Lessons in the Preparation and Submission of Safety Cases

Australia Onshore MHF Regulatory Environment

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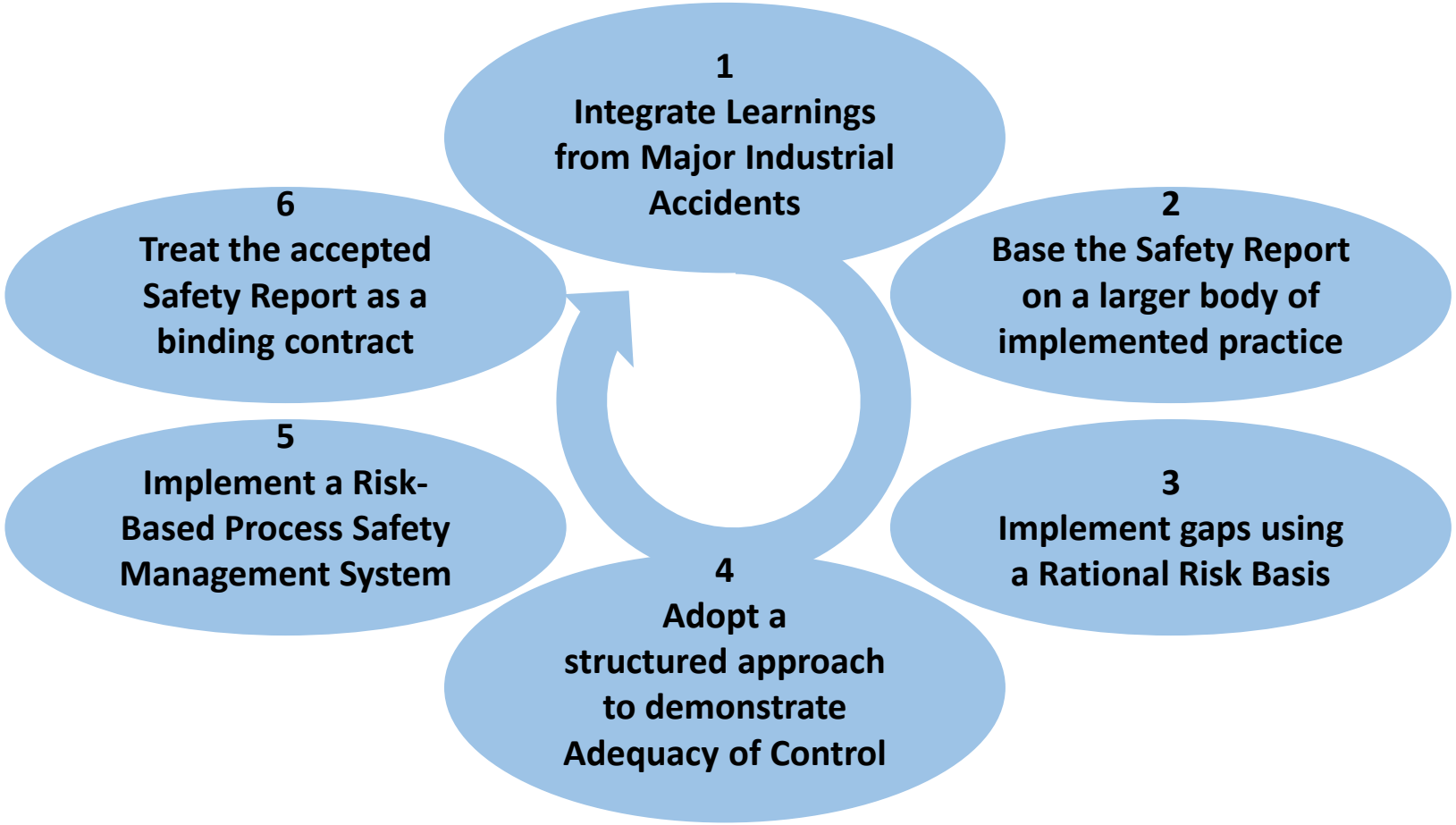
Key Lessons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Integrate Learnings from Major Industrial Accidents
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Base the Safety Report on a larger body of implemented practice
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Implement gaps using a Rational Risk Basis
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Adopt a structured approach to demonstrate Adequacy of Control
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Implement a Risk-Based Process Safety Management System
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Treat the accepted Safety Report as a binding contract

Integrate Learnings from Major Industrial Accidents

- Pre-1970s UK : A Backdrop of widespread industrial accidents prevailed
- Rule-based prescriptive WHS Legislation was proving ineffective
- Post-1970s Roben's Committee recommends self-regulated performance-based WHS
- June 1974 Flixborough UK: Royal Assent of the WHS Act – *"Duty of Care"*
- January 1975: H&S Executive was formed
- July 1976 Seveso Italy : ICMESA Chemical Plant Reactor Explosion
- Seveso Directives in the EC and COMAH Regs in the UK in 1999…
- USA and Australia: have a similar "accident-preceded WHS Legislation reform"…

Performance-based legislation has been shaped by major industrial accidents and the future ones will continue to shape the Regulatory and Industrial context.

Lesson 2

Base the Safety Report on a larger body of implemented practice

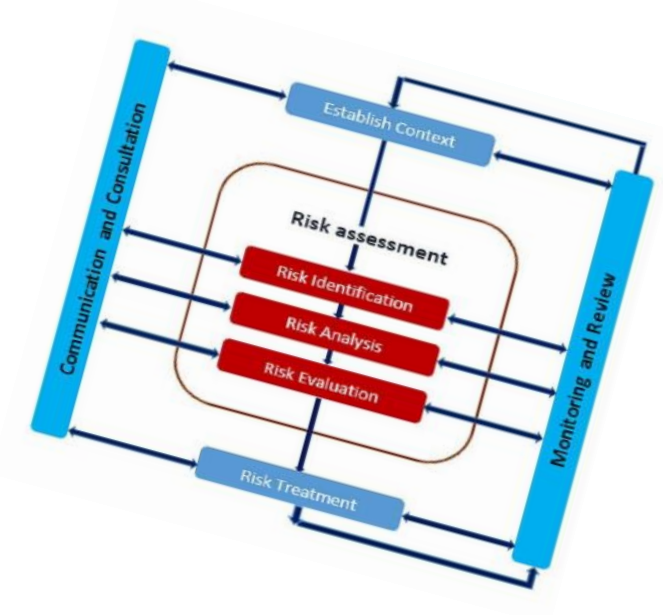
- Accountability for the safety of the asset is defined - person, position, org structure
- A formal Safety Assessment is executed utilizing validated information
- Inherent Safety features and hierarchy of controls are implemented
- Performance Standards are documented and complied with
- A life-cycle management approach is adopted for critical controls
- A fit-for-purpose Process Safety MS has been implemented
- Able to positively demonstrate personnel competence

A safety report is a comprehensive well-structured documented summary of arguments based on existing practice (evidence), that presents the Operator's case for safety to the safety authority

Implement Gaps using a Rational Risk-Basis

Gaps identified against a reference framework are prioritized across the facility on the basis of initial risk profiling e.g.:

- State of implementation of a Process Safety MS
- Application of the MOC Process and outstanding actions
- Application of a Risk Management System
- Validity of the Hazard & Effects Register
- Validity of the site-wide HAZIDs, HAZOPs and Action Closure
- Validity of the Basis of Safety in Design & Operations



Operations can continue under a MOPO provided the risk is managed to ALARP and there is a committed remedial action plan to address the interim controls with a permanent engineered solution.

Lesson 4

Adopt a structured Approach to demonstrate adequacy of Control

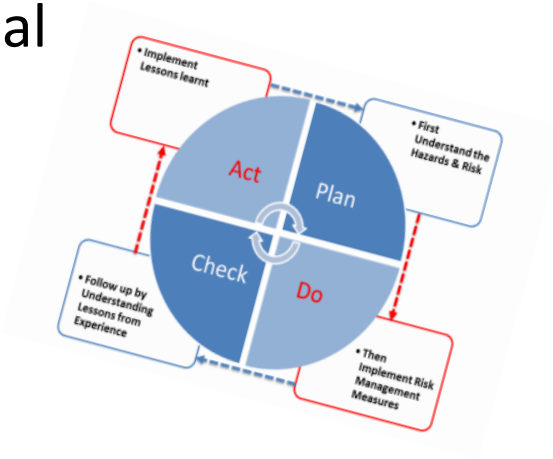
Demonstration comprises summarizing for each major incident:

- The Location Source, Description & initial Risk of the Major Incident
- Consequence, Frequency & Vulnerability Analysis
- Analysis of Industrial Accidents and integration of lessons learnt
- Threat Prevention & Consequence Mitigation Control Measures
- Safety Critical Elements, SIS, performance standards and SRSs
- Critical tasks, human factors, competency
- Conclusion and remedial action plans

A single source summary of the hazard & effects, initial & residual risk, analyses, ISD features, integrated learnings, control measures , evaluation and conclusion.

Implement a Risk-Based Process Safety Management System

Such management system is focused on ensuring adequate Engineering and management preparedness measures are in place to address potential catastrophic chemical or energy releases from a covered process by:



- Achieving commitment to process safety
- Understanding of site-wide hazards and risks
- Implementing and sustaining measures to manage these risks
- Ongoing learning from experience and follow through for continuous improvement

It is recommended that to address the safety of the process plant, a Risk-Based PSMS is adopted. Personal Safety Management Systems are not effective in achieving this.

Treat the accepted Safety Report as a binding contract

The Goal-based and Performance-based regulations are designed to shift the Duty of Care to the Operator, who has the responsibility to Compile a Safety Report and submit it to the Safety Authority that makes the Case for Safety by demonstrating and providing assurance that risks associated with the MHF have been:

- Identified;
- Analyzed;
- Evaluated;
- Treated; and
- being managed to a level that is ALARP.

Once the Safety Report has been accepted by the Safety Authority any commitment therein can be the subject of verification through Safety Audits.

Summary

In the compilation and submission of safety reports ensure:

- Similar features of otherwise unrelated accidents are identified and learning adopted
- Essential components are filtered from a larger body of implemented on-site practice
- A Risk-base approach is adopted to prioritize gaps identified in existing practice
- A structured approach is adopted for the demonstration of adequacy of control
- A Risk-based Process Safety Management System is implemented
- The Accepted Safety Report is treated as a binding contract

Speaker's Profile

Rajesh Maharaj is a Process Safety and Risk Management Professional with over 26 years of experience in delivering significant improvements to the safe design, construction, installation, commissioning, operations and decommissioning of major offshore and onshore Petroleum, Chemicals and Mining Facilities for domestic and international organisations including Chevron, Shell, PETRONAS, Woodside and BHP.

- He has a Master's Degree in Business Leadership (MBL) from the University of South Africa specialising in strategy development, organisational change and operational implementation, a Bachelor of Science Honours in Chemical Engineering (B.Sc. Hons. Chem Eng.) from the University of Natal specialising in Hydrocarbon and and Mineral Process Engineering. He is currently a postgrad at the Herriot-Watt University in Edinburgh Scotland, reading for the Master's in Science in Safety and Risk Management.

- His professional qualifications include a Chartered Engineer (C.Eng.) and Member of the IChemE, Professional Engineer (Pr.Eng.) and Member of the IEAust and a Certified Functional Safety Engineer (FSEng) from TÜV Rheinland.

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Thank you!

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