Climate change adaptation

What more have we learnt?

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Environment Agency

Presentation overview

- Recap from TSA24
- Latest developments in Natech and climate knowledge
- Updates to adaptation good and best practice
- Next steps for regulators and operators

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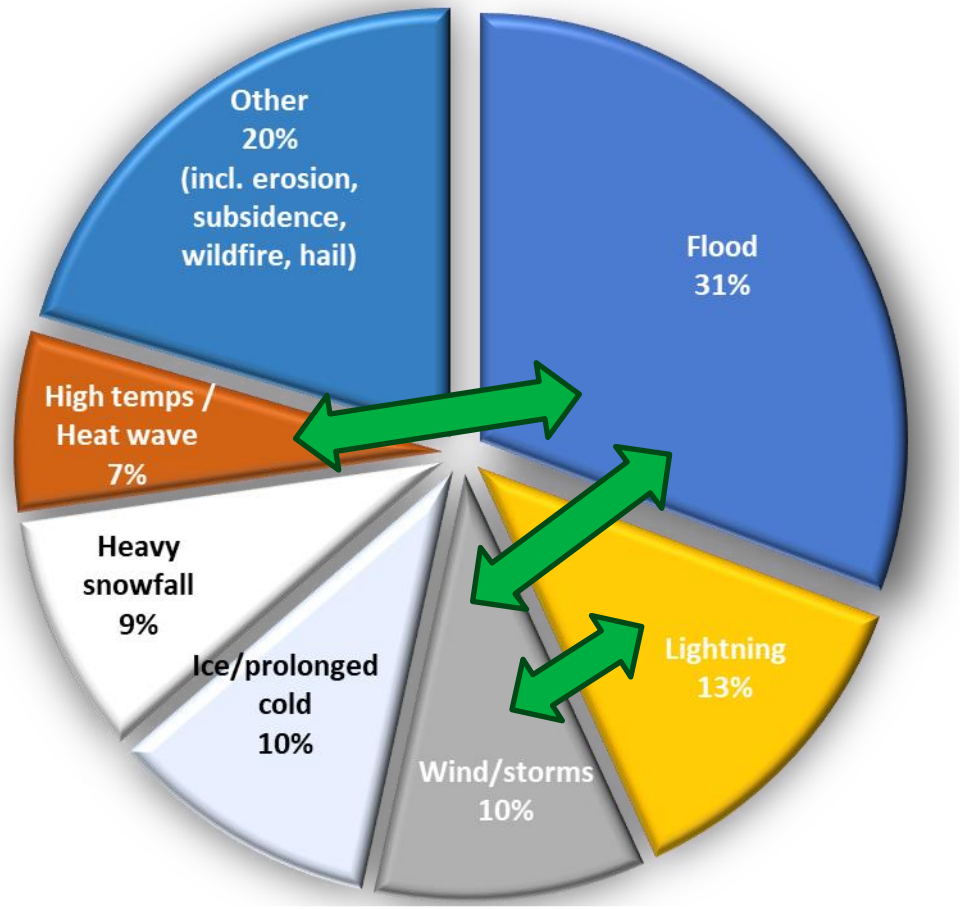
What do regulators expect?

Include consideration of both direct and indirect threats, with Systemic (cascading) and Compounding impacts

The operator of a COMAH establishment would be expected to:

- assess how Major Accident risks associated with extreme weather events and other climate change impacts will vary over the lifetime of their establishment; and
- plan how to respond to these changes, and implement modifications at an appropriate time, to manage both present and longer-term risk to ALARP levels.



Extreme weather threats to GB establishments (Survey by CDOIF, 2021)

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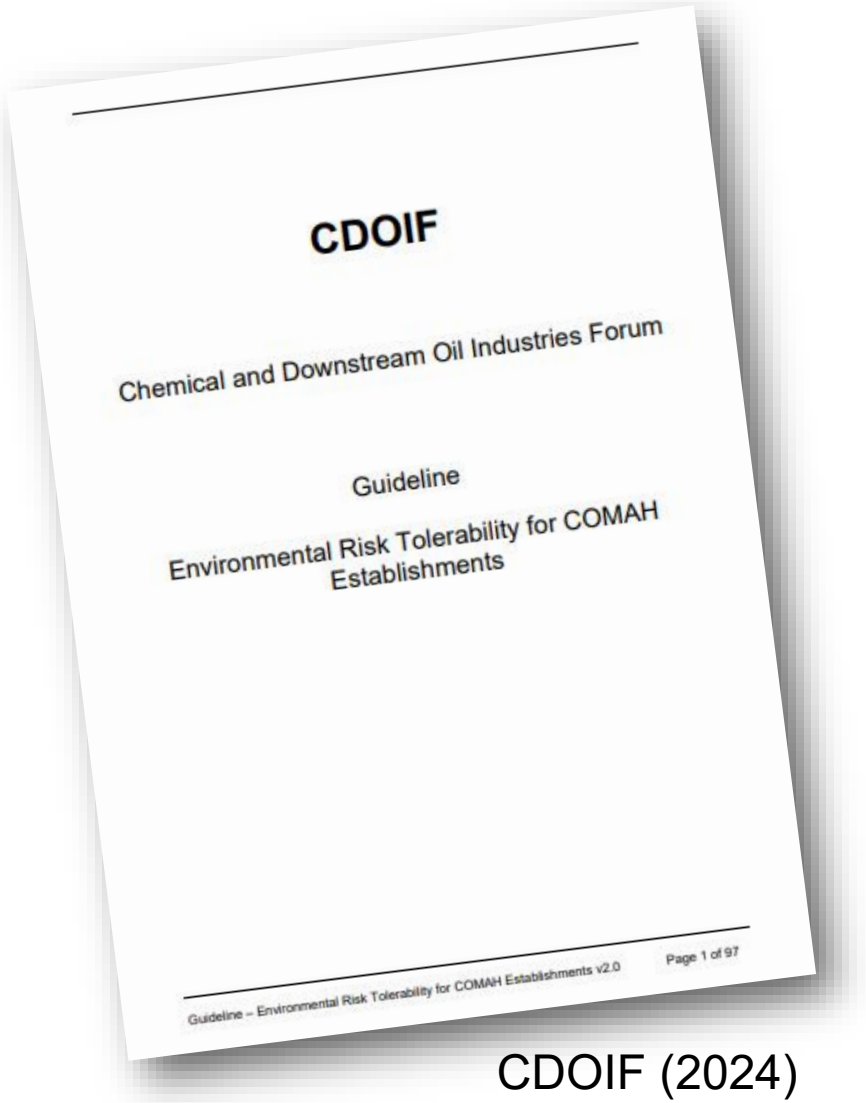
Collaborative guidance and regulatory support



CDOIF (2024)

Regulatory surveys in 2023 found

- The majority of operators gave top management commitment to embed adaptation into their management systems
- However, understanding of how to do this and implementation for resilience is lagging

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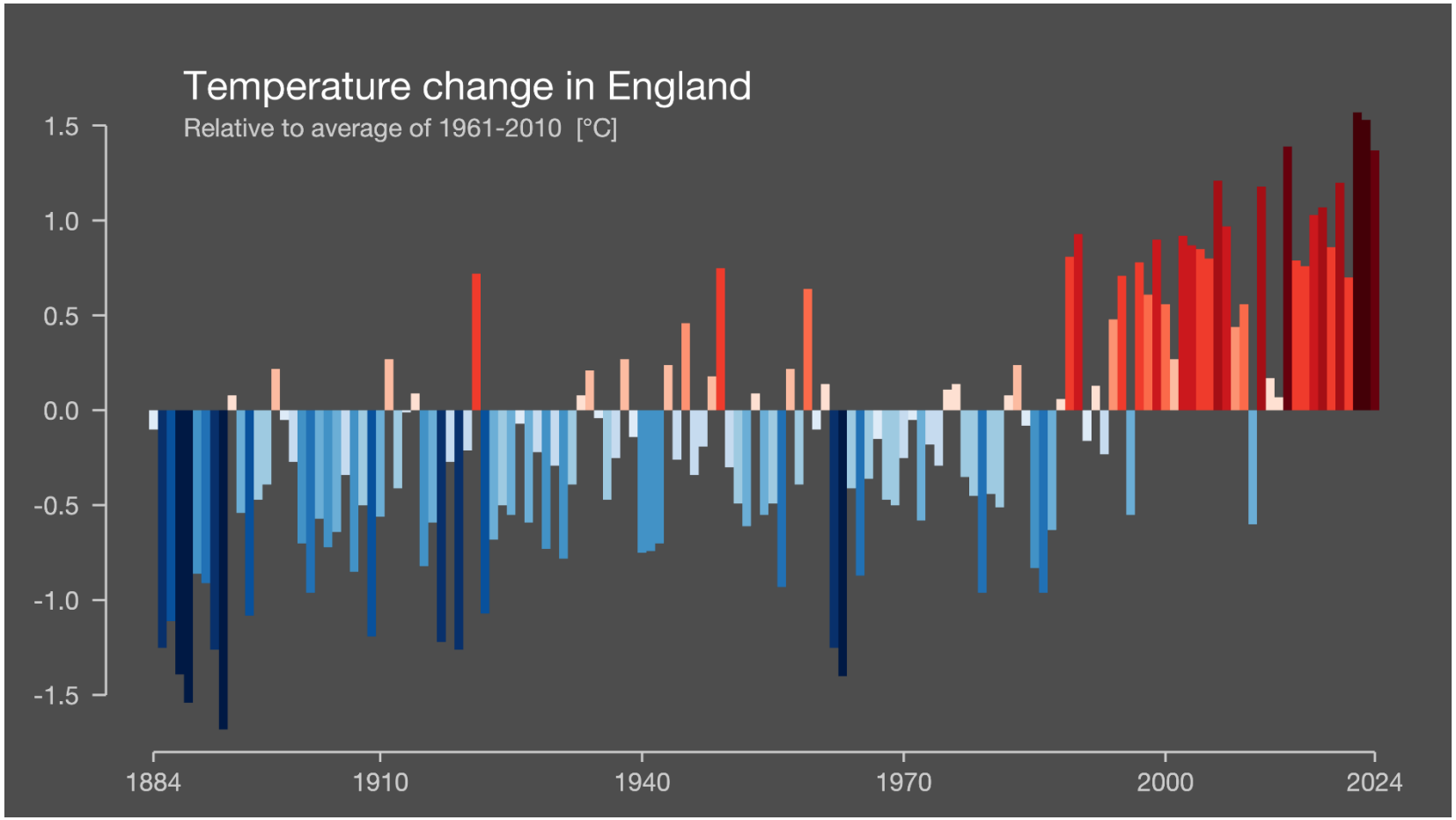
The climate has already changed



Ed Hawkins, University of Reading

England is warming more than global average

Drier summers
Wetter winters
Hotter more often
More intense rainfall
Rising sea level
Increasing storminess
More extreme river flows

Environment Agency - Climate Impacts Tool (2023)

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Extreme weather news, intensifying

18:26

My News

Two injured as car hit by falling branch in storm

The man and woman were airlifted to hospital with serious injuries

Julia Bryson
BBC News, Yorkshire

5 August 2025

Two people have been seriously injured after a large tree branch fell

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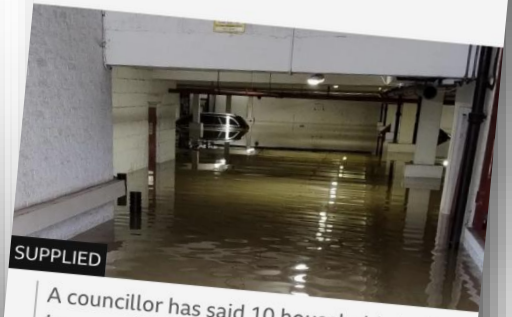
Flats uninhabitable after flood, says councillor



A councillor has said 10 households had to move out of the building after flooding

Matthew Critchell
Local Democracy Reporting Service

10 August 2025

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18:20

Climate

'Sea of sunflowers' thriving as weather changes

Lincolnshire

8 Aug 2025

Lucy Taylor, pictured with her dad Nicholas Watts, said her sunflower crop had thrived during the recent dry weather

A sunflower farmer says her crop has

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Record warm seas help to bring extraordinary new species to UK waters

Climate

11 Aug 2025

Some of the UK's new subsea wonders seen in recent years

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An industrial insurer’s perspective

Climate-induced losses are already material events forcing organizations to develop new strategies and adapt business models to protect their assets and balance sheets.

The reality of climate change means companies have to rethink their infrastructure needs and design. Increasing variability in weather conditions and more frequent natural catastrophe hazards increase the risk exposure of most energy facilities. Operators are challenged with improving the resilience of existing operations today, and elevating climate considerations into expansions or investments

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Several of the incidents the Environment Agency has responded to in recent years resemble precursors to the climate-induced losses reported by Marsh (2024)

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Natech and climate change - a priority intervention topic for the Environmental regulators


COMAH Control of Major Accident Hazards

COMAH Competent Authorities'

Operational Delivery Guide

Inspection of COMAH Operator Natech and climate change adaptation

For the COMAH Competent Authority Partners:

- The Health and Safety Executive (HSE)
- The Office for Nuclear Regulation (ONR)
- The Environment Agency (EA)
- Corff adnoddau Naturiol Cymru / The Natural Resources Body for Wales (NRW)
- The Scottish Environment Protection Agency / Buidheann Dìon Àrainneachd na h-Alba (SEPA)

Version1 - Intelligence gathering and delivery of initial interventions

HSE Environment Agency sepa Cyfoeth Naturiol Cymru Natural Resources Wales ONR Office for Nuclear Regulation

Natech and climate change adaptation – 2025 delivery guide

- Outlines a programme of interventions
- Continuing our informing and enabling strategy
- Links to COMAH requirements and expectations

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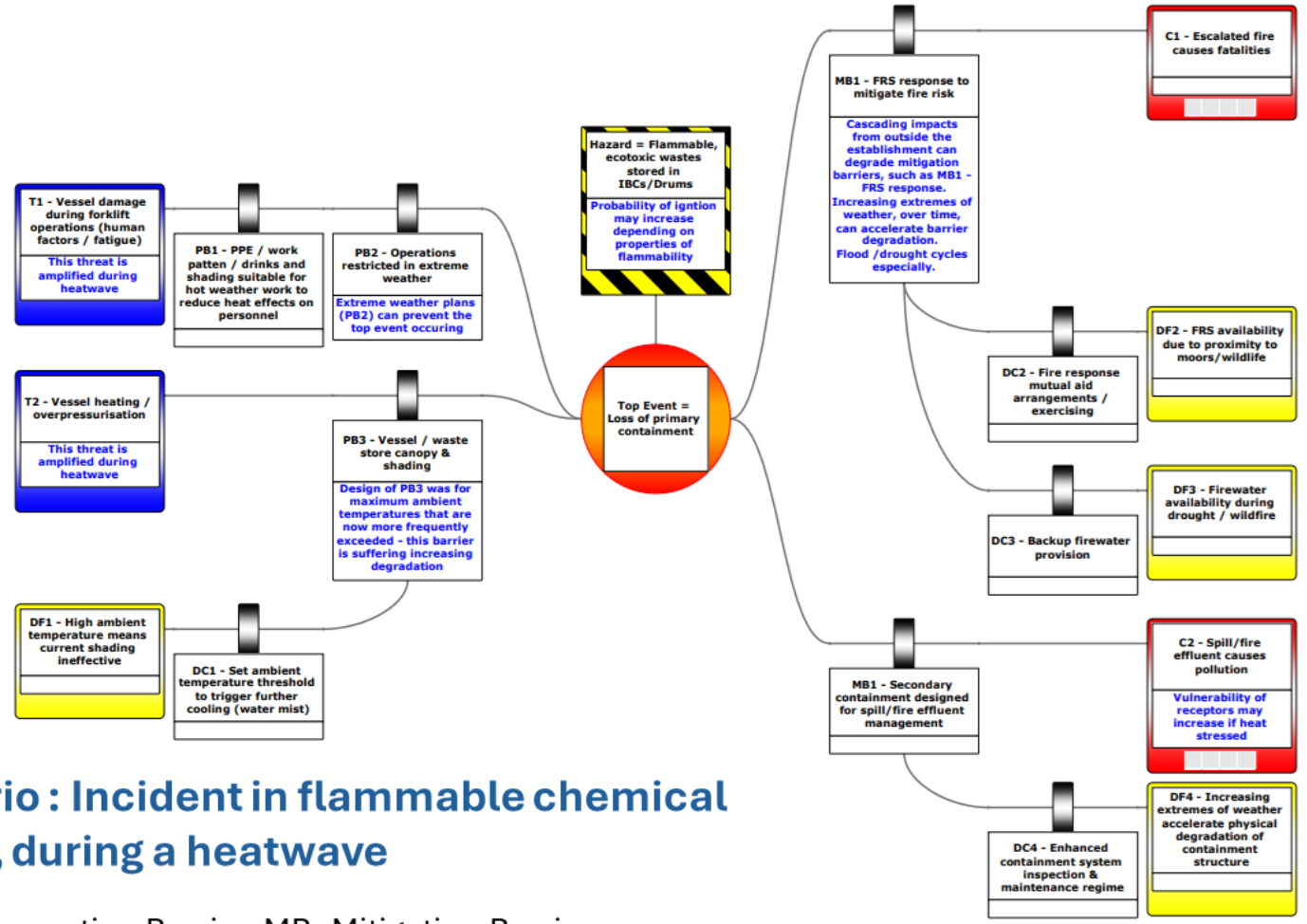
Good process safety management already includes much of the Natech risk reduction toolkit



MAH scenario : Incident in flammable chemical waste store, during a heatwave

T = Threat, PB=Prevention Barrier, MB=Mitigation Barrier, DF=Degradation Factor, DC=Degradation Control, C=Consequence

Produced by Grain LNG who are a Tank Storage Association member, using BowTieXP (Standard) version 12.0.5.0

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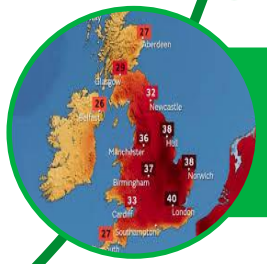
#Natech : The power of story telling

Dronka, Egypt (1994) – Flooding, lightning and running pool-fire. Over 460 fatalities

Great East Japan Earthquake (2011) – Fukushima and much more …….

Norilsk diesel spill (2020) – Aging plant and melting permafrost. Reported $2bn clean-up costs/fine



UK Heatwave (2022) – Waste Chemicals fire, Cylinder explosion, power and data centre impacts, wildfires ……

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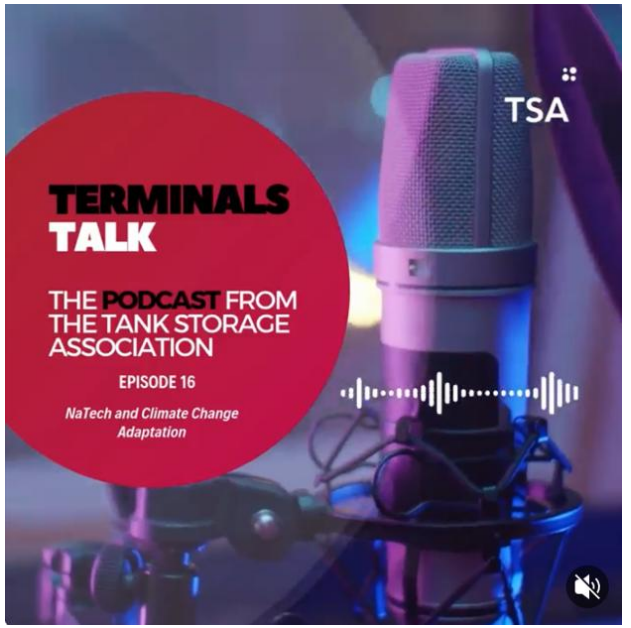
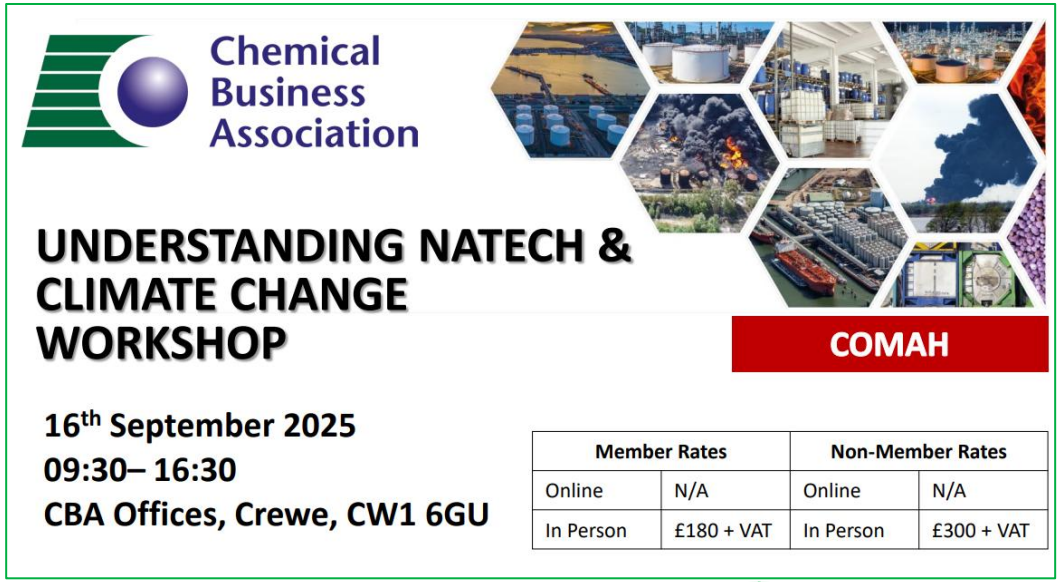
Working with industry

Ongoing work

- CDOIF – Adapting to Climate Change: Good and Best Practice Update
- Process Safety Management Competencies Programme Board – developing a new skills framework
- COMAH Strategic Forum – Adaptation working group: strategic oversight





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Our COMAH regulatory priorities 2025-26

- Natech and climate change adaptation (DG)
- Loss of Primary Containment (emergency preparedness)
- Containment Policy (Secondary and tertiary containment DG)

All underpinned by a sound understanding of MATTE risks and their tolerability (SMS)

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And finally – Buncefield successes

20 years on, we have

- Transformed the way we work with industry
- Improved standards, including for containment and emergency response
- Enhanced process safety leadership & management

ITC Deer Park – 2019
US CSB report

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And finally – Buncefield successes

Because of post Buncefield improvements, including

- Installed ROSOVs
- Upgraded bunding
- Effective emergency plans

one TSA member suffered a loss of primary containment but avoided an incident like this.

Recently avoided in the UK

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