Risk Management in Western Australia

What is ALARP and SFAIRP

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All industries, from mining and construction to healthcare and services, involve some level of risk. Internationally, the guiding principle for managing these risks is to reduce them to a level that is **As Low As Reasonably Practicable** (ALARP). ALARP requires operators to eliminate or minimise risks through all practicable means, unless the time, cost or effort of doing so would be grossly disproportionate to the benefit achieved (HSE, 2022). The ALARP principle has been incorporated into legislation in many jurisdictions under the term **So Far As Is Reasonably Practicable** (SFAIRP), forming the basis of risk management across Australia and other regions globally. Western Australia (WA) has recently aligned with this national approach by embedding SFAIRP into the *Work Health and Safety Act 2020* (WHS Act), bringing it in line with the broader WHS framework (WorkSafe WA, 2021). To maintain clarity throughout this document, ALARP will refer to the overarching risk management principle, while SFAIRP will specifically refer to its legislative application.

This Insight is the first in a three-part series on risk management principles in WA. It provides an overview of the ALARP principle, how it functions within WA's legislative framework and why it is considered central to risk management. Subsequent insights will highlight how the ALARP principle is embedded in the WHS Act and the role of ALARP in WA environmental regulation and management.

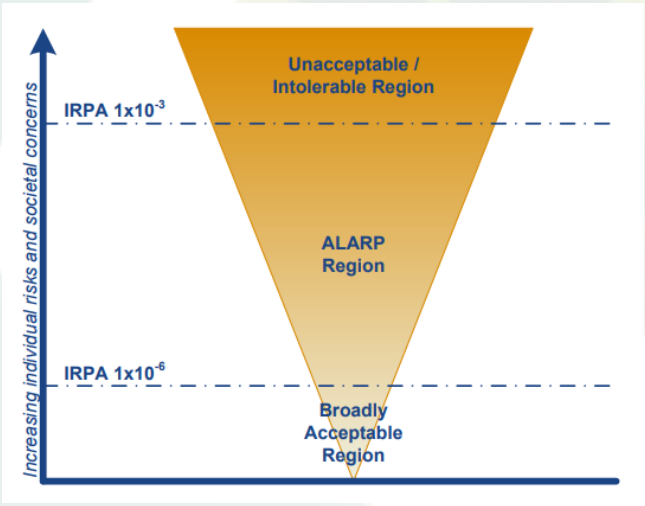

Figure 1: Example of ALARP risk triangle (NOPSEMA, 2020)

What is ALARP

The concept of ALARP considers that risks can rarely be eliminated altogether, but they must be reduced as far as reasonably practicable. In practice, this means duty holders must show they have systematically identified hazards, assessed risks, implemented controls, and justified where additional measures were not reasonably practicable (WorkSafe WA, 2021).

A major feature of ALARP is that it is outcome-based rather than perspective-based, which means that ALARP focuses on the results achieved, giving operators more room in how to achieve a safer work environment, rather than dictating the steps to get there. The ALARP framework provides operators with more freedom in meeting safety requirements, but also holds them responsible for demonstrating clear evidence that they are managing risks properly and openly (HSE, 2022). The importance of this principle has grown in WA, where regulators and industries are facing more complex challenges both in safety and environmental management (Brammall, 2025)

The risk triangle is often used to illustrate ALARP (Figure 1). At the top of the triangle sit the risks that are intolerable and must never be accepted. These might include catastrophic safety failures or environmental disasters where no control can justify

All industries from mining and construction to healthcare and services, must manage risks to a level that is ALARP, known in WA as SFAIRP. By identifying hazards, assessing risks and applying all practical controls until any further measure would be disproportionate to the benefit gained.

acceptance. The middle section represents risks that are tolerable only if reduced to ALARP, meaning they require strong management and justification. At the bottom of the triangle are risks considered broadly acceptable, often having a very low likelihood or consequence, for which no additional controls are required (NOPSEMA, 2020). Importantly, even within the tolerable region, operators must continue exploring further risk reduction options until they can demonstrate that additional measures would be grossly disproportionate (HSE, 2022).

At the centre of ALARP is the reasonably practicable test. The reasonably practicable test requires decision-makers to weigh up:

- The likelihood of the hazard or risk occurring.
- The degree of harm that could result.
- What the operator knows, or ought reasonably to know, about the risk and available controls
- The availability and suitability of ways to eliminate or minimise the risks.
- Whether the cost of controls is grossly disproportionate to the risk reduction benefit (Safe Work Australia, 2025).

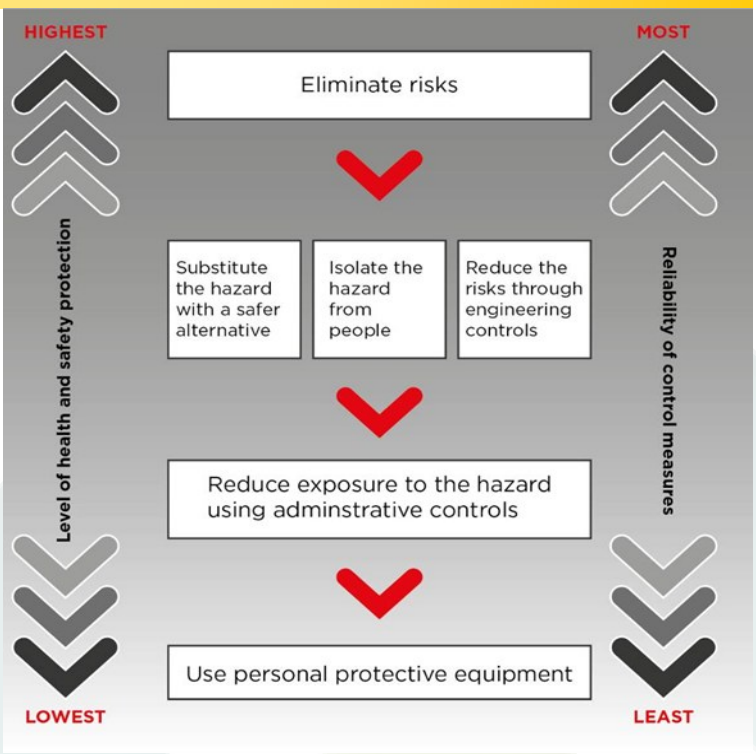

Figure 2: The hierarchy of control measures (Safe Work Australia, 2025)

The reasonably practical test is not a test of convenience or cost minimisation. Instead, it reflects proportionality (making sure the action or response matches the size and seriousness of the situation), duty holders must act unless costs are clearly out of proportion to the expected safety or environmental benefits (WorkSafe WA, 2021). By embedding ALARP, the law requires careful, evidence-based justification for every risk decision.

How is ALARP applied in WA

In Western Australia, the ALARP principle, implemented through its legislative form, SFAIRP, is primarily applied across safety regulation under the WHS Act, as well as in mining and environmental law, high-hazard industries, and the management of dangerous goods.

SFAIRP is most prominently featured in the WHS Act, which applies across all industries. The Act places the primary duty of care on PCBUs (persons conducting a business or undertaking) to protect workers and others from health and safety risks. The duty of care includes eliminating hazards wherever possible and, if not, minimising them through the hierarchy of control. The hierarchy of control, as seen in Figure 2, is a system for choosing the most efficient safety measure to reduce workplace hazards, which includes, from most effective to least effective: elimination, substitution, isolation, engineering, administrative controls and finally personal protective equipment (PPE) (WorkSafe WA, 2024b). Operators must document their decisions and demonstrate that risks have been reduced to an appropriate level.

The Mining Act 1978 and related guidelines also use the principles of ALARP for environmental management. Operators must submit a Mining Development and Closure Proposal (MDCP) that includes a detailed environmental risk assessment, with controls justified on the principles of ALARP (DEMIRS, 2025). Operators must demonstrate that the residual impacts on land, water, biodiversity and community are acceptable and that further controls would be grossly disproportionate. This approach ensures the mining industry will achieve the Department of Mines, Petroleum and Exploration (DMPE) environmental objectives for rehabilitation and mine closure (DMPE, 2025).

For high-hazard industries, such as petroleum and geothermal energy, the *Petroleum and Geothermal Energy Resources (Environment) Regulation 2012* requires safety cases and environmental plans that apply the ALARP principle. These plans must demonstrate that all major accidents and environmental risks have been identified, assessed and controlled SFAIRP (WorkSafe WA, 2024a). Operators must document their reasoning, including why certain controls were chosen and why others were not considered reasonably practicable. The inclusion of SFAIRP in

Figure 3: Safety Equipment (Paquet, 2022)

these Regulations aligns WA with international offshore and energy regulation standards (NOPSEMA, 2020).

The *Dangerous Goods Act 2004* does not use the term ALARP directly; however, the principles support the requirements of the Act. Duty holders handling, storing or transporting dangerous goods must reduce risks to people, property and the environment as far as reasonably practicable (WorkSafe WA, 2025). T*he Dangerous Goods Act 2004* reflects the same underlying principles as the WHS Act; risks cannot simply be managed at minimum cost; instead, they must be reduced to the lowest practicable level (WorkSafe WA, 2021).

Why ALARP

ALARP is used to ensure risks are reduced to a level that is as low as reasonably practicable, balancing risk with practicality. The benefit of ALARP is that it is flexible, unlike prescriptive rules (which require specific methods); ALARP is outcome-based. Being outcome-based enables businesses to design risk controls tailored to their operations while still meeting overall legal requirements (HSE, 2022). For example, a small workshop might adopt simple engineering and administrative controls, while a refinery might invest in high-tech automated safety systems. Both are acceptable, provided the operator demonstrates that risks are managed SFAIRP (WorkSafe WA, 2024b).

A significant aspect of ALARP is that the operator bears the responsibility of providing proof. It is not enough to assert that risks are managed; businesses must document their assessments, decisions and controls to show compliance (WorkSafe WA, 2021). The responsibility of providing proof creates accountability and ensures risk management decisions are transparent to regulators and workers.

ALARP is also scalable. It applies equally to small businesses and large, complex operations. The methods used to demonstrate ALARP differ in scope, but the fundamental duty remains the same. Importantly, ALARP is not static; operators must revisit their risk controls when they receive new information, incidents or technology to ensure continuous improvements rather than one-off compliance (WorkSafe WA, 2021). Some examples of applying ALARP in practice include:

- Office Safety: Managing a trip hazard from electrical cables running across a floor. While removing all the cables entirely is impractical due to equipment needs, the risk can be reduced SFAIRP by rearranging furniture to keep the cables out of the walkways or by using cable protective covers (Hurst, McIntyre, Tamauchi, Kinuhata, & Kodama, 2019).
- Drilling Failures (On and Offshore): Mitigating environmental risks like well blowouts. Operators apply the ALARP principle by first assessing Hydrogeological conditions and pressure hazards, and then by ensuring that all reasonable and practicable controls are in place, such as automated cut-off valves, appropriate drilling mud methodology, containment sumps, and the proximity of capping equipment (NOPSEMA, 2020).
- Mining and Construction Impacts: Controlling environmental impacts from dust, contaminated runoff, or waste. Operators apply ALARP by implementing all practical actions (e.g., dust suppression systems, containment bunds, sediment fencing) to minimise environmental harm while allowing the project to proceed effectively (DEMIRS, 2025).

While ALARP provides a strong foundation for risk management, its application can be challenged. One of the main difficulties lies in the subjectivity of what constitutes a reasonably practicable solution. Assessing the scale between the cost, time and effort of controls and the benefits gained can vary greatly depending on the operator, the risk and the regulator's interpretation (Ho, 2023).

Another challenge is demonstrating ALARP in practice. Operators are often required to gather extensive evidence. Evidence includes risk assessments, design studies, and consultation records, ensuring that risks are managed appropriately and in compliance with regulatory requirements. The evidence requirements can be particularly challenging in dynamic industries such as mining and energy, where new technologies, environmental conditions, and operational changes continually alter the risk landscape (DMIRS, 2025).

ALARP, or SFAIRP in WA legislation, is an essential principle within modern risk management. It ensures that risks are not only identified but also reduced to a point where additional measures would be grossly disproportionate (WorkSafe WA, 2021). By embedding this principle in law, WA has established a consistent standard across its industries. For guidance on integrating ALARP into operations and meeting legal requirements, Integrate Sustainability can assist Contact us at enquiries@integratesustainability.com.au or call us at 08 9468 0338 .

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