Buncefield 20 years on: Turning lessons into safer industry practices

- Two decades after one of Europe's largest industrial incidents, the legacy of Buncefield continues to shape safety standards across the UK's major hazards sector

This week marks 20 years since the Buncefield explosion in Hertfordshire – one of the largest industrial incidents in Europe and the UK's largest peacetime explosion.

The incident

In the early hours of Sunday 11th December 2005 explosions occurred at Buncefield Oil Storage Depot, Hemel Hempstead, Hertfordshire.

In the early hours of 11 December 2005, a storage tank at the Buncefield oil storage depot overfilled, releasing a massive petrol vapour cloud that spread beyond the site perimeter and ignited. The resulting explosions and fires caused widespread damage and disruption, forcing thousands of residents and businesses to evacuate.

Remarkably, no lives were lost. However, the impact on people, property and the environment was profound. More than 2,000 homes and 600 businesses were affected, with damage extending several kilometres beyond the site. The incident left a lasting mark on the local community and fundamentally changed the UK's approach to managing major hazard risks.

Investigation and accountability

The Health and Safety Executive (HSE) and the Environment Agency (EA) jointly led one of the most extensive industrial investigations in UK history. The work involved detailed forensic analysis, engineering assessments and consultation with industry experts to determine how the incident occurred and

what could be learned.

The investigation identified systematic failings in tank level monitoring, overfill prevention and safety management systems. Weak oversight and inadequate controls allowed large quantities of petrol to overflow undetected, leading to the release of a vapour cloud that ignited with catastrophic force.

Following the investigation, the operating companies and site owners were successfully prosecuted under the Health and Safety at Work Act. The courts imposed multi-million-pound fines, setting a precedent for accountability in major hazard industries. The case outcomes reinforced the responsibility of operators to maintain robust systems for preventing and mitigating major accidents and the importance of Process Safety Leadership.

The Health and Safety Executive (HSE) and Environment Agency (EA) investigated the incident and secured convictions against five companies, who were ordered to pay almost £10m in combined fines and costs.

Learning and reform

In the aftermath of the incident, several major reviews and task groups were established to drive improvements:

- The Buncefield Standards Task Group (BSTG) – a joint regulator-industry initiative – developed stronger standards for fuel storage and transfer operations
- The Major Incident Investigation Board (MIIB) published a series of influential reports identifying root causes and recommending wide-ranging reforms to safety leadership, management systems and emergency planning
- The Process Safety Leadership Group (PSLG) was created to oversee implementation, producing its 2009 final report which set out new benchmarks for overfill prevention, automatic shutdown, secondary containment and process safety management.

Onshore major hazard industries have recently relaunched the Process Safety

Leadership Principles Guidance taking the important opportunity this anniversary offers to promote good practice.

These reports provided a foundation for industry-wide reform, promoting stronger leadership, real-time monitoring, improved reliability of electrical and control systems, and closer collaboration between regulators and operators.

Sarah Albon, Chief Executive of the Health and Safety Executive, said:

“Twenty years on from Buncefield, we remember not only the scale of the incident but also the determination shown by everyone involved to learn from what happened and drive lasting change.

“The comprehensive investigations, reforms to safety standards, and strengthened collaboration between regulators and industry have created a legacy that continues to protect people and places today. Buncefield demonstrated that when we face serious challenges head-on with transparency and commitment to improvement, we can fundamentally change how major hazards are managed.

“As HSE, we remain committed to applying these lessons, working closely with industry and our regulatory partners to ensure the highest standards of safety and environmental protection across all major hazard sites in Great Britain.”

Legacy and ongoing impact

Two decades on, Buncefield remains a defining moment in UK major hazards safety regulation. The incident exposed critical weaknesses in risk management and highlighted the importance of learning, transparency and continuous improvement in the robust oversight of major hazard sites.

Since then, HSE and the EA have worked with industry and international partners to strengthen safety standards, enhance risk management and ensure consistent enforcement where failings occur.

The lessons of Buncefield continue to shape not only how onshore major hazard industry operates, but how HSE itself develops as a regulator. Investing in people, building capability and fostering a culture of learning remain central to HSE’s mission.

Ken Rivers, Board Member for Health and Safety Executive said:

“Buncefield has led to profound changes not just in the operational, technical and regulatory aspects of managing major hazards but also in leadership, and the way industry and regulator work together in the UK.

“It led industry to becoming more self-disciplined, taking ownership, and it led to a more mature and collaborative relationship with the regulator.

“The impact of Buncefield remains with us today continuing to stimulate industry and regulator to work together to protect people and places.”

The Buncefield anniversary is an important reminder that vigilance, leadership, continuous learning and robust regulation are essential to protecting people, communities and the environment.

Notes to editors:

- The Health and Safety Executive (HSE) is Britain's national regulator for workplace health and safety. We are dedicated to protecting people and places, and helping everyone lead safer and healthier lives.
- Buncefield section on our website: Buncefield – HSE
- Process Safety Leadership Group (PSLG) guidance: Buncefield Response Programme

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Tree specialists fined after worker falls from height

- Worker suffered life-altering back injuries after falling from a MEWP basket.
- HSE found the company failed to plan, supervise or safely carry out work at height.
- AP Tree Specialists Ltd fined £20,000; director fined £1,000.

An arboriculture company based in Derby has been fined £20,000 after an employee suffered life-altering back injuries when he fell over 30 feet from a MEWP basket.

An employee of AP Tree Specialists Ltd had been carrying out tree surgery from the basket of a mobile elevating work platform (MEWP) at a mobile site in Derby on 25 January 2024. When the machine stopped working while elevated, there was no one on site who could bring the basket safely to the ground. The employee attempted to abseil from the basket, resulting in a fall to the ground.


The basket of a mobile elevating work platform (MEWP)

An investigation by the Health and Safety Executive found that AP Tree Specialists Ltd failed to plan, appropriately supervise and carry out work at height in a safe manner. The company had not completed a suitable and sufficient risk assessment for work at height activities, and employees were not appropriately trained in the use of lifting equipment.

The director, Matthew Scholes, was acting as site supervisor at the time and was directly involved in decisions and actions that led to the injuries sustained by the employee.

The Work at Height Regulations require employers to ensure that work at height is properly planned, appropriately supervised, and carried out safely. Where lifting equipment is used, HSE guidance states that operatives must receive appropriate training, and that rescue planning, equipment and personnel must be considered as part of site assessment. Further guidance is freely available in HSE's *Safe Use of Lifting Equipment* (LOLER) Approved Code of Practice.

AP Tree Specialists Ltd pleaded guilty to breaching Section 2(1) of the Health and Safety at Work etc. Act 1974. The company was fined £20,000 and ordered to pay £6,956 in costs at Birmingham Magistrates' Court on 3 December 2025.

Director Matthew Scholes pleaded guilty to breaching Section 37(1) of the Health and Safety at Work etc. Act 1974. He was fined £1,000 and ordered to pay £400 in costs.

HSE investigating inspector, Kerry Scott, said: "This incident could have been avoided if AP Tree Specialists Ltd had planned the work at height with suitable and sufficient risk assessments and safe systems of work, including a rescue plan. They should have provided the employee with the correct information, instruction and training for working at height and for using the lifting equipment. HSE will not fail to take action where companies and directors do not ensure the health and safety of their employees."

This HSE prosecution was brought by HSE enforcement lawyer Arfaq Nabi and supported by paralegal officer Thomas Smith.

Notes to Editors:

1. The Health and Safety Executive (HSE) is Britain's national regulator for workplace health and safety. We are dedicated to protecting people and places, and helping everyone lead safer and healthier lives.
2. More information about the legislation referred to in this case is available.
3. Further details on the latest HSE news releases is available.
4. Relevant guidance can be found here **Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22**.
5. HSE does not pass sentences, set guidelines or collect any fines imposed. Relevant sentencing guidelines must be followed unless the court is satisfied that it would be contrary to the interests of justice to do so. The sentencing guidelines for health and safety offences can be found here.

Manufacturing firm fined after apprentice suffers serious injuries

- 18-year-old was still learning how to operate machinery when incident occurred
- Harry now has to live with permanent scarring and a loss of feeling on the side of his chest.
- HSE guidance on preventing access to dangerous parts of machinery is available.

A manufacturing company in Newbury has been fined £187,600 after the shirt of an apprentice got caught in machinery.

Harry Pullen, who was 18 years old at the time, was pulled into a radial-arm drill resulting in three broken ribs and needing skin grafts.


The radial-arm drill

He had been working as a machinist for Power and Energy International, manufacturing industrial valves and filters, for less than a year when the incident occurred on 10 July 2023.

The apprentice was still learning how to operate the different machines involved in manufacturing. He was left with a large piece of skin removed from his chest, hospitalised for five days and unable to work for six months.

An investigation by the Health and Safety Executive (HSE) found that Power and Energy International had failed to take appropriate measures to ensure the safety of their employees. The company's radial-arm drills did not have adequate guarding. Machine operators, including Harry, had not been properly trained on using the safety features. The company was also found to have made modifications to the radial-arm drill which increased the risk of operators getting caught and pulled into the machine.

HSE guidance states employers must properly assess risks and take effective measures to prevent access to dangerous parts of machinery. This is normally achieved with fixed or adjustable guards but where this is not practicable other protective devices may be needed that stop the movement of dangerous parts. Employers must also ensure that they provide their employees with the necessary level of information, instruction, training, and supervision to enable them to work safety with the equipment they use. Guidance on health and safety in engineering workshops can be found on the HSE website: Health and safety in engineering workshops – HSE

Power and Energy International Ltd of Stanley Street, Salford, pleaded guilty to breaching Section 2(1) of the Health and Safety at Work etc. Act 1974. The company was fined £187,600 and was ordered to pay £7,464 in costs at a hearing at High Wycombe Magistrates Court on 8 December 2025.

After the hearing HSE inspector, Peter Crees, said: "The fine imposed on Power and Energy International underlines the importance of having effective controls to protect workers who operate radial-arm drills and other

potentially dangerous machines.

“Harry’s injuries and the suffering it caused both him, and his family, could have easily been avoided.”

Harry now has to live with permanent scarring and a loss of feeling on the side of his chest. He said: *“I would not go back on a radial arm drill… it’s not something I ever want to do again.”*

This HSE prosecution was brought by HSE enforcement lawyer Iain Jordan and paralegal officer Melissa Wardle.

Further information:

- The Health and Safety Executive (HSE) is Britain’s national regulator for workplace health and safety. We are dedicated to protecting people and places and helping everyone lead safer and healthier lives.
- More about the legislation referred to in this case is available.
- Further details on the latest HSE news releases is available.
- Guidance on the use of work equipment is available.
- HSE does not pass sentences, set guidelines or collect any fines imposed. Relevant sentencing guidelines must be followed unless the court is satisfied that it would be contrary to the interests of justice to do so. The sentencing guidelines for health and safety offences in Scotland can be found here.

A matter of life and death: why businesses must check their bins

Every winter, as temperatures drop, some of Britain’s most vulnerable citizens seek shelter wherever they can find it. For rough sleepers, a large commercial waste bin might seem like temporary refuge from the cold. But this desperate act of survival can quickly become a death trap.

In May 2024, Vitalij Maceljuch, 36, climbed into a cardboard recycling bin behind a kitchen store in Chester seeking shelter. Hours later, the bin was collected and tipped into a waste lorry. Despite the driver following proper checking procedures (looking into the bin, calling out, and shaking it on the lorry’s forks), Mr Maceljuch was not discovered until his body was found on a conveyor belt at a recycling depot in Flintshire. The coroner concluded he died from severe head and neck injuries, likely caused by being crushed.

This tragedy serves as a stark reminder that this is not a theoretical risk. It is a real and present danger that demands continued vigilance from

businesses and waste collection services alike.

This video from the Environmental Services Association gives waste operatives an overview of how to check if someone may be sleeping inside or around a waste container and what to do if you do find someone:

The Health and Safety Executive (HSE) has published comprehensive guidance on preventing people getting into large waste and recycling bins, developed in partnership with the Waste Industry Safety and Health (WISH) Forum. This guidance sets out simple, practical measures that can save lives.

Tim Small, HM Principal Inspector of Health and Safety for Waste and Recycling, said: “No one should die because they sought shelter from the cold. Businesses and waste collectors have a clear responsibility to implement simple checks that can prevent these entirely avoidable tragedies.”

The solution lies in two fundamental approaches: preventing access to bins in the first place and checking bins before they are emptied. Neither of these measures requires significant investment or complex procedures. What they require is vigilance, particularly during the colder months when rough sleepers are most likely to seek shelter.

Businesses managing bin storage areas should review their waste-storage arrangements. These are the risk factors that increase the likelihood of tragedy:

- Bin areas that are isolated, dark, and easily accessible
- Bin lids that are unsecured and easy to open
- Storage containing dry materials like cardboard and textiles that might attract those seeking comfortable shelter
- Areas stored for long periods, unemptied and undisturbed

The Waste Industry Safety and Health Forum’s guidance makes clear that waste producers and businesses managing bin storage areas have the primary responsibility for ensuring people do not get into bins. Where practicable, this means locating bins in secure areas, ensuring proper lighting, and training staff to watch for and report signs of people attempting to access bins.

Where there are signs of people getting or trying to get into bins, businesses should use appropriate bin types to minimise risks. Those with lid locks, lid-opening restrictors, fixed or lockable grilles, or other access-restrictors. These security devices must be properly maintained and used at all times. During periods of cold or wet weather, these checks become even more critical.

Employees who discover someone in a bin need to understand how people in such vulnerable circumstances are likely to behave and how to manage the situation and their own safety. There is potential for aggression or violence, and workers should not attempt to restrain anyone, especially if they try to flee. The priority is helping people get out safely and reporting the

incident appropriately (including under RIDDOR regulations if there are fatalities or serious injuries requiring hospital treatment).

As we approach the coldest time of the year, every business that manages commercial waste bins should review their procedures. Recording incidents where people are found in or near bins (even when no injury occurs) and sharing this information between waste producers and collectors can help all parties assess whether their control measures are adequate and identify where improvements are needed.

These are simple measures. They cost little. But they could save a life.

Notes to editors:

- The Health and Safety Executive (HSE) is Britain's national regulator for workplace health and safety. We are dedicated to protecting people and places, and helping everyone lead safer and healthier lives.
- Full guidance: Preventing people getting into large waste and recycling bins on HSE.gov.uk
- Industry guidance: Waste Industry Safety and Health Forum (WISH) guidance on managing access to large waste and recycling bins (scroll down to ref no WASTE25).
- Watch: Situational Awareness: People in Bins (an industry awareness video for waste operatives)
- Posters and information cards: Awareness post.pdf, Situational awareness – huddle card – fit for work.

Metal polishing company fined after employee's hand crushed in machinery

A metal polishing company in Oldbury has been fined following an incident in which an employee's hand became entangled in an unguarded tube polishing machine, resulting in the amputation of one finger and severe crushing injuries to two others.

Nathan Watkins was working for FMP West Midlands Limited in Oldbury, West Midlands, on 8 July 2024, when he was loading a tube polishing machine. The machine had faulty rollers, which required Mr Watkins to lean over and straighten the metal tubes. As he did so, his left hand became entangled in the machine's unguarded cogs and chains.

Mr Watkins' left ring finger was severed to the first knuckle, his middle finger was crushed requiring an operation to have a metal rod inserted, and his index finger was crushed, requiring multiple surgeries. The 35-year-old has undergone eight surgeries and requires further operations. He has been unable to return to work since the incident.

Mr Watkins said: “I have gained some strength back in my hand, but it is very tender and painful.”

An investigation by the Health and Safety Executive (HSE) found that FMP West Midlands Limited failed to prevent access to dangerous parts of machinery, namely the rotating cogs and chains on the rollers.


Tube polishing machine

HSE provides clear guidance under the Provision and Use of Work Equipment Regulations 1998 on preventing access to dangerous parts of machinery. The first consideration should be physically enclosing the dangerous part with fixed guards to prevent access, which should be securely attached and not easily removed. Further guidance can be found at HSE’s website: Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22)

FMP West Midlands Limited, of Rood End Road, Oldbury, West Midlands, pleaded

guilty to breaching regulation 11(1) of the Provision and Use of Work Equipment Regulations 1998. The company was fined £24,000 and ordered to pay a £2000 victim surcharge and £4,073.10 in costs at Birmingham Magistrates' Court on Friday 5 December.

HSE inspector, Taila Phelan, said: "This incident was entirely preventable. There is clear and long-standing guidance on machinery guarding to prevent access to dangerous parts. The failure to maintain proper guarding standards is not acceptable and too many workers are still being injured by machinery due to employers not taking the necessary steps to protect their employees.

"The tube polishing machine was not up to safety standards. Had FMP West Midlands Limited installed suitable guarding, this life-changing injury would not have occurred.

"The fine imposed should send a clear message to industry that HSE will not hesitate to take enforcement action against those who fail to comply with health and safety regulations."

This prosecution was brought by HSE enforcement lawyer Edward Parton and paralegal officer Jorge Kemp.

Further information

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