

Overburden determination for quarry prospecting using seismic refraction: a case study

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Abstract

Aggregate is one of quarry product that is widely used in constructions industry. This raw material that produced from the fresh rock under the earth surface is the most important materials in construction that come from quarry. In order to obtain the quality material of quarry product the overburden material on the top of the fresh rock should be removed. However before going to this production stage the amount of the quality material should be determined. Overburden removal is very important to help the quarry operator to identify the only area that will be actively used for extraction. This paper presents the technique used in determining the thickness of the overburden for quarry prospecting using a geophysical method called as seismic refraction method. The non-destructive technique of seismic refraction was applied in producing the subsurface profile of the potential quarry area. Based on the seismic image the layer of bedrock and the thickness of overburden to be removed was determined. Result from borehole drilling also showed that the lithology of borelog data matched to the seismic result, to proved that seismic refraction can be used as a method in identifying the depth of bedrock.

KEYWORDS :

Refraction; Overburden