

To Whom It May Concern:

**RE: Foam Test using a Hi Expansion Foam Generator Fomax 7**

On Wednesday 24<sup>th</sup> September 2008 a trial of various hi-expansion foams was conducted at LaMancha's Frog's Leg underground operations. In attendance were Tim Campbell, OHS & ER Coordinator at Frog's Leg, Greg Lannan of FRSA and Bill Lawson of FireAde. The foams tested were FireAde 2000, FireAde AFFF, Jet-X (Ansul), Hi-Ex (Angus) and Expandol (Angus).

The test was initiated by myself in an attempt to determine which foam product best suited the hyper-saline water in our mine. UG fire represents a risk to all UG mines and in the event of a fire a Hi expansion foam generator can be utilised as an extinguishing tool. This method minimises risk to the Emergency Response personnel by reducing exposure to dangers such as; tyre explosion, ground collapse, intense heat and low to no visibility.

The test was conducted in a blind heading in the North Portal. The mine water is fed by poly lines reduced down to a 1" 'min-sup' fitting. The Fomax 7 was fed water via a standard 1" mine hose with a BIC adaptor on the end. This did not produce significant flow or pressure, however it represented what was most likely in our mine environment. It remained standard for all the foams tested. The mine water is fed from tanks on the surface which are filled from bores. The salinity is approximately 220,000 TDS (sea water is approx. 35,000) and an anti scale additive is added in small proportions in the tanks. The pH is approx 7.

All of the results were qualitative not quantitative, with a visual comparison only. There was no fire to extinguish, the trial was purely to test foam production with hyper-saline water.

Of the foams tested FireAde 2000 produced the largest amount of finished foam. The stream of foam produced was roughly the same height as the Fomax itself (~900mm) when exiting the unit. This dropped slightly when running down the drive (~4.5m wide) but held together in a fairly tight blanket. The bubble structure was quite tight and when agitated by the ventilation seemed to re-form in the blanket very well. Of the foams tested it seemed to hold the tightest blanket for longer. This was evident when even after finishing the tests during the 'pack-up' stage the blanket held a very good structure.

The next best was the Jet-X with a similar bubble structure but with marginally less foam production. The Jet-X foam blanket produced was still of reasonable quality, but seemed to deteriorate at a slightly faster rate than the FireAde 2000.

FireAde AFFF and Hi-Ex were next. Both produced a similar amount of foam to each other, both of which was obviously less than the FireAde 2000 and Jet-X. However the FireAde AFFF had a large bubble structure that did not seem as stable.

The Expandol produced minimal foam and deteriorated quite quickly after production. This would be ineffective in fighting an UG fire utilising water of the above mentioned characteristics.

Please note I am in no way endorsing or suggesting the use of any particular product over another, rather simply stating the observations particular to our site parameters. I would suggest also that all sites conduct similar testing to ascertain product suitability for their specific conditions and within their budgetary constraints.

Yours sincerely,



Tim Campbell  
OHS & ER Coordinator  
Frog's Leg Gold Mine