

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

VIRTUAL EVENT

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## Naturally Occurring Radioactive Materials (NORM) Waste Management in Malaysia

In Malaysia, the control limit for radionuclides in Naturally Occurring Radioactive Materials (NORM) are 1Bq/g for U-238 and Th-232 respectively and 10 Bq/g for K-40. Above these control limits, NORM is control as radioactive materials and subjected to the license by the regulatory body. Industries involving with NORM include the rare earth extracted plant that are using lanthanide concentrates as raw material and also the oil and gas industries that generated oil sludge and scales as a wastes. The rare earth that industries using NORM as input in chemical process to produce rare earth elements and also generated NORM residues or wastes. Rare earth extraction plants in Malaysia started since 1980's. Now there is only one rare earth extraction plant in operation. The main issues dealing with rare earth extraction plant and oil and gas industries is the waste management. Amount of wasted generated in large volume with the low level of radionuclides such as U-238, Th-232 and K-40 that have a long half-life required proper management and large areas for storage. Management options for NORM wastes including the reuse and recycle are stated in the current Regulations but not encourage to be implemented. In oil and gas industries, the sludge and scales are sent to the licensed incineration facility to incinerate and the final concentrated ash are disposed in the secured landfill. For the rare earth industry, research being carried out to recycle and reuse the residues in other commercial products such as soil conditioner and road base materials. Since the use of NORM wastes to mix with other materials in order to convert the wastes to bricks or soil conditioner, another issue arises, that is dilution of wastes. There are no specific requirements in the Act and Regulations, whether the dilution principle is allowed in management the NORM waste generated from the rare earth industry. Therefore, international best practices to manage the waste generated NORM industries and international guidance or standards are required.

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