

Secondary containment and credible scenarios

Thames text in black, EA response in blue

BAT 19 is the relevant BAT conclusion when considering the need for secondary containment.

BAT 19 requires operators to *prevent or, where that is not practicable, to reduce emissions to soil and water*. BAT 19d lists a number of techniques which can be used in combination to *“reduce the likelihood and impact of overflows and failures from tanks and vessels”*. These include impermeable surfacing, overflow detectors, and the location of tanks for liquids in *“a suitable secondary containment; the volume is normally sized to accommodate the loss of containment of the largest tank within the secondary containment”*. This aligns well with the already well established 110/25% rule which has been applied in other regulated facilities for over 30 years.

Page 38 Under Section 4.2.1 – The “110 per cent” and “25 per cent rules”, the guidance suggests that *“The basis for much industry practice in the past has been the 110 per cent and 25 per cent rule. Although not following the risk-based approach recommended in this guide, this practice has been in use for many years”*.

We interpreted this to suggest that the previous 110/25 percent rule was not recommended but was recognised as an historically accepted practice.

On the contrary the guide is simply recognising that the 110/25% rule, an established industry standard, doesn't follow the risk-based approach recommended in other sections of the guide. In other words the requirement for secondary containment is not dependent on a risk assessment; the requirement cannot be risk assessed away, nor can volumes be reduced. This is also made clear by figure 4.3.

Credible scenarios

Section 4.2.1 helpfully explains the assumptions behind the 110% and 25% rule. For the 25% rule the assumption is that not all the tanks within the secondary containment are expected to fail at the same time. However there could be credible scenarios where this assumption might not hold, such as an explosion damaging multiple tanks, implying that for some credible scenarios you may conclude that containment needs to be increased above the standard 25% of total tank volume. The guide does not anticipate an equivalent argument whereby the containment volume could be reduced. It is entirely credible to foresee a situation where human error results to the loss of the entire contents of a tank (there have been examples of this) and virtually impossible to eliminate that risk so the standard 110/25% is applied as a minimum.

Figure 4.3 reinforces this point. It shows credible scenarios to be relevant only if the contents of a tank are combustible, presumably because the loss of more than one tank is unlikely unless there is a fire or explosion. Again the implication is that credible scenarios can result in the required containment volume being increased but not decreased.

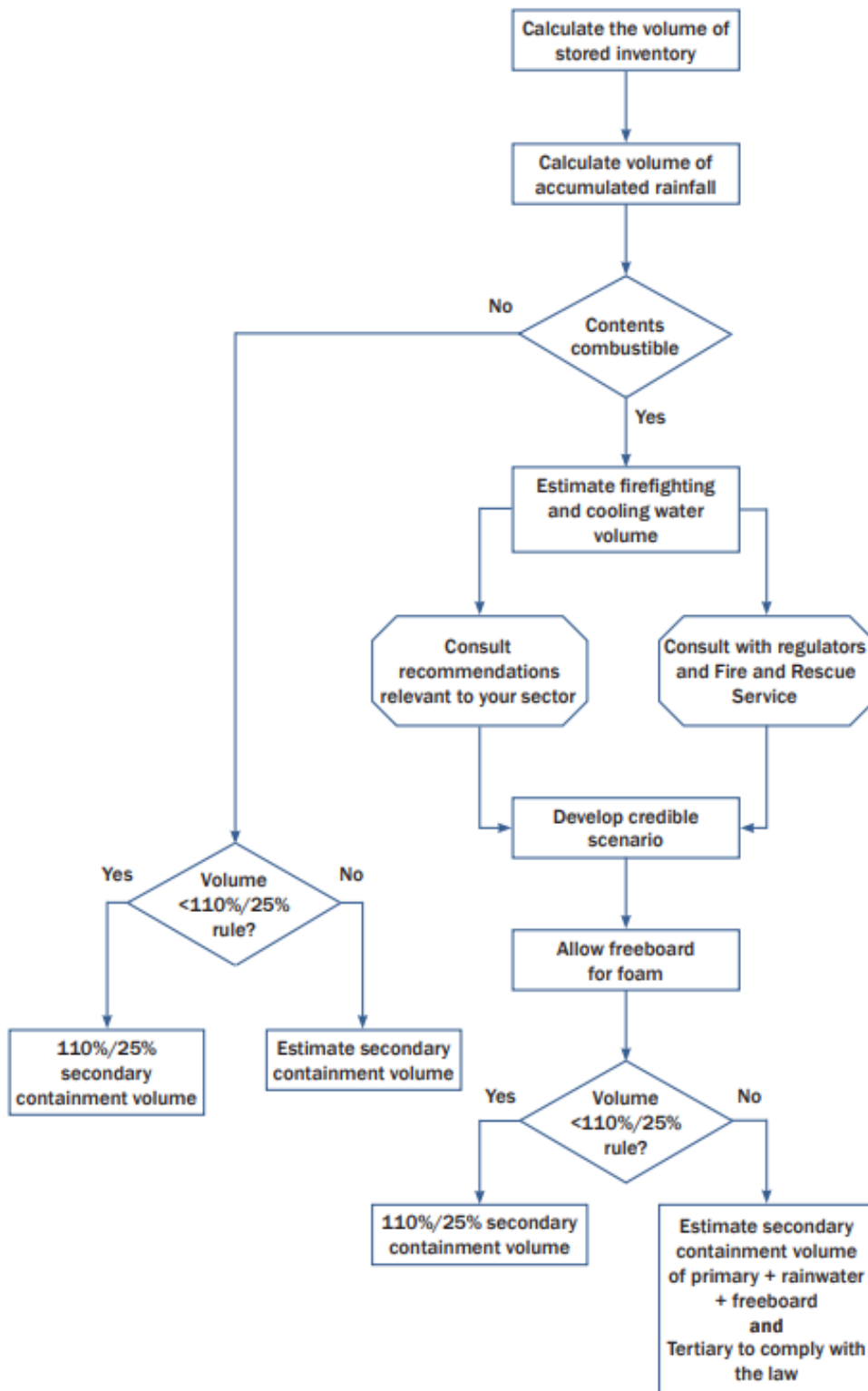


Figure 4.3 Process for estimating containment capacity

Page 43, Section 4.3 Method for Assessing Containment Capacity then refers to a recommended approach which references “...the containment should be capable of retaining:

- *The total volume of inventory that could be released during a credible incident*
- *The maximum rainfall that would be likely to accumulate within the containment before, during and and/or after an incident.....”*

“In determining containment requirements, the volume of substance should be based on the loss from a credible scenario.....”

As above the suggestion is that credible scenarios could result in some of the assumptions which form the basis of the 110/25% rule breaking down, such as an explosion damaging multiple tanks, in which case it would be necessary to increase the total containment volume above the standard 25%. This may be particularly pertinent for COMAH sites where there is a risk of fire or explosion.

Hopefully, this provides context as to the further point of clarification I raised at the end of the meeting. In some cases the consideration of a “credible scenario” could reduce the scale of secondary containment and align more to a risk-based approach. Given the CIRIA736 guidance document – we therefore wanted to explore whether the approach outlined in Section 4.3 was one that the EA would consider or whether we have previously misunderstood your references to the 110/25 percent rule.

Whilst we do not consider that the concept of ‘credible scenarios’ offers an opportunity to reduce secondary containment capacity we remain open to receiving proposals where it can be demonstrated that deviation from the 110/25% rule is possible without compromising the level of environmental protection.