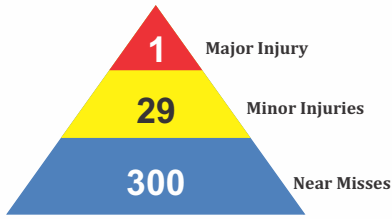


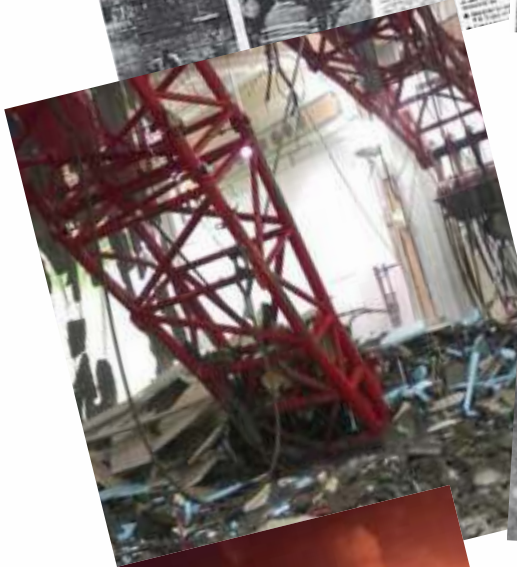


THE GREEN PEOPLE

RISK PROFILE



The Heinrich 300-29-1 Model



About us

We are leading ISO 9001,14001,OHSAS 18001 (ISO 45000) ,NABL/ISO 17025 certified HSE Consulting Engineers, Scientists & Trainers ,having business & operations in India, South East Asia, Africa, Middle East, Far East & Australia.

GCI offers wide range of services from Legal compliance, Engineering, Technical, Laboratory, Asset Integrity, Business Continuity Planning & Management, Enterprise Risk Management solutions on hand holding basis like cradle-to-grave with highly experienced leaders & team.

Risk Profile™

We at GCI assess the HSE Risk associated with facility process, operations & transportation in comprehensive manner to bring the risk within **As Low As Reasonably Practicable (ALARP)**.

HSE Risk Assessment

Evaluate the risk associated with the facility as a whole and each incident from the HSE hazards identified in the hazard identification, taking into consideration the incident likelihood and magnitude, its consequence, severity and the controls in place (and their effectiveness).

What is Risk Profile™? The purpose of a **Risk Profile™** is to help the management understand all aspects of the risks to **Health, Safety & Environment** associated with potential major incidents and demonstrate how those risks will be reduced so far as is reasonably practicable. Any deficiency in the Plant Process & Operations may make it difficult to demonstrate the adequacy of risk control measures and that the risk has been reduced so far as is reasonably practicable.

The **Risk Profile™** methodology is consistent with international standards on risk assessment including the IEC,IS,AS/NZ, ISO 31000:2009 – Risk Assessment.

Risk Profile™ outputs

At the end of the Risk Profile™ the management will have the following information for incorporating into the Safety Case:

- an understanding of the factors that influence risk and the controls that are critical to controlling risk
- the likelihood of potential major incidents
- the magnitude and severity of the consequences arising from major incidents for the range of possible outcomes
- clear linkages between hazards, the major incidents, risk control measures and the associated consequences and risk
- a prioritised list of actions to further reduce risks so far as is reasonably practicable. The operator should also consider providing some examples of the Risk Profile™ process for a specific major incident, and perhaps specific hazard, to understand the process taken and any linkages that are present. This will also help who want to understand the Risk Profile methodology for the facility.

Use of Risk Profile[™] outputs

The ongoing management and use of the information developed during hazard identification and Risk Profile[™] is of fundamental importance to ongoing safe operation.

- *The management can use the outputs of the Risk Profile[™] in the following ways:*
- to ensure that all workers understand the hazards and risks associated with the facility, the risk control measures in place to manage these risks, and their role in the prevention of major incidents to demonstrate risks are reduced so far as is reasonably practicable (refer to the guidance note – Requirements for demonstration)
- to assist in the development of the emergency response plans (refer to the guidance note – Emergency planning)
- to enable priorities and resource allocations to be based on appropriate information and assessment, resulting in a cost-effective improvement of safety
- to assist in the improvement of procedures and management systems
- as an input to 'training needs' analyses
- to assist with other processes such as management of change and incident investigation.
- to optimize insurance premiums

Risk estimation techniques These appendices are not intended to be a detailed or comprehensive description of Risk Profile techniques. The methods given below are selected examples to illustrate different approaches. However, other approaches may be taken.

Risk matrix: A risk matrix is the most common approach used for qualitative Risk Profile. The risk matrix is used to assess individual incidents in terms of categories (eg 'low', 'moderate', 'significant' or 'high' risk) based on their expected consequences and likelihood. ISO 31000 – Risk Management provides information on the risk matrix approach. A basic risk matrix approach places each of the hazards considered into a region of the matrix.

Quantitative or Quantified Risk Assessment

The application of quantitative methods is considered desirable when:

- several risk reduction options have been identified whose relevant effectiveness is not obvious
- the exposure to the workforce, public, or the strategic value of the asset is high, and reduction measures are to be evaluated
- equipment spacing allows significant risk of escalation
- novel technology is involved resulting in a perceived high level of risk for which no historical data is available
- demonstration of relative risk levels and their causes to the workforce is needed to make workers more conscious of the risks.

Risk Profile[™] covers:

- Process Hazard Analysis(PHA)
- Operational - Qualitative & Quantitative Risk Assessment
- Transportation Risk Assessment
- Environmental Risk Assessment
- Electrical, Chemicals Safety

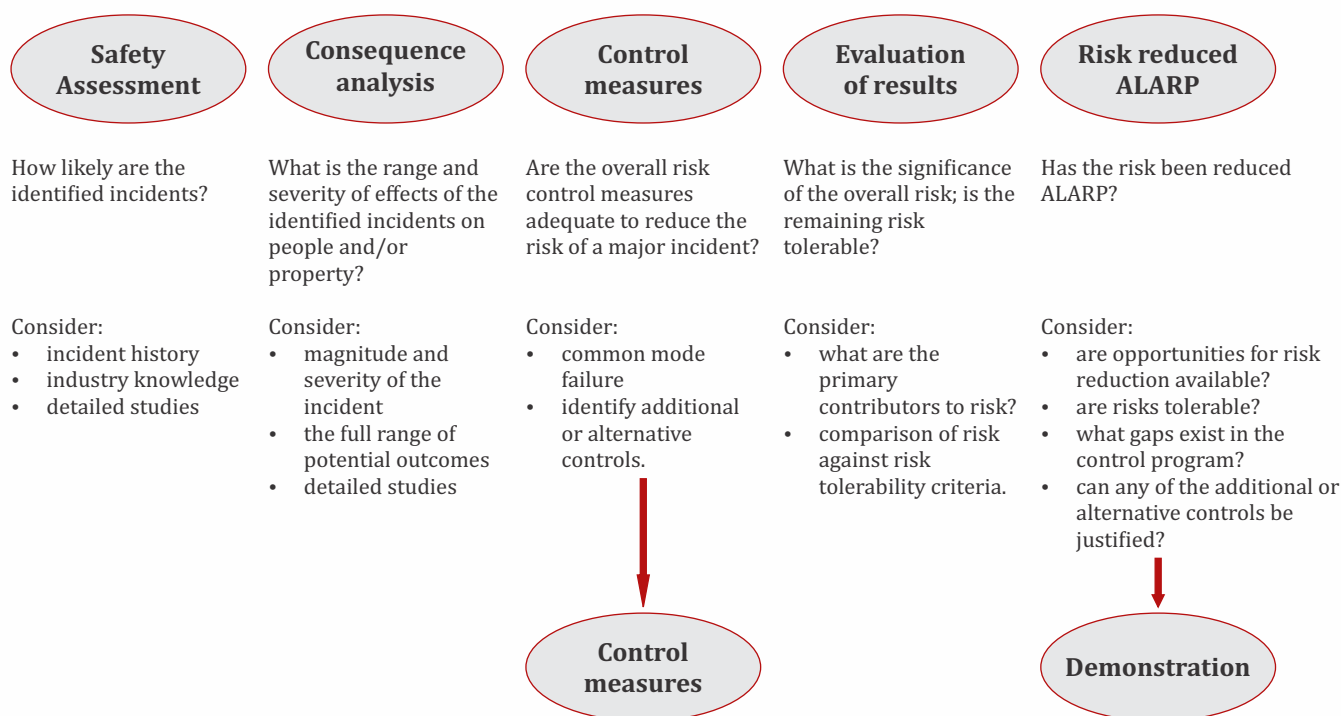
A QRA is one form of quantitative risk assessment.

A QRA seeks to:

- provide numerical estimates (for all hazards) of both consequences and their likelihood of occurrence based on historical data and computer simulations
- develop a quantified analysis of risk for the entire site (generated using the cumulative effects of the individual hazards).

The analysis of the risk incorporates the various effects from the range of applicable meteorological conditions, as well as from various release conditions, types and sizes and the population distribution on the site and surrounding areas. The output is typically in the form of fatality or individual risk contours or societal risk figures. A number of software tools are available to assist with some or all of the calculations that may be required in a QRA. The 'Purple Book' (1999) has been published by Dutch regulatory authorities as a guide to performing QRA. It contains an extensive list of such tools. The accuracy and usefulness of such tools depends heavily on the knowledge and skill of the user and the accuracy of the input data. GCI uses PHAST, SafeTi, etc various software's to arrive to risk estimation & guide the clients to ALARP (as Low As Reasonably Practicable) a HSE, UK standard for risk acceptance criteria.

Risk Profile™: HSE Assessment Methodology & Steps



Risk Profile™ can be used for Business Continuity Planning & Management as well as Enterprise Risk Management

For more details & discussions please contact/call :

GREEN CIRCLE, INC.

*Integrated HSEQR Consulting Engineers, Scientists & Trainers
ISO 9001, 14001 & OHSAS 18001 (ISO 45000) Certified Organisation*

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