Occupational Health Hazards in the Sukari Gold Mine, Egypt

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Abstract:

Mining industry is generally classified as the most hazardous industrial sector. Mining activities usually emit physical and chemical hazards in the workplaces and impose negative effects on the workers' health. Sukari Gold Mine (SGM) is located in the south of Eastern Desert in Egypt and is considered as the largest and modernized gold mine in the country. Occupational exposure and health risk assessment were evaluated in SGM by measuring the hazardous substances in different workplaces of the project. Noise, Particulate Matters (PM10), harmful gases such as carbon monoxide (CO), Sulfur dioxide (SO2), nitrogen dioxide (NO2), Hydrogen cyanide (HCN), and ammonia (NH3) were measured in workplaces and ambient environment. Maximum noise levels were 112 dBA and 103.5 dBA in the two power generators. Values of PM10 in the most working sites were less than the permissible levels (3 mg/m3) except in underground access, which recorded 4.9 mg/ m3. Measurements of chemical gases in the workplaces showed that most of the concentrations are less than the permissible limits except hydrogen cyanide. HCN recorded high levels in Carbon In Leach Tanks with a value of 10 ppm. Risk assessment of occupational health hazards of the SGM was applied in this study using Hazard Index and a simple modified model. The two methods enhanced each other and gave same results that two workplaces have High Risk, five cases have Moderate Risk and the rest places are Low Risk on the workers' Health. The study concluded that the modern mining and extraction methods applied in SGM have reduced the severity of occupational exposure to physical and chemical hazards in workplaces.

Keywords:

Chemical hazards Physical hazards Risk assessment Mining industry Working environment

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