

An integrated approach to a case of NORM waste management in Italy: a phosphogypsum stack

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Abstract

When phosphoric acid is made from phosphate rock and sulphuric acid, huge quantities formation of phosphogypsum are produced as residue. Although phosphogypsum is largely used, especially in agricultural and construction applications, the large quantities produced require the necessity to stack phosphogypsum's surplus into long-term disposal facilities. Attention must be paid to the management of phosphogypsum stacks due to the large volumes and areas involved, for the presence of radionuclide and the potential emissions of radon gas.

In this work the approach adopted in an Italian site is presented also considering the legislative aspect. Some of the main problems faced for the remediation intervention in this site were, for example, the industrial plan decommissioning, the waste management, the radiation protection of the members of the public and workers involved in the intervention etc.

The decommissioning of the plant has required a comprehensive radiological survey in order to identify the location of radioactive material and the resulting exposure levels over the whole site.

In the present work, accounting for the new Euratom Basic Safety Standard Draft concerning the requirements for NORM exposure situations in terms of radionuclide activity concentration, new scenarios are envisaged.
