

Using this tool:

This risk analysis matrix (RAM) is a tool that standardises qualitative risk assessment and facilitates the ranking of risks associated with HSSE. The matrix axes contain criteria for Consequences and Likelihood.

The information on this RAM is extracted from the Z Enterprise Risk Analysis Matrix (Z RAM) for HSSE operational risk assessment purposes. The Z RAM is more comprehensive and definitive for risks that includes criteria for financial, reputational, strategic and other business risks.

This matrix can be applied in a number of processes, including:

- HSSE risk management, setting objectives and prioritising risk reduction efforts;
- Deciding the appropriate means of demonstrating risk controls according to the degree of risk (e.g. in working permitting, task risk assessments, etc.)
- Incident investigation;
- Classification of findings.

The scale of consequences is used to indicate increasing severity (from left to right). The consequences are those of credible scenarios (taking the prevailing circumstances into consideration) that can develop from the release of a hazard or threat. The potential consequences, rather than the actual ones, are used.

The consequence ratings are also used to assess the actual seriousness of incidents for the purpose of incident reporting and investigation.

After assessing the potential outcome, the likelihood on the horizontal axis is estimated based on historical evidence or experience that such consequences have materialised. Note that this should not be confused with the likelihood that the hazard is released: it is the likelihood of the potential consequences occurring.

For risk management and risk reduction purposes, controls are determined using the hierarchy of controls, i.e. starting with eliminating the hazard or risk, and then substitution. In general, further risk reduction measures, i.e. engineering, then procedural, reduce likelihood rather than consequences. Risk reduction may be demonstrated using risk assessment tools and this RAM.

		CONSEQUENCES				
		Insignificant	Minor	Moderate	Major	Extreme
Health and Injury	Injuries with severity up to first aid cases. Little damage or threat to health.	Injuries resulting in lost work days of up to 7 days.	Injuries resulting in lost work days of up to 21 days.	Single fatality or life-threatening injuries.	Multiple fatalities or long-term widespread health impacts.	
	Little damage or threat to health.	Minor health effect and fully reversible in the short term. Intervention not indicated.	A diagnosed occupational illness case. Irreversible damage to health and/or long term disabilities. Minimal, local or non-invasive intervention indicated.	Permanent total disability (PTD) or injury with irreversible health problems. Urgent intervention indicated.		
Environmental Impact	Loss of containment (LOC) to ground up to 5 litres - spill kit response. Marine oil spill (LOC to water) is of higher risk consequence.	LOC to ground up to 70 litres - spill kit and minor remediation of land.	Loss of containment above 70 litres and up to 700 litres (except marine)	LOC to ground above 700 litres - considerable remediation of land.	LOC to ground above 700 litres - significant remediation of land with ongoing monitoring.	
		LOC to water that requires a regional (council) notification (Tier 1 marine oil spill).	Tier 2 marine oil spill	LOC to water that requires a national response for clean up (Tier 3 marine oil spill)	LOC to water that requires both a national and international response for clean up (Tier 3 marine oil spill).	
		Single environmental incident requiring remediation work of <7days.	Multiple environmental incidents (1 or 2 per year), requiring remediation work of between 1 week and 1 month.	Multiple environmental incidents (>2 within 12 months) requiring remediation work of >1 month and <3 months.	Multiple environmental incidents with medium/long-term impacts requiring remediation work of >3 months.	
Operational/ Performance of core business	Total or partial loss of infrastructure that impairs Z's operational capacity/function for a period greater up to a day.	Total or partial loss of infrastructure that impairs Z's operational capacity/function for a period greater than 1 day and less than 1 week.	Total or partial loss of infrastructure impairs Z's operational capacity/function for a period greater than 1 week and less than 1 month.	Total or partial loss of infrastructure impairs Z's operational capacity/function for a period greater than 1 month and less than 3 months.	Total or partial loss of infrastructure that impairs Z's operational capacity/function for a period greater than 3 months.	
	Inappropriate or unauthorised disclosure of Z information which is already in public domain.	Inappropriate or unauthorised disclosure of information that is specific to the operation of a localised Z team.	Inappropriate or unauthorised disclosure of information sensitive to Z operations.	Inappropriate or unauthorised disclosure of Confidential or Private information leading to loss of competitiveness, loss of stakeholder confidence or a privacy complaint.	Inappropriate or unauthorised disclosure of Secret information, i.e. strategy documents, leading to significant losses, loss of competitiveness and/or loss of stakeholder value.	
Information Security	Cyberattack that has no impact on Z, i.e. phishing attack that is blocked.	Cyberattack leading to loss of limited capability, i.e. loss of a non-critical system.	Cyberattack leading to loss of one or more critical systems.	Cyberattack leading to loss of all Z's systems and/or loss of Confidential/operational data and/or loss of intellectual property.	Cyberattack leading to all of Z's operations ceasing for a period or results in associated risks, i.e. injury, loss of life or environmental incident.	

	Description	Annual Probability of Occurrence	
LIKELIHOOD	Occurrence of the consequences / impacts of the risk event is to be expected under normal circumstances.	≥90% per year or more (At least once per year)	Almost Certain
	Occurrence of the consequences / impacts of the risk event would be considered as a 'real possibility' or is 'highly probable'.	≥50% to <90% per year (At least once every 2 years)	Likely
	Occurrence of the consequences / impacts of the risk event would be considered as having some potential to occur.	≥30% to <50% per year (At least once every 3 years)	Possible
	Whilst possible, occurrence of the consequences / impacts of the risk event would probably be regarded as doubtful or unexpected.	≥10% to <30% per year (At least once every 10 years)	Unlikely
	It is not expected that the consequences / impacts of the risk event would occur. Occurrence would probably be regarded as unusual, uncommon or exceptional.	Less than 10% per year (Less than once every 10 years or a 100-year event)	Rare

	A	B	C	D	E
1	8 MEDIUM	11 MEDIUM	17 HIGH	23 CRITICAL	25 CRITICAL
2	4 LOW	10 MEDIUM	16 HIGH	19 HIGH	24 CRITICAL
3	3 LOW	9 MEDIUM	13 MEDIUM	18 HIGH	22 HIGH
4	2 LOW	6 LOW	12 MEDIUM	15 MEDIUM	21 HIGH
5	1 LOW	5 LOW	7 LOW	14 MEDIUM	20 HIGH