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# Decontamination of NORM Equipment Contaminated with Low Level Waste (LLW) in an Egyptian Oil Field

The presence of NORM in Oil and Gas field generally located in the facilities such as tubing, valves, down hole assembly, well heads and tanks in the form of scale and sludge which have a great impact on Health, Safety and Environment as well as the facilities integrity from production point of view.
In this work, we study and analyze the TE-NORM (Technologically Enhanced- Naturally Occurring Radioactive Material) contamination from the theoretical and technical point of view during production of oil and gas in Egypt to improve the existing decontamination techniques that used in decontamination of contaminated tools and facilities with elevated NORM levels, detecting the effectiveness of the developed techniques by measuring the NORM existence level before and after decontamination process. Used high pressure water jetting (HPWJ) technique found as the most common and available technique used as decontamination method which can be improved successfully to achieve better results by adding solid particles to enhance the efficacy of descaling. Also replacing of the HPWJ or UHPWJ with abrasive blasting technique showed a high efficacy and effectiveness in the NORM decontamination process as well as it made the process more economic and proven to be environmental friendly method used as validating the concept of waste volume reduction as well as enhance recyclability of abrasive blasting material.

Decontamination before disposal, either by:
Conventional wet High Pressure Jetting Water (HPJW) and/or Ultra High Pressure Jetting Water (UHPJW) technologies or unconventional dry technologies."Dry" technologies offer an advantage of (almost) zero secondary radioactive waste generation. In this paper we will discuss the dry decontamination method and the related decontamination facility as a dedicated tool for tubing and other small installation's decontamination using abrasive blasting machine.

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