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A Perspective on Natural Occurring Radioactive Material (NORM): Regulation Challenges

National and international standards on regulating NORM are sometimes ambiguous. There is a wide variation across the globe in defining the scope of the NORM regulation and implementing the regulation. There is also a notable discrepancy in managing NORM industries. Such situations can lead to regulatory challenges and issues in NORM industries. These issues are briefly discussed as follows:

- There has been no comprehensive framework for regulating NORM in non-nuclear activities. The characteristic of NORM exposure varies depending on the type of industrial activity. Regulatory bodies have recognized this issue and, the approach is going to be broad enough to cover a wide range of industrial sectors.
- There has been significant development in techniques and instrumentations to quantify the radioactivity of materials. These challenges include, but are not limited to, the measurement of activity concentration at all stages of a regulation system, cost of analysis, uncertainty of measurement, the background and the state of equilibrium.
- Industrial waste and residues are usually generated in large quantities in different forms and they contain long-lived radionuclides. The management of such waste and residues is one of the major challenges facing the radiological protection community.
- New standards, radiation protection principles and values are evolved. National regulatory bodies may face challenges related to the implementation of recent radiological protection concepts in their current system of regulation.
- NORM are ubiquitous in all materials. The challenge that regulatory bodies may face is the determination of which industrial process can enhance the concentration of NORM and fall within the scope of regulation.
- Source of low dose: The current radiation protection system is based on the linear no-threshold model. In contrast, evidence has shown that a low level of radiation can be beneficial, as the radiation hormesis model predicts. Solving the dilemma of dose response in the low dose zone will reflect positively on the regulation of NORM.
- Societal attitudes have a large influence on the final decision of the level of radiation safety. Natural radionuclides have received less attention than artificial radionuclides. Thus, in many countries, NORM is not regulated by nuclear commission bodies but by local jurisdictions or environmental-related bodies.

The aim of the present paper is to develop an understanding of the regulation of NORM in industries through identify the main regulatory issues. More details are included entire the manuscript.

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