

Treatment of Petroleum Drill Cuttings using Stabilization/Solidification Method and Pollutant Loading Characterisation

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During the drilling phase in petroleum exploration, the cuttings of drilled rocks are transported from the well to the surface by a circulating fluid called mud. Once they have been brought to the surface, the cuttings are separated from the synthetic fluid and dried. The management of those generated solid wastes is one of the emerging problems of oil and gas companies.

The purpose of the present study is to evaluate the pollutant loading of the cuttings generated from a drilled well in a southern Tunisian oilfield and to perform treatment tests using stabilization/solidification method.

The analysis of leachates by ICP-OES revealed relatively high heavy metals concentration values especially for Zn, Cu and Pb. The concentration of TPH determined by Rock-Eval pyrolysis exceeded the pollution indicative value. A geochemical study has been conducted to identify the source of hydrocarbon contamination using GC and GC-MS.

A series of treatment tests of the drill cutting has been performed using mixes containing different ratios of cement, lime and sodium silicate. Total petroleum hydrocarbons and heavy metals content of the obtained leachates have also been determined.

The drill waste disposal strategy to be adopted in the concerned oilfield is being derived in a large part from the results of the present study.

Biography:

Sonia Barbouchi is a chemical engineer graduated from INSAT (Institut National des Sciences Appliquées et de Technologies), in March 2010. In 2014, she obtained her master degree in industrial chemicals. She joined the ETAP labs in 2010 and from June 2011, she is the coordinator of the Environmental Laboratory in the ETAP Petroleum Services Department. Her experience in ETAP allowed her to broaden the sphere of her knowledge in the Environmental sector such as pollutants analyses in petroleum rejects, environmental regulation and environmental impact assessment. On the other hand, it allowed her to deal with some problems related to produced water.