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The Relationship Between 'Reasonably Practicable' and Risk Management Regulation

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Introduction

This paper examines two concepts which are central to contemporary standard setting in occupational health and safety (OHS) regulation, and explores the differences and similarities between these concepts – the notion of 'reasonably practicable' which qualifies the 'general duties' and some other provisions in the Australian OHS standards, and the risk management requirements typically found in OHS regulations and approved codes of practice (advisory standards in Queensland).

The pivotal provisions in contemporary OHS statutes are the general duties which, in Australia, usually cover employers, the self-employed, occupiers, employees, principal contractors in the construction industry (in Queensland), designers, manufacturers, importers, suppliers, installers and erectors of plant, and manufacturers, importers and suppliers of substances. They impose on duty holders absolute or strict liability duties to take care for various aspects of worker health and safety. For example, 'employers' are typically required to provide and maintain for employees a working environment that is safe and without risks to health – although the wording of these provisions differs markedly from jurisdiction to jurisdiction. In all of the OHS statutes apart from the *Workplace Health and Safety Act* 1995 (Qld), these absolute or strict liability duties are qualified by whether it is 'reasonably practicable'[1] to take particular measures to ensure worker health and safety. The *Workplace Health and Safety Act* 1995 (Qld) establishes absolute duties, and provides that it is a defence to a prosecution for a contravention of a general duty for the duty holder to prove (on the balance of probabilities) that he or she followed the relevant regulation or advisory standard, or, where there is no regulation or advisory standard about exposure to a risk, that she or he chose any appropriate way and took reasonable precautions and exercised proper diligence to prevent the contravention. This latter expression is a recasting of the reasonably practicable expression. As we discuss in the next section of this paper, determining whether a measure is reasonably practicable requires the duty holder to weigh up, on the one hand, the likelihood of the hazard or risk causing harm to a worker, and the gravity of that harm, against the cost, time and trouble of removing or reducing the risk.

The skeleton statutory general duties are 'fleshed out' with standards in regulations and approved codes of practice (advisory standards in Queensland). Before the 1990s, most of the OHS regulations in the Australian jurisdictions were contained in separate instruments, and it was not uncommon for a jurisdiction to have over a dozen sets of regulations, each covering a specific industry, type of work or hazard. Since the mid-1990s many of the Australian OHS regulators have brought all supporting OHS regulations together in one general set of regulations. Beginning in the late 1980s Australian regulations and codes of practice have tended to steer clear of detailed, technical specification standards and instead rely on general duty requirements (usually qualified by reasonably practicable), performance standards, process requirements and documentation requirements. Instead of telling duty holders exactly how they are to achieve compliance, 'performance standards' define the duty holder's obligation in terms of goals they must achieve, or problems they must solve, and leave it to the initiative of the duty holder to work out the best and most efficient method for achieving the specified standard. 'Process requirements' prescribe a process, or series

[1] Under the Victorian, Western Australian and Northern Territory OHS statutes the term 'practicable' is used.

of steps, that must be followed by a duty holder in managing specific hazards, or OHS generally. They are often used when the regulator has difficulty specifying a goal or outcome, but has confidence that the risk of illness or injury will be significantly reduced if the specified process is followed. Process-based standards have spawned greater reliance on 'documentation requirements' as increasingly duty holders are required to document measures they have taken to comply with process-based, performance and general duty standards. (For an overview of the principal types of OHS standards see Bluff and Gunningham 2004, pp. 17-27).

A further development by the mid 1990s was the incorporation of the particular process of risk management in Australian OHS regulations in all jurisdictions, and in some approved codes of practice. The process requires the duty holder to systematically identify work hazards, assess risks and implement control measures to eliminate or minimise those risks. The OHS risk management process is a modified version of risk management principles applied more widely in business. The latter typically involves the holistic identification of hazards and other threats to an organisation or entity, analysis and evaluation of the risks, and determination of strategies to treat risks through risk avoidance, limitation, reduction, transfer, retention, deferment or mitigation (Cross et al 1999, p. 366; SAA/SNZ 1999, pp. 3-4, 7-8; Waring and Glendon 1998, pp. 9 & 14). The form of risk management applied under Australian OHS legislation involves fewer process steps but elaborates the strategy of risk reduction, applying a hierarchy of control measures which gives priority to controlling risks at source by elimination, redesign, substitution, isolation or engineering means, in preference to administrative controls or use of personal protective clothing and equipment. In this respect, OHS risk management draws on the disciplines of occupational hygiene, safety engineering and ergonomics which adopt such a preferential approach to risk control (Bohle and Quinlan 2000, pp. 92-100; Hale et al 1997). While in broad terms risk management is concerned with identifying, assessing and treating risks, it is a collective term applied to many different activities and approaches, to many different kinds of risks, and using variable terminology. Moreover, "the recursive nature of terms such as 'hazard' and 'risk' and terms such as 'assessment', 'analysis', 'estimation' and 'evaluation' in everyday speech, creates fertile ground for ambiguity and confusion" (Waring and Glendon 1998, p. 22). All of this suggests that OHS risk management principles could be difficult for duty holders to engage with, quite apart from the uncertainty about how the risk management process relates to the general duties.

Curiously, the OHS statutes in all jurisdictions apart from Queensland make no reference to risk management principles, and give no guidance as to the relationship between 'reasonably practicable' and risk management. Both processes appear to require duty holders to identify and weigh up risks and possible control measures, but it is far from clear exactly what is the relationship between these two processes. In the next section of this paper we examine the way in which the courts and OHS statutes have interpreted the notion of reasonably practicable. A theme we explore is that in determining what is reasonably practicable the courts have been influenced by the 'event focus' of prosecutions, in that charges are usually brought in response to particular incidents or risk scenarios and the evidence and argument focuses on these events in hindsight, while the OHS risk management provisions are framed as a proactive and holistic process, to prevent or control risks arising from work or at a workplace, across the board, before incidents occur. In the third section of the paper

we discuss the general principles, legal definitions and interpretation of risk management processes. We discuss the implications for OHS regulators, when drafting legislation and guidance material, to ensure that the statutory general duties and risk management obligations are framed and applied in a way that is complementary and consistent, and effectively supports OHS improvements. We also sound a note of caution about the potential, in contemporary approaches to risk management, for a disproportionate focus on 'risk assessment', and in particular the ranking of risks, at the expense of comprehensive and effective prevention and control of risks.

'Reasonably Practicable' – Legal Meanings

The common law 'calculus of negligence'

The 'reasonably practicable' qualification is a statutory codification of 'the calculus of negligence' in common law negligence actions. To be successful in a common law negligence action against an employer, an employee must prove (i) that the employer owed the employee a duty of care (it is well accepted that the employer owes the employee such a duty); (ii) that the employer's acts or omissions breached the standard of care required to discharge that duty to the employee; (iii) that the breach in fact caused the worker's injuries, in the sense that, on the balance of probabilities, the defendant employer's act or omission materially contributed to the harm suffered by the plaintiff employee; and (iv) that the injury or damage was not too remote in the sense that the damage was reasonably foreseeable as a consequence of the employer's negligent acts or omissions. If these four elements are proved by the injured worker, the worker can then ask the court to award the worker 'once and for all' lump sum monetary compensation for economic and non-economic loss which will, as nearly as possible, put the worker in the same position as the worker would have been in had the worker not sustained the injuries. Proving that the duty owed was breached requires the court to determine, on an objective basis, first, whether the risk was one that the defendant should have considered taking measures to guard against; and second, the measures that a reasonable person in the position of the defendant should have taken to control the risk (see Davies and Malkin, pp. 2003, 42-62).

In relation to the first issue - whether the risk was significant enough for a reasonable person in the defendant's position to consider taking precautions against it – the test that the courts have laid down is whether a reasonable person in the defendant's position would have foreseen, in all the circumstances of the case, that his/her conduct involved a risk of injury to the plaintiff or to a class of persons including the plaintiff. Here the courts have determined that a risk is 'real' and sufficiently foreseeable so as to require the defendant to consider taking precautions against it provided it "is not far fetched or fanciful" (*Wyong Shire Council v Shirt* (1980) 146 CLR 40 at 48, per Mason J, with whom Stephen and Aicken JJ agreed). "A risk of injury which is quite unlikely to occur … may nevertheless be plainly foreseeable" (*Wyong Shire Council v Shirt* (1980) 146 CLR 40 at 47, per Mason J). Negligence or inadvertence on the part of others, workers included, is generally considered to be reasonably foreseeable (see *McLean v Tedman* (1984) 155 CLR 306, and Davies and Malkin, 2003, 43-44).

The courts have made it clear that the plaintiff does not have to prove that the exact manner in which her or his injury took place was reasonably foreseeable – rather it is

sufficient to show that "it was reasonably foreseeable as a possibility that the kind of carelessness charged against the defendant might cause damage of some kind to the plaintiff's person" (*Minister Administering the Environmental Planning and Assessment Act 1979 v San Sebastian Pty Ltd* [1983] 2 NSWLR 268 at 296). It has generally been accepted that this test for reasonable foreseeability is 'undemanding', and easily satisfied (but see *Smith v Broken Hill Proprietary Co Ltd* (1957) 97 CLR 337, noted in Davies and Malkin, 2003, 46).

Recently, however, the courts, without altering the formulation of the test,[2] appear to be more willing to find that a risk is too 'far-fetched and fanciful' and thus that a reasonable person would not be required to considered measures to control the risk (see for example, the majority of the High Court in *Dovuro Pty Limited v Wilkins* [2003] HCA 51, but note the dissenting opinion of Kirby J). A good example is the recent decision of the New South Wales Court of Appeal in *Australian Traineeship System and Colchester GR Pty Ltd trading as Shell Service Station Waverley v Wafta* [2004] NSWCA 230, where an employee injured his back while attempting to lift the corner of a display cabinet refrigerator (2 metres long, a metre wide and weighing 65kg), so that he could replace, under the refrigerator, a mat he had cleaned. The trial judge held that the injury was reasonably foreseeable, and that the employer was negligent in failing to warn the worker against attempting to lift the corner of the refrigerator. The New South Wales Court of Appeal overruled the trial judge, and held that a reasonable employer in the position of the defendant would not have foreseen that the employee would have tried unaided to lift the corner of the refrigerator. The court accepted that it might be reasonably foreseeable that the employee would replace the mat in exactly the same position it had been in before cleaning (at an angle, and partially under the refrigerator), rather than evenly within the available space. The court, however, held that a reasonable employer would not have foreseen that the employee would "attempt to place the mat under the corner of the refrigerator by lifting it himself," (para 12) because the refrigerator could be moved horizontally by pushing it along castors "without effort or risk." "The obvious and foreseeable response was to attempt to move the refrigerator on its castors" (para 13). The Court reached its conclusion by grouping "the various contingencies and possibilities", and held that "it is almost far-fetched and fanciful to think that a reasonable employer should foresee that a plaintiff with some considerable experience in this industry, to the knowledge of the employer, should have attempted to lift the corner of the refrigerator." (para 15). "The risk was so obvious and the alternative courses available to the plaintiff so obvious and simple that in my judgment the reasonable employer was entitled to disregard the risk." (para 16).

In passing we note that recent legislation, in response to the Ipp Report (2002), now specifies that a defendant is not negligent in failing to take precautions against a risk of harm unless the risk was foreseeable and not insignificant (a higher threshold that the far-fetched and fanciful test): *Civil Liability Act* 2002 (NSW) s 5B(1); and *Civil Liability Act* 2003 (Qld) s 9(1). These provisions do not apply to employer-employee cases, but it may be that they nevertheless are influencing the way in which courts are applying the foreseeability test at the breach stage.

[2] But see McHugh J in *Tame v State of New South Wales* (2002) 211 CLR 317 at 354 para 102.

In relation to the second issue, Mason J in *Wyong Shire Council v Shirt* (at 47-48) explained how a reasonable person would determine the standard of care, or measures that should be taken in response to the foreseeable risk:

> The perception of the reasonable man's response calls for a consideration of the magnitude of the risk and degree of the probability of its occurrence, along with the expense, difficulty and inconvenience of taking alleviating action and any other conflicting responsibilities which the defendant may have. It is only when these matters are balanced out that the tribunal of fact can confidently assert what is the standard of response to be ascribed to the reasonable man placed in the defendant's position.

This approach is known as the 'calculus of negligence'. Hayne J in *Woods v Multi-Sport Holdings Pty Ltd* (2002) 186 CLR 145 at para 138 noted that what a reasonable person would do in response to a risk:

> requires attention to various considerations, very important among these being the magnitude of the risk of injury, the probability of its occurrence, the expense, difficulty and inconvenience of alleviating action, and any other conflicting responsibilities the defendant may have. Some of these considerations (and there may be others represented by the facts of the particular case) pull in different directions. Taking them all into account requires the striking of a balance.

Table One: The common law 'calculus of negligence'

Factors considered in the common law calculus of negligence		
Consideration of risk	***Weighed against***	**Criteria for determining action**
• Magnitude of risk of injury • Probability of its occurrence		• Expense • Difficulty • Inconvenience

As Table One indicates, in determining what preventive measures a reasonable person would take, the degree of risk is considered, having regard to the magnitude and probability of the risk, and this is weighed against the expense, difficulty and inconvenience involved in implementing particular preventive measures. Case law establishes that the employer owes a duty of care to each employee individually, and therefore the standard of care (as determined by the calculus of negligence) expected from the employer must be judged in relation to the circumstances of the individual employee (*Paris v Stepney Borough Council* [1951] AC 367 at 376, 384, 386 and 388-90).

A good example of the way in which courts 'balance' the level of risk against the burdens of precautions in an employer-employee setting is to be found in *Turner v South Australia* (1982) 42 ALR 669. The employee injured his back while trying to lift manually into a vertical position a 44-gallon drum which had been placed on its side by a mobile crane. The High Court held that the employer had been negligent in providing an unsafe system of work. The risk that an employee might try to lift the drum on his own and injure himself was small, but the precautions required were simple and without cost – the mobile crane driver could have been required to place the drums on their ends, and not on their sides.

Once again we note that in the past few years the courts have begun to balance the factors in the 'calculus of negligence' in favour of defendants, based on an increased

emphasis on 'autonomy' and 'responsibility' (see, for example, *Woods v Multi-Sport Holdings Pty Ltd* (2002) 186 CLR 145; *Cole v South Tweed Heads Rugby League Football Club* Limited [2004] HCA 29 (but see the strong dissenting judgments of McHugh and Kirby JJ); *Romeo v Conservation Commission of the Northern Territory* [(1998) 192 CLR 431; *Hoyts Pty Limited v Burns* [2003] HCA 61; *Waverley Municipal Council v Swain* (Supreme Court of New South Wales – Court of Appeal (Spigelman CJ, Handley and Ipp JJA) 18 December 2002).

The statutory qualification of 'reasonably practicable'

The general duty in the OHS statutes draws heavily upon the common law standard of care, and closely resembles it (Munkman, 1979, p 206; Brooks, 1993, pp 279-280; 295-301; 363; 494-497; and 596-603; Creighton and Rozen, 1997, pp 69-70; and Marks, 1994, pp 60-61; *Chugg v Pacific Dunlop Ltd* [1988] VR 411; *R v Australian Char Pty Ltd* (1995) 5 VIR 600; *R v Swan Hunter Shipbuilders* [1982] 1 All ER 264; [1981] ICR 831; [1981] IRLR 403; *Broken Hill Associated Smelters Pty Ltd v Stevenson; Stevenson v Broken Hill Associated Smelters Pty Ltd* [1991] 42 IR 130; *Interstruct Pty Ltd v Wakelam* (1990) 3 WAR 100; and *West Bromwich Building Society Ltd v Townsend* [1983] ICR 257; cf *Chugg v Pacific Dunlop Ltd* [1999] 3 VR 934). It is well established that the duties in the OHS statutes are absolute duties, and in the Commonwealth, New South Wales, South Australian, Tasmanian and Australian Capital Territory OHS statutes this absolute duty is qualified by 'reasonably practicable'. 'Reasonably practicable' was definitively defined by Asquith LJ in *Edwards v National Coal Board* [1949] 1 KB 704 at 712:

> 'Reasonably practicable' is a narrower term than 'physically possible' and seems to me to imply that a computation must be made by the owner, in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) is placed in the other; and that if it be shown that there is a gross disproportion between them — the risk being insignificant in relation to the sacrifice — the defendants discharge the onus on them. Moreover, this computation falls to be made by the owner at a point of time anterior to the accident.

It is an 'objective' test – it is not what the duty holder knew about the risk and measures to respond to the risk, but rather what a reasonable person in the position of the duty holder would have known and done in response to the risk. By way of illustration, Goff LJ in *Austin Rover Ltd v Inspector of Factories* [1989] 1 WLR 520 (at 524-525) noted that:

> If, for example, the defendant establishes that the risk is small, but that the measures necessary to eliminate it are great, he may be held to be exonerated from taking steps to eliminate the risk on the ground that it was not reasonably practicable for him to do so … [The effect of the previously decided cases] is to bring into play foreseeability in the sense of likelihood of the incidence of the relevant risk, and that the likelihood of such risk eventuating has to be weighed against the means, including the cost, necessary to eliminate it.

These English decisions have been confirmed by the Australian High Court. In *Slivak v Lurgi (Australia) Pty Ltd* (2001) 205 CLR 304 Gaudron J at pp 322-323 observed that:

> The words 'reasonably practicable' have, somewhat surprisingly, been the subject of much judicial consideration. It is surprising because the words 'reasonably practicable'

are ordinary words bearing their ordinary meaning. And the question whether a measure is or is not reasonably practicable is one which requires no more than the making of a value judgment in the light of all the facts. Nevertheless, three general propositions are to be discerned from the decided cases:

- the phrase 'reasonably practicable' means something narrower than 'physically possible' or 'feasible';
- what is 'reasonably practicable' is to be judged on the basis of what was known at the relevant time;
- to determine what is 'reasonably practicable' it is necessary to balance the likelihood of the risk occurring against the cost, time and trouble necessary to avert that risk.

See also Callinan J in *Slivak v Lurgi (Australia) Pty Ltd* (2001) 205 CLR 304 at pp 332-334 (see [5.34] below); *Coltness Iron Co v Sharpe* [1938] AC 90 at p 94 (per Lord Atkin); *Marshall v Gotham Co Ltd* [1954] AC 360, particularly pp 370 and 373; *Belhaven Brewery Co Ltd v McLean* [1975] IRLR 370 at p 372; *Carrington Slipways Pty Ltd v Callaghan* (1985) 11 IR 467 at p 470; *Auckland City Council v NZ Fire Service* [1996] 1 NZLR 330 at pp 337-338 per Gallen J; *Buchanans Foundry Ltd v Department of Labour* [1996] 3 NZLR 112; *WorkCover Authority of NSW (Inspector Glass) v Kellogg (Aust) Pty Ltd* (2000) 101 IR 239 at p 260; *WorkCover Authority of New South Wales (Inspector Bultitude) v Grice Constructions Pty Ltd* (2002) 115 IR 59; *Shannon v Comalco Aluminium Ltd* [1986] 19 IR 358 at p 362 and *WorkCover Authority of New South Wales (Inspector Byer) v Cleary Bros (Bombo) Pty Ltd* (2001) 110 IR 182 at pp 206-207.

Table Two compares the statutory qualification of reasonably practicable with the common law calculus of negligence. Clearly there is considerable similarity between the two concepts and any differences are of a semantic nature

Table Two: 'Reasonably practicable' and the 'calculus of negligence'

Factors considered in the common law calculus of negligence		
Consideration of risk	***Weighed against***	**Criteria for determining action**
• Magnitude of risk of injury • Probability of risk		• Expense • Difficulty • Inconvenience
Factors considered in determining reasonably practicable		
• Quantum of risk • Likelihood of risk	***Weighed against***	• Cost • Time • Trouble

'Reasonably practicable' and 'practicable' in the Australian OHS statutes

Under the South Australian, Tasmanian, ACT and Commonwealth OHS statutes, the general duties are qualified by the expression 'reasonably practicable' (see *Chugg v Pacific Dunlop Ltd* (1990) 170 CLR 249). Under the NSW OHS statute, the general duties are unqualified but the defendant has the onus of proving that it was not

reasonably practicable to comply with the relevant provisions of the Act (section 28 of the NSW OHS Act).

The Victorian, Western Australian and Northern Territory OHS statutes use the expression 'as far as is practicable', rather than 'reasonably practicable'. In the Victorian OHS Act (see section 4), 'practicable' is defined as "practicable having regard to (a) the severity of the hazard or risk in question; (b) the state of knowledge about that hazard or risk and any ways of removing or mitigating that hazard or risk; (c) the availability and suitability of ways to mitigate or remove that hazard or risk; (d) the cost of removing or mitigating that hazard or risk." The Northern Territory provision is similar. At first blush there could appear to some differences between the statutory definitions of 'practicable' and the courts' interpretation of 'reasonably practicable', particularly in regard to the specific references to 'state of knowledge' in the statutory definitions of 'practicable'. The two concepts are compared in Table Three below.

Table Three: 'Reasonably practicable' and 'practicable'

Factors Considered in Determining Reasonably Practicable		
• Quantum of risk • Likelihood of risk	***Weighed against***	• Cost • Time • Trouble
Factors Considered in Determining Practicable		
• Severity of hazard or risk • State of knowledge about hazard or risk		• State of knowledge about ways of removing or mitigating hazard or risk • Availability and suitability of ways to mitigate or remove risk • Cost of removing or mitigating risk

However, these differences are essentially semantic and having regard to the state of knowledge about risks and ways of removing or mitigating them are equivalent to determining 'reasonably practicable' on the basis of what was known at the relevant time (*Slivak v Lurgi (Australia) Pty Ltd* (2001) pp. 322-323). Thus determining what is practicable involves a similar 'weighing up' process as determining reasonably practicable. This is even more clear in the definition of practicable under the Western Australian OHS statute (section 3) which states that ""practicable" means reasonably practicable having regard, where the context permits, to -(a) the severity of any potential injury or harm to health that may be involved, and the degree of risk of it occurring; (b) the state of knowledge about - (i) the injury or harm to health referred to in paragraph (a); (ii) the risk of that injury or harm to health occurring; and (iii) means of removing or mitigating the risk or mitigating the potential injury or harm to health; and (c) the availability, suitability, and cost of the means referred to in paragraph (b)(iii)."

In Queensland, as in New South Wales, the defendant has the onus of proving that an offence was not committed and section 37 of the Queensland OHS statute sets out

defences where the obligations imposed by the general duty provisions have been contravened:

> **37(1)** It is a defence … to prove —
>
> (a) if a regulation or ministerial notice has been made about the way to prevent or minimise exposure to a risk — that the person followed the way prescribed in the regulation or notice to prevent the contravention; or
>
> (b) if an advisory standard or industry code of practice has been made stating a way or ways to identify and manage exposure to a risk —
>
> (i) that the person adopted and followed a stated way to prevent the contravention; or
>
> (ii) that the person adopted and followed another way that managed exposure to the risk and took reasonable precautions and exercised proper diligence to prevent the contravention; or
>
> (c) if no regulation, ministerial notice, advisory standard or industry code of practice has been made about exposure to a risk — that the person chose any appropriate way and took reasonable precautions and exercised proper diligence to prevent the contravention.

Thus in Queensland, in the absence of a relevant regulation or other evidentiary standard, the benchmark for determining compliance with the duty of care is whether reasonable precautions were taken and proper diligence exercised. While the expressions ‘reasonable precautions’ and ‘proper diligence’ could also appear to be different from reasonably practicable, they are simply a recasting of the reasonably practicable expression. The expression ‘reasonable precautions’ is similar to the common law standard of care which, in turn, is similar to ‘reasonably practicable’, while exercising diligence requires reasonable care, as determined in all the circumstances of the case (Johnstone 2004, p. 210).In sum, ‘reasonably practicable’, ‘practicable’ and ‘reasonably precautions’ and ‘proper diligence’ involve a similar process of weighing preventive measures against degree of risk and, as various cases discussed further below illustrate, these terms have been treated the same.

Reasonably foreseeable and ‘reasonably practicable’

As we have noted earlier in this paper, the OHS statutes set out absolute duties qualified by the concept of 'reasonably practicable' ('practicable' or 'reasonable precautions' and 'proper diligence'). Decisions on the absolute nature of the general duties make it clear that 'reasonable foreseeability' is not an element of those absolute duties. For example, in *Drake Personnel Limited v WorkCover Authority of New South Wales (Inspector Ch'ng)* (1999) 90 IR 432 the Full Bench stated that:

> The concept of "reasonable foreseeability" is not, in our view, apt to be applied in relation to the duties owed under the OH&S Act. The duties imposed by the Act are not merely duties to act as a reasonable or prudent person would in the same circumstances: see *Carrington Slipways Pty Limited v Callaghan* (1985) 11 IR 467 at 469. Under [the employer's general duty] the obligation of the employer is "to ensure" the health, safety and welfare of employees at work. There is no warrant for limiting the detriments to safety contemplated by that provision, to those which are reasonably foreseeable. Whilst employers are not liable for risks to safety which are merely speculative or unduly remote (see *Kirkby v A & M I Hanson Pty Ltd* (1994) 55 IR 40 at 50), the terms of [the general duty] specify that the obligation under that section is a strict or absolute liability to ensure that employees are not exposed to risks to health or safety. It is inappropriate to seek to substitute a different test for that specified in [the general duty].

The Queensland Supreme Court made a similar point in *Hardy v St Vincent's Hospital Toowoomba Ltd* (2000) 2 Qd R 19 at p 22.

Issues of foreseeability are, however, taken into account in determining whether measures are (reasonably) practicable. In all jurisdictions, apart from New South Wales and Queensland, issues of whether measures are (reasonably) practicable arise as an integral part of the duty. In New South Wales they arise as part of the defence that measures were not reasonably practicable. (Section 28 of the New South Wales Act provides that is a defence to any proceedings against a person for an offence against a provision of the Act (or regulations) if the person proves that it was not 'reasonably practicable' to comply with the provision). In Queensland these issues arises if, in the absence of a regulation, ministerial notice, advisory standard or industry code of practice about exposure to a particular risk, the courts consider whether measures taken were reasonable precautions and whether proper diligence was exercised (section 37(1) of WHSA (Qld)).

The Australian courts (but see the strong contrary view of Ormiston J in *Chugg v Pacific Dunlop Ltd* [1999] 3 VR 934 at pages 961, and 964-5 in relation to 'practicable' in Victoria) have held that qualifications of 'reasonably practicable', 'practicable' or 'reasonable precautions' and 'proper diligence' in the general duties, as discussed above, do require the court to draw on common law concepts of foreseeability. For example, the Victorian Supreme Court in *Holmes v R E Spence & Co Pty Ltd* (1993) 5 VIR 119 at 126-127 stated that the employer's general duty is breached "if there were practical steps available to [the employer] which, although not taken, would have reduced the risk of foreseeable accident if they had been taken." In *Softwood Holdings Pty Ltd v Stevenson* (unreported, Industrial Relations Court of South Australia, Jennings SJ, Cawthorne and Parsons JJ, No 489 of 1993, 24 November 1995) the Full Court held that, in a prosecution for a breach of the employer's general duty in section 19 of the South Australian OHS Act the prosecution had to prove beyond reasonable doubt that there were deficiencies in the system of construction of the stack of stored timber at the defendant's workplace, which rendered the stack unstable. According to the court (at p 12), the prosecutor "had to prove beyond reasonable doubt that there was a reasonably foreseeable risk of injury. That is one that is real and not far-fetched". See also *Softwood Holdings Ltd v Stevenson* (1996) 188 LSJS 482, at p 484 (per Prior J), *WorkCover Authority of NSW (Inspector Glass) v Kellogg (Aust) Pty Ltd* (2000) 101 IR 239 at 259; *Shannon v Comalco Aluminium Ltd* [1986] 19 IR 358 at pp 363-364; *Tenix Defence Pty Ltd v Maccarone* [2003] WASCA 165; *Holmes v R E Spence & Co Pty Ltd* (1993) 5 VIR 119; and *WorkCover Authority of New South Wales (Inspector Mayo-Ramsay) v Maitland City Council (*1998) 83 IR 362 at p 381. It would not be reasonably practicable to take measures against a hazard which could not have been known to be in existence: see *WorkCover Authority of New South Wales (Inspector Byer) v Cleary Bros (Bombo) Pty Ltd* (2001) 110 IR 182 at pp 206-207; *WorkCover Authority of New South Wales (Inspector Bultitude) v Grice Constructions Pty Ltd* (2002) 115 IR 59; and *Graham Stratford v Clive John Newman* (2003) 173 QGIG 661. Most important, the courts have ruled that the test for 'reasonable foreseeability' is a broad one: the "question … is not whether the detail of what happened was foreseeable, but whether accidents of some class or other might conceivably happen, and whether there is a practicable means of avoiding injury as a result:" *Holmes v R E Spence & Co Pty Ltd*

(1993) 5 VIR 119 at 126. See also *Shannon v Comalco Aluminium Limited* (1986) 19 IR 358 at 362.

Further, the courts have ruled, in relation to the Victorian definition of 'practicable' that 'state of knowledge of the hazard or risk' in the Victorian definition of 'practicable' "must be determined objectively (by reference to the knowledge in the industry, and in regulations, codes of practice, Australian Standards, other standards and articles in trade journals) and can take into account the subjective knowledge of the employer": *Chugg v Pacific Dunlop Ltd Ltd* [1999] 3 VR 934, *per* Ormiston J (see also Beach J and Kaye J); and *R v Australian Char Pty Ltd* (1995) 64 IR 387.

The courts have also made it clear that in implementing its statutory general duty, the employer must anticipate that workers might be careless or inadvertent, and must take steps to prevent an employee from suffering injury as a result of the employee's own negligence or inadvertence (*Holmes v R E Spence & Co Pty Ltd* (1993) 5 VIR 119 (; *R v Australian Char Pty Ltd* (1995) 64 IR 387); *WorkCover Authority of New South Wales (Inspector Twynam-Perkins) v Maine Lighting Pty Ltd* (1995) 100 IR 248 at p 257; *WorkCover Authority of New South Wales (Inspector Mulder) v Arbor Products International (Australia) Pty Ltd* (2001) 105 IR 81, at paras 45-49; *Tenix Defence Pty Ltd v Maccarone* [2003] WASCA 165, Supreme Court of Western Australia (EM Heenan J) 30 July 2003 at para 45; *Bartos v CSR Ltd* (Industrial Court of South Australia, M22 of 1990, 19 October 1990, noted in (1990) *Australian Industrial Safety, Health and Welfare Case Digests* ¶52-761); *Short v Lockshire Pty Ltd* (2000) 165 QGIG 521; *Otto v Boxgrove Pastoral Co Pty Ltd* (2002) 171 QGIG 138; Cahill VP and Sweeney J in *Cullen v State Rail Authority (NSW)* [1989] IR 207; *Riley v Australian Grader Hire Pty Ltd* (2000) 103 IR 143; *WorkCover Authority of New South Wales v TRW* [2001] NSWIRC 52; *WorkCover Authority of New South Wales (Inspector Chadwick) v BHP Steel (AIS) Pty Ltd* (2000) 98 IR 122 at 135; *State Rail Authority (NSW) v WorkCover Authority of New South Wales (Inspector Dubois)* (2000) 102 IR 218 at 231; *WorkCover Authority of New South Wales (Inspector Piggott) v Capral Aluminium* Ltd (1998) 83 IR 211 at 221; *WorkCover Authority of New South Wales (Inspector Hopkins) v Profab Industries Pty Ltd* (2000) 100 IR 64 at 84; *WorkCover Authority of New South Wales (Inspector Carmody) v Byrne Civil Engineering Constructions Pty Ltd* (No 1) (2001) 103 IR 80 at 112-113; *Inspector Moore v Blacktown City Council* [2003] NSWIRComm 47 and Tooma (2001, pp 34-35) and Thompson (2001, pp 23-25); cf *Bunnings Forest Products Pty Ltd v Shepherd*, unreported, Supreme Court of Western Australia Full Court (Franklin J, Ipp and Anderson JJ), 5 May 1998.

How the courts have interpreted reasonably practicable and practicable

Even though the notions of reasonably practicable and practicable appear to make use of an incongruous economic calculus which purports to try to balance the risks to worker health and safety on the one hand, and the practicability and cost of mitigating those hazards on the other (see Maxwell, 2004, 125), the case law on the interpretation of (reasonably) practicable suggests that the courts generally take a broad approach to the issue.

Two good explanations of the way in which the courts address issues of reasonably practicable are provided by *Holmes v R E Spence & Co Pty Ltd* (1993) 5 VIR 119 and

WorkCover Authority of New South Wales (Inspector Patton) v Fletcher Constructions Australia Ltd (2002) NSWIRComm 316.

In *Holmes v Spence*, at 123, Harper J observed that, in relation to 'practicability' under the Victorian OHS Act, in relation to which the prosecutor bears the onus of proof:

> The Act does not require employers to ensure that accidents never happen. It requires them to take such steps as are practicable to provide and maintain a safe working environment. The courts will best assist the attainment of this end by looking at the facts of each case as practical people would look at them: not with the benefit of hindsight, nor with the wisdom of Solomon, but nevertheless remembering that one of the chief responsibilities of all employers is the safety of those who work for them. Remembering also that, in the main, such a responsibility can only be discharged by taking an active, imaginative and flexible approach to potential dangers in the knowledge that human frailty is an ever-present reality. This, indeed, is an element in the equation which often turns what would otherwise be a positive result into a negative one — so that, for example, the minor but less obvious traps may present a greater actual danger than the major and more obvious ones. Any machine capable of trimming and planing wooden doors is also capable of trimming and planing the human anatomy. On the other hand, if the machine is to do its job on doors, those parts of it which trim and plane must be exposed to those doors. If they are exposed to doors, they will be exposed to humans who (for example) act spontaneously, or slip and fall, or panic.
>
> One must then weigh the chances of spontaneous stupidity, or a fall, or the like, against the practicability of guarding the machine so as to maintain its function while preventing the human factor from resulting in injury. If the danger is slight and the installation of a guard would be impossibly expensive, or render the machine unduly difficult to operate, then it may be that the installation of that guard is properly to be regarded as impracticable. Each case must be decided on its own facts. In this context, however, it is helpful to refer to the definition of the expression "practicable" in s 4 of the Act.
>
> Each case must be decided on its own facts, bearing the above definition in mind.

In *Fletcher Constructions Australia Ltd*, in discussing the defence in section 53(a) of the *Occupational Health and Safety Act* 1983 (NSW) that it was not reasonably practicable to comply with a general duty obligation, Walton J stated that, in order to make out the defence, the defendant had to "prove, on the civil standard, that it was not reasonably practicable for it to comply with its obligations under the Act by providing a safe system of work." (para 101). The court endorsed the following passages from the judgment in *WorkCover Authority of New South Wales (Inspector Byer) v Cleary Bros (Bombo) Pty Ltd* (2001) 110 IR 182 paras [87] and [88]:

> It is evident from [the] authorities that what is required by s 53(a) … is the balancing of the nature, likelihood and gravity of the risk to safety occasioning the offences with the costs, difficulty and trouble necessary to avert the risk. At the one end of the scale, it could not be reasonably practicable to take precautions against a danger which could not have been known to be in existence. … Similarly, if the happening of an event is not reasonably foreseeable then it will not generally be reasonable to make provision against that event …
>
> At the other end of the scale, there will be cases … in which known or obvious risks to safety exist. In these circumstances, the defendant will not have established a defence under s 53(a) of the Act where it was reasonably practicable to have complied with the Act by ensuring that persons were not exposed to those risks. This may be the case because no measures were reasonably available or because measures which were available were not reasonably practicable. …[T]he assessment of the reasonable

> practicability of those steps requires a balancing of the quantum of the risk with the sacrifice (in money, time and trouble) in adopting the measures necessary to avert the risk. In my view, where there is a known risk which entails the potential for serious injury to persons in the workplace, the defendant will generally have to demonstrate that the costs, difficulty or trouble occasioned by the measures significantly outweigh the risk.

Walton J (at para 94) observed that the test of reasonably practicable

> plainly calls for a balancing of the various interests of the particular employer in their particular circumstances against the stringent and explicit policy expressed in the Act to ensure that all places of work are safe and without risks to health and safety. … [I]t must be kept firmly in mind that in order to establish a defence under s 53 a defendant must be able to show that it had done all that was reasonably practicable. This is how the balancing of interests … must operate. However, for a defendant to establish such a defence in the absence of pre-established safe work method, would, in my view, at the minimum, require evidence of the particular or unique circumstances that made the establishment of a safe work method in advance of the activities being commenced, impracticable. By their nature, such situations would be rare.

The definition of 'reasonable practicable' in *Edwards v National Coal Board* and the discussion of the concept above in *Fletcher Constructions* suggest that the courts endorse a 'gross disproportion' test – that "duty holders are obliged to take risk prevention measures unless the cost of preventive measures would be 'grossly disproportionate' to the risk as assessed" (Maxwell, 2004, 120).

In sum, interpretation by the courts of the general duty provisions and (reasonably) practicable suggests that duty holders will need to adopt an active, imaginative and flexible approach to identifying potential dangers and to assessing the severity and likelihood (probability) of risks arising. They can also be expected to determine suitable preventive measures and to implement these measures unless the cost, time and trouble of doing so significantly outweighs (is grossly disproportionate to) the risk assessed. They will also need to be mindful of human limitations and inadvertence in assessing and preventing or minimising risk. We note that decisions on these matters are not a management prerogative as all of the Australian OHS statutes require employers to consult with worker representatives. (The consultation requirements are discussed further in the third section of this paper on *OHS Risk Management Principles*).

It is important to note that, in determining what is (reasonably) practicable, the courts are usually doing so in the context of an incident and thus take an 'event focus' considering, in hindsight, an alleged breach involving a particular incident or risk scenario. Because of the event focus of prosecutions, traditionally the courts have not been concerned with what proactive steps might need to be taken by a duty holder to address risks more holistically, across a business or undertaking, for all work performed. Notwithstanding that constant event focus, the courts are developing a more proactive systematic approach, as the cases we discuss in the next section illustrate.

The general duties and proactive management of risks

We saw in *Holmes v Spence*, at 123, that an active, imaginative and flexible approach was needed to comprehensively identify potential dangers but by the late 1990s it was

common for the Australian courts to interpret the general duties as requiring positive and proactive steps to discharge the employer's general duty. For example, in *Drake Personnel Limited v WorkCover Authority of New South Wales (Inspector Ch'ng)* (1999) 90 IR 432 at 456, the majority observed that "… a labour hire company is required by the OH&S Act to take positive steps to ensure that the premises to which its employees are sent to work do not present risks to health and safety …." In *Labour Co-operative Limited v WorkCover Authority of New South Wales (Inspector Robins)* (2003) 121 IR 78 a Full Bench of the NSW Industrial Relations Commission upheld (see (2003) 121 IR 78 at 84-85) the trial judge's finding that it was reasonably practicable for the labour hire company to have ensured against the risks to the worker's safety by "adopting a positive and pro-active approach with [the client] to require steps to be put in place to avoid the risks as a condition of it making available" the services of the worker. The labour hire company had sufficient control to ensure the adequacy of instruction, training and supervision, and could refuse to supply its employees to the client "until appropriate and sufficient measures to ensure safety were implemented." See also *WorkCover Authority of New South Wales (Inspector Legge) v Coffey Engineering Pty Ltd (No 2)* (2001) 110 IR 447.

Other decisions have confirmed that employers must take a proactive approach to OHS. Hill J in *WorkCover Authority of NSW (Inspector Egan) v Atco Controls Pty* Ltd (1998) 82 IR 80 at p 85 observed that:

> This case is yet another illustration of the need for employers to exercise abundant caution, maintain constant vigilance and take all practicable precautions to ensure safety in the workplace. It is essential that the approach should be pro-active and not a reactive one; employers should be on the offensive to search for, detect and eliminate, so far as is reasonably practicable, any possible areas of risk to safety, health and welfare and which may exist or occur from time to time in the workplace.

In *Kennedy-Taylor (NSW) Pty Ltd v WorkCover Authority of NSW (Inspector Charles)* (2000) 102 IR 57 it was held that a failure to properly assess risks was a contravention of the employer's general duty in the NSW OHS Act. The Full Bench of the NSW Industrial Relations Commission stated (at p 81) that:

> The appellant should have been aware of all of the factors that might impinge on the safety of its employees using the trafficable ceiling. This flows from the duty to 'ensure' the safety of employees at work. The appellant had a duty to make a proper and comprehensive assessment of the risks to its employees associated with using the trafficable ceiling as a walkway. It is no defence for the appellant to say it was not aware of the construction work that might adversely affect the trafficable ceiling or it was not aware that the dust wall was to be removed at a time when its employees would be using the ceiling. Proper inquiry by the appellant … would have revealed the nature of the risk. … In failing to carry out a risk assessment the appellant exposed its employees to the risk of the construction work adversely affecting the structural integrity of the trafficable ceiling.

In *WorkCover Authority of NSW (Inspector Robinson) v Milltech Pty Ltd* [2001] NSWIRC 51 Marks J (at para 18-21) stated that the defendant employer was required by the employer's general duty provision:

> to create a system of work which eliminates risks of injury to employees. All tasks must be assessed to ensure the system of work allows no risk of injury. … It is not sufficient for … the employer to leave the responsibility for carrying out this task safely to be assessed by workers carrying out the task on the spot. They did not exercise the

> necessary foresight and vigilance to avoid any undue risk to the health and safety of persons who may have been affected by the task.

In *WorkCover Authority of New South Wales (Inspector Patton) v Fletcher Constructions Australia Ltd* (2002) NSWIRComm 316 Walton J (with whom Wright P agreed) held at para 78 that the "system of work must be 'coherent and systematic' so that all employees who are performing work on any given site can properly understand what is being required of them." Also in *WorkCover Authority of New South Wales (Inspector Lyons) v Warman International* [2001] NSWIRComm 62 Walton J (at para 73) concluded that while the defendant had taken "elaborate and extensive steps to ensure occupational health and safety at the workplace", they had not established "a system for the assessment of risk in relation to the work practice in question prior to the incident." Similarly, in *Inspector Ching v Bros Bins Systems Pty Ltd; Inspector Ching v Expo Pty Ltd t/as Tibby Rose Auto* [2004] NSWIRComm 197**,** Marks J, at para 32, held that Exo and Bros Bins should have taken "a structured or systematic approach to safety in everything which is touched by" their operations. See also *Mainbrace Constructions Pty Ltd v WorkCover Authority of New South Wales (Inspector Charles)* (2000) 102 IR 84 at 100 and *WorkCover Authority of New South Wales (Inspector Yeung) v Thiess Pty Ltd* [2003] NSWIRComm 325 at para 39.Some commentators have suggested that the courts' new emphasis on proactive, holistic and systematic assessment of risks implicitly requires a risk management approach. (See Tooma 2004, pp. 35-36 and Thompson 2001, pp. 19-21). Certainly some cases have explicitly asserted that risk management is required. In *WorkCover Authority of New South Wales (Inspector Kelsey) v The University of Sydney* [1997] NSWIRComm 44 Hill J at 21 concluded that:

> In my opinion it is a policy and an underlying objective of the Act that an employer should have in place an effective risk management system. Such a system is not, in terms of the legislation and its objects, simply a matter of "responsive" action to risks which have in fact been demonstrated to exist. Rather, it must be a system of searching for and identifying all possible risks and then instituting reasonable and appropriate safety measures which will, so far as practicable, guard against those risks.

This emphasis on the risk management approach was reaffirmed in *Presdee v Commonwealth Bank of Australia* (2001) 121 IR 246. In this union initiated prosecution concerning security at premises of the bank, Miller CIM at 248 stated that:

> The system of effective risk management required by the Act is not met merely by responsive actions to a risk which had been demonstrated to exist. There must be a system of searching for and identifying all possible risks and instituting safety measures to guard against those risks … Employers are required to maintain constant vigilance and take all practical precautions to ensure safety in the workplace.

See also *WorkCover Authority of New South Wales (Inspector Glass) v Qantas Airways Ltd* (2002) 119 IR 8. 'Risk management' is also apparently a concept which has currency in industry, being frequently mentioned in evidence presented on behalf of defendants, about their OHS programs. See, for example, *Inspector Moore v Blacktown City Council* [2003] NSWIRComm 47 at 36; *Labour Co-operative Ltd v WorkCover Authority of New South Wales (Inspector Robins)* [2003] NSWIRComm 51 at 38; *WorkCover Authority of New South Wales (Inspector Stewart) v Siemens Dematic Pty Ltd* (2003) 121 IR 283 at 314; *WorkCover Authority of New South Wales*

(Inspector Barbosa) v McDonald's Australia Ltd (2003) 125 IR 270 at paras 36, 43 and 48.

However, rather curiously, the trend is for the prosecution in laying charges under the statutory general duties, and the courts in determining cases, to identify failures in conducting a 'risk assessment' rather than failure to apply a 'risk management' approach. For example in *DPP v Esso Australia Pty Ltd* (2001) 107 IR 285 at 16 the charges included Esso's failure "to conduct any adequate risk assessment" of the gas plant. The charge was proved and a fine of $150,000 was imposed by the court. A series of New South Wales' cases include a charge relating to failure to conduct risk assessment (or conduct one adequately). Examples are *Mainbrace Constructions Pty Ltd v WorkCover Authority of New South Wales (Inspector Charles)*[2000] NSWIRComm 239 at para 5; *WorkCover Authority of New South Wales (Inspector Stewart) v Siemens Dematic Pty Ltd* (2003) 121 IR 283 at para 3; *Seda Authority v WorkCover Authority of New South Wales (Inspector James)*[2003] NSWIRComm 368 at para 42; *Inspector Craig Przibilla v The Roofing Centre Albury/Wodonga Pty Ltd* [2004] NSWIRComm 227 at para 2; *Inspector Atkins v Steggles Limited* [2004] NSWIRComm 70 at para 4; *WorkCover Authority of New South Wales (Inspector Templeton) v Narromine Shire Council* [2004] NSWIRComm 228 at para 3; *Inspector Sharpin v Concrete Civil Pty Ltd* and *Inspector Sharpin v Daryl Smith* [2004] NSWIRComm 173 at para 2. In a series of South Australian prosecutions the particulars of the charge include failure to carry out (or adequately carry out 'hazard identification and risk assessment'. Examples are *Moore v Lanfranco Furniture International Pty Ltd* [2002] SAIRC 12; *Baker v Tatiara Meat Company Pty Ltd* [2002] SAIRC 13; *Moore v Steed Form Pty Ltd* [2002] SAIRC 24; *Badgery v Sky Rigging* [2002] SAIRC 41; *Tansell v George Weston Foods Pty Ltd* [2003] SAIRC 37; *Moore v Adelaide Brighton Cement Ltd* [2003] SAIRC 69.

The reasons for highlighting the particular process step of 'risk assessment' (hazard identification and risk assessment in the South Australian cases), rather than the full 'risk management' process are unclear although in at least one earlier case the prosecution indicates that duplicity might be a reason. (See Johnstone 2004, p. 196, for a discussion of duplicity). In *Howard H Stevenson v CSR Limited t/as CSR Wood Panels* [1992] SAIRC 48 the defendant was prosecuted for breach of the employer's duty of care (OHSWA: s 19) as well as breach of regulation 6 of the manual handling regulations in regard to failure to identify and assess risks involved in the task of lifting and moving 50kg bags of ammonium sulphate. Magistrate Cunningham states that :

> In the construct of the regulations, Regulation 6 *[identification and assessment of risks]*, leads immediately to a consideration of Regulation 7, which requires that, if a manual handling task is assessed as being a risk to health and safety, the employer must take such steps as are reasonably practicable to control the risk. In the context of the charges before me, however, the prosecution has in terms declined to lay any charge under Regulation 7. Had any such charge been laid, it would have duplicated, substantially, inevitably and in its very wording, the charge which was offered under section 19 of the Act.

It might also be, in the later cases involving charges in relation to risk assessment, that the term 'risk assessment' is being used as a kind of 'short hand' for the fuller process of identifying hazards, assessing risks and implementing risk control measures. A further possible explanation is that as determining whether the statutory general

duties, qualified by (reasonably) practicable, have been complied with requires consideration of the nature and severity of risks, failure to carry out (adequate) risk assessment can be readily accommodated into such charges under the general duties. This seems to be the essence of Wright, Hungerford and Boland JJ's conclusions in *Mainbrace Constructions Pty Ltd v WorkCover Authority of New South Wales (Inspector Charles)* [2000] NSWIRComm 239 at para 66:

> Particular (b) alleges a failure to carry out a risk assessment of the structural integrity of the ceiling and the potential effects upon such integrity of the removal of the dust suppression wall. Although there is no specific requirement in s 16(1) to carry out a risk assessment there is a strict duty on the employer to ensure that persons not in the employer's employment are not exposed to risks to health and safety. If one means of fulfilling this duty was to assess the risks to health and safety in the conduct of the undertaking then a risk assessment cannot be objectionable.

However, we must admit that the possible explanations we have put forward for the emphasis on risk assessment, rather than risk management, are essentially speculative. Nonetheless, it is clear from a review of the relevant cases that 'risk assessment' has been elevated to particular prominence.

While in a number of the cases referring to risk assessment this reference is quite brief, with no clarification of what is expected of the duty holder, some cases do shed light on what the courts expect in conducting risk assessment. The indications are that risk assessment should be a rigorous process of gathering information in order to understand the nature of the hazard(s), the mechanisms by which the hazard(s) could give rise to injury or ill-health and the gravity of the risk. On the basis of such a risk assessment, the duty holder can then determine what preventive action is required. For example, in *Mainbrace Constructions Pty Ltd v WorkCover Authority of New South Wales*, at para 67, Wright, Hungerford and Boland JJ's discuss the scope of the required risk assessment as follows:

> The evidence revealed … that the ceiling was unsafe. It was cluttered with equipment, overloaded by traffic and overweighted with absorbed moisture. There were loose pipes, chains and brackets and a collection of debris dirt and dust. … Notwithstanding the fact that the appellant's undertaking included the demolition of a wall that supported the ceiling, the appellant took no steps to assess how that whole undertaking might affect the integrity of the ceiling and whether there were any risks to persons above or below the ceiling.

And further, at para 72:

> if there had been a proper and comprehensive risk assessment of the structural integrity of the trafficable suspended ceiling above the Hanging Area and of the potential effects upon such integrity of the construction and removal of the dust suppression wall, the risk would have been discovered and, in our view, remedial action could have been taken.

The approach taken in *Mainbrace Constructions Pty Ltd v WorkCover Authority of New South Wales* was endorsed in *Stephen Finlay McMartin v Newcastle Wallsend Coal Company Pty Limited & Others* [2004] NSWIRComm 202. This prosecution concerned risks to health safety arising in mining activities at the Gretley colliery, and in particular the inrush of water from old workings into 50/51 panel which resulted in the death of four workers. Staunton J stated that (paras 548 – 551):

> there is no doubt that, given the nature of the risk, a proper and adequate risk assessment should have been undertaken in relation to the mining activity to be undertaken in 50/51 panel. … Given that a risk assessment of the mining activity in 50/51 panel should have been undertaken, the question then is - did the failure of the defendant to undertake such a risk assessment for all or any part of the charge period cause the risk to safety as alleged? In my view, the answer must be yes. In coming to that view, I adopt the approach as expressed by the Full Bench in *Mainbrace* at para [73] making provision only for the differing facts in the matter before me.
>
> Given the nature of the risk, an adequate risk assessment would have encompassed much more than acknowledging the presence of the old workings and the intention to leave a barrier. In identifying risk as being the risk of inrush from water and/or dangerous gases, the consequences of such a risk would have been identified as death or injury to workers. This would have highlighted as a risk prevention strategy the need to ensure that the depiction of the Young Wallsend old workings could be relied upon without question as to their accuracy.
>
> The requirement to be satisfied as to that was paramount. Further, such a requirement would have, should have, put the defendant on notice as to the need to obtain every available piece of information relevant to those old workings. … The extent to which a proper risk assessment would have identified and prioritised the risk of inrush might not have been evident in such a process but, as was said in *Mainbrace* at [73] it 'would have at least raised the issue in the mind of the assessor'.

A similar approach to ensuring that risks are fully understood was taken in *Inspector Ching v Bros Bins Systems Pty Ltd* and *Inspector Ching v Exo Pty Ltd t/as Tibby Rose Auto* [2004] NSWIRComm 197. In these proceedings the court heard concurrent charges which arose out of a fatality involving an industrial waste truck which was raised, for the purposes of repairs, by a hydraulic jib and held up by pneumatic hooks which failed. In this case Marks J (at para 33) states that:

> On the basis of the evidence given in these proceedings I am satisfied that neither Exo nor Bros Bins had undertaken any structured or systematic approach in the creation of a system of work and in the recognition and appraisal of risks associated with the circumstances in which, on 22 November 1999, rectification work was carried out on the truck in question at the premises of Exo. Whilst common sense might have dictated that a prop either be installed on the vehicle or utilised by Exo, there was certainly no evidence of any structured approach to the provision of a prop at the Exo premises. … It was the evidence of Mr Boulton that, to his knowledge, Exo had never worked on a vehicle of this kind previously. That fact of itself alone required that someone assess what needed to be done to ensure that the work should be carried out safely. Even if it could be said that it might have been sufficient to have relied on the fact that the jib was locked into place by the pneumatically driven hooks, it would nevertheless have been necessary to ascertain the circumstances in which the hooks might become disengaged. Furthermore, there needed to be an assessment of what would happen if the lever moved from its uppermost position to the next position down and as to whether this would have the effect of disengaging the hooks.

Further, the need for comprehensive assessment of risks is clear in Boland J's comments in *Inspector Green v Coffey and Cork* [2004] NSWIRComm 110, in discussing the inadequacy of risk assessment prior to an incident involving the collapse of a wall (para 22):

> Mr Coffey's direction to Mr Maxwell pales almost into insignificance when the defendant's other failures are considered and which include the failure to make any assessment of the condition of the mortar joints or brick ties in the retained masonry

> walls, including the western wall, the failure to have proper regard to the fact the western wall was cracked, the failure to provide shoring, or to otherwise support the western masonry wall, the failure to provide proper or adequate supervision of Mr Maxwell, the failure to provide proper or adequate information in relation to the identification of the hazards (and safe work procedure for toothing works) and the failure to provide adequate training and instruction relating to hazards on the site.

Risk assessment of each task is part of 'the basics' of protecting health and safety, as it informs the development of a safe system of work and information and training for each task. In *Inspector Amanda Templeton v Twynam Investments Pty Ltd* [2004] NSWIRComm 169 at para 26, Kavanagh J concludes that, even on small farms:

> each and every employee must be provided with the basic protections for safe working - protections such as the provision of guards over dangerous parts of all machinery; a risk assessment of each task; a system of work designed for each particular task and the appropriate information and training to employees for the performance of that task.

The assessment process should take account of the knowledge and experience of those who will perform the work. In *Moore v Ottoway Engineering Pty Ltd* [2002] SAIRC 7 at para 6, Magistrate Hardy, in discussing the work of a new worker required to walk between a crane and a load of pipes found that:

> Additionally there had been no risk assessment carried out in relation to the particular features and requirements of this job. No effort had been made to assess the work or its risks nor who was to perform each task, bearing in mind the qualifications required for the roles themselves.

And the obligation to carry out risk assessment is an ongoing one. As stated by Marks J in *WorkCover Authority of New South Wales (Inspector Robinson) v Milltech Pty Ltd* [2001] NSWIRComm 192 at para 15:

> There is a continuing absolute obligation on all employers to carry out a risk assessment of all work which the employer undertakes.

Moreover, a firm is not entitled to take on risk assessments undertaken by another business entity but must ensure that risk assessment is undertaken in relation to its own operations. In *Loizidis v Sawmilling Pty Ltd* [2001] SAIRC 31 at para 11 magistrate Hardy states, in relation to change of ownership of the sawmilling firm, that:

> The defendant was not entitled to substitute CSR's risk assessment and training for its own or to assume that because CSR was a multinational company that sophisticated procedures were in place.

These cases suggest the need for continual vigilance and a rigorous approach to risk assessment in which the duty holder must thoroughly investigate and examine, on an ongoing basis, the nature of the risks arising from his/her undertaking. All of this suggests the need for OHS regulators to be equally rigorous about the kind of guidance they provide about hazard identification, risk assessment and risk control. It is crucial that the scope of what is needed, as indicated by the courts, is not constrained by set or standardised procedures, by formulaic responses or by attempts to describe a procedure that is 'simple' or perceived to be more 'reasonable' for duty holders. If risks are complex, the process of assessing them will need to be sufficiently in-depth to understand those risks. Duty holders will need to be urged 'to

do what it takes' to ensure they fully understand the risks in particular work, and determine and take appropriate preventive measures on the basis of that assessment.

OHS Risk Management Principles

Some preliminary concerns

Our discussion so far suggests that the courts' interpretation of the general duties qualified by (reasonably) practicable does incorporate a risk management approach, or at least the proactive and systematic assessment of risks. In this section we look at this relationship through the frame of the risk management provisions, firstly under the Australian OHS statutes and then particularly under the OHS regulations. We consider whether these provisions are consistent with the court's interpretation of the general duties and (reasonably) practicable. In doing this, we also set these provisions against the wider literature on OHS risk management and ask whether there is anything else that OHS regulators should take into account when setting standards and drafting guidance material.

How risk management principles are expressed in the regulatory provisions and the guidance provided about their implementation are important questions because research suggests that duty holders have difficulty engaging with the risk management process and producing good quality OHS outcomes. A case in point is the Norwegian experience with regulations which require assessment of risks, followed by setting priorities and action plans, and implementation of OHS improvements. By 1999, 83% of firms had completed assessment of risks but research found that there was little difference between firms still implementing the regulation and those that had already done so (Saksvik, Torvatn and Nytrø 2003, p. 732). A key reason appears to be the tendency for firms to act on 'burning' issues, when intervention is an immediate necessity, rather than encouraging systematic, proactive and comprehensive identification of hazards, assessment and control of risks. Similarly, in Denmark which also has regulations requiring workplace assessment of risks, research found that assessments were mostly concerned with problems already well known in the firms. The assessments also tended to be superficial in their understanding of the causes of problems and failed to eliminate or control risks at source (Jensen 2001 and 2002). Crucial issues appear to be a need for organisational learning and development of a local understanding, amongst people at the workplace, about work environment risks. These are needed to equip firms to fundamentally re-examine established norms and old routines, and develop and implement higher order OHS improvements (Jensen 2001 and 2002; Saksvik et al, 2003: 732).

With these concerns in mind, we turn now to consider how OHS risk management is framed in Australian OHS regulation, and to explore further insights on risk management from the OHS literature.

Risk management in Australian OHS regulation

The Queensland *Workplace Health & Safety Act* 1995, s 22, is the only OHS statute to invoke the risk management process, supported by the *Workplace Health and Safety Risk Management Advisory Standard* 2000. Section 22(2) of the Act provides that:

> "Workplace health and safety can generally be managed by –

(a) identifying hazards; and

(b) assessing risks that may result because of the hazards; and

(c) deciding on control measures to prevent, or minimise the level of, the risks; and

(d) implementing control measures; and

(e) monitoring and reviewing the effectiveness of the measures."

Section 29B, which came into force in 2003, also makes it clear that risk management is envisaged under the general duties in sections 28, 29 and 29A owed by employers and persons who conduct a business or an undertaking. Section 29B provides as follows:

What obligations under ss 28-29A may include

Without limiting sections 28 to 29A (the "relevant sections"), an obligation under a relevant section may, having regard to the circumstances of any particular case, include 1 or more of the following –

(a) identifying hazards, assessing risks that may result because of the hazards, deciding on control measures to prevent, or minimise the level of, the risks, implementing control measures and monitoring and reviewing the effectiveness of measures;

(b) providing and maintaining a safe and healthy work environment;

(c) providing and maintaining safe plant;

(d) ensuring the safe use, handling, storage and transport of substances;

(e) ensuring safe systems of work;

(f) providing information, instruction, training and supervision to ensure health and safety.

Thus, under the Queensland Act, risk management is a strategy that may be employed by employers and other persons who conduct a business or undertaking, in order to manage OHS. This is not compulsory. However, there is a *Workplace Health and Safety Risk Management Advisory Standard* 2000 which provided guidance about risk management. As we discussed earlier, under the Queensland Act (section 37) it is a defence to prove that the person adopted and followed the way to manage risk stated in an advisory standard. Thus, if the risk management advisory standard is not implemented, the duty holder would need to demonstrate that they had chosen another appropriate way, and taken reasonable precautions and exercised proper diligence.is not implemented,

In contrast, OHS risk management is mandatory under the OHS regulations in all jurisdictions. Apart from Victoria and the Australian Capital Territory (ACT), there is a generic requirement to manage risks arising from work or at the workplace. In all jurisdictions there are also risk management requirements in relation to specific types of risks, for example, manual handling, hazardous substances, plant and machinery, confined spaces and some other hazards. 'Risk management' is consistently characterised as involving three essential steps of 'hazard identification', 'risk assessment' and 'risk control' although what is required in each of these steps varies between jurisdictions.

In this discussion and the summary tables presented below we focus on the generic risk management requirements. However, the general argument holds for the specific risk management requirements. We also provide some examples to illustrate requirements in relation to specific risks.

Responsibility for risk management and those protected

Table Four identifies the generic risk management provisions under OHS regulations, the persons responsible and those to be protected.

Table Four: Risk management provisions, persons responsible and persons to be protected

Qld	NSWs	SA	WA	Tas	NT	Cwth
Risk management provisions						
Workplace Health & Safety Act 1995, s 22 & 29B supported by *Workplace Health & Safety Risk Management Advisory Standard* 2000.	*Occupational Health & Safety Regulation* 2001, rs 9-12 & 34-37. Approved Code of Practice *Risk Assessment* 2001.	*Occupational Health, Safety & Welfare Regulations* 1995, rs 1.3.2 & 1.3.3.	*Occupational Safety & Health Regulations 1996, r 3.1.*	*Workplace Health and Safety Regulations* 1995, rs 17, 18 & 19.	*Work Health (Occupational Health & Safety) Regulations* 1992, rs 38 & 39.	*Occupational Health and Safety (Commonwealth Employment) (National Standard) Regulations* 1994, rs 1.05 & 1.06.
Responsible person						
Employer, self-employed, principal contractor, person in control of workplace.	Employer (OHSR rs 9-12) as below. Controller of premises (OHSR rs 34-38) has a more limited risk management obligation concerned with physical work environment & layout & condition of premises.	Employer	Employer, main contractor, self-employed, person with control of workplace or access to workplace.	Accountable person = person responsible for management or control of workplace.	Employer	Employer
Persons protected						
Persons who could be exposed arising out of the conduct of the undertaking.	Employees and any other person legally at employer's place of work.	Employees or other persons at the workplace.	Any person likely to be exposed to a hazard at a workplace.	Any person who could be exposed to a hazard in a workplace.	Workers and other persons who could be affected by work.	Employees or other persons at work.

As Table Four indicates, the generic risk management obligations typically apply to employers or, in a few jurisdictions, to other persons in control of workplaces or work processes. In particular, under the Queensland *Workplace Health & Safety Risk Management Advisory Standard* 2000 discussed above, (WHSRMAS (Qld) p. 4) and the Western Australian OSH Regulations 1996 (OSHR (WA) r 3.1) such obligations also apply to the self-employed, principal contractors and other persons in control of workplaces. Under the New South Wales *OHS Regulation* 2001 and the Tasmanian *Workplace Health and Safety Regulations* 1995 persons in control of a workplace also have such obligations (OHSR (NSW) rs 9-12 and 34-38; WHSR (Tas) rs 17-19). In contrast, the specific risk management obligations may require that other duty holders, including designers, manufacturers or other upstream parties, engage in risk management. For example, plant regulations typically require each party in the supply chain from designer, to manufacturer, importer, supplier, installer and erector to engage in hazard identification, risk assessment and risk control (Bluff 2004, p. 230).

Those to be protected through work/workplace risk management are 'all persons' who could be exposed to such hazards (WHSA (Qld) ss 28(3), 29(2) and 31(1); OSHR (WA) r 3.1; and WHSR (Tas) rs 17-19) or a narrower group comprising employees and others "legally at the employer's place of work" (OHSR (NSW) r 9(1)), or employees and others at the workplace/at work (OHSWR (SA) r 1.3.2 and OHS(CE)(NS)R (Cwth) r 1.05), or "workers and other persons who could be affected

by work" (WH(OHS)R (NT) r 38). (See also Table One). Under the specific risk management obligations, upstream parties are required to take action to protect those who could be exposed to risk downstream, for example those who use or work with the plant or hazardous substance.

We would argue that an obligation to manage risks is equally applicable to any person with real control and influence over work, workplaces, equipment and materials used at work, and should be applied for the protection of all persons who could be exposed to risk(s). (See also Bluff and Gunningham 2004, pp. 29-30). This would also establish greater consistency between the generic and the specific risk management requirements, and would extend an obligation to manage risks to all persons to whom general duties apply.

Hazard identification

The Australian OHS regulations and codes define a hazard broadly as something with the 'potential to cause harm' or something with the 'potential to cause injury or illness,' which may include 'damage to plant or premises'. The definitions of hazard are presented in Table Five and Table Six lists the types of hazards to be considered.

Table Five: Definitions of hazard

Qld	NSW	SA	WA	Tas	NT	Cwth
Potential to cause harm.	Anything, including work practices or procedures, that has the potential to harm health or safety of a person.	Potential to cause injury or illness.	Anything that may result in injury or harm to health of a person.	Situation or event that may give rise to the potential of injury or illness.	Any agent or situation capable of potentially injuring or compromising the health & safety of a person or causing damage to plant or premises.	Potential to cause injury or illness.

Table Six: Types of hazards

Types of hazards						
Qld	**NSW**	**SA**	**WA**	**Tas**	**NT**	**Cwth**
All hazards at workplace. Advisory Standard specifies categories of hazards: work environment, energy, manual handling, noise, substances, plant – list of pecific types in Appendix 2 of Advisory Standard: access, air conditioning, confined spaces, heat, cold, lighting, mental stress (including bullying, violence, shiftwork), electrical energy, gravity, kinetic energy, radiation (various types), vibration, noise, body stressing (various types), ergonomics, substances (various chemical & biological), plant.	Hazards arising from work premises, work practices & systems, fatigue, shiftwork, psychological hazards, plant, haz substances, asbestos, manual handling, potential for overuse injuries, layout & condition of workplace, lighting, work station design, biological organisms & substances, potential for electrocution, drowning, fire & explosion, slipping, tripping, falling, contact with moving or stationary objects, noise, heat, cold, vibration, radiation, static electricity, contaminated atmosphere, confined spaces, violence.	In relation to *OHSW Regulations* The OHS regulations address amenities, floors, roves, work space, confined spaces, electrical hazards, fire & explosion, lighting, manual handling, noise, falls, remote or isolated work, traffic, materials storage, air contaminants, plant, hazardous substances, lead, asbestos, abrasive blasting, demolition, diving, electroplating, excavation, foundry work, logging, spray painting, welding, construction, mining & petroleum work.	Not specified – unlimited	Not specified – unlimited	Not specified – unlimited	In relation to *OHS (CE)(NS) Regulations* These regulations address noise, plant, hazardous substances, manual handling, confined spaces, dangerous goods & major hazard facilities.

As Tables Five and Six indicate, the types of hazards to be considered may be quite broad. The Queensland advisory standard and the New South Wales OHS regulation are most comprehensive in illustrating a wide range of types of hazards to be considered in the hazard identification step. The OHS regulations in Western Australia, Tasmania and the Northern Territory are potentially as broad, requiring identification of all hazards. Although particular examples are not included in the regulations, the scope is not limited. However, the South Australian and Commonwealth OHS regulations appear to be narrower in requiring hazard identification only 'in relation to' matters addressed by these OHS regulations. While this covers a range of hazards, as summarised in Table Six, it appears to be more limited than the other jurisdictions. In particular, matters such as psychosocial factors, violence and bullying, shiftwork, fatigue, radiation, vibration, biological hazards, and broader work environment and ergonomic issues are not within the scope of regulations in these two jurisdictions. Likewise, the specific risk regulations apply to those risks as defined, for example 'hazardous substance', 'plant', 'confined space' and so on. Notably, the terms 'plant' and 'hazardous substance' are more narrowly defined than the terms 'plant' and 'substance' under the principal OHS statutes. (See, for example, Bluff 2004, p. 231 for a summary of definitions of plant).

Risk management standards that are limited in this way focus attention on a narrower range of hazards. This is a concern for two reasons. First, if the statutory general duties are read down to this narrower range of potential dangers, 'foreseeable' hazards

might be overlooked. As discussed above, the courts' 'undemanding test' establishes that a duty holder must address a risk that is 'real' and sufficiently foreseeable, that is, one that 'is not far fetched' or 'unduly remote'. Thus, risk management provisions in regulations and codes or practice should encourage attention to an equivalent range of hazards. A second concern is the need, in order to effectively prevent occupational fatalities, injuries and disease, to comprehensively recognise all possible sources of harm and the interactions between them. The nature of work performed, how work is organised, the type of plant, equipment and substances used, other aspects of the physical working environment, ergonomic factors, administrative practices, psychosocial factors and social relationships may all, individually or in combination, interact to cause occupational injury or ill-health (Bohle and Quinlan 2000, p 503). Moreover, OHS problems are often multi-layered and this complexity demands a rigorous approach to identify all factors contributing to occupational injury and ill-health (Jensen 2002, pp 207-210).

We submit that duty holders should be required to identify all hazards arising from the conduct of their undertaking with the only qualification, if one is needed, being that hazards are reasonably foreseeable.

Table Seven: Scope of hazard identification

Qld	NSW	SA	WA	Tas	NT	Cwth
Identify hazards. (Look for things at the workplace with the potential to cause harm).	Take **reasonable care** to identify any foreseeable hazard that may arise from conduct of undertaking.	Appropriate steps to identify all **reasonably foreseeable** hazards arising from work.	As far as **practicable** identify each hazard to which a person at workplace is likely to be exposed.	As far as is **reasonably practicable** identify all hazards arising, or may arise in a workplace.	Ensure appropriate measures undertaken to identify all hazards from work.	Appropriate steps to identify all **reasonably foreseeable** hazards arising from work.

As Table Seven indicates, such an obligation to identify foreseeable hazards is reflected in the New South Wales OHS regulation. The Queensland advisory standard is equally broad, advising the duty holder to "identify hazards", as is the requirement in the Northern Territory OHS regulations which requires the duty holder to "ensure appropriate measures are undertaken to identify all hazards from work". The South Australian and Commonwealth OHS regulations also require identification of reasonably foreseeable hazards although the latter is within the context of matters identified in the regulations (an inappropriate limitation as discussed above).

We note that the generic risk management regulations in two states require duty holders to identify hazards as far as 'practicable' (Western Australia) or 'reasonably practicable' (Tasmania). We are baffled as to what this means. The intent probably is that the duty holder must make diligent efforts to identify hazards. However, it must be stressed that the expression (reasonably) practicable is not an appropriate concept when dealing with how far the duty holder is to go to identify hazards as it relates to preventive measures and not to earlier stages of decision making about risk. (See the discussion above of reasonably practicable in the section *The statutory qualification of 'reasonably practicable'*).

As well as a wider perspective on possible sources of harm, comprehensive hazard identification demands "an active, imaginative and flexible approach", in order to identify problems that may not be immediately obvious (see *Holmes v Spence*, at

123). While the traditional approach of a workplace inspection allows recognition of problems that can be observed at the time the inspection is carried out, other strategies are needed. This might involve consultation with workers, analysis of tasks and work roles, work environment or biological monitoring, surveys of worker experience, review of published sources and relevant regulatory requirements, as well as analysis of incident statistics and investigation reports (see for example Cross et al 2000, pp 366-367; Harms-Ringdahl 2001, p. 41). Such an approach is proactive in seeking out potential sources of harm but also takes account of past experience.

As Table Eight below indicates, the Queensland advisory standard presents some hazard identification methods.

Table Eight: Methods of hazard identification

Qld	NSW	SA	WA	Tas	NT	Cwth
Inspections, consultation, audit, testing, technical or scientific evaluation, analysis of incident & other data, information from suppliers, environmental & medical monitoring, worker surveys.	Not specified.	Not specified.	Not specified.	Guidance note to WHSR r 17 advises inspection, consultation, audits, job safety analysis, hazard analysis and use of incident data.	*Safety Management Guide* advises: Methods of hazard identification: walk through survey, incident & compensation data, consultation, observation of work practices, liaising with similar industry, use of NT WorkSafe checklists.	Not specified.

In other jurisdictions guidance material may advise on methods. There is merit in all jurisdictions encouraging the use of different methods to facilitate comprehensive hazard identification. However, we are not advocating a prescriptive approach to hazard identification. It is important that an 'active and flexible' approach is taken to determine methods suitable to the work situation.

We also note that OHS regulation in each jurisdiction deals specifically with worker consultation which may extend to the risk management process. We discuss these provisions below.

Risk assessment

The terms 'risk' and 'risk assessment' are not always defined in the OHS regulations and codes. Those definitions that are provided, as summarised in Table Nine, indicate that risk and its assessment is concerned with 'likelihood' or 'probability' of adverse outcomes, with 'likelihood and consequences' or with 'probability and consequences' of adverse outcomes.

Table Nine: Definitions of risk and risk assessment

Definition of risk						
Qld	**NSW**	**SA**	**WA**	**Tas**	**NT**	**Cwth**
Likelihood that death, injury or illness might result because of the hazard.	Not defined.	Probability & consequences of occurrence of injury or illness.	Probability of injury or harm occurring.	Not defined.	Probability that a hazard's potential to cause injury or compromise the health & safety of a person or cause damage to plant or premises may become actual.	Probability & consequences of occurrence of injury or illness.
Definition of risk assessment						
Not defined but AS advises that 'To assess risk you need to consider both likelihood & consequences' of death, injury or illness arising from a hazard.	Not defined.	Process of evaluating probability & consequences of injury or illness arising from exposure to hazard (s).	Not defined.	Evaluation of probability & consequences of injury or illness arising from exposure to hazard.	Not defined.	Process of evaluating probability & consequences of injury or illness arising from exposure to hazard (s).

While there are differences in the definitions, a majority suggest that risk and its assessment involves consideration of the consequences (death, injury, illness), that could arise from exposure to a hazard and the likelihood/probability of those adverse consequences occurring. This is consistent with the concept of risk analysis in the wider OHS literature (see SAA/SNZ 1999, p. 3; Waring and Glendon 1998, p. 26). This appears to be a somewhat different conceptualisation of risk from the approach taken by the courts in determining negligence (see Table One), reasonably practicable (see Table Two) and practicable (Table Two). In Table Ten we compare these approaches.

Table Ten: Conceptualisation of risk

Calculus of negligence	**Reasonably practicable**	**Practicable**	**OHS risk management**
Magnitude of risk of injury Probability of its occurrence	Quantum (magnitude) of risk Likelihood of risk	Severity of risk	Magnitude of risk = consequences (death, injury, illness) and likelihood of these

In determining negligence and in determining reasonably practicable (or practicable) the courts have taken a broad approach, considering the magnitude and likelihood of the risk. The OHS risk management provisions, in at least some instances, treat the magnitude of the risk as the product of potential consequences and the likelihood (or probability) of these occurring. It is unclear whether these differences in expression are semantic only or could have implications for how risk is assessed. One explanation is simply that the assessment of risk is an area of considerable ambiguity. This is consistent with our earlier observation that the recursive nature of terms like risk and risk assessment in everyday speech is fertile ground for ambiguity. We note

that a degree of ambiguity about risk is also apparent in the interpretation, by the courts, of reasonably practicable. For example, Asquith LJ in *Edwards v National Coal Board* at 712 referred to the *quantum* of the risk while Gaudron J in in *Slivak v Lurgi (Australia) Pty Ltd* Gaudron J at pp. 323 refers to the *likelihood* of the risk.Clearly, risk and its assessment is not an exact science.

Methods of risk assessment

In all jurisdictions the generic risk management provisions require that risks are assessed for each identified hazard. Some jurisdictions advise on particular methods to be applied in risk assessment. As Table Eleven indicates there appear to be some differences in the nature of risk assessment.

Table Eleven: Scope and methods of risk assessment

Qld	NSW	SA	WA	Tas	NT	Cwth
Scope of risk assessment						
Assess risks that may result because of hazards.	Assess the risk of harm to health & safety arising from any hazard identified. Approved code advises to evaluate likelihood of injury & likely severity of injury or illness.	Ensure assessment of the risks associated with the identified hazard.	As far as **practicable** assess the risk of injury or harm to a person resulting from each hazard.	As far as is **reasonably practicable** assess the risk associated with identified hazards.	Ensure an assessment is made of risk associated with a hazard. Assessment of a representative example of specific work constitutes an assessment for all similar work.	Ensure assessment of the risks associated with the identified hazard.
Methods of assessment						
Various methods can be used as long as outcome of 'prioritised list of risks for further action' is achieved. AS advises on ways to estimate likelihood, consequences & combining these estimates to rate risks & develop prioritised list including 'risk assessment calculator' (tie line).	OHSA (NSW) s 15(a) requires consultation with employees. Approved code advises to identify work premises & environment, competency, age & work systems factors contributing to risk. Also advises to review **reasonably available** information from an authoritative source including: supplier's information, Australian Standards, W'Cover info, technical reports, results of biological or atmospheric monitoring, incident data.	As far as is **reasonably practicable** determine a method that adequately addresses the hazards identified, including: inspections, audit, testing, technical or scientific evaluation, analysis of incident data, discussion with suppliers, quantitative hazard analysis.	Not specified.	Must consider any relevant approved code of practice, or other standard, rule, code or specification relating to the hazard.	*Safety Management Guide* advises identifying potential adverse consequences for each hazard, estimating likelihood of harm if person exposed to hazard, considering number of people exposed & how long.	As far as is **reasonably practicable** determine a method that adequately addresses the hazards identified, including: inspections, audit, testing, technical or scientific evaluation, analysis of incident data, discussion with suppliers, quantitative hazard analysis.

The Western Australian regulations do not specify any methods for risk assessment. The intention not to require particular methods was confirmed in *Joseph Lee of the Building Industry and Special Projects Inspectorate v Joseph McDonald and Michael*

Buchan [2004] WAIRC 12071 (21 July 2004), in which the Commission concluded that Regulation 3.1 of the OSH Regulations 1996 does not create a legal obligation for a particular form of assessment, a job safety analysis, to be created, although WorkSafe WA as the OHS regulator does encourage the use of job safety analyses to achieve the aims of the regulations.

The Queensland advisory standard suggests the use of various assessment methods but makes it clear that the purpose is to develop a "prioritised list of risks for further action" (WHSRMAS (Qld), p. 10). The scope and methods of risk assessment are presented in Table Eleven. The advisory standard applies descriptive scales to rate the magnitude of potential consequences as 'extreme' (death or permanent disability), 'major' (serious bodily injury or serious illness), 'moderate' (moderate injury or illness requiring casualty treatment) or 'minor' (minor injury or illness requiring first aid only and no lost work time) (WHSRMAS, p. 11). Similarly, the likelihood that those consequences will occur is rated as 'very likely' (could happen frequently), 'likely' (could happen occasionally), 'unlikely' (could happen but rarely) or 'very unlikely' (could happen but probably never will) (WHSRMAS, p. 10). These descriptors are then considered together to produce a risk ranking. This may involve using a 'risk assessment calculator' (or tie line) to rank risks (WHSRMAS (Qld), p. 31). The Northern Territory *Safety Management Guide* also advises duty holders to consider potential adverse consequences for each hazard, to estimate the likelihood of harm if a person is exposed to a hazard, to consider the number of people exposed and the duration of exposure. The guide indicates that the purpose of risk assessment is "to make decisions as to what hazards need to be controlled and to set priorities for control." Use of a 'risk assessment table' to rate likelihood and consequences, and to rank risks, is also encouraged (SMG (NT), pp. 11 and 13).

We note that there is a plethora of such qualitative approaches to ranking risks, as well as some semi-quantitative and quantitative methods which use numerical values rather than descriptive scales for both the magnitude of consequences and the probability of adverse outcomes (see for example SAA/SNZ 1999, p. 15; Harms-Ringdahl 2001, pp. 45-54; SA WorkCover Corporation 2004). A range of data sources might be used to determine these numerical values, including past incident data, or data obtained from modeling events or experimental studies. We raise two concerns about the use of these charts, tie lines, probability calculations and other ranking tools. First, although all types of risk assessment tools or methods are intended to provide some 'structure' for determining the level of risk, all involve subjective and arbitrary judgements, and provide no absolute determination of risk. Unreliability creeps in, either in determining the descriptor or numerical values assigned to risk (qualitative and semi-quantitative analysis), or in selecting or processing data to use for analysing risk (quantitative assessment) (Hansson 1993, Toft 1996, pp 99-110). At worst more time and effort may go into applying these methods than goes into determining or developing preventive measures. Second, while the courts have, as we discussed, begun to shift from the prosecution's event focus to recognising the need for the proactive, holistic assessment of risk, it is unclear how they would treat the ranking of risks, particularly if a consequence of prioritising risks is that some are scheduled 'to be addressed at a later date'.

The South Australian, Commonwealth, New South Wales and Tasmanian regulations suggest some different sources and methods for assessing risks. While they do not

specifically require consideration of likelihood (probability) and consequences of harm, the definitions of 'risk' and 'risk assessment' under these regulations, as discussed above, imply such a process. This is also confirmed in the New South Wales code on *Risk Assessment* (RM (NSW), p. 2) and in the guidance note to the Tasmanian regulations (WHSR (Tas) r 18(1)-(4)) which refers to the development of a "control action implementation schedule". What is also interesting about the approach to risk assessment in these four jurisdictions is that the methods (inspection, audit, testing, technical evaluation or sources, incident data, supplier information, hazard analysis and so on), suggest the potential for a deeper inquiry into the nature of the hazards and risks. While such a risk assessment may well involve consideration of the severity and likelihood of adverse consequences, there is the potential at least for the assessment to be more than a risk ranking exercise and to more closely reflect the kind of rigorous approach to identifying and examining risks so that the nature of those risks, and what is needed to eliminate or minimise them, is fully understood. Indeed, the New South Wales code includes in the risk assessment process the clear purpose to "identify the actions necessary to eliminate or control the risk" (RM (NSW), clause 2.1).

In sum, we respectfully suggest that OHS regulators consider carefully the emphasis placed in their guidance materials on OHS risk management. A crucial issue is whether duty holders are encouraged to rank risks, putting their effort into estimating risk descriptors or numbers, or whether they are encouraged to understand those risks so that they can make well informed decisions about how to eliminate or minimise them.

A final point on risk assessment, we note also, as Table Eleven shows, that the Western Australian and Tasmanian regulations require duty holders to assess risks 'as far as (reasonably) practicable' and that the South Australian and Commonwealth regulations require the duty holder to determine adequate methods for risk assessment 'as far as reasonably practicable'. As we discussed above, the use of (reasonably) practicable in this context is not appropriate as the term relates to determining preventive measures. We suggest it would be more appropriate to simply require duty holders, after identifying all reasonably foreseeable hazards, to then assess the risk associated with each identified hazard.

Consultation

Crucial to fully understanding risks is the involvement of different perspectives in identifying and assessing those risks. There may be both different perceptions of the nature of harm, the severity of effects and of what constitutes appropriate standards for risk control and communication of risk information (Nelkin 1985, p. 19; Toft 1996, pp. 99-110; Holmes et al 1997; Walters and Frick 2000, pp. 46-51). Since different understandings and perceptions of risk are a fact of life, it is particularly important that workers, as the risk-exposed, are involved in risk management decisions (Walters and Frick 2000, p 59).

Currently, under all of the Australian OHS statutes, worker health and safety representatives have general rights to inspect the workplace, to have information about hazards (or OHS matters) and to be consulted about changes to the workplace, plant and substances used, or the conduct of the work. While these rights might be applied in the context of hazard identification, risk assessment and risk control

decisions, they do not explicitly apply to risk management. As Table Twelve below indicates, the only OHS statute expressly requiring consultation in relation to risk management is the New South Wales statute (OHSA (NSW) s 15).

Table Twelve: Provisions relating to consultation and risk management

Qld	NSW	SA	WA	Tas	NT	Cwth
Advisory standard advises to consult with workers at each stage of the risk management process (clause 2.3).	OHSA (NSW) s 15 requires consultation when assessing risks and determining risk control measures.	OHSWR (SA) r 1.3.1 defines consultation and specifies how to consult OHS reps, committees & employees re identification, assessment & control provisions of regulations.	Not specified for generic risk management provisions.	WHSR (Tas) (r 15) requires consultation with OHS reps, committees and employees re identification, assessment and control provisions.	WH (OHS) R (NT) r 44 requires consultation with OHS committee and all workers re implementation of regs, including identification, assessment and control of risks.	Not specified for generic risk management provisions.

As Table Twelve shows it is more common for the OHS regulations to address consultation in relation to risk management. This is the case under the South Australian, Tasmanian and Northern Territory OHS regulations which require consultation with OHS representatives, committees and employees in relation to hazard identification, risk assessment and control. The Queensland advisory standard also requires consultation in relation to each stage of the risk management process. The Western Australian and Commonwealth OHS regulations do not address consultation in relation to the generic risk management provisions. However, in all jurisdictions some of the specific risk regulations or codes of practice may invoke 'discussion' with employees or consultation with workers as part of the strategy for managing those risks. For example, discussion with employees is typically part of the risk assessment process for plant.

It would appear that the approach to consultation in the risk management process is somewhat piecemeal and, in view of the importance of a participative approach to properly understand risks and determine suitable risk control measures, we suggest that in all jurisdictions there should be a requirement to consult workers and their representatives in each stage of the risk management process.

Timing of risk management

Like the cases discussed above, the OHS literature also emphasises that successfully preventing occupational injury, disease and death requires that hazards are identified proactively and prevented or minimised, rather than reacting to incidents when they occur. (See *Drake Personnel Limited v WorkCover Authority of New South Wales*, *Labour Co-operative Limited v WorkCover Authority of New South Wales*, *WorkCover Authority of New South Wales v Coffey Engineering Pty Ltd* and *WorkCover Authority of New South Wales v Atco Controls Pty Ltd*). The literature suggests the value of a 'life cycle' approach which requires management of risks in the phases of procurement or purchasing, design and planning, construction or manufacture, commissioning, start up and ongoing operations, shutdown, maintenance and cleaning, decommissioning or demolition (Gallagher 1997, ss. 4.5, 5.2, 6.1 and 6.2; Hale et al 1997, pp. 128-129; Hale and Hovden 1998; Hale 2003, p. 188). This means that while the phases will vary according to the risks, action should

be taken across the life cycle of workplaces, work systems and organisation, plant and equipment, substances and materials, services and other aspects of work.

The generic risk management provisions in the Australian OHS regulations and codes of practice, as summarised in Table Thirteen, are less rigorous in their approach. In essence, risk assessment/risk management is to be undertaken when something changes at the workplace.

Table Thirteen: When risk assessment/risk management is required

Qld	NSW	SA	WA	Tas	NT	Cwth
Ongoing and when a change occurs at workplace, after an incident and scheduled 'as appropriate' to the workplace.	Prior to first use of premises, before & during installation, erection, commissioning or alteration of plant; before changes to work practices, systems; before substances introduced; while work carried out; when new information available from authoritative source.	Without limiting: before introducing new plant or substance, work practice or procedure, or before changing workplace, work practice, activity or process.	Not specified.	As soon as **reasonably practicable** after commencement of regulations & before introduction of plant, substance, work not previously performed, change in work or plant and when new information available.	Without limiting: before introduction of plant or substance, commencement of work not previously performed, when change in type of work, work practices or plant, when information becomes available.	Without limiting: before introducing new plant or substance, work practice or procedure, or before changing workplace, work practice, activity or process.

As Table Thirteen indicates, the types of changes signaling the need for risk assessment/risk management vary between the jurisdictions and include a requirement to take action after an incident, prior to first use of premises, before introducing new plant or substances, before changing work practices, and when new information becomes available (from an authoritative source). Thus, the generic risk management provisions do not invoke a full life cycle approach. However, some of the specific risk regulations do require more of a life cycle approach. This comes from the fact that responsibilities are placed on persons responsible for different functions including design, manufacture, import, supply, erection, installation and so on. (See Bluff 2004, p. 232, for a discussion of the life cycle approach to risk management under plant regulations).

We suggest there is room to develop the life cycle approach further in relation to the OHS risk management provisions, in view of the indications from the wider OHS literature about the value of such an approach in systematic risk management.

We also note, for the reasons already discussed, the inappropriate use of 'reasonably practicable', under the Tasmanian regulations, in determining when risk assessment is required.

Eliminating and controlling risk

The obligations in relation to risk control are presented in Table Fourteen, below. These typically involve prevention or elimination of risks, or minimising or controlling risk. In some jurisdictions the obligation to control risks is qualified by

what is (reasonably) practicable (New South Wales, South Australia, Tasmania, Commonwealth and Northern Territory). The Western Australian OHS regulations require consideration, as far as practicable, of the means by which risk is reduced. All jurisdictions, except Western Australia, require application of some form of hierarchy of control measures which typically includes, in order of priority, elimination, substitution, isolation, engineering controls, administrative measures and personal protective clothing and equipment.

Table Fourteen: Risk control and the hierarchy of control measures

Qld	NSW	SA	WA	Tas	NT	Cwth
Risk control						
Decide on control measures to prevent or minimise the level of risks. Implement control measures which includes developing work procedures, communication, training & instruction, supervision, maintenance.	Eliminate any foreseeable risk that arises from conduct of employer's undertaking. If not **reasonably practicable** to eliminate then must control the risk & ensure all measures are properly used & maintained.	Ensure risks are eliminated or if not **reasonably practicable** minimised.	As far as **practicable** consider the means by which risk may be reduced.	Ensure exposure to hazard controlled to eliminate or minimise risk.	Where assessment indicates significant risk, must identify steps to be taken to meet regulations. Must ensure that worker's exposure to hazard is controlled to minimise risk.	Ensure risks are eliminated or if not **reasonably practicable** minimised.
Hierarchy of control measures						
Eliminate hazard or if this is not possible substitute, redesign or isolate hazard. When exposure is not, or cannot be minimised by other means, introduce administrative controls and PPE.	Take measures (in order specified) to minimise risk to lowest **reasonably practicable** level: substitution, isolation, engineering means, administrative means, PPE. Use in combination to minimise risk to lowest level **reasonably practicable**.	Minimisation of risk by engineering controls (including substitution & isolation), so far as **reasonably practicable** (**RP**), administrative controls (**RP**) and PPE.	Not specified.	Control of risk by elimination of hazard as far as **reasonably practicable** (**RP**), substitution (**RP**), isolation (**RP**), engineering controls (**RP**), administrative controls (**RP**) and PPE.	Progressive application, as far as **practicable**, of one or more of : elimination, substitution, isolation, engineering means, administrative means and PPE.	Minimise risk by engineering controls (including substitution & isolation), &/or administrative controls (if above don't minimise), &/or PPE (if above don't minimise).

Applying a hierarchy of control measures is consistent with the wider OHS literature which emphasises a 'safe place' approach to risk control. This involves designing out or removing hazards at source and controlling any residual risks by engineering or organisational means. A safe place approach is considered more effective as it takes account of the human factor, aiming to neutralise the effects of the quirkiness and fallibility of human beings by making workplaces, work, equipment and substances inherently safe rather than relying on workers always being alert to and successfully avoiding risks (Gallagher et al 2001, p. 13, Haddon 1980, Hale et al 1997, pp. 128, Waring 1996, p. 75). This is crucial as a variety of factors render safe behaviour strategies ineffective, including lack of awareness, human errors and mistakes, stress and fatigue, acting reflexively ('automatic pilot'), giving priority to production or operational demands, protecting job security and simply 'getting the job done' (Sundström-Frisk 1996 and 1999).

At first blush, encouraging a safe place approach by invoking a hierarchy of control measures in OHS regulations and codes of practice could appear to be different from the general duty requirement to take (reasonably) practicable steps. As discussed above, the latter involves implementing preventive measures that are proportionate to the risk. This could mean that lower order controls (personal protection or administrative control measures) are proportionate in lower risk situations, while applying the hierarchy of control would mean that a risk should be eliminated if this is possible. However, case law suggests that the courts expect duty holders to implement inherently safe measures, taking account of 'the human factor', and often calling for elimination of risk. (See *Holmes v Spence* at 123, *WorkCover Authority of NSW (Inspector Egan) v Atco Controls Pty Ltd* at p. 85; *WorkCover Authority of NSW (Inspector Robinson) v Milltech Pty Ltd* at para 18; and *WorkCover Authority of New South Wales (Inspector Childs) v Kirk Group Holdings Pty Limited and Anor* [2004] NSWIRComm 207 (9 August 2004) in which Walton J follows the case law establishing that an employer's obligation to ensure OHS extends protecting hasty, careless, inadvertent, inattentive or unreasonable workers (see paras 128-129). Moreover, in some jurisdictions the obligation to apply a hierarchy of controls is itself qualified by what is (reasonably) practicable. This probably means that, taking account of the risk assessment already undertaken, duty holders would weigh the cost, time and trouble of implementing particular preventive measures against the risk. In sum, it is likely that there is little room for difference between applying the hierarchy of control measures and eliminating or minimising risks as far as (reasonably) practicable.

Competency and organisational learning for risk management

Early in this section we outlined research suggesting that firms that lack OHS 'know how', or operate within narrow mental and organisational boundaries, are likely to delimit their activities and responses in OHS risk management (Jensen 2001 and 2002; Saksvik et al 2003). Clearly, developing the necessary knowledge, ability and motivation to produce good quality OHS outcomes through risk management requires the development of a solid, local understanding of OHS principles, underpinned by organisational learning. With this in mind, the silence of Australian OHS regulation on the matter of competency and organisational development for OHS risk management is striking. The relevant provisions are summarised in Table Fifteen.

Table Fifteen: OHS competency for risk management

Qld	NSW	SA	WA	Tas	NT	Cwth
Included in functions of Workplace Health & Safety Officer (WHSA, s 96A).	Not specified.	Not specified.	Not specified.	Assessment must be undertaken by a competent person.	Not specified.	Not specified.

As summarised in Table Fifteen, no jurisdiction seriously addresses the expertise or competency required for undertaking OHS risk management. In Queensland risk management is one of the functions of workplace health and safety officers. These are to be appointed, by employers or principal contractors, at prescribed workplaces if 30 or more workers are employed at the workplace (WHSA (Qld), sections 93 and 94). Workplace health and safety officers may receive some training, but risk management

is not confined to this group. The Tasmanian regulations require that risk assessment is undertaken by a 'competent' person. Under the Victorian OHS Act 1985 (s 21(4)), employers have a general responsibility to employ or engage suitably qualified persons to provide advice in relation to OHS but this obligation is broad and does not deal with specific competencies for OHS risk management. The generic risk management provisions in the other jurisdictions are silent on the matter. This is in striking contrast to the situation in the European Union where Article Seven of the *Framework Directive* (implemented through national laws) requires employers to establish or to use external occupational preventive services which have an important role to play in OHS risk management (European Commission 1989).

This is a crucial issue for OHS regulators to address. There is a case to consider how the development of the necessary knowledge, skills and experience can be developed and the role of regulation in this. Also crucial is the role played by OHS regulators and OHS specialists in leading and supporting OHS risk management. Our earlier comments about the nature and purpose of risk assessment, and the need to develop a rigorous approach to understanding risk, are relevant here.

Review of risk management

Ensuring that risks are effectively controlled requires follow through to check that preventive measures are applied, in working order and maintained (Jensen 202, pp 208-209). As Table Sixteen below indicates, only some of the generic risk management provisions require such follow through.

Table Sixteen: Review of risk management

Qld	NSW	SA	WA	Tas	NT	Cwth
Review of risk assessment/risk management						
Monitor and review effectiveness of control measures – in place, used correctly, working to eliminate or adequately reduce exposure, not resulting in new problems.	Review risk assessment & control measures when evidence no longer valid, injury or illness results from exposure to hazard, significant change is proposed to place of work, work practices or procedures.	Not specified.	Not specified.	Review and if necessary revise as soon as **practicable** after evidence not valid or at least every 5 years.	Revise assessment when no longer valid or at least every 5 years.	Not specified.

As Table Sixteen shows, review of risk assessment or risk management is addressed comprehensively under the Queensland advisory standard which recommends monitoring and review of the effectiveness of risk control measures on an ongoing basis to ensure that they are in place, used correctly, working to eliminate or adequately reduce exposure and not resulting in new problems. Review of risk management is also required under the OHS regulations in New South Wales, Tasmania and the Northern Territory which link a review to evidence suggesting that an assessment is no longer valid. The Queensland approach to ongoing monitoring and review appears to us to be the preferred approach as it is all too easy for even the

best risk control measures to fall into disuse through lack of maintenance or lack of supervision.

As a final point, we note that the use of the expression 'as soon as practicable' in the Tasmanian regulations, in determining when to review risk assessments, is inappropriate as the concept of practicability relates to preventive measures, for the reasons discussed above, and not to the timing of risk assessment.

Implications for Australian OHS Regulators

After examining relevant case law and closely scrutinising the OHS statutes, regulations and codes of practice, we draw the conclusion that the risk management provisions incorporated in Australian OHS regulation, while clearly having some features in common with the general duties and (reasonably) practicable, also have some important differences in approach. We consider that, for the casual reader of the statutory general duties or risk management provisions, the relationship between the two concepts would be far from clear.

In our view there is a need to clarify the relationship between (reasonably) practicable and risk management, a task which requires review of the way that both the general duties and the risk management provisions are framed. In regard to clarifying 'practicable' under the Victorian OHS statute, one approach was proposed in the Maxwell Review which recommended that the Act should say that "once the severity and likelihood of the risk have been assessed, the relevant safety measure should be implemented unless the cost of doing so would be grossly disproportionate to the risk as assessed" (Maxwell 2004, p. 132). This clarification of practicability establishes the 'gross disproportion' test (see Asquith LJ in *Edwards v National Coal Board* at 712), as the criterion for determining preventive measures and reinforces a precautionary approach by requiring that the requisite preventive measure(s) to be taken unless there is a stark imbalance between the cost and the risk. Maxwell (2004, p. 158) also proposes a new provision to clarify that compliance with the employer's duty of care *may* include "identifying hazards, assessing risks associated with these hazards, selecting and implementing control measures, and monitoring and reviewing the effectiveness of these measures".

However, we suggest that a more explicit approach is needed in order to leave duty holders in no doubt about the relationship between their general duties and risk management principles. We consider that this approach could be applied to a range of duties, and not only to the employer's duty in relation to employees. We recommend that new provisions be inserted into the OHS statutes. These provisions would capture the essence of the courts' interpretation of (reasonably) practicable but this rather ambiguous concept would no longer be required as a qualification of the duties. Risk management principles would be applied as a means of complying with the duties of care. However, the risk management process would only need to be applied in relation to hazards for which there are not more specific standards as the suggested provisions would indicate that if, for particular hazards, specific control measures are prescribed by regulation or described in a code of practice, these would be implemented rather than applying risk management principles. We propose incorporating, in conjunction with the general duties, provisions with the following elements:

1. A requirement to implement the following provisions in consultation with relevant workers.
2. A requirement to identify all reasonably foreseeable hazards that may arise from the conduct of the business or undertaking.
3. If a regulation or code of practice has been made about the way to eliminate or minimise exposure to a particular hazard, a requirement to comply with the general duty by following the way prescribed in the regulation or stated in the code of practice.
4. If no regulation or code of practice has been made about exposure to a particular hazard, a requirement to comply with the general duty by applying risk management principles which involves:
    (a) assessing the risk to health, safety or welfare of employees or other persons arising from each hazard, as the basis for determining the measures necessary to eliminate or minimise risks;
    (b) in determining risk control measures, giving preference to measures that eliminate or minimise risk at source by redesign, substitution, isolation, engineering or organisational means;
    (c) using safe work practices, administrative procedures, or personal protective clothing and equipment to supplement the risk control measures specified in para 3(a), but not as the only means of reducing exposure to workplace hazards;
    (d) implementing the relevant risk control measures unless the cost, time and trouble of doing so would be grossly disproportionate to the risk as assessed;
    (e) maintaining, monitoring and reviewing risk control measures to ensure their effectiveness.
5. A requirement to undertake hazard identification, risk assessment and implementation or modification of risk control measures:
    (a) periodically in the ongoing operations of the business or undertaking;
    (b) in the planning, design, procurement, construction and refurbishment of premises for use as a place of work;
    (c) in the planning, design, manufacture, procurement and introduction of plant, substances or materials for use at work;
    (e) before changes to work practices and systems of work are introduced;
    (f) prior to the shut down, decommissioning, dismantling or demolition of premises or plant;
    (g) when new or additional information becomes available from an authoritative source; and
    (h) when a hazardous exposure or incident, injury or illness, or adverse result of work environment monitoring or health surveillance indicate that risk control is inadequate.

Having clarified the relationship between the general duties and OHS risk management principles in the OHS statutes there is then a need to provide

complementary guidance about the risk management approach. As we have observed different versions are currently prescribed or described in OHS regulations and codes of practice. A consistent approach would aid understanding of duty holders about what is expected.

We have highlighted, in our earlier discussion, a number of areas for improvement in the manner that OHS risk management is carried out. We propose that these matters be addressed in a code of practice supplementing the reformed general duties. This would:

1. Explain that the management of risks is equally applicable to a range of duty holders and should be applied by all those with real control and influence over work, workplaces, equipment and materials used at work, and for the protection of all persons who could be exposed to risks arising from the conduct of a business or undertaking.
2. Illustrate the range of hazards to be considered, along the lines of the New South Wales OHS Regulation or Queensland advisory standard, but emphasise that these are examples and that the obligation is to identify all reasonably foreseeable hazards. The discussion of hazard identification should also explain and provide examples about how hazards may interact, creating multi-causal OHS problems.
3. Outline the use of different methods to identify hazards, as appropriate to the work situation, and emphasise the use of a combination of methods to gain different insights and experience. This would include review of regulatory requirements, consultation with workers, workplace inspection, analysis of tasks and work roles, surveys of worker experience, work environment monitoring, health surveillance, review of published sources.
4. Explain the life cycle approach and the importance of identifying hazards and controlling risks in the different phases from design and planning through to the end phases of the life cycle of workplaces, plant and equipment, substances and materials, work systems and methods, and so on.
5. Emphasise that the purpose of risk assessment is to understand the nature of risks and what might be needed to eliminate or minimise them. Thus, the assessment of risks is a means to the end of making well informed decisions about suitable risk control measures, rather than putting effort into subjectively estimating risk.
6. Explain the rationale for the hierarchy of control and provide examples of redesign, substitution, isolation, engineering and organisational measures as they might apply to different kinds of OHS problems. It would also explain how the ‘gross disproportion test’ is applied and how the factors of cost, time and trouble are taken into account.
7. Stress the importance of arrangements to maintain and supervise the use of risk control measures, and how these measures should be monitored and reviewed on an ongoing basis to ensure they are in place, used correctly, working to eliminate or minimise exposure and not resulting in new problems.
8. Address the development of the necessary knowledge, skills and experience for OHS risk management and/or engaging OHS specialists to lead and support this processes.

In sum, duty holders would be guided to comply with their statutory obligations by applying a problem solving approach which encourages proactive, systematic and comprehensive attention to risks. The approach would be flexible rather than formulaic, would emphasise the elimination and control of risks rather than quantitative or semi-quantitative approaches to ranking risks, and would seek out opportunities to design or change work, work processes, equipment, substances and other aspects of the work environment to make them inherently safer and to meet human needs.

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