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Cautions blasting in vicinity of underground laboratories

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Development of the new mining technologies is inherently connected with scientific researches. In many cases, there must be done in very specific and demanding conditions what is possible in underground laboratories only. These facilities can be located in tunnels or chambers deep below the surface. In this kind of underground objects very specific and sophisticated scientific devices are often used. Modern technical equipment is frequently very sensitive and must be protected from various undesirable factors e.g. vibrations. During the lifetime of some underground facilities, located in the hard rocks there could be the necessity to perform works where explosives have to be applied. One of the unwanted effects of explosives usage in rock is generation of the seismic waves.Vibrations inducted by seismic wavescan generate additional seismic load on the support of the underground facility and damage sensitive scientific devices. In this kind of blasting works, called caution blasting, there are strict restrictions for maximum vibration level that cannot be exceeded. In these kind of situations there must be used explosives and technologies that ensure fulfilling these kinds demands and restrictions. In this paper, prepared in the framework of in The Baltic Sea Underground Innovation Network (BSUIN) project, there are shown some solutions that could be applied during blasting works perform in the vicinity of protected facilities.