

BSBWHS409

Assist with workplace monitoring processes



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ASSESSMENT FOR BSBWHS409

Student name	NGUYEN PhanDinh
Date of assessment submission	12/06/2016

Trainer/Assessor's name	
Date of assessment marking	Click here to enter a date.
Outcome for unit	☐ Competent ☐ Not Yet Competent

TASK INSTRUCTIONS

- The assessment for this unit of competency consists of the following:
 - A series of activities:** Some of these activities will require you to provide a response within this document, others will require you to gather evidence to demonstrate your knowledge and skills (overview below)
 - Quiz:** You will be required to complete a series of questions to demonstrate your knowledge and skills.
 - Practical task:** You will be required to have an observer attest to your knowledge and skills and sign a report to this effect.
- At times, you will be provided with a specific business context to which you must respond, otherwise it is anticipated that you will use a workplace of your choosing (your own, or hypothetical) to provide the context to the task.
- At all times, the responses in your assessment must reference **Australian** (Queensland or Federal) documentation, including legislation, regulations, codes of practice, standards and guidance publications.

ACTIVITY OVERVIEW	REQUIRED FOR SUBMISSION
1. Regulatory requirements and standards	Workbook response (below)
2. Characteristics of agents and conditions	Workbook response (below)
3. Communicating with others	Workbook response (below)

ACTIVITIES

For the following activities, name a workplace that you wish to examine.

Name of workplace	Construction of Dzung Quat Grassroots Refinery Project
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ACTIVITY 1

Identify and describe the requirements of each of the following within your chosen organisation, with regards to workplace monitoring:

- a) Act
- b) Regulation
- c) Code of practice
- d) Standard

Name of Act
Work Health and Safety Act 2011 (Queensland)/ Part 2 Health and safety duties; Section 19, Section 20, Section 21
Requirements
Duty of persons conducting businesses or undertakings involving management or control of workplaces to the extent that the business or undertaking involves the management or control, in whole or in part, of the workplace. The person with management or control of a workplace must ensure, so far as is reasonably practicable, that the workplace, the means of entering and exiting the workplace and anything arising from the workplace are without risks to the health and safety of any person. This duty includes the provision and maintenance of safe plant, structures and safe systems of work; provision of adequate facilities and the provision of any information, training, instruction or supervision that is necessary to protect persons from the risks to their health and safety arising from work carried out.

Name of Regulation
Work Health And Safety Regulations 2011/ Chapter 5 Plant and structures Part 5.1 General duties for plant and structures Regulation 203; Regulation 204; Regulation 205; Regulation 206
Requirements
Management of risks to health and safety A person with management or control of plant at a workplace must manage risks to health and safety associated with plant, in accordance with Part 3.1 Control of risks arising from installation or commissioning (1) A person with management or control of plant at a workplace must not commission the plant unless the person has established that the plant is, so far as is reasonably practicable, without risks to the health and safety of any person. (2) A person with management or control of plant at a workplace must not decommission or dismantle the plant unless the decommissioning or dismantling can be carried out, so far as is reasonably practicable, without risks to the health and safety of any person.

Name of Code of practice
Work Health and Safety Codes of Practice 2011
Requirements
These Codes of Practice: • are to be read and construed with the WHS Act and the WHS regulations; • to provide guidance on meeting obligations under the WHS Act and Regulations; • are admissible in proceedings under the WHS Act and Regulations as evidence of what is known about a hazard, risk or control and what is reasonably practical

Name of Standard
Relevant standards for reference can be found at: Safework Australia National Standard For example: Standard for Labelling of Hazardous Material
Requirements
2. Labelling hazardous chemicals-General Information 2.1 What information must be included on a label? 2.2 Product identifier, including details of ingredients 2.3 Manufacturer/importer information 2.4 Label elements 2.5 Expiry Date 2.6 Pipe work 3. Special Labelling Situations 3.1 Small containers 3.2 Research chemicals or samples for analysis 3.3 Decanted or transferred hazardous chemicals 3.4 Hazardous chemicals with known hazards that are not supplied to another workplace 3.5 Hazardous waste products 3.6 Hazardous chemicals classified in the explosives hazard class 3.7 Hazardous chemicals that are dangerous goods packaged for transport 3.8 Consumer products 3.9 Agricultural or veterinary chemical products 3.10 Products containing nanomaterials 4. Labelling Design and Layout 4.1 Grouping information 4.2 Orientation and size of label elements 5. Other duties in relation to labelling. 5.1 Containers found without correct labelling 5.2 Reviewing and updating information on labels

Outcome for Activity 1	☐ Satisfactory ☐ Not satisfactory
Trainer/Assessor comments	

ACTIVITY 2

- a) Select one (1) chemical agent, one (1) physical agent and one (1) biological agent.
 - Identify a condition (i.e. symptom) that would be associated with each agent.
- b) Identify the characteristics of the chemical agent. You should refer to a Safety Data Sheet (SDS).
- c) Explain how you would determine the area where the measurements should be taken for the agent.
 - What information would workers (and other affected parties) be able to provide?
- d) Identify one (1) type of equipment that would be used to measure the agent.
 - Explain why you have selected this measuring equipment and its appropriateness for the environment, the activities being carried out and the level of risk.
 - Explain how you would calibrate, adjust and check the operability of the equipment selected. Does the equipment contain any in-built alarms?
 - Explain how the equipment is used. Be mindful of how health and safety are to be maintained and any limitations on the use and output of the equipment.
 - Identify the scale/units this equipment measures in and how results are recorded.
 - Explain how the equipment should be maintained and stored, including dismantling, cleaning and disposal requirements.
- e) Determine a sampling plan/process for monitoring the agent.
 - Determine when and how the sampling will take place.
 - Identify work permits and written authorities you would need to obtain when conducting the monitoring activities.
 - Determine who is responsible for the monitoring and how you would assist with conducting the tests.

Name of chemical agentHydrogen Sulphide (H₂S)**Condition of agent**

Hydrogen sulphide is a colourless and poisonous flammable gas with a strong smell of rotten eggs at low concentration in air at ranging from 0.01-0.3 parts per million (ppm). Symptoms may be delayed.

At high concentrations, H₂S can cause shock, convulsions, inability to breathe, extremely rapid unconsciousness, coma and death.

At concentrations above 100 ppm it deadens a person's sense of smell within a few minutes. Between 4.3% and 46% of H₂S by volume in air, it can catch fire and explode if there is a source of ignition.

Fatal if inhaled; Very short exposure could cause death or serious residual injury.

Workers are exposed when they inhale hydrogen sulphide in air, and this toxic gas is quickly absorbed by the lungs.

Hydrogen sulphide can react with rust or corrosion deposits on equipment to form iron sulphide. This reaction occurs in an oxygen free atmosphere where hydrogen sulphide gas is present or where the concentration of hydrogen sulphide is greater than that of oxygen. This reaction happens most often in closed vessels, tanks or pipelines.

Very toxic to aquatic life

Name of physical agent

Noise

Condition of agent

Noise at work can cause hearing loss which can be temporary or permanent.

People often experience temporary deafness after leaving a noisy place. Although hearing recovers within a few hours, this should not be ignored. It is a sign that if a person continues to be exposed to the noise, the hearing could be permanently damaged.

Permanent hearing damage can be caused immediately by sudden, extremely loud, explosive noises, eg from guns or cartridge-operated machines.
 But hearing loss is usually gradual because of prolonged exposure to noise.
 Hearing loss is not the only problem related to noise. People may develop tinnitus (ringing, whistling, buzzing or humming in the ears), a distressing condition.

PCBUs to ensure that the noise that a worker is exposed to at the workplace does not exceed the exposure standard for noise.

The exposure standard for noise means:

- + For continuous noise, noise levels that are equal to or greater than an 8-hour noise level equivalent (LAeq,8h) of 85 dB(A), or
- + For impulse noise, noise levels that are equal to or greater than a peak (LC peak) of more than 140 dB(C).

Name of biological agent
Bacteria
Condition of agent
Bacteria have both positive and negative effect. In negative effect, bacteria is pathogenic and cause infectious diseases, including cholera, syphilis, anthrax, leprosy, and bubonic plague to human, can cause to illness and disease. Symptoms range from mild gastroenteritis to life-threatening neurologic, hepatic, and renal syndromes Bacteria inhabit soil, water, acidic hot springs, radioactive waste. Bacteria also live in symbiotic and parasitic relationships with plants and animals.

Chemical agent**Characteristics**

Physical State; Appearance: colourless compressed liquefied gas, with characteristic odour of rotten eggs.

Physical dangers: The gas is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.

Chemical dangers:

Heating may cause violent combustion or explosion. The substance decomposes on burning producing toxic gas (sulfur oxides). Reacts violently with strong oxidants, causing fire and explosion hazard. Attacks many metals and some plastics.

Occupational exposure limits:

Threshold Limit Values (TLV) : 10 ppm (as Time Weighted Average; TWA)

TLV: 15 ppm (Short Term Exposure Limit; STEL)

Routes of exposure: The substance can be absorbed into the body by inhalation.

Inhalation risk: A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

Effects of short-term exposure:

The substance irritates the eyes and the respiratory tract. The substance may cause effects on the central nervous system.

Exposure may result in unconsciousness. Exposure may result in death. Inhalation of gas may cause lung oedema. The effects may be delayed. Medical observation is indicated.

Rapid evaporation of the liquid may cause frostbite.

Physical Properties:

Boiling point: -60 °C

Melting point: -85 °C

Solubility in water, g/100 ml at 20 °C: 0.5

Relative vapour density (air = 1): 1.19

Flash point: Flammable Gas

Auto-ignition temperature: 260 °C

Explosive limits, vol % in air: 4.3-46

Area for measurement

As per the chosen workplace, area for H₂S measurement as well as other air compound is to be conducted prior to and at regular times during any work activity where hydrogen sulphide exposure is possible. For example: crude oil tanks, hydrogen sulphide treatment units and its pipeline, coke oven from Fluid Catalytic Cracking Unit, confine spaces.

Measuring equipment

There are variety devices/equipment to be used for H₂S measurement such as electronic meter, detector tubes, direct reading gas monitors, alarm only gas monitors, and explosion meters to detect H₂S

In order to provide maximum protection, it would be best to have an electronic portable monitoring instrument that could measure and store both the 1 PPM TWA and 5ppm STEL H₂S levels and provide and alarm when concentrations reached 5ppm. This portable instrument would have the following characteristics:

it would measure both short term and time weighted average exposures; it would store the results for review after the monitoring was complete; it would have an alarm to warn the use of high H₂S levels; The portable instrument will provide a noticeable visual, audible and vibration alarm notification to alert the user once exposed to a dangerous level of H₂S

In additional, the stationary measurement instruments associated with specific processes is to be considered, these stationary equipment will warn workers when concentrations exceeded the new STEL of 5 ppm. This would allow exposure avoidance –particularly in enclosed areas where H₂S may accumulate.

For this application, an instrument with the following characteristics should be selected: it could be set to measure multiple gases; it would have an alarm to warn people of high concentrations;

- Once complete measuring, it will be required appropriate storage. Some measuring instrument will require calibration before each use and this should be done as close to the usage date as possible.
- In the event of an H₂S emergency, all personnel should follow the site emergency plan.
- All H₂S exposure victims should be treated by a physician before returning to work

Sampling plan/process

In general, a sampling plan/ process will address the: who, what, when, where and how...that involved in a sampling process. This will be included the following:
Depend on the specific requirement, appropriate measuring equipment will be selected.

Obtain an approved Permit To Work with all necessary precautions and measures is being implemented. All personnel take part in the process is being clarified with relevant JSA applied for the task...

Conduct air monitoring prior to and at regular times during any work activity where hydrogen sulphide exposure is possible. When working in confined spaces, air monitoring must be conducted in accordance with the requirement outlined in Permit To Work for confine space.

Use respiratory and other personal protective equipment; If engineering and administrative controls cannot reduce hydrogen sulphide below acceptable permissible exposure limit, the PCBU must provide respiratory protection and other personal protective equipment (PPE), such as eye protection and possibly fire-resistant clothing. PCBU must complete a PPE hazard assessment and equipment selection process in accord with the PPE procedure before beginning activities.

Respiratory protection should be at least:

- For exposures below 100 ppm, use an air-purifying respirator with specialized canisters/cartridges for hydrogen sulphide. A full face respirator will provide eye protection.
- For exposures at or above 100 ppm, use a full face pressure demand self-contained breathing apparatus (SCBA) with a minimum service life of thirty minutes or a combination full face pressure demand supplied-air respirator with an auxiliary self-contained air supply. Exposures at or above 100 ppm are considered immediately dangerous to life and health (IDLH).

The sampling plan/ process must be done by a qualified person.

Whenever respirators are used, the employer must have a respiratory protection program that meets the requirements. The respiratory protection program must include proper respirator selection, fit testing, medical evaluations, and training.

Outcome for Activity 2	☐ Satisfactory ☐ Not satisfactory
Trainer/Assessor comments	

ACTIVITY 3

- a) Which individuals and parties might you consult when identifying agents and conditions in the workplace?
- b) Who might you consult with when collecting information and data about the requirements, nature and purpose of the monitoring?
- c) Describe a situation where you might need to seek expert advice, due to limits in your own expertise and/or available equipment.
- d) When interpreting and evaluating results you have collected, why should you compare them against a recognised standard?
 - Are there any limitations with exposure standards?
- e) Explain how you might assist with preparing reports on the monitoring process and ensure that regulatory requirements have been met.
 - What would be the purpose of the report?
 - Who would be included in the target audience?
 - How should the information be presented (e.g. to show trends)?
 - How soon should information be presented? Justify your response.
 - Explain how the results and records would be stored, allowing for easy retrieval.
 - Explain how you would consider others' privacy in the delivery and secure storage of the results.

	Response
a)	The following individuals and parties can be consulted when identifying agent and conditions in the workplace. • Workers; to get the feedback from those who exposed to the risks associated with site activities. • HSE Supervisors: to be updated actual site HSE monitoring situation and effectiveness. • Site Supervisors & Area Managers: to assess each job where a range of job undertaken in the area where agents and conditions need to be assessed.
b)	During collecting the information and data about requirements, nature and purpose of monitoring, the industry regulator can be consulted with regarding current compliance and legislative updates in the industry
c)	At the water treatment unit, there are various chemical agents being used. Due to work request, the scaffolding team have to build access to the sediment pond. In this case, it is necessary to have discussion with the commissioning manager responsible for the water treatment unit prior to raise the Permit To Work for scaffolding work at sediment ponds. The discussion will not be limited to: + Identify currently chemical agent(s) is currently present at the sediment pond + Indicate required atmosphere testing. For example, if it requires continuous gas testing or repeated gas testing + Indicate if anti-corrosion material scaffolding need to be used. In conclusion, consultation with area commissioning manager in order to obtain sound understanding of the nature of contaminant concentrations in the area, the statistics relevant to their measurement and the interpretation of measurement results is required. In additional, expert advice can be obtained from qualified occupational Hygienist to identify and develop the suitable air monitoring program for the workplace and when carrying out the air monitoring and interpret measurement results.

d)	Interpreting and evaluating results once have been collected, needs to compare those results against a recognised standard in order to ensure the collected results is aligned and is within acceptable exposure limit. In additional, the exposure standard does not reflect all other contributed elements at the work place. Those contributed elements to the interpreting and evaluating can be: + Considerations of workload; in some specific conditions, under which a person is exposed to a chemical can increase the amount of the chemical that the person absorbs and increase the risk. The individual characteristics of the worker: physical condition, on diet duration, etc + Skin absorption: exposure standards indicate absorption via inhalation and are valid only on the condition that significant skin absorption cannot occur. + Exposure to mixtures of substances– combined effects: Exposure standards are usually applicable to airborne concentrations of single pure substances. However, in practical condition at the jobsite, a working environment may contain numbers of airborne contaminants and workers can be exposed to these additional substances, either simultaneously or sequentially. The combined effect of multiple exposures is considerably greater than the sum of the effects from a single component.
e)	Report is the tool to communicate to all relevant parties, to inform the process and result of interpreting and monitoring result. Hence, the report should be taken into account that various readers that will read the report. The data, figure and information being used in the report is to be validated and reflect that regulatory requirements is referred to. To enhance the built-in of reader, the data, figure and information can be formed in graph, charts, statistics....in order to assist with identifying trend. The result and report shall be stored for easy retrieval. In order to achieve this objective, responsible person must ensure appropriate process is applying appropriately: + Appropriate identification and description. For example: title, date, author, or reference number. + Format (graphics, chart,..) and media (paper and electronic) + Adequately protected and retained to prevent unintended alterations. To enhance the privacy and secure storage of the result, the following is to be applied: + For paper copy filing, a process of permission to view the documented file upon obtain written permission from authorised person. To maintain the confidential information, Confidentiality Agreement and signing off will be required to the person whose works will assess to personal profiling. + For electronic filing, Information Security Management System (ISMS) process will be applied to control report and result by applying “restricted access” to folder(s)/ drive(s).

Outcome for Activity 3	☐ Satisfactory ☐ Not satisfactory
Trainer/Assessor comments	

QUIZ

QUESTIONS				CORRECT																																						
1. Match the following agents and conditions by placing the corresponding agent number next to each condition.				☐																																						
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2. When determining the area where measurements are to be taken, which of the following should be taken into consideration? Select all that apply. ☒ Movements of people ☒ Tasks or activities occurring the in the workplace ☒ When work is undertaken and when lunch time is ☒ Whether the equipment emits something (e.g. light and sound)				☐																																						
3. In which circumstances may you be required to consult with another party during the monitoring process? Select all that apply. ☒ When determining the agent and/or condition to be monitored ☒ For advice on which equipment to select ☒ When recording readings ☒ To determine the nature of the problem				☐																																						

4. Which of the following information and data must be presented to relevant parties? Select all that apply. ☒ Interpretation of results ☒ The process undertaken ☐ Information about equipment that was not used ☒ Effects for workers and the workplace	☐
5. If it is discovered during the monitoring process that a worker is exposed to serious risk due to an uncontrolled leakage of a substance, the PCBU can choose to control the leakage, rather than notifying the WHS regulator. ☐ True ☒ False	☐

Outcome for Quiz	☐ Satisfactory ☐ Not satisfactory
Trainer/Assessor comments	

PRACTICAL TASK

You are required to have a suitable observer verify your ability to complete the following tasks. These tasks may be simulated or real.

TASKS		VERIFIED
A.	Consult with others to form sampling process/plan. Identify: • Agent to be measured • Characteristics of agent • Measurement equipment to be used • The area where measurements are to be taken • Factors that may impact on sampling (e.g. movements of people and equipment, tasks or activities being undertaken, number of persons occupying the area).	☒
B.	Work with others to assist with monitoring process: • Calibrate monitoring equipment and select appropriate scale • Safely use equipment to collect information/data and record readings • Dismantle, clean and store equipment and parts.	☒
C.	Prepare an electronic written report on the monitoring process: • Present information and data clearly and logically • Interpret and evaluate results against a recognised standard • Use appropriate units of measurement, logarithmic scales, decimals and order of magnitude.	☒
Name of observer	Duong Quang Vinh	
Role of observer (Confirm their suitability to sign)	☐ Trainer/Assessor ☒ Other (specify): Project Manager	
Phone number of observer	+84 918 118 786	
Email address of observer	dqvinh@technip.com	
Signature of observer		
Date	23/06/2016	
Comments		

Outcome for Practical Task	☐ Satisfactory ☐ Not satisfactory
Trainer/Assessor comments	