



# RISK

## Alberfield Risk in Brief

### Our Capabilities

#### HAZOP (AS IEC 61882 compliant)

We conduct HAZOP (HAZard and OPerability) studies for clients including all aspects of preparation, facilitation, scribing (minute taking), report preparation and if requested, recommended action tracking and closeout. Our HAZOPs are conducted in accordance with the guidance of AS IEC 61882:2003. Typically we use our own version of PHA Pro (by Dyadem) to record the HAZOP minutes and produce the reports though use of client HAZOP logging software and tools is also possible.

#### HAZID/ Technical Risk Assessments

We conduct HAZID (HAZard IDentification) studies for clients including all aspects of preparation, facilitation, scribing (minute taking), report preparation and if requested, recommended action tracking and closeout. HAZIDs are typically focussed at the identification of hazards to health, safety and the environment that might arise from carrying out an activity. They typically include the steps from AS/NZS ISO 31000:2009 of hazard identification and risk assessment.

#### Hazardous Area Classification

We provide services to classify hazardous areas according to AS/NZS 60079.10.1 and 60079.10.2 for combustible and flammable gases and dusts.

#### SIL Studies/ Functional Safety

We provide a wide range of services related to "Functional Safety" as described in AS/NZS 61508, AS IEC 61511 (for Functional Safety in the Process Industries) and AS 62061 (for Machinery Safety). This includes Safety Integrity Level (SIL) studies to determine target SILs for Safety Functions (using both LOPA and Fault Tree methods), design of Safety Functions and Safety Instrumented Systems (SIS) including the instrumentation, programmable hardware and software logic, determination of achieved SIL and Proof Test Intervals, Factory and Site testing and commissioning of the Safety Instrumented System.

#### Dangerous Goods

We provide expert design and specifications in regards to safe handling techniques, storages and process design for Dangerous Goods. We have on staff an accredited Dangerous Goods consultant who can assess compliance, prepare and endorse Dangerous Goods licence applications, carry out compliance audits and conduct risk assessments.

We provide consulting services in regards to Major Hazard Facilities (MHFs) and management systems dealing with such facilities. Our references include the NOHSC codes.



## Process Safety Management

We provide consulting services in regards to “process safety management”, including improvements on how organisations manage safety related to the nature of the chemical or other transformational production processes. We have provided advice on the management systems to systematically manage the hazards and risks of chemical processes. Our references on this subject include the various AIChE publications.

## Quantitative Risk Assessments (QRA)

We conduct various types of quantitative risk assessments including consequence modelling of fire and explosion events, fault tree and event tree modelling of events, modelling of likelihood based upon Layers of Protection Analysis (LOPA).

## Loss Prevention/ Insurance Related Site/ Project Reviews

We provide insurance industry relevant loss prevention site or project surveys and related review report. We have experience in reviews for and on behalf of insurance companies or brokers of the risk profile of businesses or sites, with special focus on “Property Damage” and “Business Interruption” coverage of industrial operations .

## Enterprise Risk Management

We conduct enterprise or business level risk assessments. These risk assessments are targeted at identifying organisational goals and aspirations and identifying and assessing the threats and opportunities related to these. These risk assessments conform to the general requirements of AS/NZS ISO 31000:2009 (“Risk Management”). Typically these risk assessments have included meetings and facilitated workshops to allow participants familiar with an organisation to raise risk issues and discuss the risk controls that the organisation has to address these. We also have experience in the establishment of risk management systems that apply to an enterprise, organisation or some part of it. This includes establishment of procedures, policies, risk criteria, risk matrices and risk registers.

## Project Risk Management

We conduct project risk assessments. This is similar in approach to the Enterprise/Business risk assessment in regards to process and deliverables - however the focus is on identification and risk assessment of threats and opportunities to the objectives of a project. Often this involves gaining the input and cooperation of multiple stakeholders in a project.

## Occupational Health & Safety

We provide assistance to establish setup, improve , communicate or audit safety management systems. We are familiar with the requirements of AS 4801:2001 and how this standard can be made to work in a practical setting.

## Training

We provide training services in all aspects of “risk” and “safety” covering the above aspects with customised training available as required. This can be in the form of on-site or off-site courses, small or large groups, or other means to suit a client’s specific requirements.



# RISK

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## Our Specialist Skills

- HAZOP- Facilitation, Reporting, Action Management/ Tracking and Closeout, Training.
- HAZID (Hazard Identification) - Facilitation, Reporting, Action Management/Tracking and Closeout.
- Risk Criteria and Matrices- Setup, Calibration, Risk Assessment, Facilitation, Training.
- Qualitative Risk Assessment - General Risk Assessment, Environmental Risk Assessment, Maintenance Risk Assessment , Project Solution analysis, "What If" analysis, Plant Change Control Risk Assessment.
- Risk Management Systems – Setup Registers, Procedures for Use, Action Management/Tracking and Closeout.
- Major Hazard Facilities- Calculations of Hazardous Inventories, Management Systems for NOHSC compliance, Development of Bow Tie Diagrams and Major Hazard Control Plans.
- Hazardous Areas – Classification of Hazardous Areas. Requirements for equipment and maintenance within Hazardous Areas, Hazardous area equipment site audits.
- Dangerous Goods - Licensing, Compliance Audits, Safety Inspections, Risk Assessments, Concept Design for Storage and Handling Systems, including Pipelines, Preparation of Manifest, Emergency Response Planning and Hazardous Area Classification.
- Functional Safety - System setup, Hazard Identification, SIL Assessment, Verification, Functional Safety Assessment , Auditing, Guidance to Design Teams.
- Quantitative Risk Assessment - Use of Fault Trees, Event Trees. Consequence Analysis including Explosion Calculations, Monte Carlo Modelling.
- Project Risk Management – Resource industry, Experience in Managing Project Risk throughout the project lifecycle, from inception to handover.
- Loss Prevention - Knowledge and application of FM, NFPA and Munich Re codes and standards, Fire Prevention, Detection, Protection and Fighting, Insurance Industry requirements for Loss Prevention, Cost Benefit Analysis of Recommendations, Site Surveys and Reporting, Loss Prevention Reviews and Recommendations for Capital Projects.
- Fire Protection Systems - Annual Equipment Condition Audits and Reviews (as required by AS 1851-2005).
- Incident Investigation and Analysis - Root Cause analysis, Reporting.
- Control Room Ergonomics and Alarm System Effectiveness- Knowledge of EEMUA Code.
- Risk Engineering - Principles of Survivability, Explosion, Fire and Blast Proofing.
- Human Factors Involved in Risk and Safety - Risk Taking, Human Error, High Reliability Organisations, Risk Communication.
- OHS Safety Management Systems - Setup, Procedures for Use, Action Management/Tracking and Closeout. Auditing.
- Reliability Engineering - Knowledge and application of reliability principles and calculations, FMEA/ FMECA Studies, Reliability Block Diagram modelling.
- Electrical System Safety - Setup of systems, Safe Work Procedures, Safety Equipment for Electrical Work, Assessment and Auditing of Systems.
- Electrical Supply and Distribution Assets - Physical Inspection and Assessment of Asset Condition, Asset Management Practices and Condition Monitoring.

## Our Training Courses

- Introduction to HAZOP Basics (HAZOP Participation) (1 day)
- HAZOP Facilitation (2 days)
- Dangerous Goods (various topics and durations)
- Qualitative Risk Assessment Facilitation (1 or 2 days)
- Hazardous Areas - Principles for Engineers and Maintainers (1 day)
- Combustion Principles for HAZOP Participants (1 day)
- Principles of Industrial Loss Prevention (2 days)
- Incident Investigation (1 day)
- Gasfitting Legislation and Safety Awareness for "Supervised Gas Fitters" (1 day)
- Industrial Gas Appliance Maintenance (1 day)
- Workplace Legislation and Safety (1 day)
- Mine Site Legislation and Safety (1 day)

## Our Software

- HAZop Software (Dydem's PHA Pro)
- Monte Carlo Software (@Risk)

## Our Industry Experience

### Processing

Iron ore, Gold, Alumina, Aluminium, Silicon, Molybdenum, Uranium, Nickel, Salt, Rare Earths, Copper, Cobalt, Magnesia and Coal.

### Hydrocarbon Extraction and Treatment

Offshore platforms, Subsea components, FPSO's, Undersea pipelines, LNG, Gas transmissions pipelines and compression stations.

### Transportation

Rail, Marine, Container Cranes.

### Utilities

Electrical Generation & Transmission, Gas Distribution, Water Supplies & Treatment Plants, Waste Water Treatment.

### Other

Pharmaceuticals, Municipal Waste Treatment, Explosives, Sports Stadia, Pulp & Paper, Cement, Brickmaking.