

UK Petroleum Industry Association

Buncefield Five Years On



23 February 2011

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Buncefield five years on – topics

- Background
- Response to the Buncefield Standards Task Group (BSTG) Report
- Response to the Process Safety Leadership Group (PSLG) Report
- The future



Buncefield five years on – Background

- The Buncefield incident occurred on the 11th December 2005
 - The Major Incident Investigation Board (MIIB) Formed directly following the incident, published its final report on what went wrong in the winter of 2008
 - Twenty five recommendations relating to the design and operation of fuel storage facilities:
 - » 9 directly applicable to industry
 - » 2 related to the Environment Agencies response, Containment Policy
 - » 14 relate to the Competent Authority, or to the downstream sector as a whole



Buncefield five years on – Background

- Two key reports published in response:
 - The BSTG formed in 2006 to work in parallel with the MIIB in addressing key recommendations, published its final report in the summer of 2007
 - The PSLG formed in 2007 to complete the work of the BSTG and provide full and comprehensive guidance in addressing all 25 of the MIIB recommendations
- EA/SEPA Containment Policy
 - Published in 2008, in response to Buncefield and other major incidents – addresses how hazardous liquids are stored



Buncefield five years on – Background

- BSTG and PSLG reports produced through collaborative working between industry and the Competent Authority, involving many topic experts and many man hours
- What has happened since publication?



Buncefield five years on – Background

- Scope and applicability:
 - the recommendations apply to above ground finished gasoline storage tanks*, with:
 - » Sidewalls greater than 5m in height, and
 - » Filled at rates greater than 100m³/hour
 - There are 47 sites with in-scope tanks, comprising of
 - » Refineries
 - » Fuel storage terminals

**A full definition can be found in paragraph 24 of the final PSLG report*

Note, Containment Policy scope is wider and applies to gasoline and similar petroleum products



Response to the BSTG Report



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BSTG Response

- **Buncefield Standards Task Group (BSTG)**
 - Worked in parallel with the MIIB in addressing key recommendations, identifying early wins for
 - » Pipeline transfers
 - » Tank overfill prevention
 - » Valves
 - » Containment measures
 - » Shift handover
 - BSTG set deadlines for completion in each of these key areas



BSTG Response

- **Pipeline Transfers**

- A review of procedures handling product transfers is complete, and processes have been updated or are in the process of being updated to ensure a product package can be safely received before transfer starts

- **Tank overfill prevention**

- Tank operating practices, staffing levels and systems have been reviewed to ensure effective safety margins to prevent release
- Initial risk assessments (Layer of Protection Analysis) completed, further guidance provided as part of the PSLG response



BSTG Response

- **Valves**

- Sites have installed, or have scheduled installation of Remotely Operated Shut Off Valves ensuring rapid isolation of gasoline storage tanks



- **Containment Measures**

- Improvements to bund walls and floors continuing, 80% of sites are making satisfactory progress implementing the requirements for secondary and tertiary measures as defined in the containment policy



BSTG Response

- **Containment Measures (Continued)**

- Many sites have already made modifications to bund joints to improve fire resistance
- Significantly upgraded sites have already installed bund liners

- **Shift Handover**

- A review of procedures handling shift handover is complete, and processes have been updated or are in the process of being updated to ensure safe continuation of operations



Response to the PSLG Report



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PSLG Response

- **Process Safety Leadership Group (PSLG)**
 - Completed the work of the BSTG, providing comprehensive guidance for all 25 MIIB Recommendations in the areas of:
 - » Assessment of Safety Integrity Levels
 - » High integrity overfill protection systems
 - » Engineering against loss of primary containment
 - » Engineering against loss of secondary and tertiary containment (Containment Policy)
 - » High reliability organisations
 - » High performance through culture and leadership



PSLG Response

- **Process Safety Leadership Group (PSLG)**
 - Full gap analysis of all guidance (270 pages!) completed summer 2010

Section	MIB D&O Recommendation	Paragraph	PSLG or BSTG Reference[1]	Requirement Number	Requirement	Priority	In-Scope Tanks (Meeting Paragraph 24)				
							Not Implemented	Partially Implemented	Fully Meets Requirements	Meets Requirement SFARP	Not Applicable
Part 1	1	29	PSLG		Noted						
		30	PSLG		Noted						
		31, 32	BSTG	R.1.1	Has a risk assessment[2] been completed for each in-scope tank to determine the necessary layers of protection required?		0	0	0	0	0
		33	PSLG	R.1.2	Where LOPA (or an equivalent technique) has been used as the risk assessment technique, has the guidance in Appendix 2 been followed?		0	0	0	0	0
		34	BSTG		Refer to Part 2 Gap Analysis						
		35	BSTG	R.1.3	Do systems providing a risk reduction of less than 10, which provide a layer of protection considered in the risk assessment, comply with good practice in design and maintenance so far as reasonably practicable?		0	0	0	0	0
		38	BSTG	R.1.4	For tanks which receive product from a remote location, does the receiving site have control of tank filling by means of local		0	0	0	0	0

- High level implementation plan to close gaps completed winter 2010



PSLG Response

- **Assessment of safety integrity levels and overfill prevention systems**
 - LOPA (risk assessments) majority now complete and target SIL levels agreed (March deadline)
 - Implementation schedules for high integrity overfill protection systems submitted and under review
 - To ensure a consistent approach to implementation
 - » Competent Authority formed the Overfill Protection Response Team (OPRT) to centrally review submissions
 - » PSLG formed the Practitioners Group to provide a forum to discuss implementation issues



PSLG Response

- **Assessment of safety integrity levels and overfill prevention systems (Continued)**
 - 19 sites have already implemented safety related overfill protection systems



PSLG Response

- **Engineering against loss of primary containment**
 - Gap assessments completed against guidance, review under way with operators and competent authority
- **Engineering against loss of secondary and tertiary containment**
 - Relates to the EA/SEPA containment policy – see BSTG response



PSLG Response

- **High reliability organisations, Culture and Leadership**

- Issues relating to pipeline transfers, tank operating practices, staffing levels and shift handover tackled under BSTG
- Process Safety Forum (UKPIA, CIA, NIA, OGUK, TSA) established in 2009 to share information, review incident reports, and high level learning's between industry sectors
- Process Safety Alert system up and running through the Process Safety Forum



PSLG Response

- **High reliability organisations, Culture and Leadership (Continued)**
 - PSLG's 'Principles of Process Safety Leadership' addressed by UKPIA's commitment to process safety, two key initiatives currently under way:
 - » Working with COGENT Sector Skills Council to produce a guideline for good competency management (including contractors/third parties)
 - » Developing a self assessment module for 'Successful Leadership'
 - UKPIA members have adopted API RP 754 lagging indicators to report sector level losses of containment, data gathering in progress



The Future



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The Future

- The PSLG is still very much active, with both the steering group and practitioners group chaired by UKPIA
- The PSLG will continue to monitor and expedite progress against each of the 25 MIIB recommendations
- Work will soon begin on how the PSLG report should apply to other products with the potential to form a flammable vapour cloud



The Future

- The collaborative working approach between Industry and the Competent Authority has been a great success, this process is carried forward to the Chemical and Downstream Oil Industry Forum (CDOIF). Key process safety issues are already being addressed:
 - » Environmental Risk Assessment
 - » Overfill prevention and hazard awareness during tanker filling operations
 - » Consideration of how generic good practice in the PSLG report may be of use to other sectors



Final Thoughts

- It is important to understand that significant and very real progress is being made
- Significant investment is required, and is being made by industry in ensuring the MIIB findings are implemented - minimising the risk of a similar incident occurring in the future
- The progress made by industry and the Competent Authority in such austere times demonstrates the commitment to process safety and a commitment to continue working together



More Information

More information on UKIA's commitment to process safety, self assessment tools, and safety alerts issued by the process safety forum can be found on our website:

www.ukpia.com/process-safety.aspx



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