Australian Government

MSMWHS401 Assess risk

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSAPMOHS401A Assess risk

Application

This unit of competency covers the skills and knowledge required to identify hazards and operability problems and then analyse them by hazard analysis techniques to assess risk.

This unit of competency is a specialist unit requiring technical knowledge and is suitable for plant technicians and people in similar roles.

A team with a broad knowledge of the system and its operation will carry out the analysis. It is expected that the risk assessment processes are already defined for the enterprise and that the risk acceptance criteria have already been established. The team will be steered by engineering experts or risk assessment specialists in the industry.

This unit of competency applies to workers who take an active role in a hazard and operability study (HAZOP) or similar methodology. They are not expected to lead the HAZOP. This unit is not restricted to HAZOPs and may be applied to other methodologies requiring similar competency. The risk assessment should be consistent with AS/NZS ISO 31000:2009 Risk management – Principles and guidelines.

Team members will contribute their understanding of the process and particularly the operational aspects, and then carry out whatever tasks are assigned to them by the analysis team.

The aim of this unit of competency is to apply a methodical examination of the system and its elements to identify hazards and the states or conditions where there may be loss of control of the hazard and the resultant consequences.

The technique can be applied at any stage of a project/process life cycle.

Although hazard identification should be the main focus, operability problems should be identified to the extent that they have the potential to lead to a breakdown in hazard controls resulting in a health, safety or environmental (HSE) violation or have a negative impact on profitability.

This unit of competency applies to an individual working as part of a team or group.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Work health and safety

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes		Performance criteria describe the performance needed to demonstrate achievement of the element	
1	Identify hazards and potential operability problems	1.1	Contribute to the compiling of a system description of all the machinery, equipment, operations, products and materials relevant to the everyday working procedures of the facility
		1.2	Contribute to the compiling of a checklist containing process parameters (primary key words) and guide words (secondary key words) relevant to the system
		1.3	Identify hazards, existing control measures and potential operability problems or breakdowns in control measures using the compiled system descriptions and the checklist
2	Assess impact of risk and determine alternative strategies	2.1	Screen for causes of deviations and establish consequences
		2.2	Determine alternative strategies for action in relation to each deviation within the range of competency and responsibility
		2.3	Review, clarify and/or analyse risk information to determine its relevance and reliability depending upon the task assigned, level of competency and area of responsibility
3	Assess risk information against established risk criteria in risk management plan	3.1	Check risk acceptance criteria for any changes over past period
		3.2	Compare risk information against risk acceptance criteria and procedures to assess acceptability of risk
		3.3	Liaise with other internal departments to assess impact on business, if applicable
		3.4	Document findings according to company policies and procedures

4	Develop a risk register	4.1	Develop a risk assessment chart for each system studied containing deviation, cause, consequence, control measures and action
		4.2	Develop action plan for implementation of control measures, including any changes to procedures
		4.3	Establish or review the procedures by consulting relevant/different work groups.
		4.4	Inform relevant work groups of any changes and implement, within area of responsibility, changes in the procedures
		4.5	Monitor effectiveness of the control measures, including revised procedures
5	Establish and maintain procedures for identifying hazards, and assessing and controlling risk	5.1	Identify and develop procedures for routine hazard identification, assessment and control of risks
		5.2	Address identification of all hazards at the planning, design and evaluation stages of any changes in the workplace to ensure that new hazards are not created by the proposed changes
		5.3	Develop and maintain procedures for selection and implementation of risk control measures in accordance with the hierarchy of control
		5.4	Identify inadequacies in existing risk control measures in accordance with the hierarchy of control and, within area of responsibility, promptly provide resources enabling implementation of new measures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework

The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements

Procedures

All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Hazards

Hazards include one or more of the following:

- smoke, darkness and heat
- heat, smoke, dust or other atmospheric hazards
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- structural collapse
- equipment failures
- industrial (machinery, equipment and product)
- equipment or product mass

- noise, rotational equipment or vibration
- limited head spaces or overhangs
- working at heights, in restricted or confined spaces, or in environments subjected to heat, noise, dusts or vapours
- fire and explosion
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- limited head spaces or overhangs
- extreme weather
- other hazards that might arise

Non-routine problems

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person

Non-routine problems include one or more of the following:

- incidents with a potential for injury
- fires and explosions
- chemical spills
- bomb scares

Operational knowledge includes one or more of the following:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people

Risk assessment methodology

Risk assessment methodology must:

- enhance the understanding of risk and how it may be reduced
- permit the modelling and evaluation of a wide range of failure modes

- enable the analysis to be carried out in a manner that is auditable, repeatable and verifiable
- be usable by other staff
- be appropriate to the system operating in the given domain
- give valid results from the type and quantity of data that is available
- be appropriate for the particular life cycle phase at which it is to be applied
- be supported by standard proformas for the technique
- have a rational technical basis, typically through reference to national or international standards, Defence standards or published reference books

This is not restricted to HAZOP methodology; other methodologies requiring similar competency may be used.

Process parameters

Specific process parameters (primary key words) relevant to the system will include three (3) or more of:

- flow
- temperature
- pressure
- relief
- instrumentation
- sampling
- addition
- safety
- reaction
- reduce (grind and crush)
- absorb
- isolate
- vent
- start-up
- composition
- phase
- level
- corrosion
- erosion
- services
- utilities
- maintenance/maintain
- inserting
- purging

- contamination
- separate (settle, filter and centrifuge)
- mix
- drain
- shutdown

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027