

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

## VIRTUAL EVENT

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## EXPORT OF RADIOACTIVE WASTE CONTAINING NORM

In Brazil, no practice to address NORM waste is currently allowed, so these wastes are stored on the platforms, causing serious damage to the O&G industry. In order to quickly solve the problem of the accumulation of barrels containing NORM on O&G platforms, a pioneering export process in Brazil was developed for a large company in the sector. A long transportation study and an export plan were developed in order to obtain authorization from the Brazilian government to send these wastes to the USA. The normative responsibility on the NORM subject belongs to CNEN - National Commission of Nuclear Energy. After CNEN's approval, the wastes were transported to a North American company that gave a final destination through a type of storage authorized in that country. Believing that other countries may experience the same problem as Brazil, this study aims to describe all stages and development of radiation protection service involved in the export process, in addition to disseminating to other countries (possible recipients of NORM waste) this important and new demand that tends to grow in countries that have not yet defined a policy to definitely dispose NORM waste. The Brazilian impasse lies in the fact that there is a federal law stating that the responsibility for the final destination of the waste rests with the generator, in addition to the requirement that all final deposits in Brazil must belong to CNEN. It must be noted that export should not be the definitive solution to address this type of waste. However, without other available alternatives, it has become the only solution at the moment to reduce industry losses and risks to the population and the environment. In this study, legal, logistical and operational aspects were considered, as well as labeling, packaging and emergency procedures for sending 414 barrels that were sampled and had their content analyzed in radiochemical laboratories. Analyzes of 21 samples showed activity concentration values of Ra-226 and Ra-228 from  $0.79 \pm 0.05$  to  $64.6 \pm 0.9$  kBq/kg; and  $0.57 \pm 0.08$  to  $38.3 \pm 1.0$  kBq/kg, respectively. As these values are well above the permitted limit for disposal in Brazil, all barrels were shipped to the US.

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