NATIONAL COMPETENCY STANDARD

WSQ Framework : WSH Professionals
Competency Category : Plan and review of WSH
Competency Code : WP-PR-101C-1
Competency Unit : Participate in hazard identification and risk control
Competency Descriptor : On completion of this unit, learner will be able to identify hazards at their workplace, understand the basic concepts of risk assessment and apply simple tools to assess risks.

Competency Level : 1
Credit Value : 2
Version Number : 1.0
Effective Date : 27 August 2007
Review Date : 
Developer : Generic Skills Development Division
Custodian : Generic Skills Development Division

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**National Competency Standard**

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**Summary of Competency Elements**

This competency unit consists of the following elements:

1. Identify common types of hazards at the workplace
2. Recognise simple risk assessment methods
3. Recognise hierarchy of controls

**Assumed Skills and Knowledge**

The assumed skills and knowledge for this unit are as follows. Learners are assumed to

- Be able to listen, read, speak and write English at a proficiency level equivalent to the Employability Skills System (ESS) Workplace Literacy level 4
- Be able to manipulate numbers at a proficiency level equivalent to ESS Workplace Numeracy level 4
- Be working in the cluster of other workplace with some basic supervisory skill.
- Have some basic understanding of generic chemical names used in their workplace.
- Have knowledge of basic engineering terms and units.
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**Competency Unit Title**
Participate in hazard identification and risk control

**Description of Competency Element**

**Competency Element Title**
1. Identify common types of hazards at the workplace

**Performance Criteria**
A competent individual must be able to successfully perform the following:

1.1 Identify hazards associated with the use of tools and the operation of equipment and machines at the workplace.

1.2 Identify safety and health hazards of materials and chemicals used at the workplace.

1.3 Recognise conditions hazardous to safety and health of persons at the workplace.

1.4 Identify at-risk behaviours of fellow colleagues that would cause harm to persons at the workplace.

1.5 Identify safety warning signs in accordance with standards and code of practices.

**Underpinning Knowledge**
A competent individual needs to known and understand:

- Types of WSH Hazards
- Hazards associated with tools, equipment and machines
- Hazards associated with workplace conditions and environment
- At-risk behaviour
- Typical unsafe practices
- Safe work procedures
- Interpretation of common safety signs
- Relevant legal requirements
- Typical health hazards at workplaces
**Range and Context**

Tool, equipment and machines, which may include:

- Workshop equipment
  - Lathe machine
  - Milling Machine
  - Grinding Machine
  - Drilling Machine
  - Lifting equipment
- Outdoor Machinery
  - Forklifts
  - Cranes
  - Generator sets
  - Compressors
  - Excavators
- Facility equipment
  - Welding machine/equipment
  - Compressor
  - AHU
  - Boiler
- Hand tools
  - Hammer and punches
  - Hand drill
  - General screw driver
  - Jig saw
  - Penknife and cutter
  - Hand grinder
- Laboratory equipment
  - Microscope
  - Ultrasonic cleaner
  - Hot plate/heater
  - Laser/Radiation Equipment
  - Soldering

Hazards associated with tools, equipment and machines, which may include:

- Electrical
- Mechanical
- Fire and explosion
- Radiation
- Noise

Materials and chemicals used at the workplace, which may include:

- Process chemicals
- Chemical products
- Lubricants
- Cleaning agents
- Detergents
- Disinfectants
- Combustible materials
Hazards associated with materials and chemicals, which may include:

- Fire and explosion
- Burn and scald
- Sudden release of pressure
- Corrosion
- Irritation
- Asphyxiation
- Toxicity
- Carcinogens
- Acute effects
- Chronic effects
- Chemical products

Hazardous conditions, which may include:

- Poor housekeeping
- Unstable stacking of materials
- Storage of incompatible materials such as:
  - Acids and bases
  - Flammables with oxidizers
- Incompatible works such as:
  - Hot work with other works that involve use of flammable substances
  - Washing and electrical works
- Unguarded machines
- Hazardous atmosphere, which may be due to:
  - Chemicals
  - Dust
  - Lack of oxygen
  - Poor air quality
- Conditions that expose a person to hazards of:
  - Struck by or struck against objects
  - Trip and fall on same level
  - Falling from height
  - Drowning
  - Scalds and burns
  - Lightning strikes

Chemical use in generic operation/process which may include:

- Lubrication for maintenance
- Alcohol for machine cleaning
- Thinner for paint mixing
- Acid for etching and lab test
- Petroleum/fuel for operating equipment
- Paint and Primer – industrial produce

At-risk behaviours, which may include:

- Violating procedures
- Taking short-cuts
- By-passing safety procedures
- Disabling machine safety features
- Not using or Misuse of personal protective equipment
- Unauthorised use of equipment
- Misuse of equipment
- Reckless acts
- Horseplay

Unsafe practices, which may include:
- Current practices which are unsafe and not in accordance with standard procedures
- Work procedures not addressing safety issues adequately
- Lack of safe work procedures
- Confusing, conflicting and non-standardised procedures
- Use of inappropriate or damaged equipment

Health hazards, which may include:
- Noise
- Chemical
- Haze
- Ergonomic
  - Poor posture
  - Duration
  - Frequency
  - Area layout
- Manual handling

Standards for safety signs:
- SS 508, Graphical symbols - Safety colours and safety signs - Design principles for safety signs in workplaces and public areas
- CP 27 – Code of Practice for factory layout - Safety, health and welfare considerations
- NFPA label

**Evidence Sources**

Listed below are a few examples about the kinds of evidence that would provide a guide as to whether an individual is meeting the standards required to be competent.

**Work Activities**
- Identifying unsafe conditions at the workplace
- Recognising unsafe behaviours
- Detecting unsafe practices

**Products and Outcomes**
- Inspection and hazard identification report (can be a photo report)

**Verbal and/or Written Reports**
- List hazards associated with use of tools and operation of equipment and
- Discuss hazards of materials and chemicals used at the workplace.
- List examples of conditions at the workplace that would present WSH hazards.
- List types of WSH hazards
- List examples of at-risk behaviours of fellow colleagues that would cause harm to persons at the workplace.
- Discuss unsafe practices at the workplace not identified and documented in standard operating procedures
- List type of health hazards
- Interpret the meaning of safety warning signs
National Competency Standard

Competency Unit Code
WP-PR-101C-1

Competency Level
1

Competency Unit Title
Participate in hazard identification and risk control

Description of Competency Element

Competency Element Title
2. Recognise simple risk assessment methods

Performance Criteria
A competent individual must be able to successfully perform the following:

2.1 Recognise common risk assessment approaches in accordance with MOM risk assessment guidelines.

2.2 Recognise risk assessment methods used within the organisation.

2.3 Identify the roles and responsibilities of stakeholders for risk assessment in accordance with legal requirements and organisational procedures.

2.4 Interpret WSH risk as quantified in accordance with organisational procedures.

2.5 Provide input to risk assessment team to assess risks at the workplace in accordance with WSH (Risk Management) regulations and organisational procedures.

Underpinning Knowledge
A competent individual needs to know and understand:

- Common methods of risk assessment
- Quantification of WSH risk in organisation
- Steps of risk assessment process
- Activity and trade-based approach to risk assessment
- Roles and responsibilities of stakeholders in risk assessment
- WSH (Risk Management) Regulations

Range and Context
Common risk assessment approaches, which include:
- Activity-Based
- Trade-Based

Simple Risk Assessment methods, which may include:
- Review Material Safety Data Sheets
- Job Safety Analysis (Task Analysis)
Roles and responsibilities which include:

- **Those of employer, self-employed and principals:**
  - Designate, assign, appoint or engage competent person leading a team to conduct risk assessments
  - Ensure that risk control measures are implemented without undue delay after the completion of risk assessment
  - Inform all persons working at the workplace of the risks, and the means to control risks
  - Provide a risk assessment register to record findings of risk assessment
  - Endorse and approve risk assessments conducted
  - Keep risk assessment records for at least three years from date of assessment;
  - Submit risk assessment records to the Commissioner for Workplace Safety and Health when requires;
  - Review and update the risk assessment at least once every three years or earlier should there be a significant change in the work, or if there is reason to suspect that the assessment is no longer valid
  - Ensure that all employees are aware of the risk assessment for the work activity they carry out
  - Develop and implement safe work procedures for work which poses safety or health risks to workers
  - Keep a written description of the safe work procedures and produce this to the inspector for inspection when requested.

- **Those of risk assessment team leader:**
  - Have adequate knowledge of the risk assessment method
  - Recommend appropriate risk control measures to reduce or eliminate risks identified
  - Prepare record of risk assessment for the employer after completion of assessment
  - Assist management in monitoring the effectiveness of risk control measures after their implementation

- **Those of employees:**
  - Participate in the risk assessment or assist in conducting the risk assessment;
  - Adhere to safe work procedures established to reduce WSH risks
  - Inform supervisors of any shortcomings in the safe work procedures or risk control measures

- **That of contractors and suppliers**
  - Work with risk assessment team to identify hazards, evaluate and control risks due to their activities

Risk quantification, which may include:

- Severity of Hazard
- Likelihood of the occurrence
- Risk Level = Severity x Likelihood
Steps in Risk Assessment, which may include:
- Hazard Identification
- Risk Evaluation
- Risk Control

Stakeholders who may include:
- Employers
- Self-employed
- Principals
- Risk assessment team members
- Managers
- Supervisors
- Employees
- Management
- Contractors
- Suppliers
- Contractors and suppliers

Provision of risk assessment input, which include:
- Workplace information leading to evaluation of likelihood and severity of hazards causing harm
- Condition of workplaces and types of WSH hazards
- Conformance status of work procedures against organizational standards
- Existing WSH control measures

**Evidence Sources**
Listed below are a few examples about the kinds of evidence that would provide a guide as to whether an individual is meeting the standards required to be competent.

**Work Activities**
- Participating in risk assessment and providing relevant inputs to the risk assessment team
- Recognising the method used for risk assessment at the workplace
- Spotting hazards for risk assessment

**Products and Outcomes**
- Job Safety Analysis report
- Trade-based risk assessment report

**Verbal and /or Written Reports**
- List types of risk assessment methods
- Define Risk Level = Severity x Likelihood to quantify risk
- List types of approaches to risk assessment
- Describe the role and responsibility of employer, self-employed, principals, contractor and other stakeholders in risk assessment
- Describe the key requirements under the WSH (Risk Management) Regulations
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#### Performance Criteria
A competent individual must be able to successfully perform the following:

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<tr>
<td>3.1 Match existing WSH control measures used at the workplace with control methods in hierarchy of control.</td>
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<td>3.2 Identify factors affecting effectiveness of control measures in accordance with organisation procedures.</td>
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<td>3.3 Identify inadequacies in the existing control measures in accordance with organisational procedures.</td>
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<td>3.4 Suggest ways of improving control of WSH risks in accordance with hierarchy of control.</td>
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<td>3.5 Explain the importance of adhering to WSH control measures to persons exposed to WSH risk.</td>
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#### Underpinning Knowledge
A competent individual needs to know and understand:

- Hierarchy of control
- Characteristics of control methods in hierarchy of control
- Factors determining effectiveness of control measures
- Importance of adhering to WSH control measures

#### Range and Context
Hierarchy of control, which include:

- Elimination
- Substitution
- Engineering
- Administrative
- Personal protective equipment

Factors affecting effectiveness of control may include:

- Reduced WSH risks
- Reliability
• Robustness
• Ease of use
• Side effects, such as
  • Interference with productivity
  • Creating hazards elsewhere

Inadequacies of control which may include:
• Risk not adequately addressed
• Not protecting all persons at work
• May cause hazards in other areas
• Not reliable
• Slow in response
• Difficult to use
• Too complex and tedious to follow
• Cause discomfort to users
• Difficult to maintain

Importance of adhering to WSH control measures may include:
• Prevention of injury and occupational diseases
• Avoidances of loses
  • Costs
  • Productivities
  • Jobs
• Building of positive WSH culture

**Evidence Sources**
Listed below are a few examples about the kinds of evidence that would provide a guide as to whether an individual is meeting the standards required to be competent.

**Work Activities**
• Describing key characteristics of each type of control in the hierarchy of control
• Arranging hierarchy of control in order of preference to control WSH hazard
• Recognising types control measures required at workplace
• Prioritising existing control measures in accordance with the preferred methods in the hierarchy of control

**Products and Outcomes**
• Photo report on some control measures at the workplace

**Verbal and/or Written Reports**
• List control methods in hierarchy of control
• Describe key advantages and limitations of each type of control
• Identify key factors in determining effectiveness of control measures