

Article 53

Residues

1. Residues shall be minimised in their amount and harmfulness. Residues shall be recycled, where appropriate, directly in the plant or outside.

Three residues will be produced by the waste incineration process, namely boiler ash, flue gas cleaning residues and bottom ash.

The bottom ash produced will be minimised by ensuring that the furnace conditions and residence time are maintained to ensure complete burnout of the waste and to ensure that the TOC of the ash is below 3%. Ferrous and non-ferrous metals will be removed from the bottom ash in the bottom ash hall which will reduce the total amount of ash produced annually. The bottom ash will be stored inside the bottom ash building and air handling units equipped with HEPA filters will manage the air flows in the building to prevent fugitive dust emissions. The bottom ash will be quenched upon leaving the furnace and this will also suppress any dust emissions. Trucks removing the bottom ash will be covered before exiting the building to prevent any dust emissions during transport and the ash will be sent to suitably licensed facilities for treatment. Sufficient space has been provided in the bottom ash hall for the storage of ash and metals prior to removal from the site over long weekends etc.

Flue gas cleaning residues will be collected in the bag filter. A portion of the residues will be recirculated into the flue gases to improve the efficiency of lime injection for acid gas removal which will also reduce the overall amount of residues produced. Lime was chosen as the reagent for flue gas cleaning not only for its simplicity in application and its ease of availability but also because it produces a residue that is readily recovered as backfill material in licensed salt mine facilities.

Boiler ash will be regularly removed from the different sections of the boiler to avoid over-accumulation and will be done by a combination of mechanical rapping, water soot cleaning and steam soot blowing.

Boiler ash and flue gas cleaning residues will be collected in enclosed hoppers within the main process building and transported in enclosed conveyor systems to the boiler ash and flue gas cleaning residue storage silos. The silos will be fully enclosed and equipped with self-cleaning filters to avoid dust emissions. The loading out of residues will also be done via enclosed systems from the silos, whether pre-treated and hardened in bags prior to dispatch or loaded directly into tankers.

Every effort will be made to ensure that recovery options are found for each of the residues. This is outlined in the waste hierarchy document in found in Attachment 4-3-8 and also discussed in detail in Chapter 15.5.3.8 *Material Assets* of the EIAR accompanying this application.

2. Transport and intermediate storage of dry residues in the form of dust shall take place in such a way as to prevent dispersal of those residues in the environment.

In addition to the measures outlined above for all three residues, significant measures will be taken to minimise dust emissions during the transport, storage and conveying of these residues on and off the site. This is outlined also in Chapter 15.5.3.8 *Material Assets* of the EIAR and in Section 3.2 of the Operational Report in Attachment 4-8-1 of this licence application. Detailed BAT assessment documents for storage and waste incineration have also been completed and can be located in Attachments 4-7-4 & 4-7-6 respectively to this application.

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.

Bottom Ash, Boiler Ash and Flue Gas Treatment Residues are tested for TOCs, metals and their compounds, total soluble fractions, heavy metals soluble fractions, chloride, fluoride, sulphate, dioxins/furans and dioxin-like PCBs quarterly.

Classification of Bottom Ash is carried out on a quarterly basis, whereas Boiler Ash and Flue Gas Treatment Residues are classified on an annual basis.

Prior to producing and, therefore testing the residues, a licence to export the residues (or Transfrontier Shipment licence (TFS)) may be also be set up based on previous test results from the sister plant in Duleek.

During the commissioning phase of the plant, each residue will be sampled and analysed in line with the requirements of the IE licence in order to establish their characteristics. It is anticipated that the residues will not be greatly different to those from our Meath facility as the process and flue gas cleaning systems are similar. As outlined in the waste hierarchy document in Attachment 4-3-8, it is anticipated that recovery options will be secured for all three residues where possible.