

# **SAFETY CONSIDERATIONS WHEN USING SHORT LEAD, (5-cm), MAGNADET DETONATORS**

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## **ABSTRACT**

This paper reports on an evaluation of the safety characteristics of short lead, 5 centimeter (cm), Magnadet1 detonators. The Magnadet initiation system uses magnetic induction principles to transfer electric energy from the firing line to the detonator without a physical connection. This study was initiated because the Magnadet initiation system represents a new technology and the Bureau is interested in ensuring that no potential safety hazards are introduced into the nation's mining environment. The Magnadet system and its proper use are described along with a discussion of how it works. The potential hazards examined are: stray current from mine service power, lightning, DC current, static electricity, and radio frequency transmissions. Tip strength is also evaluated. Experiments were conducted to evaluate some hazards and theoretical methods were used to evaluate others. The results showed that the Magnadet short lead initiation system does not exhibit any unusual safety hazards. The new system is at least six times as resistant to common hazards as currently used electric initiation systems, so long as the insulation is intact.