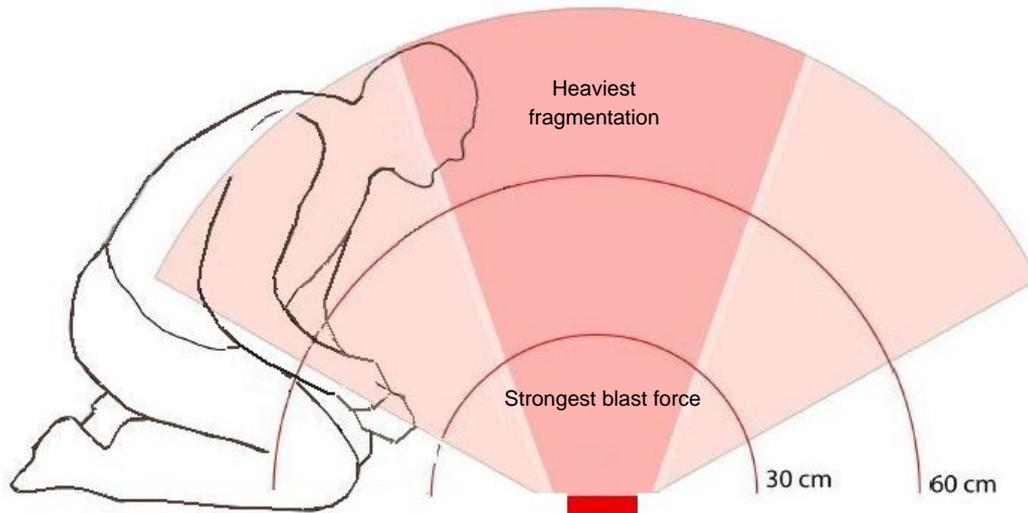


Following the guidelines published in Chapter 2: Safety of the Generic SOPs for demining, we positioned the test pieces as if they were being worn by a deminer at the time when most accidents occur. This is while kneeling/squatting to uncover a mine.



To allow comparison with other blast tests, we took care is taken to set up the test in the same way every time. Although most of SD's previous testing has involved the use of real anti-personnel blast mines, following recent guidance designed to allow replication of tests, a weighed quantity of Plastic Explosive was used instead of a mine. At this time, no reliable equivalent is known because PE has a significantly higher VoD and brisance than TNT. However, test results from DRDC Canada used 75g PE to get a similar result, so 75g high quality PE was used by SD.

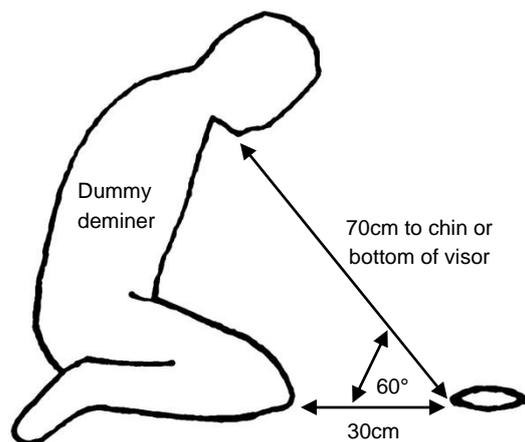
The SD dummy deminer was made using mild steel and held upright using a 20kg sandbag.



The test parameters were:

1. 75g high quality PE was used as the High Explosive charge.
2. The explosive was positioned with the top level with the ground.
3. The PPE was positioned as it would be when worn by a kneeling deminer. It was held on a dummy deminer that could move backwards without constraint.
4. The distance from the knees of the dummy deminer to the mine was 30cm.
5. The distance from the centre of the mine to the bottom of the visor or the chin of the dummy deminer was 70cm.
6. The angle between the ground and a line to the bottom of the deminer's face or visor was 60°.





Unusually, we also wanted to know the worst-case situation, so decided to tie the Mask-Visor head frame to the dummy so that it could not be removed by the passing blast-front. Most visors are removed during a blast event and this is desirable because it limits the transfer of shock forces to the wearer's head and neck. As has been demonstrated in many real accidents, the ejecta from the detonation strikes a visor at 60cm before the blast wave arrives, so allowing the visor to do its job before the blast front lifts the visor upward. It is a generally accepted rule when dealing with blast-waves not to attempt to stop it. In this case, we were using a new design of head-frame that might make a visor stay in place, so wanted to test whether the forces would be enough to break the visor face if this occurred.



Military observers were present throughout the tests to control the explosives and endorse the conclusions.

### Expected results

It was anticipated that the dummy deminer would be driven backward and upward by the expanding blast wave and might fall backwards or forwards.

It was anticipated that the Mask-visor head-frame and sun-shield might be damaged.

### Critical failure

If any of the following occurred, the Mask-visor would have failed the test.

1. the Visor lens or mandibles were broken; or
2. the Visor lens or mandibles had separated.



*The blast event*

### **Post test examination**

After the test, the result was photographed before being moved. The equipment was then examined for damage. The examination was undertaken in the presence of independent witnesses who endorsed the conclusions.



### **Conclusion**

The "sun-shield" had broken as expected. The Mask-visor performed as anticipated, retaining its integrity in the blast-event.

