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Kajian Risiko Pajanan Kimia dan Radiasi Panas pada Kejadian Darurat Tumpahan Minyak dan Kebakaran di Pusat Pengumpul Produksi Minyak PT X = Risk Assessment of Chemical Exposure and Heat Radiation in Oil Spill and Fire Emergency Events at Main Oil Storage PT X

Sihotang, Krisman J, author

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Abstrak

Kasus tumpahan minyak dan kebakaran sering terjadi di industry migas karena kegagalan safety protection layers. Tangki T-04, T-09, T-18 tangki minyak PPP PT X berpotensi mengalaminya, perlu dilakukan kajian pajanan kimia dan radiasi panas kebakaran terhadap manusia dan fasilitas di sekitarnya. Metode penelitian berupa potong lintang dengan pendekatan kuantitatif melakukan analisis pajanan kimia merkaptan dan benzene serta radiasi panas tumpahan minyak dan kebakaran. Penelitian ini mengumpulkan data dan simulasi pajanan kimia dan radiasi panas secara kuantitatif menggunakan software ALOHA. Didapatkan hasil pajanan merkaptan dan benzene di Jalan Raya Utara 1,33 ppm dan 379,68 ppm (gangguan kesehatan sementara), di Jalan Raya Selatan 0,142 ppm dan 40,72 ppm (tidak memberi dampak gangguan kesehatan), di Area Ruang Operator 2,9 ppm merkaptan (gangguan kesehatan sementara), benzene 829,79 ppm (gangguan kesehatan yang serius), di Kantor 1,18 ppm dan 338,45 ppm (gangguan kesehatan bersifat sementara). Pajanan radiasi panas di Jalan Raya Utara, Ruang Operator, Kantor dapat mengakibatkan kematian, di Jalan Raya Selatan berdampak luka bakar derajat dua. Radiasi panas juga mengakibatkan kebakaran tangki sekitar. SPL yang terpasang belum memadai sehingga kejadian darurat masih pada level risiko yang tidak dapat diterima. Direkomendasikan penambahan SPL pada tangki PT X untuk mengurangi risiko menjadi risiko yang dapat diterima

.....Oil spills, fires often occur in the oil and gas industry due to failure of safety protection layers. Tanks T-04, T-09, T-18 PT X's PPP oil tanks have the potential to experience this. It is necessary to study chemical exposure, fire heat radiation on humans and surrounding facilities. The research method is cross sectional with a quantitative approach to analyze chemical exposure and heat radiation from oil spills and fires. This study collects data and simulates chemical exposure, heat radiation quantitatively using ALOHA software. The results of exposure to mercaptans and benzene on the North Highway were 1.33 ppm and 379.68 ppm (temporary health problems), South Highway 0.142 ppm and 40.72 ppm (no impact on health problems), Operator Room Area 2,9 ppm mercaptans (temporary health problems), 829.79 ppm benzene (serious health problems), 1.18 ppm and 338.45 ppm in the office (temporary health problems). Heat radiation exposure on the North Highway, Operator's Room, Office can result in death, South Highway results second degree burns. Radiation heat also causes nearby tank fires. The installed SPL is inadequate, emergency event is unacceptable risk level. It is recommended to add SPL to the PT X tank to reduce the risk to an acceptable risk.