Plowmate: The Drillhole Saver

### The Problem

True story: A blast pattern with over 400 drillholes was nearly complete. That night, a snowstorm blew in. The next day, the blast pattern was covered in 3 feet of snow. Oh no! What do we do?

<table>
<thead>
<tr>
<th>Option</th>
<th>Operation</th>
<th>Time</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Plow the snow and redrill</td>
<td>7 hours</td>
<td>$27,421.33</td>
</tr>
<tr>
<td>#2</td>
<td>Blast crew to locate each hole and dig them out by hand</td>
<td>20 hours</td>
<td>$14,544.00</td>
</tr>
</tbody>
</table>

### The Solution

- A perfectly good drillhole
- Snows
- Plow, and the drillhole is lost

- A perfectly good drillhole
- Snows on its way, get the Plowmate!
- Snows
- Plow, and the drillhole is marked
- Remove and the drillhole is left intact

### The Design

- Drillhole
- Insert
- Presto!

**Conclusion:** Plowmate holds pressure and grips the sidewalls of the drillhole very well.

**Improvements:** Using a 3-D printed hard-polymer body instead of steel.

**Next Steps:** Put into a real drillhole and plow over it.