Australia, Pacific & Asia Electronic Blasting Systems Dynamic Pressure Misfire Risk – Quick Assessment

Date: _____ Site: _____ Shot Name/Number: _____

There are many variables that affect dynamic pressure misfire risk. This chart is only a guide. It only lists some of the factors that determine the probability of a dynamic pressure misfire. This chart does not consider the consequences of a misfire. Consequence is important and should also be considered during risk assessment. Dynamic pressure misfires are usually considered high consequence because they involve damaged, misfired detonators inside a booster and explosive column, and they are not usually detectable prior to digging.

Factor	Low	Moderate	High
Presence of Water**	Blastholes dry when loaded. No groundwater. No rain between loading and firing. **	Some blastholes are wet or dewatered or Rain probable between loading and firing	Most blastholes are wet or Heavy rain likely between loading and firing
Site History	No known cases of dynamic pressure misfire using this blast design multiple times in this geological domain and ground conditions	Confirmed or suspected cases in other geological domains or ground conditions on site or This blast design has been successfully applied multiple times in similar geological and ground conditions or Site history unknown	Confirmed cases in this geological domain using this blast design in these ground conditions or This blast design has never been used before in this geological domain or ground conditions
Minimum Distance Between Holes	Distance between holes > 35 x hole diameter	Distance between holes 30-35 x hole diameter	Distance between holes <= 30 x hole diameter
Jointing/Structure	Massive rock mass with minimal jointing or structure	Ground lightly jointed and mostly closed bedding planes	Conglomerate, or ground heavily jointed and presence of open bedding planes
Ground Quality & Strength	Low probability of voids, soft bands, broken or pre-conditioned ground	Unknown	Voids, soft bands, conglomerate, broken ground or pre-conditioned ground likely or known in this location.
Decking	No decking, or all decks in the same hole are fired on the same delay using electronic detonators	Decking, using at least 30 x hole diameter of good quality well graded aggregate between explosive decks	Decking using drill cuttings or with less than 30 x hole diameter between explosive decks
Blast Confinement	Blast fired to a free face with no or minimal buffering and Bast width (free face to back row) <1.5 x bench height	Blast fired with confined free face, or without using the free face or Blast width (free face to back row) >1.5 x bench height	Fully confined blast with no free face Sinking cut, drop cut, box cut, trench
Blast Powder or Energy Factor	Powder factor, <0.5kg/bcm or Energy factor, <1.3MJ/bcm	Powder factor, 0.5-0.9kg/bcm or Energy factor, 1.3-2.3.MJ/bcm	Powder factor, >0.9kg/bcm or Energy factor, >2.3MJ/bcm
Multiple Priming	Each deck has more than one primer, with primers in the same deck spaced at opposite ends of the deck and later firing charge length is >2m		Explosive decks are all single primed, all primers are placed at closest point to donor charge or later firing charge length is <2m
Blasthole Deviation, Redrills & Collar Accuracy	Collars marked or drilled using GPS. Design vs. actual collar location reviewed prior to loading and redrills conducted or loading adjusted for holes too close together. Blasthole deviation measured or unlikely. Holes that deviate are backfilled and redrilled or loading adjusted. Original redrill holes are backfilled. DTH hammer or rotary drilling.		Collar markout imprecise or not controlled. Design vs. actual collar locations not reviewed prior to loading. No measurement or control of blasthole deviation. Top hammer drilling on benches more than 15m.
Loading Accuracy and Charge Lengths	Charge mass and collar rise monitored during loading. In decking applications, all gravel decks loader greater than or equal to design lengths Max. charge mass applied for each hole. Primer location in blasthole controlled for each hole.		Blasthole loading not monitored or controlled for overloading. Primer location in blasthole not controlled In decking applications, potential for gravel decks to be loaded less than design lengths

More "High" responses indicate an increased risk of dynamic pressure misfire.

****** ***The presence of water correlates very strongly with dynamic pressure misfire probability.***

In dry conditions, the risk of a dynamic pressure misfire is much lower than in wet conditions.

Based on outcome of the Quick Assessment, predicted likelihood of dynamic pressure misfire is (Circle Outcome)

Low ***Moderate*** ***High***

Justification for selected likelihood	
Additional Control Measures	
Note the additional controls in place to minimise risk of dynamic pressure misfire	

D&B Engineer: _____	Reviewed/Approved: _____	Shotfirer: _____
Signature: _____	Signature: _____	Signature: _____
Date: _____	Date: _____	Date: _____