

22 July 1994

Works Branch Technical Circular No. 14/94

Use of PFA as General Fill in Reclamations

Introduction

This Circular explains the procedure for using Pulverised Fuel Ash (PFA) as general fill in reclamations, both above and below water, and it gives guidelines for its use. The Circular also outlines the role of the Fill Management Committee (FMC) in co-ordinating the use of PFA as fill material.

2. The contents of this Circular have been agreed with the Secretary for Planning, Environment & Lands. It should be brought to the attention of all consultants and contractors engaged on Government and quasi-Government projects, and on major private projects which require fill material.

Background

3. The power companies in Hong Kong currently produce about one million tonnes of PFA per annum, of which approximately half is stored in purpose-built ash lagoons. The other half is disposed of either outside Hong Kong or as general fill material in Hong Kong in land formation above water and as a raw material in cement manufacture.

4. A technical review by the Civil Engineering Department concluded that PFA should be considered in a similar manner to other reclamation fill materials commonly used in Hong Kong, and its suitability for use in any particular application should be assessed based on its engineering properties.

Use of Lagooned PFA

5. Lagooned PFA refers to PFA which has been stored in a lagoon. Provided suitable operational procedures are adopted, the Environmental Protection Department (EPD) has no objection to the use of PFA from the lagoons ('lagooned' or 'leached' PFA) as general reclamation fill both above and below water, if it has been lagooned for not less than two years, and except in areas which are particularly environmentally sensitive. After further experience of the use of PFA, it may be possible to reduce the two-year requirement for use below water in future.

6. Prior to the use of lagooned PFA in any marine reclamation, the Environmental Protection Department should be contacted regarding the proposed location. The procedures for Environmental Review detailed in Planning, Environment & Lands Branch Technical Circular No. 2/92

(same as WBTC 14/92) shall be followed where applicable. When the lagooned PFA is transported by sea and placed in a reclamation site, suitable measures shall be adopted in order to minimise the release of PFA into the open sea and into the air as dust. For example, it may be necessary to place the PFA by pumping in slurry form over a completed seawall, or to construct a seawall with a geotextile liner.

7. When the lagooned PFA is transported by road or when it is placed above water, operational procedures shall be as laid down in paragraph 11 below.

Use of Fresh PFA

8. Newly-produced PFA ('fresh' PFA) shall not be used as fill below water until its environmental acceptability has been demonstrated by suitable field trials. Until such time, the acceptability of using fresh PFA as fill below water will be assessed by EPD on a case-by-case basis. Currently, fresh PFA is acceptable for use as fill above water for land formation, provided the air pollution control measures outlined in paragraph 11 are followed.

Availability of PFA

9. Subject to availability, Hong Kong Electric Company (HEC) has agreed to make available fresh, and in a few years hence, lagooned PFA as fill, loaded into contractors' barges at the HEC plant, free of charge. Subject to availability, China Light & Power (CLP) has also agreed to make available fresh PFA as fill, loaded into contractors' barges or trucks at the CLP plant, free of charge. Subject to availability, CLP has additionally agreed to make available lagooned PFA, but there may be a cost for its extraction and loading into barges. Detailed arrangements will need to be worked out between the Companies concerned and the users for specific projects.

Role of the FMC

10. The FMC, as the authority for the allocation of fill sources to reclamation projects, may require Government Departments to include PFA as reclamation fill, both above and below water, where this is considered by the FMC to be feasible. When a project is required to include PFA, the project department will be informed by the FMC if DEP requires any monitoring or special operational procedures beyond those detailed in paragraph 11.

Air Pollution Control Requirements

11. When lagooned or fresh PFA is transported by road or used as fill above water, dust suppression measures shall be implemented at all times to prevent dust nuisance. These measures shall include, but shall not be limited to, the measures listed in Appendix A.

Information on PFA

12. For every project where PFA is used as fill, the information on the proforma at Appendix B should be forwarded to the Secretary FMC, Civil Engineering Department once filling has been completed.

13. Enquiries regarding this Circular should be addressed to the Secretary FMC, Civil Engineering Department.

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