Although degradation happens more quickly after casing breach, rates before and after breach are linear. It is likely that in reality degradation rates are not linear, but further data are required before different functions are adopted. For the purposes of this project the adoption of linear aging change relationships was not critical to the conclusions reached.

Second, the model assumes that when components of the mine fail they do so following a normal probability distribution (Figure 5); a small number of examples of the component fail early on in some mines, most fail around the average life expectancy of the component and a few examples continue to function for a much longer period of time.

Where more than one component is involved the failure, probabilities may occur over different time spans, but the failure profile for each component will follow its own normal distribution curve, as in Figure 6.

The model assumes that the failure of any critical component constitutes a failure of the mine as a whole. This is the ‘first past the post’ principle. The cumulative effect as multiple components age and fail is that it becomes more and more likely that the mine will fail, even if one of its critical components happens to survive for an unusually long period.