

Best Practice Quality Protocol Unbound Applications

(Recommendations in this datasheet are given in good faith and are presented for consideration and adoption by the responsible engineer concerned)

Introduction

The Quality Protocol (QP) produced by WRAP and the Environment Agency for England & Wales and Northern Ireland defines End of Waste Criteria for PFA and FBA in specific applications, e.g. Bound and Grouts. Currently the QP does not cover the use of PFA for Unbound applications, e.g. for embankments, raising levels on construction sites and similar.

The Environment Agency (EA) has issued a Regulatory Position Statementⁱ and a Position Statementⁱⁱ on which this Best Practice Advice is based. These position statements clarify when the EA will not normally require a waste permit when PFA/FBA is used for unbound applications. The EA's position may change without notice and it is the responsibility of the user/customer to ensure they obtain the latest versions of the Regulatory and PFA/FBA Position Statements and verify whether a change has occurred.

Further Best Practice sheets within this series provide advice on the use in Bound (3.1) and Grout (3.2) applications, which are covered by the QP.

General

The user should ensure they comply with all the Health and Safety Executive requirements relating to the use of ash. Each producer should be able to supply detailed H&S information upon request and UKQAA technical Datasheet 9.0 gives generic Chemical and H&S Information on PFA/FBA.

PFA would normally be supplied as a 'conditioned' material and FBA as moist aggregate. Conditioned ash, ash in which a small quantity of water has been added, to prevent dust and FBA is delivered in sheeted vehicles similar to natural aggregates. Lagoon ash is also moist and should be treated in a similar manner to conditioned ash. The precautions that should be taken with PFA and FBA are no different than should be taken when stockpiling any fine grained or potentially dusty material. The significant risks are dust blow and contamination of water courses or surface drainage systems.

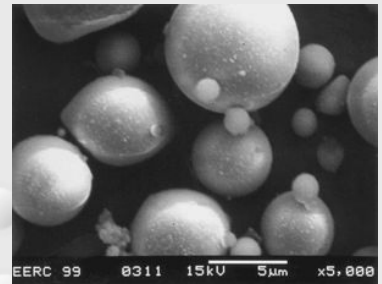
When stored on stockpiles, conditioned PFA and FBA may require the surface addition of further water after delivery, especially in windy/drying weather conditions to prevent dust problems. Mist spraying is effective in maintaining the moist surface preventing dust blow concerns. Such stockpiles should be kept as small as is practicable and used as quickly as is possible. As with all materials stored outside, there should be suitable drainage systems in place to prevent water run off entering sensitive water courses or the PFA/FBA contaminating surface water drainage with the material following rain. Of course, if covered storage is possible, this is preferable.

Depending on the nature and location of the construction being carried out, appropriate consideration should be given to the potential risks to the environment. Temporary stockpiles of PFA/FBA could potentially contaminate groundwater or surface drainage systems in extremes of inclement weather. Consideration should be given to minimising such risks. In order to characterise a site and locate aquifers, reference should be made to the list of suggested sources of relevant maps given in Part 3 of the Environment Agency publication "*Underground under Threat. Groundwater protection: policy and practice.*" This would normally be done in conjunction with the main contractor, site owner or consulting engineer as appropriate.

Unbound

The producer of the PFA/FBA should supply the material conforming to BS EN 13242:2002ⁱⁱⁱ. This should be marked on the delivery ticket. Alternatively, the customer may request compliance with the Specification for Highway Works^{iv} Series 600, but again marked on the delivery ticket. The user/customer should be able to use this to demonstrate to the relevant EA Officer that the ash is fully recovered having regard to the aims of the Waste Framework Directive.

If the activity is likely to cause pollution or harm to human health, or there is a breach of waste management controls, the EA may take action. Therefore the user/customer should carry out an environmental risk assessment to ensure that the activity is carried out in such a way that it does not, or is likely to, cause nuisance of harm to human health or the environment. UKQAA Technical Datasheet 2.0 gives advice on engineering aspects of using PFA/FBA as fill material,



which may assist in preventing harm to the environment. These should include provision of a capillary break or geotextile membrane at the base of any PFA embankment to prevent suction from underlying water and to ensure that that PFA is always covered with construction or planting to prevent dust blow etc.

Work is on-going to include Unbound uses of PFA/FBA within the QP, which it is hoped will be complete by late 2011. In the interim period we would recommend that follow the advice of the EA's Position Statements and this Best Practice Guide.

Compliance

The producer tests and assesses the PFA against the appropriate product standards, whereas the user/customer is responsible for carrying out good practice, as described above. While the PFA producer will provide as much assistance to the user/customer as practicable, ultimately it is the responsibility of the user/customer to demonstrate compliance to the satisfaction of the EA Officer as appropriate to the end use of the ash once it has been dispatched from the production site, e.g. the power station.

The producer cannot accept any liability if the PFA/FBA is misused or good practice is not followed.

In general usage the term 'fly ash' is used for pulverized coal ash but it can also cover ash from burning other materials. Such 'fly ash' may have significantly differing properties and might not offer the same advantages as ash from burning pulverized coal. UKQAA datasheets only refer to PFA / fly ash produced from the burning of predominantly coal in power stations.

Information provided in this document is intended for those who will evaluate its significance and take responsibility for its use and application. UKQAA will accept no liability (including that for negligence) for any loss resulting from the advice or information contained in this document. It is up to the user to ensure they obtain the latest version of this document as the UKQAA continually revises and updates its publications. Advice should be taken from a competent person before taking or refraining from any action as a result of the comments in this guide which is only intended as a brief introduction to the subject.

References

NB: All British Standards are available from BSI, London at <http://shop.bsigroup.com/>

V1.0 Nov 2010

-
- ⁱ The regulation of materials being an end of waste Quality Protocol MWRP RPS 017 Version 11 October 2010, Environment Agency, London, UK
 - ⁱⁱ The environmental regulation of the production and use of Pulverised Fuel Ash (PFA) and Furnace Bottom Ash (FBA) Position Statement 030 Version: 1.0 Date: October 2010
 - ⁱⁱⁱ BS EN 13242: 2002 Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction.
 - ^{iv} The Specification for Highway Works is available for free download at <http://www.standardsforhighways.co.uk/mchw/vol1/index.htm>