

Managing extreme weather events at chemical businesses

Safety alert from the Chemical Industries Association

This is one of a series of occasional Safety Alerts by CIA to raise awareness of potential major hazard and business risks – in this case from severe weather events, including flooding, which large parts of the UK have been experiencing and which are projected to continue into the foreseeable future.

CIA Chemical Industries Association

Working for chemical and pharmaceutical businesses

Impact of storms and floods

Winter 2013/14 has been one of the wettest on record, and there has been extensive media reporting of the effects of storms, high tides and tidal surge, and consequent flooding. Much of the media coverage has focused on the social and housing impact, but flooding impacts chemical businesses too and can potentially be the cause of major accidents.

CIA recently carried out 2 surveys of the effects on chemical businesses from flooding and storms, in December 2013 and January 2014. The results of the surveys show that while serious problems have fortunately been sporadic so far, where they do happen the consequences and costs can be very significant – so companies cannot afford to be complacent, and should ensure they are as prepared as they possibly can be to cope with potential disruption. In summary, our surveys showed:

- Small numbers of companies affected so far by flooding from swollen rivers or loss of coastal sea defences – but where these occur they can be serious, with damage running into several millions of pounds;
- Some building damage from high winds;
- Supply chain disruption, for example when docks have been closed preventing shipping from delivering raw materials, or roads in some areas have become impassable;
- Temporary suspension of work at sites, such as tanker top loading or other work at height.

Preparing for managing floods

Unfortunately extreme weather is not something we have any control over, but there are steps businesses can take to prepare for and mitigate the effects of flooding.

In 2012 CIA collaborated with other industry sectors and the Environment Agency to produce a guidance document for industry “[Preparing for flooding: A guide for regulated sites](#)”. The guidance is freely available to download from the Environment Agency website and can also be accessed from CIA website.



The document includes specific practical actions you can take to help improve your resilience and protect your business, including:

- Preparing a flood plan;
- Checking whether bulk storage tanks and process plant are above predicted flood levels;
- Securing drums, IBCs, waste containers and other small vessels to prevent them floating in the event of flood;
- Reviewing the location and vulnerability of safety critical plant and equipment such as control rooms, process control and instrumentation systems, and emissions abatement plant.

CIA has previously sent details of this guidance to all member companies, and we strongly advise that you reconsider your preparedness for possible flooding in your area – ***don't get caught out unprepared!***

The Environment Agency website has links to lots of other information on flooding and flood preparation for both business and home including identifying the most vulnerable areas, contact details, and regular updates and information. Businesses are recommended to regularly access the Environment Agency website during periods of extreme wet weather to check: <http://www.environment-agency.gov.uk/homeandleisure/floods/default.aspx>

Severe prolonged low temperature – Winterisation

CIA first produced guidance to companies on managing severe and prolonged cold weather in 2010, and revised this for the 2011/2012 winter. This guidance is still highly relevant, and companies are advised to ensure they have measures in place to cope with the possibility. While most of the UK has been fortunate enough so far this winter not to experience extreme low temperature, this could still happen. Companies will be aware from media reports of recent extreme cold as well as heavy snow in some parts of the USA and in other parts of Europe. CIA's full guidance 'Winterisation - Managing process plant through severe and prolonged cold weather' is available [here](#)

The guidance outlines the experience of companies in the chemicals sector from process plant and instrumentation potentially operating outside its design temperature, frozen 'wet' lines, possible loss of gas supply even when on 'firm' contract, and other business disruptive effects to supply chains and key staff availability and transport. The document also provides practical advice on preparation and mitigation that companies should take, including:

- Reviewing site winterisation procedures;
- Protecting safety critical equipment;
- Planning around firewater and emergency shower unavailability;
- Planning mitigation measures such as trace heating, protective sheeting, or process shut down where necessary;
- Managing transport disruption, which may include inability of staff to travel to/from work, as well as supply chain problems.

Unfortunately there is limited predictability of such severe cold weather events each winter, so companies need to keep the guidance, the practical measures they can take, and their overall preparedness under regular review.

Climate Change effects – Is your business ready?

The advice above on flooding, storm and severe cold weather preparation is based on the natural variations in weather that we might expect in the UK. It deals with short-term planning for reasonably foreseeable events, which companies need to take to manage the risks of business disruption or potential major accident initiation. However companies should also be aware that projections for the UK indicate we all need to be prepared in the medium to long term for more regular and more extreme weather events. These are the findings from the UK Climate Change Risk Assessment (CCRA) conducted by government and published in 2012.

The projections suggest we are likely to experience:

- Increases in winter rainfall;
- Decreases in summer rainfall;
- More days of heavy rainfall;
- Increased storm frequency;
- Rising sea levels.

The CCRA outlines medium to long term business risks from climate and weather related events that companies should take account of in their business strategic planning. Further information on this is available from the Environment Agency website, where there are several helpful documents that outline the risks and how companies can plan to manage them:

<http://www.environment-agency.gov.uk/research/132327.aspx>

The website provides further links to specific interests including businesses and services, where companies can begin to make the assessments they need to for the medium and longer term to manage climate change effects:

<http://www.environment-agency.gov.uk/research/policy/132329.aspx>

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CIA plans to keep our guidance on this regularly updated, and we will continue to work with government departments and the environment bodies in the UK to develop new awareness-raising information for the benefit of the chemicals sector. We would be very interested to hear of your company's experiences from the recent severe weather, and any issues or needs you have with regard to longer term strategic planning for climate change. Please send any information or observations to CIA at responsiblecare@cia.org.uk