

The Buncefield Catastrophe

Looking back at one of Europe's biggest explosions since World War 2, and the battle against the ensuing inferno



Buncefield fuel depot, 10 minutes after exploding [CC: Rick Martin]

FACT FILE:

- Buncefield has the fifth largest oil-products storage depot in the UK, with a capacity of over 270 million litres of fuel
- The British Geological Survey accidentally monitored the explosion, with a reading of 2.4 on the Richter scale (developed specifically for measuring the magnitude of earthquakes)
- The smoke cloud was observed by NASA in space, and could be spotted as far north as Lincolnshire - around 70 miles away
- Fixed ground foam monitors were used to help fight the fire. A fire engine will produce 2,500 litres of water per minute, whereas a single foam monitor will produce up to 40,000 litres of foam per minute
- Around 150 firefighters were immediately called to the incident
- At peak times there were 25 fire engines, 20 support vehicles and 180 fire fighters
- The explosion was reported to have been heard in France, Belgium and the Netherlands
- Despite being one of Europe's greatest catastrophes since the second world war, there were **zero fatalities**, and only **two serious injuries**
- The sheer scale of the destruction makes it impossible to know the cause of the vapour cloud's ignition
- Hertfordshire Fire and Rescue Service attended a total of 348 other calls throughout the course of the fire.
- It took an impressively fast 59 hours from the time of explosion for firefighters to snuff the flames



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Hemel Hempstead, Hertfordshire, 11 December 2005, 5:50am

It's the early hours of Sunday morning. The sun is yet to rise for another hour. There are no cars on the streets, petrol stations are empty, and the town's famous "magic roundabout" is deserted. The local fire station is on Blue Watch (the morning shift) with Sub-Officer Jon Batchelor at the helm. He woke up in his quarters five minutes ago in shock; how the hell did he get a full night's rest? The station hasn't received a single call for nearly 30 hours now. Something is up, and his mind spirals almost in spite of the town's unusually long peace. One of the nation's greatest catastrophes is imminent, and on this night, the town has never slept sounder.



Depiction of the audibility of the explosion.
Reports confirm hearings from France, Belgium
and the Netherlands

Buncefield Oil Storage and Distribution Depot sits on the east end of town. Tanker 912 is being filled with petrol, but it's taking an unusually long while. The fill gauge has failed, sticking in place at the halfway mark, and the tanker has now reached maximum threshold. Multiple contingencies are in place however; the independent high-level switch automatically engages when the tanker is overfilled. This is assuming that the check lever is padlocked into a working position. It isn't. Secondary and tertiary containment systems fail, and petrol is soon spilling onto the tanker site. Meanwhile, a sinister vapour cloud begins to form, huddling itself around 912. Fuel races offsite, even reaching ground water. Millions of litres of fuel is now flooding the depot. One by one, floodlights all around the site are shrouded by the cloud. Witnesses report coughing over the stench of fuel, along with the sight of people running for their lives from the exit gates. By 6:00, the cloud bounds over the site walls, invading adjacent carparks and roads. At 6:01, the town is awoken to rumbling in the ground, which swells to a colossal roar. The vapour cloud ignites, the thunder is so loud it immediately scars the town for life. It's heard across the entire country, and even western Europe. A supermassive aerial explosion flings enormous fire-balls into the air, and the surrounding tanks catch fire instantly in a terrifying, deadly chain reaction.



The depot shrouded in flames hours after explosion
[Credit: Hertfordshire Police/PA]

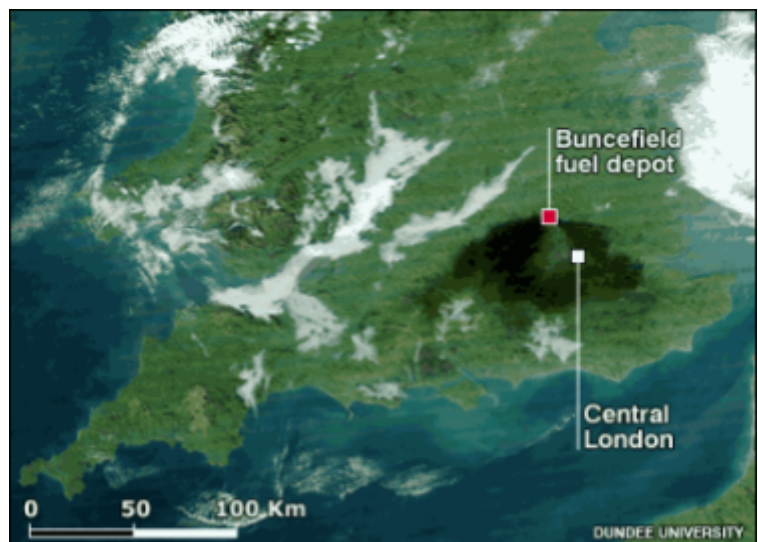
The night was broken by a great inferno towering over the eastern horizon. Doors were knocked from their hinges, windows were smashed, roofs imploded. Fear pierced through the streets of Buncefield, as hundreds of residents fled their houses in horror. The sheer force and deafening sound of the blast struck fears of terrorists, plane crashes and nuclear weapons. Hysteria ensued, there was a chaotic medley of burglar alarms, car alarms, barking dogs and terrified people. Emergency services raced to action in seconds. Batchelor and his crew arrived at the scene first, and no fire fighter that day would ever see anything like it. Buildings were completely destroyed, rubble coated the roads, and silhouettes of the fuel tanks — knee-high to the flames, which towered hundreds of feet above, an image akin to the end of the world. The crew were lost for

words, it was *The Big One*, the Buncefield explosion, the hypothetical disaster they knew would one day come. Batchelor informed control and declared a major incident - the biggest call a fire officer can make, usually only reserved for those much higher in the ranks. Within minutes, stations across the entire country were summoned, police squads quickly formed cordons (strictly monitored areas only accessible to authorised personnel) and evacuated over 2000 people from the surrounding area.



The mammoth smoke cloud rises from the depot [CC: Peter Macdiarmid/Getty Images]

On-site fire equipment and water supplies were completely destroyed by the explosion. Even if they were available, the crew knew it would be inconsequential, it would take dozens of fire crews and an unimaginable amount of foam concentrate to tackle the blaze. The sun rose, but the sky over Hemel was blackened by a mammoth smoke cloud that would billow for days to come. The smoke would eventually be carried over London, and was bound for Europe. Two hours after the explosion, the initial defence plan was ready to commence, and the UK's major incident command system is engaged.



Satellite photos of the smoke cloud dispersing | 11 December 2005, 13:36 GMT | Image courtesy: Dundee University



The command system is designed to coerce immediate response and cooperation from emergency forces in a national crisis

The first hours were the most terrifying for firefighters. The amount of foam needed to tackle the blaze would not be available for at least 24 hours, but the longer the fire is left unmanaged, the quicker it could overwhelm the remaining tanks. The firefighters had to act, and only one uncontaminated on-site water reservoir remained, “that was one of the most dangerous tasks we’ve ever done”, said Andrew Glynn, leading firefighter among the Buncefield frontline. “To your left, a wall of fire, to your right, 40 ft high tanks — bombs — primed to explode at any moment.” A ravine of death serving as the only path to the reservoir. “We needed the reservoir to set up a water curtain and shield the tanks. Either that, or they’ll just get hotter and hotter...” Fixed ground monitors and fire engines maintained water defences throughout the day and into the night. The fire still raged, but was now contained and monitored. “You can’t directly fight a fire until you have everything to hand. This part was just a waiting game, and that whole night the flames just danced around the tankers. The only thing you could really do was laugh about it. It was unreal.”

A mountain of foam supplies began to form, wheeled in on cargo lorries and tankers carrying 1000-litre containers. Factories doubled their production of the compound, donations from fire stations and forces from across the nation were escorted by police for hundreds of miles. Government intervention ensured a bulk shipment of foam en-route to Scandinavia was diverted back to the UK. The scene was set — at about 8am on Monday, the real fight began. “We all smiled, we already knew we were gonna flatten this [fire]. Beforehand we were just fighting for survival, versus the power to completely choke the



A crumpled tank is doused in foam
[Credit: Stefan Rousseau/PA Images]

flames.” Foam cannons capable of delivering up to 40,000 litres of foam per minute delivered an onslaught from all directions. A snowy white blanket began to form, and the fire finally began its retreat. “We refused to go off-duty. It was still extremely dangerous, but a whole country of us came together for this. It was the biggest fight of our lives, it became personal.” The operation lasted for three days. Each extinguished tank remained a high-risk hazard, the wind could whisk the foam blanket away at any minute and expose the fuel to reignition. High risk conditions constantly presented themselves but firefighters persevered. By Tuesday evening, the flames were snuffed. The extreme conditions and risk made the past three days a life-threatening operation for hundreds of firefighters, it’s nothing short of a miracle then, that only two serious injuries were sustained, with zero fatalities.

An exercise in sleep deprivation, willpower, and bravery. Firefighters from all over the country banded together to fight what the country called ‘the biggest fire in peacetime Europe’, marching into the very inferno from which an entire town ran for their lives. All too often does the fire service’s bravery go unnoticed, but, at long last, the nation got to witness these triumphant heroes in all their glory.



LF Andrew Glynn on the second night of the biggest blaze he has ever seen [Photo: Hertfordshire Fire & Rescue]