Background and Context

In the early hours of Sunday 11 December 2005, explosions at Buncefield Oil Storage Depot, Hemel Hempstead, Hertfordshire resulted in a large fire, which engulfed a high proportion of the site. Over 40 people were injured; there were no fatalities.

Significant damage occurred to both commercial and residential properties in the vicinity and 2,000 people were evacuated on emergency service advice. The fire burned for several days, destroying most of the site, including 22 tanks containing approximately 60 million litres of fuel. Large clouds of black smoke were emitted into the atmosphere, dispersing over the Home Counties, southern England and beyond.

Large quantities of foam concentrate (786,000 litres) and water (40 million litres) were used to fight the fire.

Over 16,000 employees within the adjacent Maylands Industrial Area were unable to access work and 92 businesses were displaced for more than one week. 17 were forced to permanently relocate. Overall, the explosion cost local businesses more than £70 million in lost stock, lost revenue and relocation expenses.

How the Topic was Handled

One of the most significant problems facing Dacorum Borough Council was obtaining and disseminating information relating to the smoke plume. Health Protection Agency advice on what happens when fuel is combusted was not readily available. It should be noted that, although the explosion occurred on Sunday morning, the fire was not extinguished until Wednesday and therefore overlapped with initial recovery efforts.

Whilst monitoring of air quality was undertaken by the Met Office, Environment Agency, Health Protection Agency, and the military, the weather conditions and wind direction at the time were extremely favourable and prevented the smoke plume from being closer to the ground and away from most of the town. If this had not been the case, then the smoke plume would have had considerable impact not only in terms of evacuation, but also on the initial recovery and clean up.

In the aftermath of the incident, environmental monitoring was undertaken by a multi-agency group led by the Environment Agency. Particular attention was given to the impact of contaminated firewater on local water supplies. A wide programme of river and ground water monitoring was subsequently undertaken by the Environment Agency that indicated that low levels of PFOS were present. However, it was considered that there was no immediate adverse impact on the environment whilst any boreholes in the area used for drinking water remained closed. Monitoring of both water and soil samples is likely to continue for a lengthy period of time. The issue of contaminated land as a result of the incident has only just arisen with claims being made by a local farmer.

Air quality monitoring was undertaken in the area around the site and, near the M1, the Borough Council also obtained information from their air quality monitoring unit at the Civic Offices. A call centre was established by the Borough Council to directly answer any queries and concerns from members of the public.

Environmental health officers were also involved in checking that damaged buildings within cordons were safe. There was particular concern that, due to the age of buildings, asbestos may have been used in the construction of both business and residential properties and could have been disturbed by the explosion.

The fact that the recovery process started before the fire was extinguished meant that the relevant agencies were working together at an early stage and were starting to think through the issues. For example, the knock on effect of the use of PFOS chemicals in the firefighting foam.

Lessons Identified

Dacorum Borough Council has identified two key lessons relating to environmental pollution. Firstly, they were not aware of the constituents of the smoke plume and relied heavily on HPA advice. However, with the benefit of hindsight perhaps they should have been more aware, particularly in terms of what happens when fuel is combusted. Secondly, had the weather conditions and wind direction not been so favourable at the time of the incident, the problems relating to environmental pollution would have been immense.

The incident also helped highlight weaknesses in the arrangements for providing co-ordinated scientific and technical advice to Strategic (Gold) Command. Guidance has since been issued to local responders on the establishment of a Science and Technical Advice Cell (STAC) within the multi-agency Strategic Co-ordination Centre (SCC) in the event of an emergency where there is likely to be a requirement for co-ordinated scientific or technical advice.

Contacts for Further Information

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