

Managing NORM in Oil and Gas Operations

This seminar offers education on the viable ways of Managing Naturally Occurring Radioactive Materials (Norm) within the purview of the Oil and Gas operations. The build up of NORM in the Oil and Gas sector operations originates during the course of drilling and separation of the crude into its fuel constituents; NORM is acquired beneath the earth and brought to the Earth surface in the course of this critical operation of this sector. It (NORM) is accumulated in the media (or medium of extraction) in the form of scales, scrapings, sludge or thin films (radon progeny).

Also, a varied number of platforms are considered to be potential contamination platforms for NORM which include sub-surface interface tubular, pumps, cables, pipes and other sub-surface interface; Surface equipments such as well head valves and flow lines. In addition, NORM contaminated sludge may be found in the tanks, vessels, evaporation ponds and heater of the production edifice. Furthermore, in gas processing plants, radon path and radon progeny may be found on the compressors, reflux pumps, control valves and product lines or vessels where they are known to form thin films. Scale as a manifestation of NORM waste may be found in production components of tubing, well head, valve and pumps where they occur as chemical compounds of Sulphate; SrSO_4 and BaSO_4 (RaSO_4), they are also known to occur as Carbonate: CaCO_3 (RaCO_3) which may result in changes in temperature and pressure.

A NORM risk based solution should have the elements of NORM Hazard pathways and platforms, Hazard Trend, an activity driven risk profile and a Well Life Cycle. NORM Safety Management System (NSMS) entails a development of NORM Control & Management Procedures, Control of Contaminated Assets, Control of NORM waste, Workers Protection and Competency Development, Emergency Preparedness and a NORM Safety Continuous Improvement Program.

NORM Monitoring is carried out for the purpose of ascertaining whether NORM is present in a medium. It can be carried out through direct surveys and sampling for laboratory analysis in baseline surveys, operational assessments and legacy contamination surveys. There are some approaches to controlling NORM contaminated assets some of which are segregation, compliance monitoring or waste stream audit.

In conclusion, NORM management is a crucial part of the petroleum industry which should not be overlooked due to the potentially dangerous nature of NORM waste. To ensure the longevity of both infrastructure and the safety of both environment and personnel it is very crucial to apply NORM waste management.

Seminar presented by
Petrotech