Contribution ID: **61** Type: **Poster**

PROPOSAL FOR NORM TREATMENT AND FINAL DISPOSAL IN BRAZIL

In Brazil, the normative responsibility on the NORM subject belongs to CNEN - National Commission of Nuclear Energy. In this country, no practice to address this kind of waste is currently allowed, so NORM wastes are stored on the platforms, causing enormous damage to the petroleum industry. Therefore, in view of this technological impasse, the viability of an innovative treatment that meets the environmental, social and commercial needs is assessed, solving, definitively and safely, the final disposal for this kind of waste. The developed technology can be divided into five subprocesses: 1- Radiochemical analysis to determine the activity concentration of radionuclides in the crude sample; 2- Drums containing the waste go to the area of sieving and packaging in trays, which will go to the static oven; 3- Thermal desorption of the organic material using the correct temperature; 4 - Gases are sent to a post-combustion chamber to be destroyed; 5 - The remaining material containing the radionuclides is prepared for dilution with inert material until the concentration reaches the permitted activity concentration limit for disposal of radioactive waste in industrial landfill. For radiochemical analysis, eight samples of oily sludge from two different origins were obtained, and the activity concentrations of Ra-226 and Ra-228 were determined by gamma spectrometry, before and after treatment. The results showed that the crude samples presented activity concentration means (kBq kg-1) of 3.739 ± 0.122 and 0.135 ± 0.006 for Ra-226; and 2.036 ± 0.074 and 0.159 ± 0.001 for Ra-228; while the samples submitted to treatment presented activity concentration means (kBq kg-1) of 4.804 ± 0.16 and 0.209 ± 0.009 for Ra-226; and 2.659 ± 0.94 and 0.249 ± 0.009 for Ra-228, respectively. These results suggest that the radionuclides are not eliminated with the organic part, being concentrated in the inorganic one, allowing the mentioned procedure of dilution to be performed.

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Session Classification: Session VI - Solutions for Residue and Waste Management

Track Classification: NORM Residue and Waste Management