

Analisis Konsekuensi Dispersi Gas Hidrogen Sulfida pada Instalasi Produksi Associated Gas di PT. X Menggunakan ALOHA Tahun 2014

Alfandi, Satrya

Deskripsi Lengkap: <https://lib.fkm.ui.ac.id/detail.jsp?id=106049&lokasi=lokal>

Abstrak

Hidrogen sulfida merupakan gas beracun yang terkandung pada instalasi produksi associated gas suatu industri eksplorasi minyak dan gas. Skripsi ini merupakan penelitian deskriptif dengan pendekatan semi kuantitatif menggunakan data sekunder perusahaan dan literature serta observasi lapangan yang kemudian dianalisis menggunakan perangkat lunak Areal Location Hazardous Atmosphere (ALOHA). Tujuan penelitian ini adalah mengetahui konsekuensi yang terjadi berdasarkan jangkauan dispersi gas, dan populasi berisiko terpajan dari skenario kebocoran instalasi produksi associated gas yang sudah dirancang. Hasil penelitian ini didapatkan bahwa skenario worst case (ruptur dan tidak terkendali) pada pipa gas berukuran 10 inch memiliki dispers gas paling luas. Dalam satu jam, dispersi gas H₂S terjauh dengan AEGL-1 0.51 ppm (60min) mencapai 3.6 km dengan populasi berisiko mencakup penduduk yang tinggal di sekitar area station produksi PT. X. Selain itu didapatkan gambaran pengetahuan populasi berisiko terpanajan mengenai bahaya kebocoran gas serta gambaran sistem keselamatan kebocoran gas yang tersedia di PT.X. Kata Kunci : Analisis Konsekuensi, dispersi gas beracun, ALOHA, Associatedgas, Hidrogen sulfide (H₂S), Populasi berisiko

Hydrogen sulfide is a toxic gas that is contained on the installation of associated gas production of an oil and gas exploration industry. This thesis is a descriptive study with a semi-quantitative approach using secondary data from the company, literature and field observations. Then, these data are analyzed using the software Areal Location of Hazardous Atmosphere (ALOHA). The purpose of this study was to determine the consequences that occur based on the range of gas dispersion, and population at risk to exposed of leakage scenarios that have been designed at the associated gas production installations. The results of this study found that the worst case scenario (uncontrolled rupture) in a 10 inches gas pipeline has the most extensive gas dispersion. Within an hour, the farthest H₂S gas dispersion with AEGL-1 0.51 ppm (60 min) reached 3.6 km with a population at risk include people living in the surrounding area of production station. Moreover, other results from this study were the level of knowledge from population at risk about the dangers from gas leaks and gas leak safety systems overview that available in PT.X. Keywords : Consequences analysis, Toxic gas dispersion, ALOHA, Associatedgas, Hidrogen Sulfida (H₂S), Population at risk