Still image from Buncefield video – Image: ECFIO

What's the most effective way to **improve integrity across the board?**

If you're reading this, there is a good chance you have already learned a great deal from Buncefield. You may even remember the frozen gauge, the missing padlock, the vapour cloud drifting off-site, and the explosion that registered 2.4 on the Richter scale.

The question I now ask myself on every site visit is not "what happened at Buncefield?", but instead "who on this shift can tell that story – and explain why it matters here?"

Over the last twenty years of working with COMAH and major-hazard sites, we've watched the most valuable stories slowly disappear from control rooms and toolbox talks. Apprentices, graduates, contractors, even some supervisors look blank when major incidents are mentioned by name.

The technical layers of protection are stronger than they were in 2005. But the cultural layer, the shared understanding of why those layers exist, is quietly degrading. And the cheapest, most powerful way to rebuild that layer is the one we use least: effective storytelling grounded in real events, because this is weaved into the very fabric that has kept us alive for millennia.

Why Buncefield still matters

For those of us who were in the industry at the time, Buncefield is not a PowerPoint slide. It is the realisation that a site widely regarded as "low risk" could produce Britain's largest peacetime explosion because:

- The major-accident hazard (a large, unconfined vapour-cloud explosion) was dismissed.
- Risk assessments underestimated both likelihood and consequence.
- A "like-for-like" gauge replacement changed how the protection systems behaved, without robust Management of Change.
- Contractors carried out work without fully understanding the process safety implications.

Every one of those failings still appears in audits today. Buncefield also highlighted how multiple small weaknesses can align:

- An automatic tank gauge that flat-lined, preventing level alarms from triggering.
- An independent high-level switch left effectively in test mode after a replacement, so it could never trip.
- Operators managing more tanks, more alarms and more complexity than the system design really allowed for.
- An emergency response plan written for a pool fire, not a large vapour cloud.

These details matter, not because they are interesting, but because they are familiar. Almost every site has its own versions of these vulnerabilities.

"It can't happen here" – the phrase that should always prompt investigation

In 2005, the most common reaction from other terminals was simple: "It couldn't happen here."

Different products, different layout, different culture – therefore safe. Buncefield demonstrated how dangerous that assumption is. It also showed how easily learning stays local. Many organisations made serious improvements in the years that followed. Some of those improvements were copied across sectors and boarders. Yet as time passes, the memory of why those improvements were made is fading. This is evident in similar events that have occurred subsequently.

If we want integrity "across the board"

Still image from Buncefield video – Image: ECFIO

rather than in pockets (both puns intended), we have to address that memory gap directly.

What industry got right

The post-Buncefield response was substantive. Among other things, sites have:

- Reviewed the hazards on site along with the risks they could pose.
- Adopted high-integrity overfill protection (SIL-rated trips) where appropriate, and the rigour that goes with them.
- Re-examined primary, secondary and tertiary containment – bunds, drainage and site layout.
- Implemented better alarm management and human-factors guidance.
- Strengthened process-safety leadership expectations through the COMAH Strategic Forum and PSLG.
- Embedded the 25 Buncefield recommendations into regulation and standards.

These changes have reduced risk, particularly in the fuel storage and downstream sectors. Risk should be evidently lower than it was twenty years ago. The danger is assuming that this improvement is permanent.

The pressures working against those improvements

Two trends are opposing our desired trajectory:

1. **Ageing assets** – Many facilities are operating well beyond their original design life, sometimes with new inventories, operating modes or throughputs. Protection systems installed after Buncefield are themselves ageing. Without sustained proof testing, configuration control and competence, their integrity is degrading.
2. **A maturing workforce** – Thousands of people who lived through Buncefield, Piper Alpha, Texas City and the cultural shift that followed are retiring. Their lived experience – the "I remember where I was when I heard" stories – is walking out of the gate.

Kletz's observation is blunt but accurate: "Organisations have no memory – only people do." When those people leave, unless we deliberately hand the memory on, the organisation forgets. That loss of corporate memory is fast becoming one of the biggest under-recognised risk factors on many sites.

What you can do: three questions, five actions

After the prosecutions, Gordon MacDonald posed three questions that still form the best quick health-check any organisation has:

1. Do you know what major-accident hazards you have on your site?
2. Do you know what safeguards you have in place to control them?
3. Can you demonstrate that those safeguards are fully effective today?

Most sites can answer "yes" on paper. The real test is whether the people who operate, maintain and manage those safeguards can answer "yes" in practice. Here are five actions you can take – whatever your role – to keep the answers honest and the memory alive:

1. **Talk about real events in briefings and handovers** – Use the Buncefield video or other credible resources to start the conversation. Replace generic phrases like "major loss of containment" with real examples people can picture.
2. **Make the link explicit between every key control and the incident it came from** – When you discuss a procedure, alarm, trip, bund or inspection regime, ask: "Which incident, here or elsewhere, drove this requirement?" Write that link into the procedure or training material. It is harder to justify bypassing a safeguard when everyone can see what it is there to prevent.

3. **Capture knowledge from people who are leaving or changing role** – Build structured interviews, mentoring and handovers into retirement and succession plans. Ask not only "How do we operate this plant?" but also "What went wrong before?" and "What still worries you about this place?"
4. **Revisit your hazard identification with fresh eyes** – Re-run key studies with today's inventories, throughput and workforce profile in mind. Challenge scenarios previously dismissed as "not credible" against event that have occurred in your industry. Buncefield was, in effect, a scenario that people had decided did not need to be considered.
5. **Use exercises and drills to test understanding, not just response** Table-top exercises and emergency drills should probe what people think will happen and why the plan exists, as well as whether they can follow it. Ask participants: "Which real events shaped this plan?" If nobody knows, corporate memory is already thin.

These actions cost very little. They depend more on attention and curiosity than budget. Yet they can significantly strengthen the cultural layer that underpins every technical control.

Creating the Buncefield 20-year video

For many of us, the US Chemical Safety Board has been the gold standard in story-led accident animations. When its future looked uncertain, it prompted a simple question: what can we do ourselves to keep UK industrial memory alive? We decided to focus on Buncefield at twenty years.

We went back to the people who were actually there: HSE and EA investigators, night-shift operators, senior managers, firefighters, and Trade Associations, who have carried the legacy ever since. We asked one question: "What do you most want the next generation to understand?"

The technical answers were familiar. The personal reflections were what stayed with us – the quiet regrets, the moments people still replay, and the determination that no one else should have to go through something similar.

We turned those voices into a short, animated video that tells the story plainly and with the human weight it deserves. It is free for any site to use, suitable for inductions, toolbox talks, safety meetings and leadership sessions

Whilst this video is not a substitute for robust process safety competence, it is a practical tool for prompting the conversations that strengthen the cultural layer that competence sits within. It gives people a shared reference point, a story they can remember, retell and apply.

Still image from Buncefield video – Image: ECFIO

Protecting corporate memory

Major accidents do not happen because we have no standards. They happen when we forget why the standards exist, or convince ourselves that "it can't happen here".

In an industry with ageing assets, a maturing workforce and constant commercial pressure, storytelling is one of the most effective and least expensive, tools we have for improving integrity across the board.

The question is not whether you remember Buncefield. It is what you will do this year, on your site, in your role, to make sure the people who come after you remember it too. ■

About the author

Jon Wallis is an EC&I Engineer and Managing Director of ECFIO Engineering Ltd, and founder of ECI-hub, a specialist consultancy and training provider for high-hazard process industries. He works with duty holders and operators to strengthen EC&I, COMAH, functional safety and asset integrity, embedding IEC 61511, IEC 60079 and DSEAR requirements to improve competency, assure compliance and reduce the risk of major incidents. The Buncfield video can be viewed for free at www.eci-hub.co.uk/resources.