ANALYSYS OF OILY SAND INJECTION EFFECT INTO THE ROCK FORMATION ON SHALLOW GROUNDWATER QUALITY (PT. CHEVRON PACIFIC INDONESIA STUDY CASE, DURI)

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Abstract

Slurry fracture injection (SFI) system is one of the ways to handle oily waste. Slurry fracture injection is a reinjection process materials such as oily solids and oily viscous liquid into a rock formation that is quite deep and have been determined. The purpose of this study are : (1) To determine the condition of oily viscous fluid waste management at the site covering the technology that used and the processing method, (2) to determine the value of pH, Boron, TPH and Zinc around the injection area, (3) to determine the effect of oily viscous fluid injection to the quality of groundwater. The study was conducted at Mandau District, Duri City, Riau.

The method that used in this study are surveying and mapping method, laboratory testing, and pollution index scoring method that is used to determine the value of water quality at the study area. Laboratory test was conducted to determine the levels of parameters such as pH, Boron, Zinc, and TPH. Laboratory test results will be use as a comparison standard quality based on Government Regulation No. 82 of 2001 concerning Water Quality Management and Water Pollution Control and the Regulatory of Environment Minister No. 5 of 2014 concerning Wastewater Quality Standard.

Based on laboratory results, the average value of pH and TPC declared safe because it does not exceed the quality standards that is pH = 6.998 and TPH = <0.1 mg/L. While the average value of Zinc and Boron are exceeded quality standard limits that is Zinc = 0.0235 mg/L and Boron = 1.343 mg/L. According to Government Regulation No. 82 of 2001, quality standard limit value of pH are 6-9, value of TPH are 0.1 mg/L, value of Zinc are 0.005 mg/L, and value of Boron are 1 mg/L. the scoring results for each parameters using the pollution index method at 8 sampling wells points are lightly polluted. Min value is 2.07 and max value is 4.28 But the high value of some parameters are not caused by the activities of slurry waste injection, but influenced by the nature and characteristics of bedding rock in that area. Beside that, the depth of the injection zone target is at 1500 feet, while the depth of groundwater are around 25 meters. This is not possible that the injected oily viscous fluid waste contaminating the groundwater at the study area.

Keywords: Groundwater, Oily Viscous Fluid, Slurry Fracture Injection, and Hazardous and Toxic waste (B3)