Penilaian Risiko Kesehatan Terkait Pajanan Bahan Kimia Pada Unit Produksi Minyak Dan Gas di Kapal Floating Production Storage & Offloading (FPSO) PT XYZ Tahun 2022 = Assessment of Health Risks related to Chemicals Exposure in Oil and Gas Production Units on PT XYZ Floating Production Storage & Offloading (FPSO) Ship in 2022

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Abstrak

Seiring dengan target pemerintah dalam peningkatan produksi minyak dan gas di lepas pantai, maka penggunaan bahan kimia dalam kegiatan produksi minyak dan gas semakin meningkat, hal ini memunculkan kekhawatiran akan potensi permasalahan kesehatan pekerja, oleh karenanya perlu dilakukan kajian risiko kesehatan. Penelitian ini bertujuan untuk menganalisis tingkat risiko (risk rating/RR) kesehatan terkait pajanan dari kesebelas bahan kimia utama yang digunakan pekerja, pada proses produksi minyak dan gas di kapal FPSO XYZ tahun 2022. Metode Chemical Risk Assessment (CRA) yang digunakan adalah Stoffenmanager® 8 version 5.0 yang merupakan tools untuk menilai risiko kesehatan jalur pajanan inhalasi dan dermal dari penanganan enam bahan kimia oleh production technician di area kerja topside deck dan lima bahan kimia oleh utility operator di area kerja machinery deck. Hasil CRA menunjukkan bahwa tingkat risiko (RR) jalur inhalasi dimana satu bahan kimia kategori risiko tinggi (1,highest) delapan bahan kimia kategori risiko sedang (2, medium), dan dua bahan kimia risiko rendah (3, lowest). Sedangkan berdasarkan risk characterization ratio (RCR) pajanan inhalasi, ada dua bahan kimia yang diketahui nilai RCR task 1, yang berarti perkiraan konsentrasi emisi yang dihasilkan saat beraktivitas (task concentration estimation/TCE) terhadap potensi bahaya terhirup oleh production technician dan utility operator saat beraktivitas pada jarak yang dekat dengan sumber emisi, dikategorikan berbahaya atau risiko tidak dapat di tolerir (Unacceptable risk). Untuk tingkat risiko dermal efek lokal (skin local), sembilan bahan kimia masuk kategori risiko tinggi dan dua bahan kimia masuk kategori risiko sedang. Sedangkan tingkat risiko dermal efek sistemik (skin uptake), empat bahan kimia kategori risiko sedang, dan tujuh bahan kimia kategori risiko rendah. Hasil risk rating (RR) menentukan pula prioritas tindakan (Action Priority/AP) pengendalian risiko kesehatan. Rekomendasi pengendalian adalah menurunkan tingkat bahaya (HR) dengan melakukan penggantian bahan kimia (subtitusi) dengan bahan kimia yang lebih rendah tingkat bahayanya bagi kesehatan, dan untuk pajanan dermal (ER), otomatisasi proses penanganan, modifikasi teknik pekerjaan dengan membuat sistem penambahan bahan kimia secara gravitasi, menurunkan jumlah dosis pemakaian namun tetap efektif efisien (workplace-related modifiers), mengurangi waktu dan frekuensi penggunaan bahan kimia tersebut (activity time), penambahan ventilasi lokal (LEV) selain ventilasi mekanik, serta menggunakan baju khusus tahan kimia beserta sarung tangannya atau Chemsuit (control measures modifiers).

.....Along with the government's target to increase offshore oil and gas production, the use of chemicals in oil and gas production activities tends to increase, this raises concerns about potential health problems for workers, therefore it is necessary to conduct a chemical health risk assessment. This study aims to analyze the health risk rating (RR) related to exposure to the eleven main chemicals used by workers in the oil and gas production process on the FPSO XYZ ship in 2022. The Chemical Risk Assessment (CRA) method that

is used is Stoffenmanager® 8 version 5.0 which is a tool to assess the health risks of inhalation and dermal exposure lines from the handling of six chemicals by production technicians on the topside deck work area and five chemicals by utility operators on the machinery deck work area. The results of the CRA show that the risk level (RR) for the inhalation route is one chemical in the high-risk category (1,highest), eight chemicals in the medium risk category (2, medium), and two chemicals in the low-risk category (3, lowest). Meanwhile, based on the risk characterization ratio (RCR) of inhalation exposure, there are two chemicals whose RCR task value is 1, which means the estimated concentration of emissions produced during the activities (task concentration estimation/TCE) against the potential inhalation hazard by production technicians and utility operators when activities at a close distance to the emission source, are categorized as a dangerous or unacceptable risk. For the level of dermal risk of local effects (skin local), nine chemicals are in the high-risk category and two chemicals are in the medium risk category. While the level of risk of dermal systemic effects (skin uptake), four chemicals were in the moderate risk category, and seven chemicals were in the low-risk category. The results of the risk rating (RR) also determine the priority of action (Action Priority/AP) for controlling health risks. Control recommendations are to reduce the level of hazard (HR) by replacing chemicals (substitutions) with lower chemicals levels of danger to health, and for dermal exposure (ER), automation of handling processes, modification of work techniques by making chemical addition systems automatically. gravity, reducing the number of doses used but still being effective and efficient (workplace-related modifiers), reducing the time and frequency of using these chemicals (activity time), adding local ventilation (LEV) in addition to mechanical ventilation, and using special chemical resistant clothing and gloves or Chemical suit (control measures modifiers).