

Managing Flood Risk – What can you really do?

When we think of flooding, images of inundation and devastation typically come to mind, whether that's for domestic communities or industrial areas. The credibility of flooding initiating and exacerbating major accidents cannot be questioned. However, the stereotypical image of catastrophic flooding can sometimes lead to a degree of indifference or even fatalism when it comes to preparedness. The question of “what can you really do?” becomes more prominent, especially when larger, more sudden and severe flooding is imagined. With that, comes an implicit suggestion that there's little you can do to make a difference. Of course, the forces of nature are not always something that can be combatted, but there are numerous approaches that can be taken to manage the risk, and not only from a prevention perspective. Can we learn from past incidents and implement precautionary measures? And is it really worth it?

There are numerous historical cases which demonstrate the impact flooding can have on high hazard sites. Just one example in the UK is the East coast storm surge of December 2013. One particular site on the east coast, an upper tier COMAH establishment, was initially subject to some localised flooding and was undertaking clean-up operations. However, the resumption of normal operations rapidly came to a halt when a technician witnessed a ‘tsunami like’ crash of water flow into an area storing hydrocarbons. All hydrocarbon movements to and from the area were paused until damages could be investigated. Thankfully, no one was harmed and no hazardous substances were released to the environment. However, the delays caused to operations still had a negative economic impact, on this company but also a knock-on effect for other businesses relying on the site. This isn't to say that no flood risk control measures were in place. In fact, the consequences may well have been worse without measures

that were in place. These included advanced isolation of all non-essential electrical equipment, sandbagging of vulnerable areas such as switch houses and the removal of all containers that could float. This helps to highlight the importance of preparedness.

Due to the often-unpredictable nature of natural hazards, it is important to be aware of the ways in which flooding can cause damage. It may not always be possible to completely prevent a site from flooding. Flood defences such as berms surrounding industrial complexes are designed to specific flood return periods, which can be exceeded. Damaged or unmaintained defences are also a factor that can reduce their reliability.

Although permanent and robust physical barriers to prevent flooding can be of great benefit, there are numerous other measures that can be implemented. Examples include the elevation of electrical equipment above worst case predicted flood levels. This is typically easier to incorporate into the design of new installations. However, for existing equipment, where it may not be practical to relocate, then a waterproof shelter or flood-proofing around the equipment can minimise the likelihood and extent of damage. The scale and cost of control measures is linked to the question of whether it is worth it. No two measures are the same in terms of cost and disruption, particularly for existing sites. Depending on the site, increasing drainage capacity can help to reduce surface water flooding. Beyond permanent measures, things like temporary flood doors can be used to create a water-tight seal, preventing water from entering buildings. In the aftermath of a flood, the presence of emergency backup generators can also be useful.

Procedural measures are also important in managing flood risk, including those that do not necessarily influence the extent of flooding. It is imperative that all individuals present onsite are fully aware of what to do in the event of an emergency. Additionally, easily accessible evacuation routes with clear signage are beneficial, and not purely in the context of flooding.

Natural hazards such as flooding, especially bearing climate change in mind, are often a matter of when, not if. For this reason, being suitably prepared is vital. Part of this is remembering that, regardless of flood magnitude, there are numerous approaches that can be taken to manage the risk.

For further details visit www.ras.ltd.uk

