IBA that is currently classified as hazardous is a small quantity (less than 700 tonnes)"* and that *"Over 99% of IBA produced from incinerators regulated by the Environment Agency is non-hazardous and has never been classified as hazardous."*[xxvi]

Both of these casual statements demonstrate **not** a sense of precaution or evidenced based policy making, but actually serve to demonstrate empirically the inadequacy of the regulatory framework.

The EA have previously pointed out that once bottom ash has been turned into an aggregate for construction, **they have no responsibility for it** e.g. the bottom ash aggregate at the collapsed Tesco tunnel in Gerrards Cross which was dumped onto farmland and subsequently identified as containing excessive levels of heavy metals[xxvii].

Catching hazardous bottom ash at the early stage, and not neglecting the responsibility to correctly categorise should therefore be a crucial area for improvement in the testing and permitting process. This should also allow other regulatory agencies to carry out their responsibilities appropriately (see point 6 below).

Points of Response:

#5, Publicly address the issue of H15 hazard status in relation to bottom ash and its ability to become explosive in certain circumstances.

#5.1, Clarify the apparent contradictory position that the EA is neither responsible nor accountable for the impacts bottom ash has on the environment once it is deemed to have been turned into aggregate.

#5.2, Explain who exactly is responsible and accountable for the environment in relation to monitoring of the leachate that comes from bottom ash aggregate for many years after it has been produced. (see point 6 below)

6. Bottom ash leachate and risks of re-use

There is evidence that metals, in particular copper (along with other environmental toxins) will continue to leach from bottom ash even after it has been weathered and processed into aggregate. This process will continue almost indefinitely (thousands of years)[xxviii]. There has been research which has suggested that the level of leaching is likely to be beyond acceptable thresholds (see Appendices). Even the Building Research Establishment's own research, *Environmental and Health Risks Associated with the Use of Processed Incinerator Bottom ash in Road Construction*[xxix], suggests that the use of bottom ash aggregate in soft-water areas (such as Devon) if it is to be considered, should be done so with extreme precaution:

"leaching of copper from recycled road materials containing processed IBA subsequently used as unbound fill into small rivers with sensitive aquatic life in soft water areas may be significant."

According to this research, Austria and Hungary have banned the use of bottom ash in road construction because it is deemed as hazardous waste regardless of its properties and in France for instance:

"IBA has to comply with a leaching test (NF X 31-210) and achieve the values in Table 3 to be classified as V (Valorisation - recovery) and fit for use. If the IBA complies with these requirements then its use is constrained by the following requirements:-
•less than 3 m thick for embankments
•not liable to inundation
•not in potable water catchment area
•at least 30m from water courses"

In this regard it should be noted that Devon is a soft-water area, with massive economic value derived from maintaining the pristine nature of its landscape and watercourses. The Planning Authorities and waste authority have pointed out that they are **totally reliant** on the EA for guidance on this and will not consider it in any other context. However, it should be clear that a broad brush national policy is not appropriate in this instance. **The idea of a blanket ban on bottom ash aggregate in soft-water areas may need to be considered** unless comprehensive evidence can be produced that demonstrates that there is no significant or irreversible threat to the environment.

As Friends of the Earth have correctly pointed out, *"There is insufficient evidence that the leaching of dioxins and heavy metals from these construction uses can be adequately monitored or controlled, especially when rain, snow, ice and wind come into contact with the ash."*[xxx]

As noted above, the EA had previously a declared position that they have no authority over aggregate derived from bottom ash. This was particularly concerning for the public as this aggregate is still clearly capable of leaching toxins into the environment. However, the law now appears to have changed, as the EA is now the UK's enforcing authority for REACH regulations (Registration, Evaluation, Authorisation and Restriction of Chemicals)[xxxi], working in association with the Health and Safety Executive (HSE). The 849 pages of the REACH legislation have been described as the most complex legislation in the EU's history. According to the EA's website:

"The Environment Agency is a REACH enforcing authority…Our Chemical Assessment Unit works in partnership with the UK Competent Authority (HSE). It assesses environmental hazards and risks from the manufacture, use and disposal of industrial and consumer chemicals."

So the EA is now very much at the forefront of ensuring that bottom ash derived aggregate conforms with European standards as bottom ash is a manufactured chemical substance and hence comes under regulations for registration and regulation under REACH. A more rigorous and systematic regime of testing at the site of production would appear to make the subsequent processing of bottom ash a much simpler and more easily regulated and monitored process.

The current draft permit for Devonport includes:

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

So the composition of the waste needs to be specified, but how detailed this specification is required to be (as per obligation under REACH) is not clarified. **This needs clarification.**

Unfortunately there is very little clarity about the whole status of aggregates derived from bottom ash and how they are regulated and monitored. The WRAP (Waste & Resources Action Programme) website states on a page entitled *REACH - Obligations for producers of recycled and other recovered aggregates*[xxxii], that:

"Fly ash and slags are likely to be registered as 'UVCB substances', i.e. substances of Unknown or Variable composition, Complex reaction products or Biological materials, which cannot be sufficiently identified by their chemical composition. … Similarly, incinerator bottom ash is still likely to be subject to the requirements of the REACH Regulations."

No doubt the industry is fighting hard to avoid registration of bottom ash aggregate. However, for bottom ash to be recovered for re-use within the context of the precautionary principle, it would appear to be a **necessary requirement** that systematic and comprehensive testing of the bottom ash

during the production process (i.e. when it is still in waste form) should be a necessary requirement of this process, in order to fulfil the obligation to detail the composition of the waste.

Although it is understood that the Health & Safety Executive is the UK REACH Competent Authority, the EA have a key role to play in ensuring adequate testing at the appropriate stage of the production process.

Points of Response:

#6, It is urgent that there is formal clarification with councils and planning authorities whether or not the EA is the competent authority when dealing with leachate issues from reprocessed bottom ash aggregate into watercourses.

#6.1, A public affirmation that evidence relating to all aspects of bottom ash reprocessing in the UK, including the use of bottom ash as a construction aggregate accords to European best practice at a minimum and that the issue of leachate into the environment has been both considered and demonstrated to be of no concern (this should specifically relate to this particular development and usage of processed bottom ash as an aggregate in a soft water area).

#6.2, The EA should clarify their position on the requirement to register the chemical substance known as bottom ash, and for individual manufacturers and processors of the chemical substance known as bottom ash to also be registered under REACH regulations.

#6.3, The permitting process should be comprehensive enough to allow additional risk monitoring and sampling measures that ensure alternative thresholds for the residual bottom ash (distinct from Hazard vs Non-Hazard testing). This is to ensure whether or not it can be considered appropriate for re-use as an aggregate (as some bottom ash may be classed as "Non-Hazardous" but still be unsuitable for reprocessing as aggregate). This is necessary at this stage in the waste processing to allow registration and effective monitoring of the substance under REACH regulations.

7. Heterogeneous and unnecessarily polluted waste streams

The waste stream delivered to Devonport cannot be considered to be consistent or homogeneous as MVV claim. The publicly stated positions of both the local authority partnership (the South West Devon Waste Partnership, SWDWP) and MVV demonstrate that they merely **assume** that only waste that cannot be recycled will be incinerated. This is clearly a spurious assumption, heard repeated so many times that they appear to actually to believe it. There is no sorting beyond kerbside, and Plymouth (where the majority of the waste will initially come from) has a poor recycling rate (approx 30%) compared to the 60-70% routinely achieved in MVV's domestic market in Germany. Commercial & Industrial waste (much of which will arrive bagged-up from commercial holiday properties who have zero incentive to recycle) will make up a large portion of the waste stream.

Although again it may be a moot point at present, the fact that the planning consents have not restricted waste importation means that over the 40 year life of the power station, the operators

will need to source fuel from wherever it can be found (perhaps long after Devon has become a zero waste county).

In a letter to Paul Leinster, Chief Executive of the EA last October, Alison Seabeck did reiterate the point I made in my letter to the Secretary of State that there is no sorting of the waste proposed at Devonport beyond kerbside (other than a man with a big grab crane to remove excessively large items). However, the EA's response was that they were *"unclear about your concerns over black bag sorting but this seems to be a matter for the Department for Communities and Local Government as we have no regulatory role over the collection of waste from household premises."*[xxxiii]

Although it is understood that there are lines of demarcation in government, this does give the impression of buck-passing and making convenient, but bogus assumptions that everything is okay. Everyone in government and their institutions has a responsibility for caring for the environment. The EA is responsible for caring for the environment, and whilst other department or organisations may be directly accountable for a specific issue in a way that the EA may not be, methods of waste collection and disposal impact the environment. There is a principle of responsibility that sometimes blurs beyond the letter of departmental procedures.

Unfortunately this attitude about kerbside collection confuses the issues and ignores the point that EfW operators have well within their control a very easily applied, cost effective, systematic and comprehensive process for sorting waste delivered to them at the EfW plants (see footnotes for example)[xxxiv]. Material Recovery Facilities (MRF), Mechanical Biological Treatment (MBT) and autoclaving technology could very easily be applied at the post gate stage in EfW facilities. A much more homogeneous Refuse Derived Fuel (RFD) could be produced on site, with the rest of the sorted waste recycled and sent on for further processing.

Intriguingly, the draft permit at Devonport does detail restrictions on waste being burned which does demonstrate that **there are limitations on incineration that are required to be legally adhered to.**

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.2; and

(b) it conforms to the description in the documentation supplied by the producer or holder;

(c) if having been separately collected for recycling, it is contaminated or otherwise destined for landfill; or

(d) if a residue from a cleaning process, it has where practicable been dewatered to reduce the moisture content;

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	Maximum total throughput = 265,000 tonnes per year. The aggregated throughput of waste codes 15 01 04, 15 01 07, 19 04 01, 19 12 02, 19 12 03 and 19 12 09 shall not exceed 5% by weight of the total throughput. The aggregated throughput of waste codes 04 01 08, 09 01 07 and 19 10 04 shall not exceed 1% by weight of the total throughput.

The problem is, there are absolutely no procedures in place for being capable of either adhering to or monitoring these restrictions. This table, although not clear here, restricts the burning of

(amongst other things) glass, metals, and minerals - the kind of thing found in poor quality black-bag waste. **Note there is no restriction on unrecycled plastic which, as a fossil fuel based material, is required in large quantities in order to maintain burn rates.** Plymouth only has around a 30% recycling rate, so there will be lots of glass and metals in the incinerated waste. **The point raised in relation to black-bag waste being burned with no sorting stands and is of a concern to the EA**. There is no sorting of waste proposed at Devonport. Hence making this restriction on waste is a convenient assumption that cannot be justified.

This process would greatly reduce many potential pollutants and heavy metals from the process pre-incineration. Failure to apply this correct precautionary approach (that should be systematically applied to EfW facilities across the UK) could almost be described as conscious environmental vandalism. Once the genie is let out of the bottle so to speak, Persistent Organic Pollutants (POPs), Polycyclic Aromatic Hydrocarbons (PAHs, highly carcinogenic through respiration **and** skin contact), and soluble heavy metals etc. leach into the environment and do not go away, disrupting the ecological system for generations to come.

A requirement for pre-incineration sorting and processing of the heterogeneous municipal and C&I waste stream delivered at the plant gate would:

I. **Enable permit restrictions to be adhered to and monitored.**
II. **More correctly respect the Waste Hierarchy** by recycling a larger proportion of waste before partial energy recovery.
III. It would enable a more accurate assessment of what proportion of the waste can actually be classified as biogenic (and hence capable of producing energy classified as renewable, rather than the unsustainable burning of fossil-fuel-derived waste).
IV. Enable a more efficient burn and require less fossil fuel as an accelerant, thus lowering carbon emissions and increasing sustainability.
V. It would require fewer operational shutdowns and hence produce fewer dioxins.
VI. It would also create more homogeneous and less toxic residues (both fly ash and bottom ash).
VII. From an economic perspective, more jobs would be created, further industry and technological innovation would be encouraged.
VIII. Economic activity would be boosted.
IX. Public “buy-in” to EfW technology may be more easily obtained.

This is clearly a cost-effective win/win/win solution when taken in a broad context and is proportionate, consistent, targeted, transparent and accountable. The fact that it is not systematically required as both part of the planning and permitting process in the UK reflects poorly on the state of the industry and the political and regulatory approach.

Bottom ash residue from plants that only burn a well specified Refuse Derived Fuel would be far more homogeneous, less likely to be hazardous, and more able to be suitably processed into construction aggregate. The processing of bottom ash into construction aggregate is something which, as I have demonstrated, political and economic expediency now requires to become the norm in the UK.

The EA should acknowledge the lack of best practice being applied by local authorities and their contracted EfW operators across the country if these technologies are not systematically applied in the UK waste industry. In this instance, the SWDWP/MVV solution for Devonport contrasts sharply with those such as the Leeds/Veolia proposal that has not only restricted the capacity of the incinerator by explicitly limiting non-local waste, but it has a pre-incineration mechanical sorting facility within the proposal.

The EA could, and should, lawfully and legitimately alter the commercial incentive structures through the permitting regime in order to serve their goal of protecting the environment from significant or irreversible damage. This concept is really the whole basis of regulatory economics, which is an attempt to address market failure with respect to external environmental costs. Failure to apply this principle would appear to constitute a dereliction of duty on the part of the regulator.

When restrictions are placed on the relative quantities of waste burned, these should be applied systematically if the EA is to be regarded as fulfilling their obligations.

Points of Response:

#7, The EA (and DEFRA) should demonstrate public steps towards a pro-active approach to change the incentive structure for EfW operators in this country. If EfW is to become part of the landscape (necessitating the expedient re-use of bottom ash aggregate), the precautionary approach must ensure the permitting process not just encourages, but forces adoption of comprehensive pre-sorting/processing of waste prior to incineration as well as limiting the final amount to be incinerated.

#7.1, MVV and the SWDWP's failure to specify and apply simple pre-sorting of waste at the Devonport EfW facility means they should be incentivised through regulation to introduce such measures. This means subjecting the Devonport plant to the most rigorous possible sampling and testing regime, for their bottom ash. This should include no leeway for assumptions about what is not in the waste, the inclusion of all hazard property testing, and a frequency well in excess of monthly sampling at least until a stable, consistent non-hazardous reading can be assured.

#7.2, This "regulation-max" approach which would be well within regulatory capability under existing laws, is what the Devonport application needs and may then be able to serve to build a data set that could be extrapolated nationally in order to build the required (but currently lacking) evidence base.

8. Intermediate term storage for bottom ash at Devonport.

The draft permit states that:

"Treatment for recovery and disposal of solid residues will take place away from the installation with only minimal storage occurring on site".

Residents of Buckfastleigh would like to draw the EA's attention to the planners' recommendation that further bottom ash storage should be made on site in order to create a more sustainable

transport of bottom ash (by rail or sea). This is also now particularly true now that Plymouth City Council have declared an intention to use the bottom ash within their city infrastructure requirement. In this case, **intermediate transportation of 60,000 tonnes of waste 23 miles up the road to Buckfastleigh and back again would make a mockery of the concept of sustainable development.** The requirement to increase the storage capacity at Devonport should be something that is part of the permit application if a sustainable solution is what is being sought.

The permit also needs clarification as to EA guidelines[xxxv] that:

"Where handled wet, the ash should be held at an intermediate point to ensure that it is fully drained before it is transferred to skips or otherwise leaves the site, so that water will not drain off the ash either during transport or at final disposal. All water drained should be returned to the quench tank."

It is not clear what procedures and facilities are available at site to conform with this requirement and this needs greater clarification as part of the permitting process. This also applies to the need for intermediate term storage of bottom ash **that is a necessary requirement** whilst test results are awaited for confirmation of classification as a "Non-Hazardous" waste. If testing were only to be made monthly, then clearly at least storage for 5,000 tonnes of bottom ash will be the minimum requirement for storage at the dockyard site. Increased frequency of sampling would reduce the requirement in this specific context.

Point of Response:

#8, A requirement and clarification in the Devonport permit that an area for the intermediate storage of bottom ash (at least one month's production of potentially hazardous waste) must be secured and is a necessary requirement to meet correctly interpreted permitting standards.

9. MVV's environmental record

When deciding on whether to issue a permit for Devonport, MVV's record must (according to the EA's own guidelines on issuing permits) be considered as a material factor. MVV have never operated in the UK or dealt with UK waste. Respect for the waste hierarchy in the UK remains markedly more backward than in Germany and this is reflected in the more heterogeneous waste stream ending up being landfilled (or now incinerated).

However, this has not stopped serious environmental incidents at MVV's domestic operations. At MVV's incinerator in Korbach in Germany, they have had at least two incidents in recent years of exceeding permitted emission levels of Mercurcy[xxxvi] and nitric oxides. Both these incidents have presented elevated risks of serious illness to the local (and regional) population.

The local community group in Korbach declared a loss of confidence in the lack of reliability of the plant in a press release:[xxxvii]

"Warum benötigt MVV für diesen Abschaltvorgang vier Tage?" and *"Wurde nicht versprochen, dass die Anlage bei Überschreiten der Grenzwerte sofort automatisch heruntergefahren werden soll?"*

Which translates as *"Why did it take four days to shut down the plant? Were we not promised that the plant would shut down immediately and automatically when exceeding the limit?"*

They go on to say that all complaints made by concerned residents in Korbach about bias in the system of monitoring the air pollutants, and requests to have updated filtering systems, have been dismissed by politicians and regulators. They remain concerned that monitoring is not adequate, that reporting is not adequate, and their complaints fall on deaf ears.

The EA should bear in that the Health Protection Agency's (HPAs) official, heavily predicted, stance on the safety of waste incinerators[xxxviii] is that whilst significant health effects cannot be ruled out, *"Modern, **well managed** incinerators make only a small contribution to local concentrations of air pollutants".* By implication, the HPA admit that incinerators that we not well managed (which must include exceeding emission restrictions) do contribute to excessive concentrations of pollutants and present a health risk.

Point of Response:

#9 As, according to local stakeholders, MVV appear to have a history in Germany of not meeting standards for a *"well managed incinerator",* the EA should demonstrate how this has been considered and what action has been taken with respect to applying the utmost precaution in considering this application.

#9.1, Have a clear and accountable structure for <u>significant</u> financial disincentives for the operator to allow operational errors that threaten the environment to occur.

Concluding comments

In summary, there is a mounting pile of scientific evidence, essentially a consensus, built up over many years giving clear **evidence that bottom ash potentially constitutes significant and irreversible risks to the environment.** This applies to all forms of bottom ash including raw bottom ash, processed bottom ash, aggregates derived from it, and the leachate produced during weathering.

The EA appear too quick to take cover under the ambiguous concept of what constitutes "significant" harm to the environment as a trade-off against economic expediency. Residues such as bottom ash have threats that are long-term and persistent in nature. The inability to quantify "significant" harm and the requirement that the precautionary principle relates to **<u>any</u>** irreversible harm, means the precautionary principle and approach should be all the more adhered to **as required in UK and European law.**

There is also clearly a case that there is huge political and commercial pressure requiring bottom ash to be processed into aggregate rather than landfilled, in spite of all the scientific evidence detailing the risks to the environment. **Indeed the whole business case for waste incineration in the UK falls apart unless bottom ash can be systematically categorised as non-hazardous and turned into construction aggregate.**

The importance of this issue cannot be underestimated for all levels of government and regulators. The political requirement to meet EC mandated targets on renewable energy means that around 100 large scale EfW incinerators are planned for the UK. Close to one third of all the waste around the country that is fed into these incinerators will be transformed into bottom ash. This means that **bottom ash will likely become the UK's biggest waste stream.** The incineration process transforms many of the substances in waste into less stable, toxic pollutants and constituent compounds. Bottom ash has the potential to pose significant and irreversible risks to the environment if not disposed of or reprocessed with the **utmost precaution**. This clearly risks *"compromising the ability of future generations to meet their own needs"* **as required by domestic and international law on sustainable development.**

If it is deemed a political and commercial necessity that bottom ash must be processed for use as aggregate in order to reach various mandated targets on landfill, zero-waste and renewable energy, there are currently simple, cost-effective processes **both pre and post incineration** that could mitigate the very apparent risks of this chosen policy. However, these processes are not currently widely used, or even planned to be widely used. Systematic application of these cost-effective procedures should become mandatory, and **the EA have their responsibility in ensuring this level of environmental compliance.**

In this particular instance (MVV in Devonport), there appear to be numerous convenient but spurious assumptions being made that do not respect the precautionary principle required in law. There are no processes proposed that could see the environmental threats of bottom ash mitigated. Both the operator and the contracting local authority hide behind unsubstantiated (and incorrect) platitudes that the community should not be concerned. This threatens the community of Buckfastleigh and Devon as a whole.

The fine line between application of the precautionary principle and political/commercial expediency appears to be being crossed too frequently, and is potentially very damaging to both the environment and the public's perception of the processes of environmental regulation and competent political management. This is something that needs addressing publicly and overtly with some haste.

By acknowledging these issues of public concern, and clearly and specifically responding to each point we have raised (noted above in bold labelled #1 through to #9) the EA could take the opportunity to address some of these widespread concerns which are increasingly of national importance. We are already in contact with several groups around the country, and there will be more as this is a highly controversial subject which will not go away until it is addressed systematically.

Thank you for allowing the community to publicly bring the problems we have demonstrated here to the attention of senior officers and board members of the Environment Agency, as well as the various representatives copied on this letter. There will always be a temptation to treat community groups with less weight than industry lobbyists, or to respond with platitudes about how process is being followed and to stop worrying. However, we understand the Agency's strategy that they:

"engage and work in partnership with communities to improve the environment...As part of our work to embrace localism and the Big Society we are embedding an approach that ensures our staff understand what local partners want to achieve and build trust with local communities as we carry out our regulatory and operational responsibilities."

We look forward to an early initial response, to be followed by a more comprehensive response and public representation and action plan with respect to the numerous points raised before any permit can be considered for the Devonport application.

We understand that other communities around the country are also likely to be in touch in relation to their own specific concerns in due course.

Yours sincerely,

Neil

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CC:
Caroline Spelman MP, Secretary of State for Environment, Food and Rural Affairs
Mary Creagh MP, Shadow Secretary of State for Environment, Food and Rural Affairs
Mel Stride MP for Mid Devon
Dr Sarah Wollaston MP for Totnes
Alison Seabeck MP for Plymouth Moor View
Giles Chichester, MEP
Julie Girling, MEP
Ashley Fox, MEP
Graham Watson, MEP
Trevor Colman, MEP
William, Earl of Dartmouth, MEP
UK REACH CA at the HSE
UK Without Incineration Network

Enc:
Appendix 1: research on bottom ash
Appendix 2: schematic of non-precautionary and precautionary approach to waste incineration
Appendix 3: further evidence and research on environmental dangers of bottom ash
Appendix 4: The ENDS Report article

Footnotes

[i] http://www.hse.gov.uk/aboutus/meetings/committees/ilgra/pppa.htm
[ii] http://www.environment-agency.gov.uk/business/topics/waste/114416.aspx
[iii] http://www.plymouth.gov.uk/mgInternet/documents/s34072/Complete%20Officers%20Report%20and%20Appendices.pdf
[iv] ibid, Condition 8
[v] Ben Jennnings to Sue Penaluna at Devon County Council 1st September 2011
[vi] http://www.mvv-environment.co.uk/environment/web/media/downloads/environment_1/whitecleave/planningapplicationbuckfastleigh/pa_and_pass/01_Whitecleave_PASS_FINAL.pdf
[vii] Private Meeting between EA and MVV, Scott Wilson 15th September 2011
[viii] CCU Ref: DWOE248957/GM 2 November 2011, George Mackie Defra – Customer Contact Unit
[ix] http://www.esauk.org/policies/energy_from_waste/
[x] It should be noted that Plymouth City Council have now been cornered into committing themselves to find a use for this aggregate within the city (approximately 60,000 tonnes a year for the next 40 years) despite there being no clear indication that it is needed.
[xi] http://www.letsrecycle.com/news/latest-news/councils/incinerators-at-risk-from-hike-in-bottom-ash-tax-larac-warns
[xii] http://andrewwood.members.gn.apc.org/ecotoxicwaste/Environment-Agency-Public-Consultation.html
[xiii] http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=78&ArticleID=1163
[xiv] http://www.seas.columbia.edu/earth/wtert/sofos/UK-env-agency_incin-residue_2002.pdf
[xv] http://www.esauk.org/policies/energy_from_waste/
[xvi] http://archive.defra.gov.uk/corporate/policy/evidence/index.htm
Why is an evidence-based approach to policy making important? The 1999 Modernising Government white paper noted that Government "must produce policies that really deal with problems, that are forward-looking and shaped by evidence rather than a response to short-term pressures; that tackle causes not symptoms"..
[xvii] http://europa.eu/legislation_summaries/environment/waste_management/l28072_en.htm
[xviii] *WID Article 6.1:*
"Incineration plants shall be operated in order to achieve a level of incineration such that the slag and bottom ashes Total Organic Carbon (TOC) content is less that 3% or their loss on ignition is less than 5% of the dry weight of the material"
WID Article 9:
"Prior to determining the routes for the disposal or recycling of the residues from incineration and co-incineration plants, appropriate tests shall be carried out to establish the physical and chemical characteristics and the polluting potential of the different incineration residues. The analysis shall concern the total soluble fraction and heavy metals soluble fraction"
[xix] Guidelines for Ash Sampling and Analysis, Version 6, March 2011 http://publications.environment-agency.gov.uk/PDF/GEHO0311BTPZ-E-E.pdf
[xx] http://www.esauk.org/reports_press_releases/esa_reports/ESA_BOTTOM ASH_Sampling_and_Testing_Protocol.pdf which I was directed to by our local EA representative in Devon.
[xxi] http://www.tandfonline.com/doi/abs/10.1080/10643389009388388 Cited by Friends of the Earth
[xxii] http://www.endsreport.com/20492/confusion-over-incinerator-ash-ecotoxicity
[xxiii] *Municipal solid waste incinerator residues,* By A. John Chandler, Hans van der Sloot, International Ash Working Group
[xxiv] http://www.publications.parliament.uk/pa/ld200910/ldselect/ldeconaf/63/63we07.htm paragraph 27.2
[xxv] http://www.hse.gov.uk/construction/liveissues/foamedconcrete.htm
[xxvi] Ed Mitchell, Environment Agency, 26th October 2011, Ref: PL/kw/3189
[xxvii] For example, when BOTTOM ASH aggregate at the collapsed Tesco tunnel in Gerrards Cross was dumped onto farmland and subsequently identified as containing worrying levels of heavy metals.
[xxviii] It should be noted in this context that virgin rock or soil has ceased leaching at dangerous levels.
[xxix] http://www.metrovancouver.org/services/solidwaste/planning/ReportsforQA/BREWEBReport.pdf
[xxx] http://www.foe.co.uk/resource/how_to_campaign_guides/htw_against_incinerators.pdf pg 18
[xxxi] http://en.wikipedia.org/wiki/Registration,_Evaluation,_Authorisation_and_Restriction_of_Chemicals
[xxxii] http://aggregain.wrap.org.uk/waste_management_regulations/reach_obligations.html
[xxxiii] Ed Mitchell, Environment Agency, 26th October 2011, Ref: PL/kw/3189
[xxxiv] For example: http://www.sutco.de/fileadmin/datenblaetter/Anlageblaetter_VSA_ENGL_02SEP2010.pdf

[xxxv] *How to comply with your environmental permit Additional guidance for: The Incineration of Waste (EPR 5.01)* http://publications.environment-agency.gov.uk/PDF/GEHO0209BPIO-E-E.pdf

[xxxvi] http://www.hna.de/nachrichten/kreis-waldeck-frankenberg/korbach/hatte-wieder-quecksilber-problem-681033.html#592053

[xxxvii] http://www.muellverbrennung-korbach.de/

[xxxviii] http://www.hpa.org.uk/ProductsServices/ChemicalsPoisons/IntegratedPollutionPreventionControlIPPC/ippcIncineration/