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In situ characterization of NORM waste from the oil industry

In the oil industry, radioactive wastes are generated in the oil production platforms containing natural radionuclides, such as 226Ra and 228Ra, the NORM waste. This waste is mainly in the form of produced water, sludge and scales which should be characterized for the correct final destination. The Brazilian laws establish that the NORM wastes from the oil production must comply with Law 10308 of November 20, 2001, which determine in its article 7, "The disposal of radioactive waste of any kind in the oceanic islands, the continental shelf and the Brazilian territorial waters is prohibited." Therefore, the NORM waste from offshore oil extraction rigs should be transported to onshore facilities. There are two options for the destination of this material: industrial landfill, in the case of activity concentrations are below clearance limits established by Brazilian Nuclear Commission, CNEN (Comissão Nacional de Energia Nuclear); or on the contrary, to intermediate storage facilities, until final disposal is decided. Currently, the oil production companies take samples from the waste and send them to radiometric laboratories in order to evaluate their activity concentration by gamma spectrometry. The complete process takes more than six months to be concluded. Nuclear and Energy Research Institute, IPEN (Instituto de Pesquisas Energéticas e Nucleares), is making efforts to solve the management problems of NORM waste from oil extraction, including conduct research aiming at characterizing the waste. The objective of this study is to present the results of in situ characterization of drums containing oil sludge using portable gamma spectrometer.

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