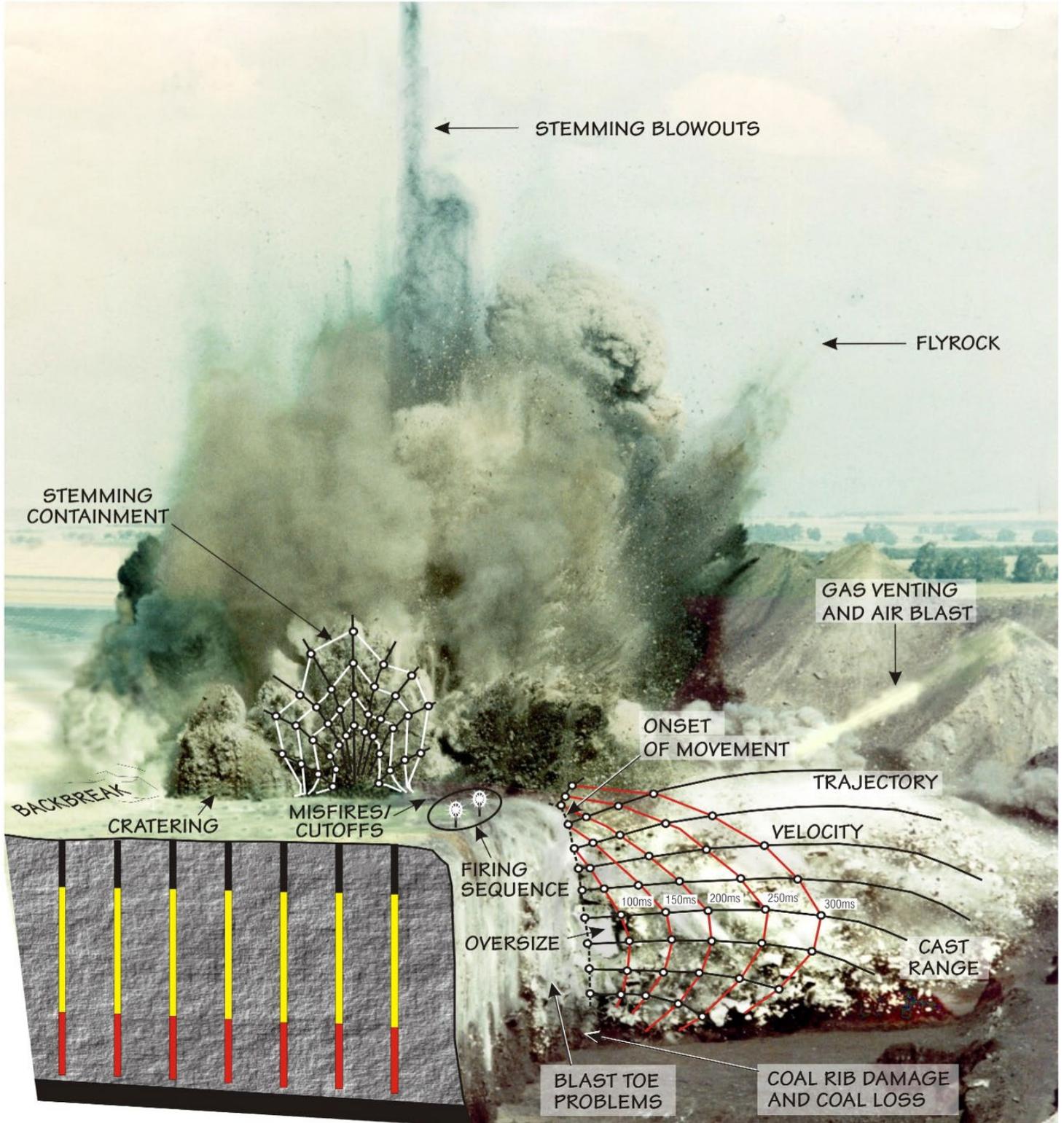


BLAST EVALUATION USING *HIGH-SPEED* VIDEO



SOME APPLICATIONS OF *HIGH-SPEED* VIDEO FOR THE OPTIMIZATION OF BLAST RESULTS

BLAST FRAGMENTATION

High-speed video assists the blaster in isolating the origin of oversize boulders as well as potential muckpile toe problems that can be produced by excessive front row toe burdens. Geological effects can commonly be evaluated, for example, by relating face venting to rock structure and inherent planes of weakness. The onset and velocity of blasthole stemming ejection can normally be easily measured providing a comparative estimate of energy loss at the top of the blasthole. At the same time, cratering and doming at the blasthole collar can be evaluated allowing a visual check on collar designs. Accordingly all of the major blast design parameters can be assessed. Cast blasts can be enhanced with respect to throw, range, and direction with appropriately placed cameras. Coal rib damage and coal loss can also be evaluated in cast shots.

BLAST PROFILE

Overall blast profile design can be enhanced using high-speed videos concentrating on material trajectory and velocity versus front row burdens and timing analysis.

BLAST TIMING

High-speed video may be used to assist in determining the optimum blast delay time and detonating sequence. Appropriate camera locations can allow determination of the onset and velocity of movement of both the blast surface and blast face. Cast blast results can readily be enhanced, blast choking can be mitigated and blast backbreak reduced, which will be found of particular importance when producing final pit walls.

EXPLOSIVES AND ACCESSORIES PERFORMANCE

High-speed video may be used to determine delay firing times and delay scatter as well as to confirm if the units are firing within manufacturers' tolerances. In conjunction with in-hole velocity of detonation measurements, high-speed video can be employed to help evaluate explosives performance. Detonating cord can be tested for detonation by checking poor knotting practices and reverse angles or kinks. Forces involved when poorly tied knots become undone during detonation can be observed.

BLAST ENVIRONMENTAL FACTORS

Evaluation of a number of environmental factors can be assisted by using high-speed video including: the source of flyrock and dust generation; the source of backbreak and gas damage detrimentally affecting pit wall production; noise and air blast produced from surface or face bursting; and identification of the source of noxious fumes generation.

Contact MREL for more details on its line of High Speed Digital Video Camera Systems for Blasters.

Authorized MREL Blasting Instrumentation Representative:

