



## HS2 Mgmt Plan in Oil & Gas Facilities

Buisier Engineering prepares H<sub>2</sub>S management plans for those who are working in oil & gas industry, as it is associated with an often underestimated danger: Hydrogen sulfide, a toxic gas, which can unexpectedly occur during routine work. H<sub>2</sub>S is colorless and invisible but can be perceived in very low concentrations by our sense of smell. Because of its distinct odor of rotten eggs. However, hydrogen sulfide numbs olfactory nerves starting with a concentration of about 100 ppm. People are no longer able to smell this gas at these concentrations. Concentrations higher than 1,000 ppm can be immediately fatal.

H<sub>2</sub>S is heavier than air and therefore often collects in low-lying areas and working sites near the ground. Hydrogen sulfide ignites on its own at a temperature of 518 °F. Due to its highly inflammatory property, an explosive atmosphere may occur when combined with air. Strong reactions are possible that can trigger spontaneous combustion, explosions and detonations in case of contact with peroxides, bromates, ammonia, or other chemical substances. H<sub>2</sub>S combined with air and moisture also may corrode metals through the formation of sulfuric acid. H<sub>2</sub>S management plan in oil & gas facilities comprises of: gas detection, release and leakage points identification, process revision and repair, and H<sub>2</sub>S removal from Oil.

H<sub>2</sub>S detection should be primarily designed to save the lives of workers by warning them of excessive H<sub>2</sub>S concentrations in the workplace and initiating emergency procedures and precautions.

The flammability of H<sub>2</sub>S is generally not considered in safety applications because the toxic level of the gas is significantly lower.

Increasingly, the use of personal/disposable portable detectors and hand-held portables, in combination with fixed gas detectors are providing better site-wide safety.

The process in the facility should be reviewed to identify H<sub>2</sub>S release and leakage points, to plan for repair or upgrade elements of the facility accordingly.

H<sub>2</sub>S content of crude oil is removed using combination of two methods, i.e., stripping and adsorption. The process is effected by parameters including weight percent of zinc, and temperature of adsorption.

The removal of H<sub>2</sub>S from crude oil has a high impact on oil industry and environment because it reduces the emission of H<sub>2</sub>S and saves the loss of valuable LPG and lighter gases.