

## عنوان مقاله:

(Risk Assessment in Quarries using Failure Modes and Effects Analysis Method (Case study: West-Azerbaijan Mines

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## خلاصه مقاله:

Iran is one of the countries with the largest number of quarry mines in the world. Diamond cutting wire is usually used in quarries to cut dimension stone cubes, which is accompanied by hazardous events. Therefore, detecting and investigating the possible quarry risks is crucial to have a safe and sustainable mining operation. In mine exploitation, maintaining the safety of vehicles and increasing the knowledge of personnel regarding safety issues can considerably mitigate the number or radius of effect of hazards. Hence, the incidents and risks in the West-Azerbaijan quarries in Iran are investigated in this work. To do so, a list of the hazards and their descriptions are first prepared. Then the hazard risk rating is conducted using the Failure Modes and Effects Analysis (FMEA) method. The number of priorities is calculated for each incident based on probability, intensity, and risk detection probability. Finally, the main causes of risks in the studies quarries are identified. The results obtained show that the most likely dangers in dimensional stone mines in West Azerbaijan are diamond cutting wire breaking, rock-fall, and car accidents, with the priority numbers of ۲۱۶, ۱۸۰, and ۱۳۵, respectively. These hazards can be mitigated by applying some preservative activities such as timely cutting wire replacement, utilizing an intelligent system for cutting tool control, necessary personal training, and considering some preservative points.

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