

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

VIRTUAL EVENT

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Progress of research on the radiological impact of NORM-related industries in China

The distribution of natural radionuclides in the environment can be changed by some large-scale industrial activities. During such activities, the levels of natural radiation in local areas may increase, and human may be exposed in relatively high radiation. These industrial activities are called NORM (Naturally Occurring Radioactive material)-related industries. The radiological impacts of NORM-related industries on human life have reached the point where safety regulatory control needs to be implemented.

Different types of nationwide survey actions involving NORM-related industries were conducted in earlier years in China, such as the survey of environmental natural radioactivity level, the survey of environmental radioactive polluted sources and the first national survey of pollution sources, etc. The data obtained from the above surveys contributed greatly to the research on the impact of NORM and protected against NORM affected workers, public members and the environment, and supported strongly the regulatory control and managements. But the limitation of those surveys was coming out day by day due to the rapid development of China's national economy. Under the leadership of the competent department of environmental protection of the state, a multi-agency investigation action was launched in 2013 and will be accomplished in the end of 2020. A total of 19 agencies including institutes, universities, and monitoring organizations were involved in this nationwide action. China Institute of Atomic Energy (CIAE) was designated as the leading unit of the action team formed by the above agencies. The purposes of the action were to: 1) investigate and access the status of radiological contamination from NORM-related industries; 2) develop archives and database of radioactive polluted sources from NORM-related industries; 3) provide guidance for the pollution management of nationwide NORM-related industries, improve regulatory capacity of radiation safety. Non-coal mines, combustion of coal, extraction of rare earth elements, metal smelting, the phosphate industry, oil and gas industry and water treatment formed the key- investigation industries, NORM contained materials, NORM treatment or contaminated facilities, sites and the environment of over 30 enterprises were investigated, and a large number of data, including radiation levels, activity concentrations were obtained in this action.

An introduction of the progress of nationwide investigation action for NORM-related industries, a full discussion about many findings, preliminary conclusion and also, recommendations of radiation protection and regulatory control to the current situation of NORM-related industries are provided in this paper.

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