

Some examples of phosphate residue disposal in Italy

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Abstract

In Italy from the end of the '50s up to the early '90s, some industrial plants located by the sea processed huge quantities of phosphorites for phosphoric acid production with wet or thermal processes. Phosphogypsum - such as slurry - and calcium metasilicates were produced and disposed of in the sea until the mid '70s. After that in some plants, e.g. Gela site, phosphogypsum was collected in wide landfills within, or close to, the industrial areas. Conversely, in the Crotona site phosphate residues, mainly calcium metasilicates, were partly disposed of in landfills for inert matter, close to the seacoast and the river Esaro mouth, and partly used as filling material for roads, ports and yards, due to their good mechanical properties. In the industrial port area of Crotona significant amounts of metasilicates were used extensively as filling material under a layer of about 20 cm of concrete. These residues came to the surface in a tract of the entrance pier due to a landslide determined by the sea erosion activity. The work and economic efforts implemented by technical bodies to characterize the NORM contaminated site - providing bases for appropriate remedial actions - were followed by inadequate and temporary (e.g. not weather proof) interventions that make still necessary new remedial actions. A short review of the relevant measurement results and final remediation plans will be presented, starting from the good example of the Gela site to the inadequate solutions implemented in the past in the Crotona site.