

Increasing Sulfur Handling Cost Efficiency Using the Eco Sulfur Paving Block Method at PT Pertamina EP Field Cepu

Authors : Adha Bayu Wijaya, A. Zainal Abidin, Naufal Baihaqi, Joko Suprayitno, Astika Titistiti, Muslim Adi Wijaya, Endah Tri Lestari, Agung Wibowo

Abstract : Sulfur is a non-metallic chemical element in the form of a yellow crystalline solid with the chemical formula, and is formed from several types of natural and artificial chemical reactions. Commercial applications of sulfur processed products can be found in various aspects of life, for example in the use of processed sulfur as paving blocks. The Gundih Central Processing Plant (CPP) is capable of producing 14 tons/day of sulfur pellets. This amount comes from the high H₂S content of the wells with a total concentration of 20,000 ppm and a volume accumulation of 14 MMSCFD acid gas. H₂S is converted to sulfur using the thiobacillus microbe in the Biological Sulfur Recovery Unit (BSRU) with a sulfur product purity level greater than 95%. In 2018 sulfur production at Gundih CPP was recorded at 4044 tons which could potentially trigger serious problems from an environmental aspect. The use of sulfur as material for making paving blocks is an alternative solution in addressing the potential impact on the environment, as regulated by Government Regulation No.22 of Year 2021 concerning the Waste Management of Non-Hazardous and Toxic Substances (B3), and the high cost of handling sulfur by third parties. The design mix of ratio sulfur paving blocks is 22% cements, rock ash 67%, and 11% of sulfur pellets. The sulfur used in making the paving mixture is pure sulfur, namely the side product category without any contaminants, thereby eliminating the potential for environmental pollution when implementing sulfur paving. Strength tests of sulfur paving materials have also been confirmed by external laboratories. The standard used in making sulfur paving blocks refers to the SNI 03-0691-1996 standard. With the results of sulfur paving blocks made according to quality B. Currently, sulfur paving blocks are used in building access to wells locations and in public roads in the Cepu Field area as a contribution from Corporate Social Responsibility (CSR).

Keywords : sulphur, innovation, paving block, CSR, sulphur paving

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