

ASH AND SLAG HANDLING

3.2. Ash and slag handling systems at TPPs

3.2.5. Ash and slag disposal sites

3.2.5.2. Disposal of high-calcium ash as highly concentrated slurry

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In 2000 at Abakan CHPP under the project of “UralVNIPIenergoprom” Institute and “UralORGRES” enterprise with participation of SibVNIIG, the first section of a new disposal site was put into operation. A watertight screen of the disposal site was made of the self-hardening water-ash mix. At construction of the watertight screen high-calcium ash from hoppers near the main building was loaded in concrete mixers and mixed with water to the water-to-ash ration of 0,5 ... 0,8. On the site a mix of 0,2 m thick was dumped to the sections by size of 10×10 m, where it hardened. After short hardening of its first layer, the second one was dumped, etc. Backlashes and cracks of the bottom layer became monoliths

at filling the top layer with a mix. Ash stone density changed from 1400 to 1850 kg/m³, durability at compression — 2,0 ... 4,5 MPa, and filtration factor — 10⁻⁶ ... 10⁻⁷ cm/s. The subsequent filling of the created section of the disposal site with self-hardening water-ash slurry can be also realized by means of concrete mixers.

This disposing technology hasn't received a wide application yet. Its basic disadvantages are essential deterioration of consumer properties of high-calcium ash because of worsening of its binding properties and a necessity of building of plants on ash stone production in case of demand for such materials or raw materials in the market.