

# International Conference on the Management of Naturally Occurring Radioactive Materials (NORM) in Industry

## VIRTUAL EVENT

International Conference on  
**Management of Naturally  
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## **NORM matrices characterization: a critical aspect in decommissioning of three Italian phosphate plants**

In this work are presented different approaches adopted for radiometrical characterization of different complex matrices taken in three Italian sites currently subjected to decommissioning, highlighting, on the basis of the results obtained, the most important criticalities encountered in carrying out measures also in relation to the different processes adopted in different plants for production of Phosphoric Acid.

The implementation of remediation projects for each area, have started some years ago and are carried out under the close supervision of Public Authorities (Local Authorities, Environment Regional Agencies and National Authorities: ISIN, ISS, INAIL).

Depending on the specific characteristics of each site, closely related to different technological processes used in the past for the production of phosphoric acid, or on a specific phase of remediation (i.e.: from neutralization and inertization process to the final destination of waste), sampling strategies and samples preparation have been agreed. Analytical methods (including calibration of the whole measuring system and studies on preanalytical factors) and the results obtained by analyzing the significant matrices are compared among the laboratories involved (RADI, ISIN, ISS, Eni Contractors). All, available for Radiation Protection Specialists (of Public Agencies and Eni) for Radiation Protection assessments arising from the activities carried out.

In order to optimize the methodology for the implementation of the recovery projects of each site, a multidisciplinary approach has been defined and shared by all the interested parties (Eni, Eni Contractors and Public Authorities) in order to discuss regulatory aspects and technical problems, to define the operational strategies to adopt in each single site. The aim of this approach is to answer, in adequate and punctual way, to the law requirements that regulate the development of the activities of decommissioning.

Remediation of some abandoned industrial areas, where phosphoric acid and its derivatives were produced in Italy, is a part of a wider sustainable development project implemented, since 2000, by Eni Rewind (formerly Syndial). In these sites, obtained by Eni around the 1990s (at one time, a State Entity) from forced acquisitions, management of residues of different types containing NORM is one of the most critical factor. Eni Rewind (the Eni global contractor), is a centre of excellence in environmental recovery and waste management. In this context, RADI, the Eni Radiation Protection Unit, provide its expertise in all activities where radiation protection studies and assessments are required.

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