Appendix P- ARMPS Method Using Barrier Width Modified Based on Bearing Capacity

To account for the bleeder pillar being used as part of the barrier system, the bleeder pillar load bearing capacity is added to the load bearing capacity of the barrier to approximate the total load bearing capacity of the barrier system. This analysis method modifies the barrier width so that the load bearing capacity is adjusted to include a bleeder pillar. This process addresses those cases where the section pillar remains alongside the barrier pillar separating Active Gob and 1st Side Gob. The process involves mathematically modifying the barrier pillar system as outlined below:

1. Establish input parameters for mining geometry (i.e. overburden, pillar size, mining height, etc.).
2. Determine conventional stability factors by modeling the section as if all pillars are extracted. Note the PStF, BPStF, and remnant BPStF.
3. Note the load bearing capacity of the actual barrier width at the AMZ.
4. Note the load bearing capacity of the pillar that will be left alongside the barrier pillar.
5. Determine the equivalent load bearing capacity of a modified barrier system with the following:

$$\begin{matrix}\textit{Equivalent Barrier} \\ \textit{Capacity (tons)}\end{matrix} = \begin{matrix}\textit{Original Barrier} \\ \textit{Capacity (tons)}\end{matrix} + \frac{\textit{Pillar Capacity (tons) x AMZ Breath}}{\textit{Pillar Crosscut Center}}$$

6. Model the section with an Active Gob as retreating without the unmined section pillar (pillar line and section reduced by one pillar).
7. Modify the barrier width using the input screen, recalculate, and check the resultant barrier Capacity at the AMZ. Continue modifying the barrier width using this iterative process until the Equivalent Barrier Capacity is achieved.
8. Assign the resultant PStF for the AMZ, BPStF, and remnant BPStF as the values for the section pillars and the modified barrier pillar system stability values.