Issue 39 / Spring 2021

RISKworld

The Newsletter of Risktec Solutions

In this issue

Welcome to Issue 39 of RISKworld. Feel free to pass it on to other people in your organisation. We would also be pleased to hear any feedback you may have on this issue or suggestions for future editions.

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Contents

Welcome to the new normal!

"Normal is nothing more than a cycle on a washing machine"
Whoopi Goldberg

More than a year after the World Health Organisation declared COVID-19 a pandemic, it continues to have a significant impact on all our daily lives, and at Risktec has transformed the way we work and interact with our colleagues and clients. We have found that many of our employees enjoy working remotely and this has accelerated our approach to offering a more agile and flexible way of working. In the 'new normal', we will be operating a hybrid working model that suits our business, blending the best of office and remote working for the benefit of our employees and clients.

Despite the challenges of COVID-19, we are delighted to have increased our overall client satisfaction score to 98.2% at the end of last year. Clearly clients have very much appreciated our approach. 98% of clients rated our flexibility and responsiveness as very good or good and 99% said they would recommend us to other organisations. We would like to thank all of our clients for their continued trust in us.

2020 was also a year of progress. It is impressive to see that several areas of our business continued to grow such as the nuclear and clean energy sectors, while we successfully launched a number of new service offerings including live virtual training and made good progress in many of our strategic focus areas. As always, we also recognise we have a great deal of work still to do.

This issue of RISKworld puts a spotlight on two key trends impacting our clients and society as a whole: Sustainability and mental health. Managing the associated hazards and risks will become more important than ever.

The outlook for 2021 remains uncertain, although the vaccine rollout and lifting of restrictions in some countries gives cause for optimism. Our ability to be flexible and responsive will continue to be more important than ever during these rapidly changing times.

We hope you enjoy all of the articles, which are intended to showcase our forward thinking approach. As always, we welcome your feedback and look forward to your continued support. And please continue to stay safe!

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Towards Net Zero: Hazards, risks and opportunities

Greenhouse gas emissions and the corresponding climate change have the potential to cause indiscriminate loss of life on a global scale. The net zero energy transition is a globally interconnected challenge that is vital to safeguard humanity's future. However, like every human endeavour, it comes with inherent hazards, risks and opportunities.

THE PROBLEM

Until now, the free and uncontrolled discharge of greenhouse gases has largely been business as usual for economies and communities around the world. Achieving net zero will necessitate the wide-scale application of low or zero emission clean energy technologies, such as renewables, which have a lower power density than the traditional greenhouse gas emitting power stations. With a much larger area required to deliver the equivalent power, energy systems are being forced to pivot from large centralised production to decentralised energy generation spanning regions and geographies to facilitate the net zero energy transition.

Technological innovation must be relied upon to deliver solutions, with hopes of meeting net zero pinned on immature or emerging technologies with intrinsic risk: There are many known unknowns and potential unknown unknowns.

Renewable energy generation in electrical networks has been a good news story, with wind and solar power leading the way. These established technologies are available and are being deployed at scale. However, the volume of intermittent renewable power now being generated demands large-scale, efficient and effective energy storage to balance supply and demand.

Electricity is the low hanging fruit in global decarbonisation; the most significant change is at the supply end of the grid, with some adaptation to electrical network management owing to decentralised power flows, but critically no end-user modifications are required (for a constant power demand). The journey to net zero becomes increasingly more difficult as it ventures into wider sectors such as heat, industry and transportation, where more significant change is required throughout the energy supply chain to facilitate clean energy consumption for the end user.

What is clear, though, is that the sheer scale of the challenge requires a range of clean energy technologies to provide this pathway to a clean energy future (see Figure 1).

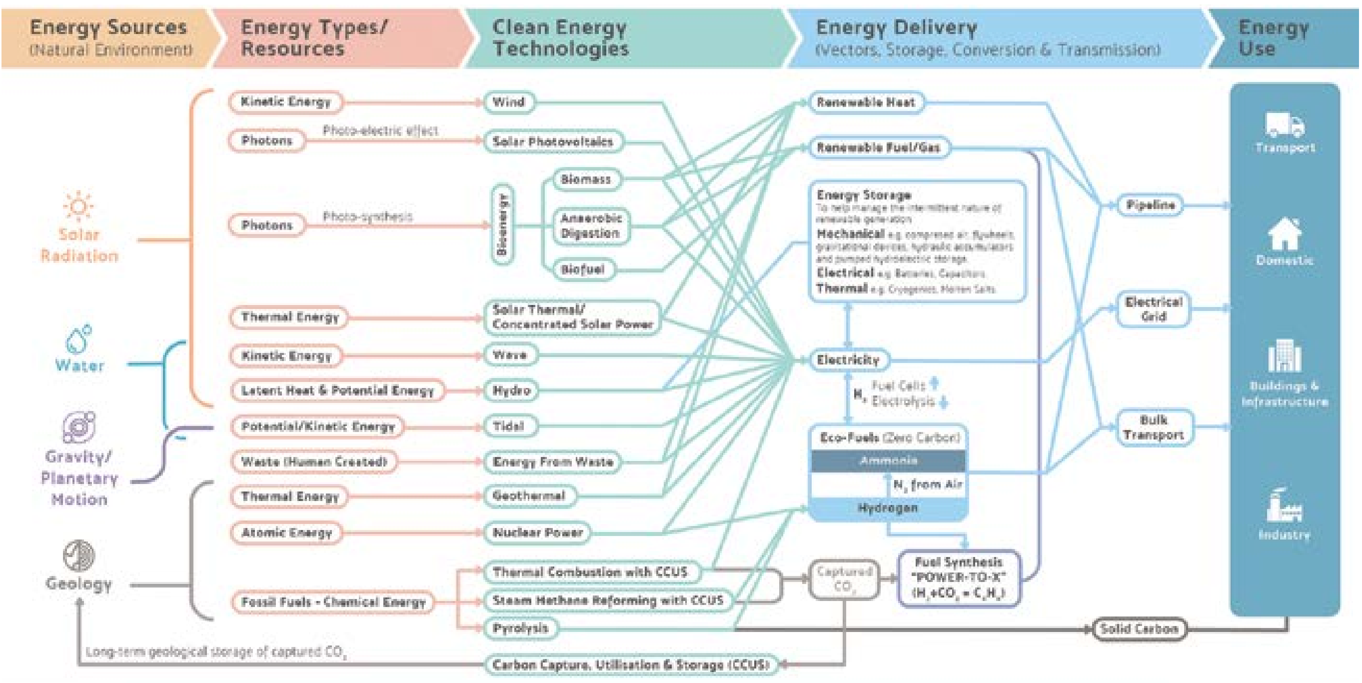

Figure 1 – Pathway to a clean energy future

UPSKILLING

The growth of clean energy technologies will need to be mirrored by a growing resource of competent engineers, including risk and safety practitioners. This resource ramp-up could be met through migration from traditional fossil fuel-based industries. However, adapting from heavily regulated industries to innovative, often unregulated sectors, presents an obvious challenge. Education, training and coaching, tailored to specific technologies and industries as they decarbonise, may be a key enabler of the net zero energy transition.

INNOVATING SAFELY

There is no single technological panacea available to meet net zero. A variety of clean energy sources and conversion and delivery technologies in a wide range of applications are needed. This requires simultaneous innovation on a number of fronts, which has its risks and rewards. Innovation can be jeopardised by imbalanced safety and risk management. Insufficient early input can hinder innovation as a major incident would set back not just that project, but the emerging technology sector as a whole. Equally, disproportionate risk management can drive costs up, smothering creativity. The challenge is to innovate safely, striking a balance between risk and reward.

VIVE LA DIFFERENCE!

The collaboration between nations, organisations and sectors necessary to address the global net zero energy transition also comes with risk. The confluence of different cultures and ways of getting things done can bring significant creative benefits. However, there is the risk of these very differences causing problems, such as trade disputes, inconsistent engineering standards, varying appetites for risk, or regulatory divergence. Navigating such differences successfully will become increasingly important to ensure clean energy technologies can be deployed at the required pace and scale across borders.

Equally important is persuading the public that this transition is safe – a challenge exacerbated in a world of fake news. Hydrogen is a good example: whilst many national energy policies are pinning net zero hopes on hydrogen, public perception is tainted by historical accidents. The challenge is to demonstrate safety and risk management good practice to all stakeholders, including the public, as ultimately the end users of energy are crucial stakeholders in the energy transition.

INFRASTRUCTURE & INTERFACES

Infrastructure associated with the traditional generation, conversion, delivery and consumption of energy will need adapting or upgrading, for example, converting coal-fired power stations to run on biomass, using existing oil and gas exploration and production infrastructure for CO2 capture and storage, and using existing natural gas pipeline networks to distribute hydrogen. Repurposing often-ageing infrastructure presents its own risk and safety challenges.

Co-location of clean energy technologies is often desirable to maximise operational efficiency, but introduces interface risks, where hazards associated with one technology my affect the other. Furthermore energy vectors, such as hydrogen, span a wide range of sectors such as power generation, transport and heating, with interfaces at every stage from generation to consumption, making holistic risk assessment quite challenging. Adapting existing safety and risk management tools and techniques to address new situations will likely play a critical role in managing new interface risks.

CRADLE TO GRAVE

It is vital that energy system assets operate safely, effectively and reliably throughout their lifetime to ensure the net zero transition is realised. The most effective method of risk reduction throughout the lifecycle is to 'engineer-out' lifecycle risks during concept design and detailed design. This must consider sustainability, for example end-of life decommissioning, disposal and recycling, otherwise there is a danger of harming the environment and undermining the positive strides towards net zero.

Assuring reliability, availability and maintainability throughout the lifespan of a product or facility will be fundamental to achieving the net zero vision.

TOWARDS NET ZERO

The discipline of safety and risk management is not new, and its principles have stood the test of time across many industries. The challenge is in applying safety and risk management good practice in such a way as to enable the net zero energy transition, taking care to manage known unknowns and address unknown unknowns as they materialise.

Early safety and risk engagement, taking a proportionate and pragmatic approach, and adapting tried and trusted tools and techniques will enable the commercialisation, ramp-up and scaling required of clean energy technology.

Learning lessons from other industries, sharing knowledge across sectors, and adopting the 'no commercial barriers to safety' philosophy will all contribute to facilitating the path to net zero.

CONCLUSION

Safety and risk management has the potential to be a strategic enabler of the net zero energy transition.

Employing geography- and technology-agnostic risk management good practice will help keep people safe, whilst enabling decarbonising clean energy technology to be deployed confidently and at scale.

The saying "more speed, less haste" applies; by doing the right things at the right time and adopting a proportionate and pragmatic approach, safety and risk management practitioners can help make the net zero energy transition actually happen.

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Carbon Dioxide Containment Risk Assessment: The current state-of-the-art

The end of 2020 marked two milestones for Risktec – ten years since our first ever Carbon Capture and Storage (CCS) risk assessment project, and the end of the three year European funded "DETECT" research project.

Together with Shell, Heriot-Watt University and RWTH Aachen University, Risktec has been working as part of the Accelerating Carbon Technologies (ACT) funded DETECT research project to consider the integrity of underground carbon dioxide (CO_2) storage sites. The purpose was to enable the risks of CO_2 leakage to be managed to prevent any potential adverse effects on the surrounding environment and people. Further information about the project and access to the deliverables is available at https://risktec.tuv.com/eu_detect/.

To date, Risktec has collaborated with ten worldwide CCS projects and over this period we have developed, in conjunction with experts in the industry, a suite of tools and methods to efficiently identify, assess and demonstrate effective management of threats to geological CO_2 containment.

Figure 1 – Containment Risk Assessment process (after Ref. 1)

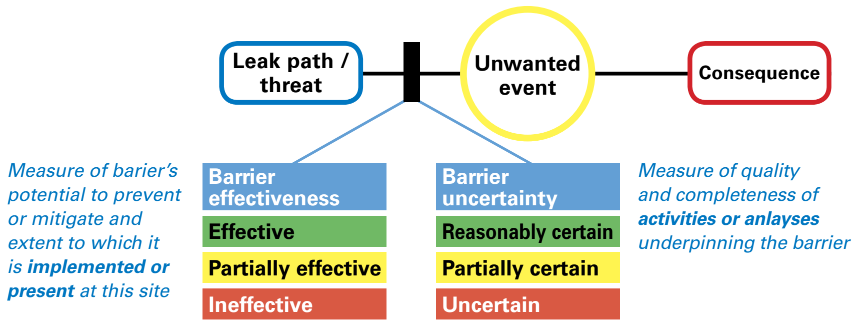


Figure 2 – Barrier effectiveness and uncertainty

CONTAINMENT RISK ASSESSMENT

CCS projects typically develop a Containment Risk Assessment (CRA) as part of the permit application process. Akin to a safety case in other major hazard industries, the CRA describes the proposed storage site, identifies the significant risks and demonstrates that they are being managed effectively.

Central to the CRA is bowtie analysis. This diagrammatical approach is well suited to presenting the causes and consequences of loss of CO_2 containment and describing and evaluating the prevention and mitigation measures available to manage the risk – a key step in the CRA process (Figure 1).

Whilst bowtie analysis has been used for many years in the oil and gas industry, to the point that standard approaches are well established (Ref. 2), its application to the emerging CCS industry requires some adaptation to accommodate the novel features of geological CO_2 storage in contrast to traditional process safety risks of loss of containment.

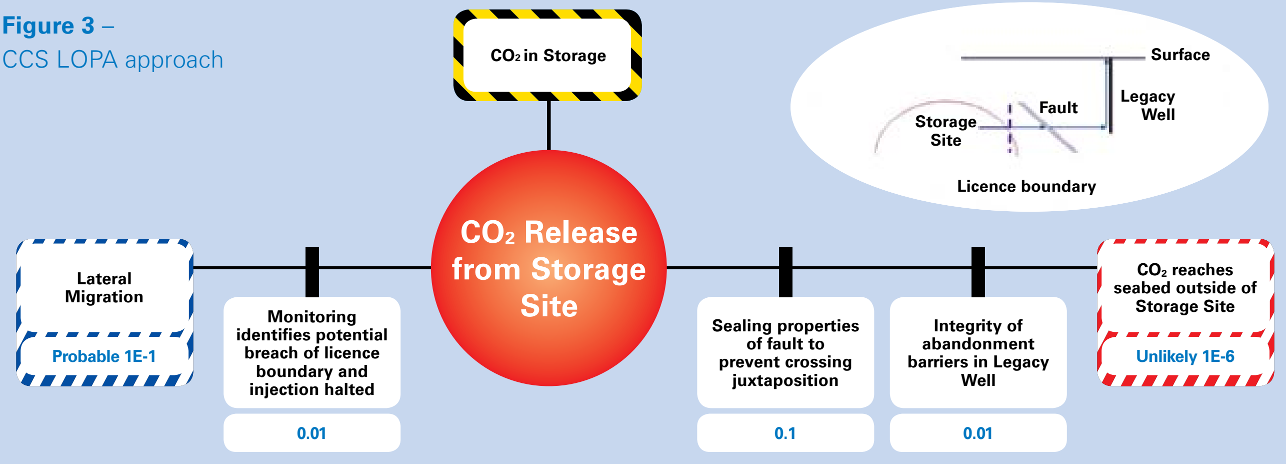
BOWTIE ADAPTATION FOR SUBSURFACE CO2 STORAGE

Process safety bowties often present separate causal branches for each mechanism that can bring about loss of containment, e.g. corrosion, overpressure, impact, etc. Analogous mechanisms exist with geological CO_2 storage, (e.g. corrosive effects of acidic CO_2 on sealing formations), and these can equally be considered in bowtie branches. However, an alternative and effective approach is to structure subsurface CO_2 bowtie diagrams with each branch depicting a defined leak path out of the storage site.

Engineered barriers feature in both types of bowtie, as do operational strategies (such as setting limits on maximum CO_2 injection pressures and rates). However, geological features such as sealing formations, bounding faults, structural dips and permeable storage formations also play a significant role in preventing and mitigating loss of CO_2 containment and appear on both sides of the bowtie diagram.

The natural, passive nature of these barriers means their performance is more difficult to quantify, and a useful additional aspect of the barrier strategy for CO_2 storage is to determine the level of uncertainty associated with

Figure 3 –
CCS LOPA approach



each barrier's effectiveness (Figure 2). At the early stages of a CCS project, levels of uncertainty are high; as the project progresses and further data are gathered and analyses undertaken, this uncertainty diminishes. The bowtie analysis helps direct the project to the most critical barriers, on which there is most reliance for maintaining containment, and therefore on areas where further work is required to reduce uncertainty around the barriers' quality and efficacy.

QUANTIFICATION OF RISK

Two areas of concern that are frequently raised with regard to the use of bowtie analysis are that they are subjective (in that the acceptance of risk relies on judgement and opinions rather than absolute values) and that it can be difficult to identify the most critical sequences. The latter point can be partially addressed by considering the frequency with which threats may occur and by also considering the magnitude of consequences (e.g. the quantity of CO_2 that might be released and its duration). There is still, however, a role for some form of numerical risk assessment within the CRA, alongside the bowtie diagrams.

Projects will perform detailed numerical simulations of CO_2 migration over time within a reservoir; these simulations can take time to set-up and run, and although they give an indication of where CO_2 may reach, they may not necessarily give information in a format that is amenable to quantifying risk.

To meet the requirements of providing useful risk metrics, in a practical time frame, two methods have been pioneered for use within CCS CRA.

The first is a simplified Layers Of Protection Analysis (LOPA) approach, which builds upon the information collected during the bowtie analysis. LOPA is widely used in the process industries to provide an order of magnitude numerical estimation of risk, by considering the frequency of scenarios occurring and the risk reduction provided by protection layers (barriers). By identifying leak paths of concern and the barriers to prevent or mitigate them, it is possible to develop a 'CCS LOPA' as illustrated in Figure 3. All of the sequences considered can be plotted on a risk matrix to give an indication of the overall level of risk and the dominant sequences. The uncertainty information collected during the bowtie analysis can also be used to prioritise sensitivity studies.

The second approach is more suited towards quantitative analysis of legacy well release paths, which are generally accepted in the industry to be a dominant risk. Well-specific bowtie diagrams identify the barriers (e.g. abandonment plugs) that are being relied on to maintain CO_2 containment. Considering the physical properties of each barrier (e.g. permeability, area, length, etc.) and the likelihood that a barrier may fail, it is possible to develop event trees to calculate the probability that leak rates will occur, and identify the most significant scenarios and barriers.

Both approaches are highly reliant on the judgements made in assigning numerical values (for which there is little data) and hence whilst they have the appearance of accuracy and certainty, the quantitative risk evaluation should be used with caution, particularly if absolute rather than comparative values are used as the basis for decision making.

CONCLUSION

It is important that a CRA presents information to allow stakeholders to make informed judgements about the nature and acceptability of risks posed by CCS projects. As different stakeholders will have different requirements, a range of approaches may be required; and the choice of strategy should take into account the quality of available information and the complexity of the situation. Nevertheless, established risk assessment techniques can be successfully adapted and applied to geological CO_2 storage.

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The Leading Edge: The essence of good HAZOP leaders

Successful HAZOP workshops require a competent leader to facilitate, manage and lead the HAZOP process. Without this, HAZOPs can descend into chaotic, lengthy and expensive endeavours that fail to produce an adequate basis for subsequent design and risk management activities. But what qualities and skills define an effective HAZOP leader?

HAZOP leaders need a comprehensive toolkit to apply to a diverse problem set. They require a grounding in the principles of risk management and the ability to converse in a number of engineering languages: process, safety, chemical, instrumentation, operations and human factors, in order to then synthesise the multi-disciplinary output appropriately. They need leadership and facilitation skillsets, and they need to know when to draw on each. They need to make sure that team members contribute in their area of expertise, challenging the room where necessary, working with the scribe to record accurate notes and ensure the meeting sticks to schedule.

The HAZOP leader needs competencies to address not just all of this, but most importantly, to know what they do not know, and what the team does not know, such that meaningful actions are raised (only) when necessary.

RISK MANAGEMENT

It almost goes without saying that the HAZOP leader must be the expert in the room when it comes to the HAZOP method and the principles of risk management that are applied. Even though HAZOP is a well-known technique, there are pitfalls that can lead to significant repercussions for the whole HAZOP and risk management process if overlooked by the leader.

For example, the team may drive towards the development of a consequence description that takes account of safeguards. The competent HAZOP leader will understand the relationship between process safety studies and the control of Major Accident Hazards (MAHs), along with the regulatory context and good practice drivers. The leader will guide the team to a worst case consequence that takes no account of safeguards to ensure that a potential MAH is not disguised, recognising more generally, that no safeguard is ever 100% effective.

Modern HAZOP is rarely complete without consideration of Layers of Protection Analysis (LOPA) and the requirements to achieve Safety Integrity Levels (SIL). HAZOP is an indispensable bridge between

process safety and functional safety; the HAZOP leader will need a good understanding of this. The principles of LOPA can also contribute to the evaluation of the effectiveness of safeguards identified during the HAZOP, even if the LOPA workshop itself is to be held later.

MULTI-DISCIPLINARY ENGINEERING

When a HAZOP leader has a competent and quorate team, a basic level of facilitation is generally enough. Understanding the two processes – the HAZOP method and the system under analysis – and ensuring that the team contributes appropriately can produce reasonable results. But how often does that perfect situation occur and how long does it persist before there is a disagreement between the control and instrumentation engineer and the safety engineer? Or before the process engineer has to leave the workshop to handle something urgent and doesn't return until the next day? Circumstances change and the HAZOP leader has to be ready and skilled in handling them.

The HAZOP leader must understand process hazards such as overpressure, blow-by and carryover, and appreciate the extent to which they are likely to be significant. It is important that the HAZOP leader is sufficiently versed to be able to ask the right questions of the process engineer, for example, to discern whether a given overpressure scenario is likely to lead to rupture or less severe leakage. The leader also needs to be able to understand chemical and hazardous material properties and the means by which they can effect process safety.

A HAZOP leader should be familiar with the concepts of human factors in order to properly scrutinise the effectiveness of important safeguards that rely on human intervention and causes that could result from human error. Performance shaping factors such as time pressures, task complexity and environment can often be overlooked if the HAZOP leader doesn't scratch beneath the surface. Who else will challenge the operator who assures the team that it is routine to run three hundred metres in full PPE and 48°C heat to operate an important manual valve to avoid an emergency scenario?

INTERPERSONAL SKILLS

Perhaps most importantly, the competent HAZOP leader needs the interpersonal skills required to manage and run the workshop effectively. The primary role is to facilitate an effective discussion between a team of domain experts. To do this, communication skills, in particular the ability to listen and interpret discussion, are essential, as well as the ability to provide direction and keep the meeting on track by knowing when to cut a speaker short and when to allow latitude.

Team dynamics are the responsibility of the leader – the final arbiter. The leader must be able to handle conflicts and differences, accommodating diverse personalities within the workshop team to ensure a balanced discussion, and making sure the collective knowledge is drawn out and processed.

Finally, the competent HAZOP leader needs to maintain objectivity and independence. An impartial view that is not unduly influenced by a forceful, outspoken team member is important to ensure that the integrity of the HAZOP output is maintained.

CONCLUSION

A good HAZOP leader needs a diverse and multi-faceted skillset in order to successfully lead and manage the HAZOP process.

Drawing on risk management experience, the leader is responsible for facilitating the identification and assessment of all credible deviations from the intent of a system design. In doing so, the leader must challenge the HAZOP team by applying his or her multi-disciplinary engineering knowledge. Most of all, the leader requires the interpersonal skills to manage and run the workshop effectively.

The HAZOP leader is the funnel and filter through which the knowledge and experience of the multi-disciplinary team delivers the HAZOP and ultimately helps protect people, the environment, the asset and the organisation.

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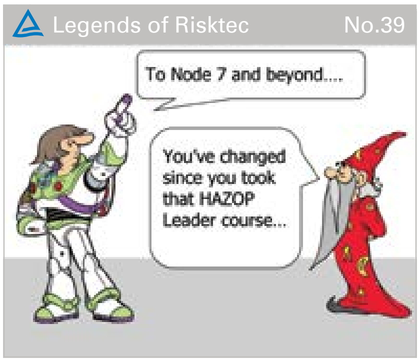
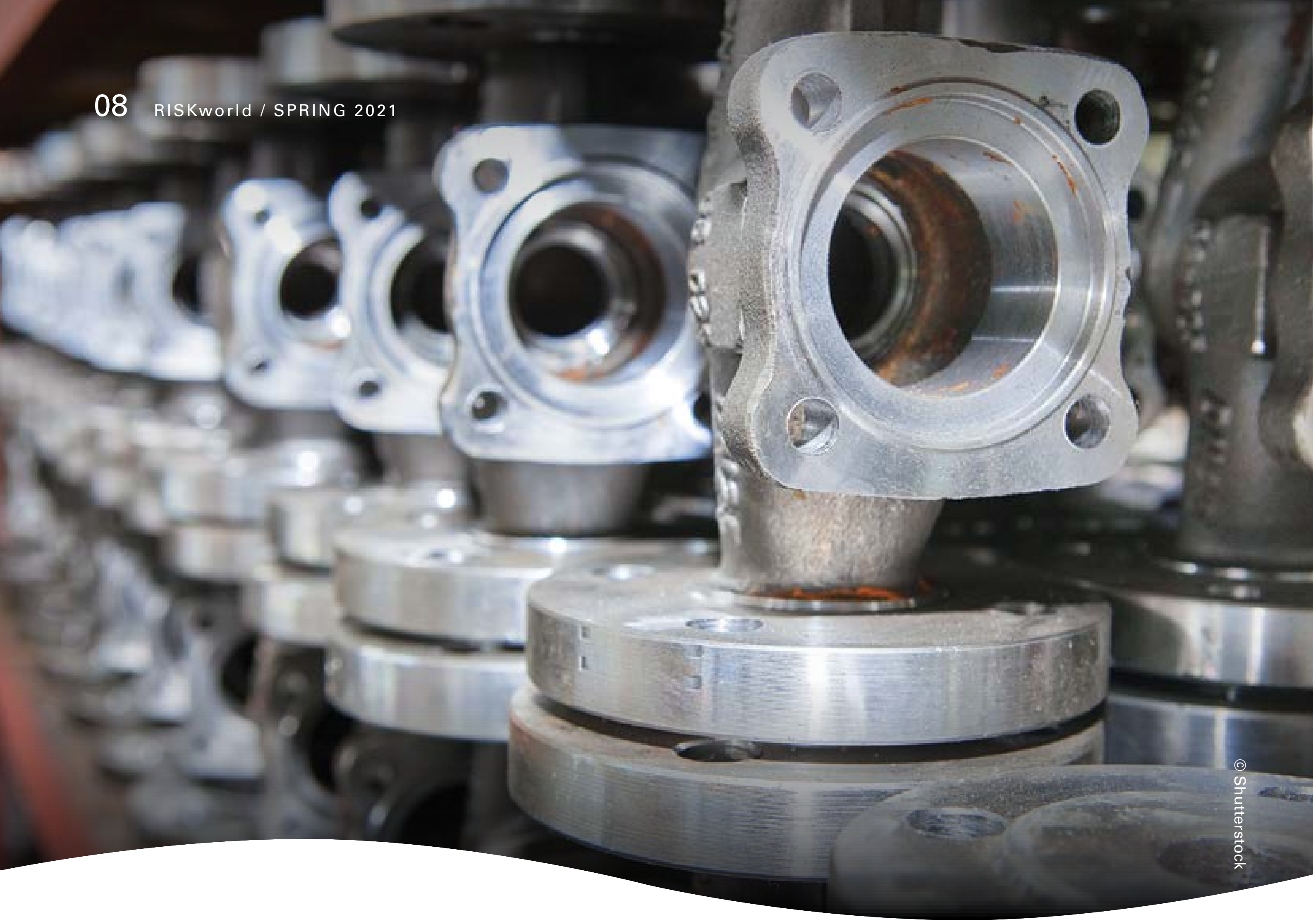


LOOKING FOR CERTIFICATION AS A HAZOP LEADER?

TÜV Rheinland Risktec has launched the world's first accredited HAZOP Leader certificate. The associated training course develops and tests the knowledge, skills and behaviours for the effective leadership of process safety-related HAZOP workshops. Candidates who attend the training and successfully pass the examination will receive the HAZOP Leader (TÜV) qualification certificate. Eligibility conditions apply.

For further information contact: training@risktec.tuv.com



Optimising spares with RAM simulation

When equipment fails and the required spare part is not readily available, the financial consequences can be high. Days of lost production are experienced awaiting delivery, and if the vendor has no stock and is required to manufacture a part, days can turn into weeks. Part obsolescence may mean further delays as well as design changes to critical equipment, and whilst production losses will be temporary, reputational loss may be permanent.

HIDDEN COSTS OF STORING SPARES

It may seem that the most obvious solution is to purchase multiple spare parts and have them ready to use from a nearby location. Production performance due to lack of parts will rarely be a significant problem if we always have immediate access to spares.

Whilst appealing from a production perspective, this 'just in case' strategy has substantial downsides. Firstly, purchasing spares represents capital expenditure that returns no contribution. Having money locked away in stock increases the chances that money has to be borrowed to support improvement projects. Secondly, excess stock increases the likelihood of unused spares, or the spare equipment suffering degradation by the time it is needed. Finally, there are ongoing holding costs including administration, inspection and maintenance of inventory, as well as ensuring suitable storage conditions are maintained, for example to minimise corrosion.

It is estimated that the annual costs of spares management is 20-30% of the inventory value. This means that $100,000 worth of spare inventory will see holding costs exceed the original value after four years, and over a 30-year facility lifetime the costs could amount to $900,000.

RAM FOR SPARE PARTS OPTIMISATION

A complex balancing act is therefore necessary to optimise sparing levels. Fortunately the established methods of Reliability, Availability and Maintainability (RAM) modelling provide the gateway to the answer. These studies are most commonly used to support the design in achieving its availability targets, and use probabilistic modelling techniques to simulate production performance. Taking the RAM method one step further, however, enables determination of the optimum sparing levels such that production is maximised, and spares holding costs are minimised over the lifetime of the facility.

Spare parts optimisation is achieved by tracking the spares in the RAM simulation at three locations, the first nearest to the system requiring maintenance, typically representing spares stored locally on site. The second location relates to spares stored at a warehouse that serves the wider area. The final location is the vendor factory. Parameters such as logistic delay times, restocking levels, restocking times, repair times and manufacturing capacity of the vendor can be incorporated into the analysis. Cost data such as unit costs, storage costs, transportation costs, repair costs and batch discounts can also be incorporated to determine the contribution of spares to lifecycle costs.

HOW MUCH DOES THIS SAVE?

Take as an example a facility where the sparing strategy involves no prioritisation and simply entails three spares for all equipment being held onsite, and three spares at the warehouse. A RAM simulation predicted spares purchasing and holding costs of $970,000 over the facility lifetime, along with a production efficiency of 97.5%.

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A spares cost analysis simulation was then performed which determined optimum stocking both on the site and at the warehouse. This optimisation reduced predicted lifetime spares costs by $570,000 and predicted an increase in production efficiency to 97.95%, amounting to $1.3 million of additional production per year.

These results were achieved simply by expanding an existing RAM simulation to incorporate the sparing strategy. Substantial savings over the lifetime of a facility were realised by this relatively simple additional step.

THE HIDDEN BENEFITS OF RAM

All too often the RAM study is simply viewed as an exercise for demonstrating that the target availability has been met. This is the headline figure for any facility design. Behind the initial availability results, however, is an asset simulation model that can also be leveraged to identify substantial operational savings. Once the design project is complete, the RAM model should not be forgotten; it is in the implementation stage, and throughout operations, where the RAM model is at its most powerful. Incorporation of more data (and more relevant data) as operational experience increases allows the RAM model to be refined and provides valuable input to cost saving and production improvement decisions.

This approach is not just limited to spares optimisation; the RAM simulation can also be used to optimise other resources such as maintenance labour and tooling resources. Such decisions have to be made regardless, so it makes complete sense to harness the power of RAM to save money.

CONCLUSION

RAM studies are often used as an exercise to estimate the availability of a system for contractual performance reasons. However, when used to their fullest extent, they become a powerful tool for asset performance and lifecycle cost analysis. Spares optimisation represents one area where significant savings can be realised over the lifetime of a facility. When such optimisation methods are also extended to labour and tool resource optimisation, the potential cumulative efficiencies over the lifetime of a facility are vast.

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Managing Psychosocial Risk: Is ISO 45003 the answer?

In the UK, 55% of all ill-health working days lost in 2019/2020 were due to work-related stress, anxiety or depression, so why aren't we doing more about it? ISO 45003 Psychological Health and Safety at Work: Managing Psychosocial Risks is the first global standard which gives practical guidance on managing psychological health in the workplace. Can this help?

THE CONTEXT

2019/2020 saw 111 workers killed at work in the UK. While each fatality is undoubtedly a tragedy, this is the lowest number of annual fatalities at work ever recorded in the UK, a decrease of 38 from 2018/2019 (Ref. 1). The UK Health and Safety Executive (HSE) also reported that in the same period there were 828,000 workers suffering from work-related stress, anxiety or depression, accounting for 51% of all work-related ill-health (Ref. 2). This amounted to almost 18 million lost working days, which was 55% of all working days lost due to ill health. Furthermore, there are at least 600 suicides each year which have work-related causes (Ref. 3). Top factors include job insecurity, overwork, stress, poor management and unfairness at work (Ref. 4).

Whilst increased working from home as a result of the global pandemic has potentially helped to reduce the number of fatalities at work, the effect on psychological health is yet to be fully understood.

If psychological health in the workplace is important and the management of psychosocial risk is necessary, then why isn't more being done about it? In (rightly) continuing to push for net-zero fatalities from accidents at work, has work-related psychological ill-health been outsourced to the home? Of course, the picture is more complicated than that.

Figure 1 – Psychosocial Hazards based on ISO 45003 (Ref. 5)

Firstly, the causes of suicides are complex and it is often difficult to establish a direct link with the workplace (Ref. 2). Work-related factors that contribute to or detract from psychological health are subjective; they affect different people in different ways. Secondly, good practice for psychosocial risk management has yet to be established.

The fact that suicides are explicitly excluded from formal reporting to the UK regulator does not remove or mitigate the employer's duty of care. Employers have a duty to reduce risk to employees and those who may be harmed, so far as is reasonably practicable. This is as true for psychological health as it is for physical health and safety. There is a duty to carry out a suitable and sufficient assessment of risks arising from work activities. This includes the risk of impairment of psychological health. But how can we do it?

OVERVIEW OF ISO 45003

Expected to be published in the summer of 2021, ISO 45003 Psychological Health and Safety at Work: Managing Psychosocial Risks (Ref. 5) will be the first global standard to provide practical guidance on managing psychological health in the workplace through an Occupational Health and Safety

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Management System (OHS-MS). The new standard describes potential psychological hazards that can affect workers, including those associated with home working, and provides guidance on methods of identification.

The negative effects of poor psychological health for workers (including anxiety, depression and sleep disorders) and poor health behaviours such as substance misuse are well acknowledged. However, as well as providing a framework and guidance for management of psychological health risk, ISO 45003 also addresses the associated opportunities.

Effective management of psychological health and safety can help to improve organisational sustainability, enhance productivity and worker engagement, improve employee retention and increase innovation. Focus on psychological health and wellbeing may have wider ramifications, such as improvements to safety culture and reduction in human error rates; and provides another perspective from which to approach the drive towards zero fatalities in the workplace.

RELATIONSHIP TO ISO 45001

ISO 45003 is intended to be used in conjunction with ISO 45001 Occupational Health and Safety Management Systems (Ref. 6). ISO 45001 contains requirements as well as guidance for planning, implementing, reviewing, evaluating and improving an OHS-MS. The two standards push towards the development of good practice for integrating psychosocial risk management into mainstream health and safety risk management.

FROM GUIDANCE TO PRACTICE

ISO 45003 includes a checklist of psychosocial hazards, as shown in Figure 1, and associated causal factors. However, it does not provide guidance regarding the relative significance of each of the hazards or causal factors. This is likely to be organisation- and individual-specific, and perhaps not something the standard could be expected to do. Further, from the examples provided, it does not fully address the question of how to evaluate risk and determine the most effective control measures.

The standard lists potential methods for identifying hazards but the selection of the most appropriate method is, of course, down to the organisation and the practitioner. The method of hazard identification and gathering information is an important question, particularly given the often sensitive nature of the subject and the information being gathered.

This notwithstanding, ISO 45003 provides comprehensive guidance, with practical tools, for example, regarding the signs of exposure to psychosocial risk. The standard should certainly be welcomed readily, but it will be up to industry and individual organisations to apply and develop the tools to implement it effectively, and ultimately determine if this is the springboard to improved psychological health and wellbeing at work.

CONCLUSION

There is a clear need for effective psychosocial risk management in the workplace. ISO 45003 provides a strong foundation, although there is work to be done to turn the framework and guidance into good practice for psychosocial risk management.

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6. BS ISO 45001:2018, Occupational Health and Safety Management Systems - Requirements with Guidance for Use

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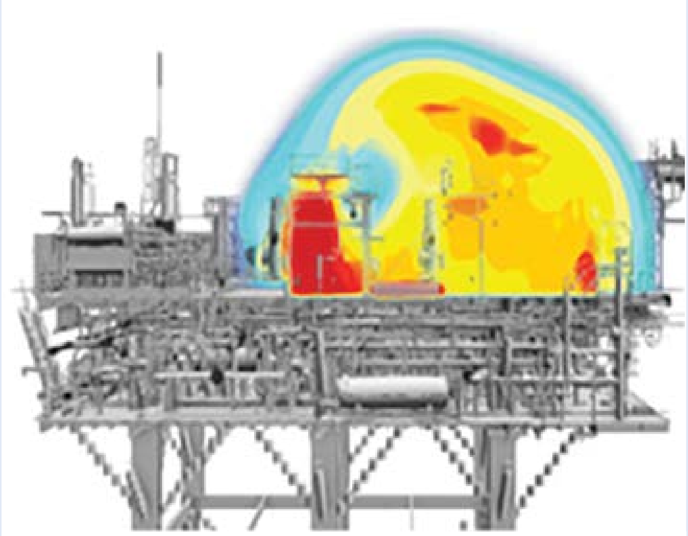

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