

Demonstration of SFAIRP

This is a guide to industry practice for demonstration of the so far as is reasonably practicable (SFAIRP) obligation in relation to major incidents at major hazard facilities.

Prerequisites

The following aspects must be completed as a prerequisite to demonstrating SFAIRP:

- Safety management system – This should address all matters in schedule 5 of the MHF regulations and be implemented and effective across the facility. Refer to the WorkSafe guide.¹
- Safety assessment of the facility to clause 38 of the MHF regs. Refer to the WorkSafe guide.²

This is a specialist area so be sure to get competent and experienced support.

Definition

The HSWA³ states that reasonably practicable means what is reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters, including

- a) the likelihood of the hazard or the risk concerned occurring; and
- b) the degree of harm that might result from the hazard or risk; and
- c) what the person concerned knows, or ought reasonably to know, about
 - i. the hazard or risk; and
 - ii. ways of eliminating or minimising the risk; and
- d) the availability and suitability of ways to eliminate or minimise the risk; and
- e) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

To demonstrate SFAIRP, document how each of the five parts of the reasonably practicable obligation is met for each of the major incidents identified in the safety assessment.

1. Likelihood

The likelihood of the major incident should be determined in the safety assessment, along with causes, consequences and the incident pathway. Applicable methods are outlined in the Good Practice Guide².

2. Degree of Harm

The potential consequences of the major incident without control measures should be determined. For a major incident, this will normally involve some form of consequence analysis. An example is dispersion modelling for an incident involving release of toxic gas.

3. What is Known

Document what is known that is relevant to the major incident being considered.

- Regulations and legislation
- Codes of practice, standards, guidelines
- Industry good practice
- Lessons from relevant incidents, including any from in house, elsewhere in NZ or international
- New technology and practices
- Advice and recommendations from authorities (such as WorkSafe, FENZ, council).

The SFAIRP demonstration should record which references were considered, with applicable certificates if any. Note any points particular to this major incident, especially any interpretation or waiver.

4. Ways to Manage Risk

Consider possible additional control measures available to eliminate or further reduce risk. A good way to identify possibilities is to work through the hierarchy of controls⁴. Assess the feasibility and effectiveness of each possible control measure, including whether it could introduce new risks. Record:

- What more could be done to reduce the risk?
- Why hasn't this been done?

5. Disproportionate Cost

After fully considering the above four parts of SFAIRP, the cost of an additional control is considered. The concept of grossly disproportionate cost requires the costs (whether this be in money, time or effort) of a proposed control measure to be weighed up against its safety benefit.

The safety benefit is the reduced risk to health and safety of people. This means evaluating the avoided harm, such as quantifying the benefit of avoiding a fatality. Refer to the Treasury guide⁵.

The cost includes procurement, installation and maintenance of the control measure.

The ratio used to judge when the cost becomes grossly disproportionate to the benefit is termed the gross disproportion factor. A larger factor should be used in some cases, such as when consequences are greater or where there is more uncertainty. The UK Health and Safety

Executive guide addresses selection of this factor.⁶

The extent of demonstration should be proportionate to the level of risk. In many cases, a simple calculation or qualitative demonstration may be sufficient.

SFAIRP Key Points

- It is critical to document the SFAIRP process and the justification of the decisions taken for each major incident.
- Engage with workers, including on what additional controls to consider, and which are effective in practice. Document this engagement.
- Document those control measures that were considered and rejected, with the reasons for rejecting them.
- SFAIRP should not be used to reverse calculate a pre-desired outcome.
- Cost is not a factor when considering controls that are industry practice or are required by regulation.
- The control measure that minimises risk should be implemented, and not the control with the best cost benefit ratio or lowest cost.
- The capacity to pay or economic viability of the operator is not a relevant factor for SFAIRP.
- The SFAIRP principle will apply throughout the lifecycle of a facility.
- Other references^{7 8}

This guideline has been compiled by members of the MHF industry group. It has been provided in good faith and with no warranty whatsoever. Comments and suggestions are welcome. Please post on the LinkedIn MHF forum group or email MHFForum2017@gmail.com.

References

¹ MHF Good Practice Guidelines: [Major Accident Prevention Policy and Safety Management Systems](#)

² MHF Good Practice Guidelines: [Safety Assessment](#)

³ Health and Safety At Work Act 2015, [clause 22](#)

⁴ Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, [reg 6](#)

⁵ [Guide to Social Cost Benefit Analysis](#), The Treasury, 2015

⁶ [HSE principles for Cost Benefit Analysis \(CBA\) in support of ALARP decisions](#), UK HSE

⁷ [ALARP Guidance](#), Commission for Energy Regulation, Ireland

⁸ [How to determine what is reasonably practicable](#), Safe Work Australia