Maximising your explosive capability

BlastBag Aero – Safe Work Procedure

PRODUCT DESCRIPTION

BlastBag™ Aero range by MTI Group is an air-inflated blast hole blocker consisting of a valve body (with non-reactive stainless steel Schrader valve fitted) attached to two sealed nylon gas tight bladders, encapsulated in an outer scuff bag constructed from a biaxial oriented polymer (BOP) layer. The product is designed to be inflated in-situ and will conform to all types of bore hole constitutions because the inflation is determined by the operator, and allows deployment in dry and wet holes with equal success.

SCOPE OF DOCUMENT

This SWP details the safe handling procedures for air-inflated blast hole blockers and positioning of the blast hole blocker in a blast hole.

SAFETY AND HAZARDS

BlastBag™ Aero may rupture if over-inflated either internal or external to the bore hole. The BlastBag Aero exposed to pressures above 20 PSIG (290 KPAG) should be avoided (unless in high submergence decking applications - contact MTI Group). If over-inflated the main hazard is temporary hearing damage when the gas-tight bladder fails (1) at a weld; or (2) de-laminates and fails within the bladder body. The high-strength BOP outer scuff bag assists in containing the bladder assembly and retards stretching of the bladder film during periods of over-pressure.

SAFE HANDLING PROCEDURES

- Store as non-dangerous goods. BlastBag Aero should be stored in the box until ready for use and kept out of direct sunlight for prolonged periods as the UV light may breakdown the BOP outer scuffbag.
- Transport as general cargo. No dangerous goods class or code applies to BlastBag Aero.
- Dispose of product responsibly, preferably through plastic recycling. Given inert nature of the product, BlastBag Aero may be disposed of in general refuse without special precaution. If the product has been fully or partially inflated, if outside the borehole bleed off internal pressure at the Schrader valve (similar to deflating a tyre), and if inside the borehole and depending on accessibility the bag can be deflated at the valve or lanced with a sharp object. When lancing an inflated bag beware of the risk of rapid deflation causing noise or dust agitation and reaction to the compressed air escaping the product.

MATERIALS / EQUIPMENT

- BlastBag™ Aero air inflated bore hole plug.
- Drop line - thermoplastic air hose, marked at 5m intervals to assist positioning of the plug.
- Stainless steel inflation coupling with annular-snap attachment.
- Air compressor or source of compressed air.
- Pressure regulator or system of pressure control/relief.
- PPE in accordance with site standards.

SAFE WORK METHOD

- Select correct size BlastBag™ AERO plug for appropriate hole and remove from carton just prior to use.

- Determine what depth the bag is to be placed in the hole by checking the shot plan. Allow the length of the bag (500mm) in the stemming height calculation to ensure consistency of powder factor.
- Check whether the bore hole contains water (or has in fact been loaded with explosive product) by dropping rock or cuttings down the hole and listening for a splashing sound. If splashing is heard consistent with water in the hole, measure the amount of water in the hole and record as this information will determine (1) the type of inflation source and (2) final pressure of the BlastBag Aero. If splashing sound consistent with explosive product is heard, proceed as normal. If the sound of the rock(s) hitting the bottom of the hole is heard, indicating the hole has not been charged, leave for the time being and return later.
- Ensure the drop line is at least 1.5m longer than the required depth.
- Ensure the inside surfaces of the stainless steel coupling is clean (to prevent premature wear of the coupling and/or the bag valve body) using a cloth, water or both. Pass a short burst of air (< 1 second) through the coupling to clear any debris from earlier use, ensuring the hose is not pointed toward any person - if pointing toward the ground ensure debris is not strewn by the jet of air.
- Holding the BlastBag Aero with the valve body to the top, squeeze the bag between the thumb and index finger such that the bag folds open out and the valve body is clearly accessible.
- With the stainless steel coupling attached to the drop line, push the coupling onto the valve body until an audible 'click' is heard. If no sound is heard check that the bag is securely fastened to the coupling by shaking from side to side. If a sound can not be heard and if the bag decouples when shaken, either the coupling or valve body is worn to the point where annular snap sealing is impossible, after which the bag can not be used.
- Lower the bag down the hole to the desired depth, as indicated by marks on the hose.
- When inflating, clearly audible popping sounds will be heard as the tape that holds the product together snaps under pressure. Inflate to the target pressure, remembering not to exceed the maximum pressure.
- When inflating under water, the following chart applies:

Depth of water in hole (m)	Pressure	
	KPAG	PSIG
0	160	11.0
1	170	11.7
2	180	12.4
3	190	13.1
4	200	13.8
5	210	14.5
6	220	15.2
7	230	15.9
8	240	16.6
9	250	17.2
10	260	17.9
11	270	18.6
12	280	19.3
13	290	20.0

- To decouple, the operator should stand directly over the bore hole and gradually pull on the drop line with steadily increasing force until it decouples. Pulling the hose to vigorously may damage the area where the valve body is welded to the pressure bladders, resulting in wasted product. Standing directly over the hole prevents lower back hyper-extension - a common cause of lower back injury, while minimising the force required to decouple the bag.
- Check the bag has fully inflated by dropping drill cuttings down the bore hole and listen for a bright percussive sound as the cuttings hit the bag.

TROUBLESHOOTING

Problem	Action
Bag underwater moves when decoupling is attempted.	Insufficient internal pressure. Check pressure against submerged deployment table. If unable to achieve target pressure, deflate plug (disconnect outlet coupling from compressor, allowing air within bag to escape back through the valve) and withdraw to inspect.
Coupling won't click when fixing bag	Valve body and/or coupling worn. Try another bag to determine if the coupling is OK. Check coupling for debris and dirt. Clean coupling
Bag won't decouple once inflated	Possible fouling in coupling has jammed valve body inside coupling. Deflate bag and inspect. Clean coupling
Bags continually fail where valve body meets bladders	Check work practice to ensure the hose is being pulled (1) gradually and (2) perpendicular to the bag at the time of decoupling.

CONTACT INFORMATION

Further production information can be obtained by contacting MTI Group at the following contact numbers.

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