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# Assessment for the Backfill Using the Run of the Mine Tailings and Portland Cement

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**Abstract :** Narrow vein mining (NVM) is exploiting very thin but valuable ore bodies that are uneconomical to extract by conventional mining methods. NVM applies the technique of Sustainable Mining by Drilling (SMD). The SMD method is used to mine stranded, steeply dipping ore veins, which are too small or isolated to mine economically using conventional methods since the dilution is minimized. This novel mining technique uses drilling rigs to extract the ore through directional drilling surgically. This paper is focusing on utilizing the run of the mine tailings and Portland cement as backfill material to support the hanging wall for providing safe mine operation. Cemented paste backfill (CPB) is designed by mixing waste tailings, water, and cement of the precise percentage for optimal outcomes. It is a non-homogenous material that contains 70-85% solids. Usually, a hydraulic binder is added to the mixture to increase the strength of the CPB. The binder fraction mostly accounts for 2–10% of the total weight. In the mining industry, CPB has been improved and expanded gradually because it provides safety and support for the mines. Furthermore, CPB helps manage the waste tailings in an economical method and plays a significant role in environmental protection.

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