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**Naturally Occurring Radioactive Materials (NORM) in Produced
Water and Oil-Field Equipment of Gialo Field (NC-59)**

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Abstract

NORM waste generated in the oil and gas industry creates a radioactive environment for field workers. Modelling and understanding the radiation dose induced by NORM is important from a radiation safety perspective. This study aims to provide a general estimate of radiation doses in Gialo field (NC-59) to which workers are exposed and the surrounding environment. Field radiation survey was performed and a number of samples were collected, measured and compared with current regulations.

The fieldwork survey was carried out using Gamma Ray Spectrometer model RS 320 the Gamma Ray dose Meter model Automess 6150-AD 2. Also, samples have been analysed using a High Purity Germanium detector.

In addition, the Radium equivalent dose ($R_{a_{eq}}$), Gamma absorbed dose rate (D), Hazard index (Hex) and Annual effective dose rate (AEDE) of the samples were calculated.

Key words: NORM, Radiation, Oil and Gas, Environment, Safety, Dose, Hazard