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ASSESSMENT OF HEAVY METALS CONTAMINATIONS FROM SOLIDIFIED WASTE DRILLING MUD LANDFILLING POND IN ORDOS PLATEAU (SEMI-ARID REGION), CHINA

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Abstract

The solidified waste drilling mud has been landfilled into slurry ponds with impermeable layer at oil & gas field since 1990s. This article aims to elucidate the heavy metal contaminations from landfill ponds at semiarid region. The heavy metal concentration in the waste and its potential mobility based on its binding forms was studied. Furthermore, the blocking effect of impermeable layer was used to elaborate the environmental effects of heavy metals. From the analysis, Cr was found to be highest concentrated heavy metal in the solidified waste drilling mud. From the sequential extraction, Cr, Pb, Ni, Cu and Cd were mostly found in residual form, but Cu and Cd have smaller residual portion. The blocking effect of impermeable layer with five-year service time to Cr was the highest (51.99%), and that to Cu was the lowest (16.91%). It was concluded that the maximum contaminations generated by heavy metals was Cu.

Key words: assessment, heavy metal, landfill, waste drilling mud

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