

CURRICULUM, TRAINING AND ASSESSMENT GUIDE

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Purpose of Guide

This Guide is designed for SSG's Approved Training Organisations (ATOs) and Adult Educators who are responsible for the design and delivery WSQ Perform Manhole Safety Assessment under the Generic Manufacturing Skills (GMS) WSQ Framework. This Guide aims to provide essential curriculum, training and assessment design advisory information, to guide developers, trainers and assessment in the interpretation and translation of competency standards into training and assessment programme. The Guide also contains training and assessment requirements stipulated by industry, and WSQ accreditation information for compliance. It is divided into 2 parts:

Part I - Details specific recommendations and advice for programme developers of "Perform Manhole Safety Assessment".

Part II - Provides a broad spectrum of information about WSQ and related components relevant to the "Perform Manhole Safety Assessment" programme.

PART I

WSQ

Perform Manhole Safety Assessment

CHAPTER 1: OVERVIEW OF THE CONSTRUCTION INDUSTRY

The Generic Manufacturing Skills (GMS) WSQ framework aims to raise the professionalism of the construction industry by equipping the workforce with essential generic and portable skills to adapt and be resilient to challenges in the dynamic working environment. It allows employers to access a pipeline of skilled workforce, which provides a competitive advantage and enables organisation success. It also equips workers with cross-cutting generic manufacturing skills to effectively contribute and progress within an organisation as well as promote mobility across construction and other related companies.

“Perform Manhole Safety Assessment” is a Competency Unit under the GMS WSQ Framework. The Performance Statements covered are:

- PS1. Prepare gas testing plan for gas testing based on safe work practices and regulatory requirement
- PS2. Identify types of atmospheric, physical and biological manhole and/or confined space hazards
- PS3. Perform gas monitoring test procedures by using Identify appropriate types of gas monitoring instruments to measure atmospheric hazards
- PS4. Implement manhole and/or confined spaces hazard preventive and control measures
- PS5. Identify, set up and perform pre-checking of personal protective equipment prior to entering manhole and/or confined space
- PS6. Prepare and conduct period monitoring schedule for atmospheric hazards based on typical manhole with connection to other underground spaces

1.1 Skills gaps and key challenges facing the sector/industry

1.1.1 To streamline safety training and reduce repetitive training, MOM Workplace Safety and Health related courses will be transited to the WSQ System. These mandated safety courses will equip the workers and supervisors with the essential competencies to work safely in the construction and other related industries.

1.1.2 Specifically, the objectives of this initiative are:

- To equip all personnel with the relevant safety competencies to work in the manufacturing related industries;
- To reduce the gestation period before the worker can start working by harmonising the regulatory requirements with the industry endorsed WSQ training; and
- To provide clear progression pathway and address the necessary skills required to move up to the next level of responsibility

1.2 Expected attitudes of workers in the sector

A competent worker must have a sense of “safety awareness” and is expected to take personal responsibility for his own safety as well as look out for the safety of his co-workers.

CHAPTER 2: WSQ PERFORM MANHOLE SAFETY ASSESSMENT

2.1 Overview

~~MOM work permit-linked safety orientation courses for the relevant industries will be transitioned to the WSQ System.~~ These mandated safety courses will equip the workers and supervisors with the essential competencies to work safely in the construction and other related industries.

2.2 Key Features of WSQ Perform Manhole Safety Assessment

The Performance Statements (PS) covered are:

- PS1. Prepare gas testing plan for gas testing based on safe work practices and regulatory requirement
- PS2. Identify types of atmospheric, physical and biological manhole and/or confined space hazards
- PS3. Perform gas monitoring test procedures by using Identify appropriate types of gas monitoring instruments to measure atmospheric hazards
- PS4. Implement manhole and/or confined spaces hazard preventive and control measures
- PS5. Identify, set up and perform pre-checking of personal protective equipment prior to entering manhole and/or confined space
- PS6. Prepare and conduct period monitoring schedule for atmospheric hazards based on typical manhole with connection to other underground spaces

Why this Course?

The “Perform Manhole Safety Assessment” course aims to provide learners with the knowledge and skills in applying safe work practices and regulatory requirement on manhole and/or confined space, conduct risk assessment to identify and assess hazards, perform gas testing and record and interpret the gas measurement results activities in construction and related industries.

2.3 Importation of Elective Credits from Other WSQ Frameworks or Recognised Equivalents

Not Applicable.

2.4 Target Audience

2.4.1 The “Perform Manhole Safety Assessment” is a mandatory training course for all workers working in construction sites and related industries.

2.4.2 Learners are assumed to have:

- Employability Skills (ES) Workplace Literacy level 4 and above.
- Be able to manipulate numbers at a proficiency level equivalent to ES Workplace Numeracy level 4 and above.
- Upon successfully completion of the

- i) WSQ Supervise Work in Confined Space Operation (formerly known as Safety Instruction Course (Manhole) *for Supervisor*) or
- ii) WSQ Supervise Construction Work for Workplace Safety and Health (formerly known as Building Construction Supervisors Safety Course) with at least 3 years of relevant experience in confined spaces/manholes

2.5 Recommended Learning Hours (RLH)

- RLH = 30 Hours (Training Hours: 27, Assessment Hours 3)
- The RLH takes into account the time required for direct learning activities. Direct learning is broadly defined as trainer/assessor-directed & involves purposeful instructions given to trainees to complete as part of instructional design of a structured facilitated training and assessment programme.

Activity	Duration	Remarks
Facilitated Learning (Theory & Practical)	27 hours	Theory: 15 hours Practical: 9 hours Theory & Practical : 3 Hours
Assessment	3 hours	Written: 2 hours Practical: 1 hour

- Facilitated training and assessment
- E-learning¹ and assessment

2.6 Recommended Class Size, and Learner-Facilitator Trainer Ratio

- Recommended Class Size: 20
- Trainer-Learner ratio: 1: 20 (Class room) 1:10 (Practical)
- Attendance Requirements: 100% for classroom and practical sessions

2.7 Recommended Assessor to Candidate Ratio

- Written Assessment: 1 : 20 (Class size)
- Practical Performance: 1 : 10 (Class size)

¹ For E-learning to be considered as “directed learning”, the learning progress of trainees should be tracked via audit trail, progress reports, etc.

CHAPTER 3: TYPES OF PROGRAMME

3.1 Programme Structure

3.1.1 This unit covers the following underpinning knowledge item which could be taught in the classroom via a combination of lectures, discussions and case-studies.

- UK1. Safe work practices and regulatory requirement
- UK2. Roles and responsibilities for personnel involved in confined space and related work
- UK3. Types of atmospheric, physical and biological manhole and/or confined space hazards*
- UK4. Risk Assessment
- UK5. Manhole and/or confined space entry permit system
- UK6. Gas monitoring test procedures
- UK7. Types of gas monitoring instruments
- UK8. Manhole and/or confined spaces hazard* preventive and control measures
- UK9. Lesson points from accident case studies on confined spaces/manholes
- UK10. Types of *personal protective equipment* for work in manholes and their selections, use and maintenance
- UK11. Communication and emergency response plan

* The Risk Management process should consider the management of infectious disease outbreak, employees' health (including mental well-being) and terrorist threats. Training Provider should take reference from the 3rd revision of the Code of Practice on Risk Management.

3.1.2 The unit also covers the following Performance Statements: These would best be taught via a combination of **lecture, demonstrations and hands-on practice.**

- PS1. Prepare gas testing plan for gas testing based on safe work practices and regulatory requirement
- PS2. Identify types of atmospheric, physical and biological manhole and/or confined space hazards
- PS3. Perform gas monitoring test procedures by using Identify appropriate types of gas monitoring instruments to measure atmospheric hazards
- PS4. Implement manhole and/or confined spaces hazard preventive and control measures
- PS5. Identify, set up and perform pre-checking of personal protective equipment prior to entering manhole and/or confined space
- PS6. Prepare and conduct period monitoring schedule for atmospheric hazards based on typical manhole with connection to other underground spaces

CHAPTER 4: KEY DELIVERY ADVICE

4.1 Content Coverage

In developing the programme for any “Perform Manhole Safety Assessment” competency unit, ATOs should always make cross references to the Performance Statements (PS), Underpinning Knowledge (UK), Range and Application and Evidence Sources sections as stipulated in the “Perform Manhole Safety Assessment” National Competency Standard.

The components of the Competency Standard and the interpretations are briefly explained here.

For example,

The Range and Application and Evidence Sources reference to the Performance statements and/or Underpinning Knowledge is usually accompanied by the instructions “may include” or “must include”:

“May include”

- *Indicates that training providers are required to cover some (to indicate percentage if relevant) of the suggested Range and Application items listed when developing the “Perform Manhole Safety Assessment” programme.*
- *The training provider may choose to add more Range and Application items related to the corresponding Performance Statements and/or Underpinning Knowledge as part of their “Perform Manhole Safety Assessment” programme development.*

“Must include”

- *Indicates that training providers are required to cover all of Range and Application items listed when developing courseware.*
- *The training provider may choose to add more Range and Application items related to the corresponding Performance Statements and/or Underpinning Knowledge as part of their “Perform Manhole Safety Assessment” programme development.*

4.2 Sequence of Coverage

The following sequence is recommended:

Lesson No.	Content	Instructional Mode	Duration (Hours)
Day 1	UK1. Safe work practices and regulatory requirement UK2. Roles and responsibilities for personnel involved in confined space and related work UK3. Types of atmospheric, physical and biological manhole and/or confined space hazards <ul style="list-style-type: none"> • Atmospheric Hazard • Physical and biological hazards UK4. Risk Assessment	Theory	7
	PS1. Prepare for gas testing based on safe work practices and regulatory requirement PS2. Identify types of atmospheric, physical and biological manhole and/or confined space hazards		
Day 2	UK5. Manhole and/or confined space entry permit system UK6. Gas monitoring test procedures UK7. Types of gas monitoring instruments	Theory	5
	PS4. Implement manhole and/or confined spaces hazard preventive and control measures		
Day 3	UK8. Manhole and/or confined spaces hazard preventive and control measures UK9. Lesson points from accident case studies on confined spaces/manholes	Theory	3
	PS3. Perform gas monitoring test procedures by using appropriate types of gas monitoring instruments <ul style="list-style-type: none"> • Gas Testing Procedures – <ul style="list-style-type: none"> ○ Part A – Perform gas testing using sampling methods, sequence for gas testing, response time of instruments, selection of gas sampling accessories, sampling locations for manholes and correction factors ○ Part B – Perform gas testing using function testing methods, calibration of instruments, maintenance of instruments and accessories, types of calibration gases ○ Part C – Perform gas testing using mock exercise with gas testing in different atmospheres and planning and practice on conducting gas testing in manholes 		

Day 4	UK10. Types of personal protective equipment UK11. Communication and emergency response plan	Theory and Practical	3
	PS5. Identify, set up and perform pre-checking of personal protective equipment prior entering manhole and/or confined space PS6. Prepare and conduct period monitoring schedule for atmospheric hazards based on typical manhole with connection to other underground spaces		
	<u>Assessment, debrief and course evaluation</u> Written Assessment Section A – 70 MCQs Section B – 3 Short Questions	Theory	2
	Practical Assessment	Practical	1
		Total	30

4.3 Recommended Learning Strategies and Methods

4.3.1 Curriculum developers are recommended to adopt the following structure for thinking about and planning a learning strategy:

- Summarise the learning strategy
- In this learning strategy, what learning principles are being applied?
- What learning theories or learning design theories underpin this strategy?
- How will this strategy resolve the identified learning problems? What is it about the learning strategy that will cause people to change in a way that resolves the learning problem?
- How would you describe the experience that learners will go through? How will this experience support their learning?
- What methods or tactics are most likely to be used to support this strategy?
- How will interface and media support this strategy?
- How will this strategy engage learners' interests?
- How will this strategy assess learners' progress or increased competence?

(Extracted from www.networked-learning.com, accessed 19 Sep 2010)

4.3.2 An example of instructional strategy selection for cognitive, affective and psychomotor domains is given in **Annex A**.

4.3.3 A non-exhaustive list of recommended delivery methods is provided below.

- Classroom instruction (Pg 9)
- Whole class, small group and individualised learning activities

- Case studies
- Videos² and photographs, other e-resources and instructional media emphasizing the visual and tactile aspects of learning
- Demonstrations of use of gas monitoring instruments, and allow for adequate practice before assessment

4.3.4 Where relevant and appropriate, the learning activities for the unit should be designed to shape or cultivate the expected attitudes of the candidates and to prepare them for their role in the sector.

4.3.5 To enhance the transfer of learning, an andragogical or adult-learning approach to learning is encouraged in the development and delivery of the Competency Unit. Andragogical instructional techniques are designed with these factors in mind:

- Adults are self-directed
- Adults have acquired knowledge and experience through the workplace that can be utilised as a resource for learning
- Adults show a greater readiness to learn tasks that are relevant to their work roles
- Adults are motivated to learn in order to solve problems and address needs
- Adults expect to be able to apply what they learn
- Adults need to be challenged with varied strategies that maintain interest

4.3.6 This unit may be delivered in a combination of simulated environment and off-the-job.

- Content relating to underpinning knowledge and principles may be delivered off-the-job. Off-the-job delivery can be face-to-face in the classroom in a training organisation, or at a workplace venue. Classroom delivery should be interactive and learner-centred, using a range of activities and instructional methods.
- The practical aspects of the Competency Unit, however, should be delivered in simulated workplace settings.

4.3.7 All training delivery should be related to the normal work process and every effort should be made to link the acquisition and application of the knowledge, skills and attitudes to the workplace.

² Include a suitable video to demonstrate the impact and consequences of not wearing a harness properly, as a consequence of a fall.

4.3.8 Suggestions for delivery of this Competency Unit are given below:

Competency	Instructional Methods	Remarks
Underpinning Knowledge	Lectures, discussions, case studies, problem-based learning, videos, e- learning resources	<p>The knowledge component of this course is primarily focused on the requirements of:</p> <ul style="list-style-type: none"> • Workplace Safety and Health Act • WSH Approved Code of Practice for Working Safely at Height • WSH (Risk Management) Regulations • WSH (Work at Heights) Regulations • WSH (Construction) Regulations • WSH (Shipbuilding and Ship Repairing) Regulations • WSH (Confined Spaces) Regulations • SS568: Code of Practice for Confined Spaces
Performance Statements	Lectures, demonstrations, practice	<p>The demonstration and practice may include the following key skills:</p> <ul style="list-style-type: none"> • Prepare gas testing plan for gas testing based on safe work practices and regulatory requirement • Identify types of atmospheric, physical and biological manhole and/or confined space hazards • Perform gas monitoring test procedures by using Identify appropriate types of gas monitoring instruments to measure atmospheric hazards • Implement manhole and/or confined spaces hazard preventive and control measures • Identify, set up and perform pre-checking of personal protective equipment prior to entering manhole and/or confined space • Prepare and conduct period monitoring schedule for atmospheric hazards based on typical manhole

Attributes	Discussions, modelling, sharing	A competent construction worker must have a sense of “safety awareness” and is expected to take personal responsibility for his own safety as well as look out for the safety of his co-workers.
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4.4 Trainer’s Guide and Learner’s Guide and Handouts

4.4.1 The ATO is required to prepare a trainer’s guide for the course. The guide provides the trainer with information on the course including:

- Course aim
- Learning objectives
- Target audience
- Assumed skills and knowledge
- Course duration
- Class size and trainer facilitator/Learner ratio
- Lesson plan
- Course contents and instructional materials according to the course requirements
- Training methodologies
- Training resource requirements
- Course administration instruction
- Personal Protective Equipment (PPE) required during the training

4.4.2 The ATO shall also facilitate the learning process by providing each learner with a learners’ workbook/handouts to summarise (with illustrations, where possible) key learning points of all the topics covered in the syllabus. This may be in the form of drawings/illustrations rather than words.

4.4.3 The ATO is required to submit a cross reference matrix (see **Annex B**) to show that the courseware submitted is aligned to the requirements of the competency standard.

4.4.4 The ATO is to ensure that materials used for the training does not infringe on patent, design, copyright and intellectual property rights.

4.4.5 The ATO shall maintain a version control of updates made to the course materials for verification by the relevant authorities.

4.5 Training Resources

4.5.1 Training Requirements:

- Training site emergency evacuation route – to be briefed at start of course
- Training SOP must be available before the conduct of the course
- Photos / slides of the various types of WAH hazards
- WAH training videos
- Case studies relating to WAH accidents in the various industries
- WAH props to be utilised for demonstration and assessment

4.5.2 Practical Training Requirements:

- URA approved use of venue: Commercial School (theory only) or Industrial Training (theory and practical)
- Equipment and setup shall be designed to simulate various manhole activities or other relevant manhole working environment.
- The setup for training / assessment must comply with existing mandatory requirements, Codes of practice and recommended guides with respect to design, installation, maintenance and inspection.
- The gas testing and monitoring equipment, materials and accessories shall be designed to simulate realistic practical demonstrations.
- Learners will be taught the techniques as follow:
 - Types of prevention and control of confined space/manhole hazards with regard to sludge removal, purging and ventilation of confined space/manhole for entry or continuous occupancy.
 - Perform gas testing (Part A) using sampling methods, sequence for gas testing, response time of instruments, selection of gas sampling accessories, sampling locations for manholes and correction factors,
 - Perform gas testing (Part B) using function testing methods, calibration of instruments, maintenance of instruments and accessories, types of calibration gases
 - Perform gas testing (Part C) using mock exercise with gas testing in different atmospheres and planning and practice on conducting gas testing in manholes - Select and use personal protective equipment for working in manholes.

4.5.3 Total WSH Presentation Slides

Total WSH presentation slides will be issued upon approval of the Training Provider.

The materials are provided strictly for the explicit use and guidance of training providers for the conduct of this course.

Any other use of the materials or parts thereof, reproduction, publication, distribution, transmission, re-transmission, or storage in a retrieval system in any form, electronic or otherwise, for purposes other than that expressly stated above without the express permission of WSHC is strictly prohibited.

4.6 Training Venue Requirements

- 4.6.1 ATO is required to ensure that the classroom has adequate chairs and writing tables that are reasonably and comfortably spaced for the class of 20, to be conducive to the learning process and the purpose of conducting the assessment.
- 4.6.2. The classroom must have adequate lighting and ventilation. Emergency exit routes must be clearly marked out and briefed to the course learners at the start of the course. Necessary equipment such as projectors, multimedia players, whiteboards, and flipcharts must be available.
- 4.6.3. There shall be sufficient space as necessary for the appropriate set-up demonstration of fall arrest equipment and assessment purposes.
- 4.6.4. There shall be adequate safety control measures taken to ensure the safety of the participant during training.be equipped with sufficient and relevant practical training equipment such as PPEs, gas testing and monitoring equipment, materials and accessories, fire fighting equipment etc.

CHAPTER 5: KEY ASSESSMENT ADVICE

This chapter describes the following components:

A description on the general guidelines and requirements for conducting assessment is given in the reference WSQ resource websites in Part II of this document.

5.1 Recommended Assessment Strategies and Methods

5.1.1 There shall be a 2 3-hour written and 1 hour practical assessment at the end of the course.

S/N	Assessment Activity	Method/Format	Duration
1	Written Assessment (Closed book) – individual Assessor to Learners Ratio: 1:20	Section A: 70 MCQs Section B: Three (3) Short Questions	2 3 hours
2	Practical Assessment Assessor to Learners Ratio: 1:10	Demonstration of skills	1 0-hours
Total Assessment Time			3 hours

5.2 Industry Requirements

- The learner must pass written assessments and complete the practical assignments in order to be issued with the certificate of successful completion. Failure to pass either of the assessments shall render a “Fail” outcome for the Learner and he must then re-attempt the course and assessments.
- Apart from the annual surveillance audit carried out by the SSG, MOM/WSHC officers may also conduct no notice audits, as necessary, on WSQ ATOs.
- To facilitate marking of the assessment papers, ATOs shall install the Automated Marking System (AMS) and its associated hardware.
- The ATO personnel who is authorised to use the AMS to scan and mark the test via AMS must also ensure that the assessment results are updated in SSG’s Skills Connect system.
- ATOs are to upload the test results to MOM/WSHC within 5 working days following the completion of the course assessment. All errors must be rectified within 24 hours for re-submission of the affected results to MOM/WSHC via WSH TRS. This is in addition to the uploading of assessment results to SSG via Skills Connect.
- Authorities (i.e. MOM/WSHC) may request from ATOs information on the course. ATOs are to ensure that the information given to the Authorities are accurate and updated.

Note: For system(s) or requirement(s) administered by the relevant authorities, i.e. MOM/WSHC, the ATO shall fulfil the requirements and follow up with the agencies accordingly.

5.3 Assessment Instruments and Tools

5.3.1 Assessments instruments and tools will be required to conduct the assessment planned. Examples of such templates include:

- An Evidence Sources Checklist to serve as a reporting snapshot of the types of evidence gathering that may be used.
- A Verbal Assessment Checklist to record answers to questions concerning Underpinning Knowledge if this is used as an alternative to written exercise.
- Written Assessment Checklists as an instrument for the recording of answers to questions concerning the performance statements and underpinning knowledge.
- A Recording and Reporting Assessment Table Format as an instrument for the concise recording of competency and re-assessment information concerning the Competency Unit.

5.4 Assessment Plan

5.4.1 General Guidelines on Practical Assessment

The assessment plan shall comprise the following:

- Overview of the assessment tools and its duration
- Clear instructions on the conduct of the assessment
- SOP on the upkeep of the confidentiality of the practical assessment questions
- Instruments or tools of the practical assessment (e.g. question paper, checklist)
- Practical assessment summary record

5.4.2 Principles of Assessment

The assessment plan should be valid, reliable, fair and flexible.

- Valid – Are the assessment methods and tools appropriate and effective? Are the evidence collected relevant to the training?
- Reliability – Are the results consistent from one assessment to another?
- Fair – Are the assessment criteria clear? Do all the trainees know what to expect from the assessment? Will the assessment disadvantage any trainee? Do the trainees have any recourse for appeals?
- Flexibility – Can the assessment be used for multiple assessments? Are the assessment tools and methods uniform across different approaches and drawing on a range of different methods? Can they be used appropriately to the context, task and individual under assessment?

5.5 Conduct of Assessment

5.5.1 The practical assessment must be conducted strictly in accordance with the practical assessment plan. Each Learner is expected to complete and pass ALL the assessment requirements within the stipulated assessment time allocated.

The learner shall be assessed either “Competent” or “Not Yet Competent”. All PS and UK MUST be assessed as ‘Competent’ to be deemed to competent in the unit; AND the candidate must answer at least 70 marks for the written assessment and 100% pass for all the components in the compulsory practical module

5.5.2 The learner shall be assessed either “Competent” or “Not Yet Competent”. 100% pass for all the practical components is required.

5.5.3 Learners who make no more than 3 mistakes cumulatively in his full practical assessment will be given another chance to reattempt the assessment on the same day of assessment. Only two assessment attempts are allowed for each learner per practical assessment.

5.5.4 Learners who fail the written assessment and would be assessed as “Not Yet Competent” and required to re-course.

5.5.5 ~~Facilitator~~ Trainer and Assessor cannot be the same person for the same course, not even as assistant trainer ~~facilitator~~ or assessor.

5.5.6 All training records must be kept by ATO for period of no less than 2 years for audit purpose.

5.5.8 Written Assessment

ATO must adhere to the following guideline for the written assessment:

- Multiple Choice Questions (MCQ), Short Answer Questions and Assignments.
- Total allocated time for the written assessment is 3 hour.
- Passing mark for the written assessment is 70%.
- During the administration of the written assessment, there shall be an invigilator to ensure the integrity of the assessment process. The trainer ~~facilitator~~ for the course is not permitted to be the assessor or invigilator for the same course Learners during the assessment.
- SOP on the upkeep of the confidentiality of the written assessment questions

5.5.9 Practical Assessment

The assessment plan shall comprise the following:

- Overview of the assessment tools and its duration
- Clear instructions on the conduct of the assessment
- SOP on the upkeep of the confidentiality of the practical assessment questions
- Instruments or tools of the practical assessment (e.g. question paper, checklist)
- Practical assessment summary record

5.6 Briefing to Candidate

5.6.1 The briefing to candidate is to explain the purpose and context of assessment to ensure that there are no surprises during the conduct of assessment

5.6.2 The briefing to candidate shall include the following:

- The assessment requirements and process, including clear instructions on each of the assessment adopted
- Candidates' rights and the appeal process for assessment outcome

5.6.3 During the briefing, assessors are to establish any special needs and how such needs will be addressed during the assessment.

5.6.4 Assessor must seek feedback and ascertain candidates' understanding of the assessment requirements before the commencement of the assessment

5.7 Recording and Reporting of Assessment Outcome

5.7.1 All assessment outcomes must be accurately recorded in the assessment summary record form (see **Annex B**).

5.7.2 Assessment outcome will be communicated to the candidate at the end of the assessment.

5.7.3 The ATO shall maintain a record of the assessment results for 2 years for audit purposes.

5.8 Issuance of Certificate

- 5.8.1 A Statement of Attainment (SOA) will be issued by SSG for candidates who have been assessed as “Competent”.
- 5.8.2 ATOs are to issue safety passes in accordance to the format shown in **Annex D** to every candidate who is assessed “Competent” in this Competency Unit.

CHAPTER 6: ADULT EDUCATOR REQUIREMENTS

A developer / trainer / ~~facilitator~~/ assessor for this module shall possess all of the following:

6.1 Trainer and Assessor Requirements

A trainer and assessor of this course should possess all the following:

- Specialist Diploma in Workplace Safety and Health
- At least 5 years of relevant industry experience as a supervisor/ foreman/ safety personnel, of which:
 - Theory training: Registered WSH Officer or WSH Personnel with at least 3 year of experience in confined space/manhole and related areas.
 - Practical training: (i) Registered WSH Officer or WSH Personnel with at least 3 year of experience in confined space/manhole and related areas, and (ii) personnel who possess extensive knowledge in the usage, maintenance and calibration of gas detectors
- Advanced Certificate in Training and Assessment (ACTA)/ Advanced Certificate in Learning and Performance (ACLPL) qualification or Diploma in Adult Continuing Education (DACE) or Diploma in Design and Development of Learning for Performance (DDDLP).

6.2 Developer Requirements

In addition to the requirements for trainer and assessor above, the developer should possess all the following:

- WSQ curriculum developer pedagogic requirement: The developer must have attained a WSQ Advanced Certificate in Training and Assessment (ACTA)/ Advanced Certificate in Learning and Performance (ACLPL) qualification or Diploma in Adult Continuing Education (DACE) or Diploma in Design and Development of Learning for Performance (DDDLP). With effect from 1 October 2015, a WSQ Diploma in Adult and Continuing Education (DACE) or Diploma in Design and Development of Learning for Performance (DDDLP) is required;
- WSQ curriculum developer experience: The developer should preferably possess a minimum of one year experience in WSQ-related courseware development; **AND**
- Language proficiency: WPL level 7 or equivalent.

A qualified and experienced developer can work with a Subject Matter Expert with relevant domain qualifications and work experience in developing the courseware.

CHAPTER 7: SUMMARY OF MANDATORY SECTIONS / INFORMATION

This chapter summarises all the mandatory sections and required information, for easy reference. ATOs / Adult Educators are expected to note the information indicated in the following Sections and to comply with the stated requirements, where appropriate:

<u>Section</u>	<u>Title</u>
2.5	Recommended Learning Hours (RLH)
2.7	Recommended Class Size and Learner- Trainer Facilitator Ratio
2.8	Recommended Assessor to Candidate Ratio
4.1	Content Coverage <i>On percentage of items under Range and Application and Evidence Sources to be covered</i>
4.5	Training Resources
4.6	Training Venue Requirements
5.2	Industry Requirements
5.4	Assessment Plan
6.1	Trainer and Assessor Requirements
6.2	Developer Requirements

CHAPTER 8: RESOURCE INFORMATION

This chapter indicates the various literatures, journals, articles and researched information on the competency unit “Perform Manhole Safety Assessment”.

Related WSH legislations, industrial code of practice and other references (list is not exhaustive)

- Workplace Safety and Health Act
- WSH Approved Code of Practice for Working Safely at Height
- WSH (Risk Management) Regulations
- Code of Practice on WSH Risk Management
- WSH (Work at Heights) Regulations
- WSH (Construction) Regulations
- WSH (Shipbuilding and Ship Repairing) Regulations
- WSH (Confined Spaces) Regulations
- SS568: Code of Practice for Confined Spaces

PART II
WSQ
&
Supporting Resources

Glossary

ATO	ATOs are training organisations accredited under the WSQ to offer training programmes and assessment services leading to WSQ certification
Assessment	A systematic process of collecting evidence and making judgements as to whether an individual has achieved a certain level of competency.
Assessment Criteria and marking scheme	Provides the context and conditions, under which the assessment will be conducted, what evidence the assessor must collect and the grading criteria used.
Assessment method	The process or technique used to gather evidence. (Bresciano & Fackler, 2005)
Assessment plan	A document which outlines when the evaluation will take place and how it will be conducted. An assessment plan includes the “ programme mission or course/activity purpose, goals as appropriate, in/ended outcomes, methods for gathering, analysing data, and interpreting data for providing evidence to inform decision making.” (Bresciano & Fackler, 2005)
Assessment process	The series of steps which a candidate undertakes within the enrolment, assessment, recording and reporting cycle of assessment.
Assessment tool	An instrument or resource used in association with a given assessment method. It may include a questionnaire, test paper, interview questions, structured report template and record sheet.
Assumed skills and knowledge	Assumed skills and knowledge are what learners ought to have and are assumed to have before they attend the training programme.
Competency	A competency is a measurable set of knowledge, skills and attitudes that drives and individual’s performance to perform at his/her job effectively.
Competency category	A competency category refers to broad occupational or industry area or function, competency units (CU) that are inter-related are grouped by competency categories.
Competency elements	A competency element is the sub-division of a CU. Competency elements encompasses performance criteria, underpinning knowledge, range and context as well as evidence sources.
Competency level	The competency level reflects the level of complexity and depth of learning required by the competencies in the standard. It is outlined in the competency standards.
Competency Map (CM)	A document that captures the type of competencies needed in an industry. The competencies are expressed as CU and these are grouped into competency categories and pegged to occupational levels.
Competency Standards (CS)	A competency standard documents expected work performance outcomes, expected level of performance, knowledge that supports the delivery of work performance

	outcomes and work contexts under which the work performance outcomes are to be delivered.
Competency Unit (CU)	A CU describes a particular work role, duty or function, which forms the smallest group of skills, knowledge and abilities set able to be recognized separately for certification. The certification requirements of a CU are detailed in a CS.
Continuing Education and Training (CET)	Continuing Education and Training (CET) refers to educational programmes for adults, usually at the post-secondary level and offered as a part-time or short courses in occupational subject areas. Also see Pre-employment Training (PET).
Credit	A unit of measure assigned to courses or course of equivalent learning.
Curriculum, Training and Assessment Guide (CTAG)	The CTAG is a document that provides training and assessment advice to achieve effective training and assessment leading to WSQ certification of a CU.
Dimensions of competency	The dimensions of competency cover all aspects of work performance. The five dimensions of competency are: <ul style="list-style-type: none"> - TASK skills - TASK management skills - Contingency management skills - Job and role management skills - Transfer skills
Evidence sources	The evidence source section in a CS gives examples of tasks, observations, documents etc. that can be used as evidence for assessing the particular competency element or list of performance statements.
Learning outcomes	The work performance that a learner should be able to demonstrate as a result of having undertaken training and/or assessment. It must be measurable, clear and observable.
Performance criteria / statements (PC / PS)	Performance criteria or performance statements refer to the expected work performance or behaviours and expected level of performance to be demonstrated by a competent individual.
Pre-employment Training (PET)	Pre-employment Training (PET) refers to educational programmes that prepare individuals for entry into the workforce. This includes secondary, pre-university, polytechnic and university education.
Qualifications	Qualifications are formal certifications issued by a relevant approved body, in recognition that an individual has achieved learning outcomes identified by the industry.
Range and context	Range and context provides the type of situations under which the performance criteria / statements apply. Range and context cover items that are achievable or to be performed across by competent individuals, such as types of equipment, products and services, types of customers.
Underpinning knowledge	Underpinning knowledge states the knowledge that an individual needs to know and understand in order for him/her to perform competently at work.

Version Control

Version	Effective Date	Changes	Author	Approved By
1.0	31 Oct 2019	Initial version	SSG-MOM	SSG-MOM
2.0	21 Jan 2021	Update	CPT-WSHC	CPT-WSHC

Instructional Strategy Selection Chart

Instructional Strategy	Cognitive Domain (Bloom, 1956)	Affective Domain (Krathwohl, Bloom, & Masia, 1973)	Psychomotor Domain (Simpson, 1972)
Lecture, reading, audio/visual, demonstration, or guided observations, question and answer period	1. Knowledge	1. Receiving phenomena	1. Perception 2. Set
Discussions, multimedia CBT, Socratic didactic method, reflection. Activities such as surveys, role playing, case studies, fishbowls, etc.	2. Comprehension 3. Application	2. Responding to phenomena	3. Guided response 4. Mechanism
On-the-Job-Training (OJT), practice by doing (some direction or coaching is required), simulated job settings (to include CBT simulations)	4. Analysis	3. Valuing	5. Complex response
Use in real situations. Also may be trained by using several high level activities coupled with OJT.	5. Synthesis	4. Organize values into priorities	6. Adaptation
Normally developed on own (informal learning) through self-study or learning through mistakes, but mentoring and coaching can speed the process.	6. Evaluation	5. Internalizing values	7. Origination

The chart does not cover all possibilities, but most activities should fit in. For example, self-study could fall under reading, audio visual, and/or activities, depending upon the type of program you design.

(Extracted from <http://www.nwlink.com/~donclark/hrd/strategy.html>, accessed 19 Sep 2010)

Cross Reference Matrix for WSQ Competency Unit

CE – PC	UK & Range & Context	Assessment Criteria (State what is expected and required from the candidate)	Assessment Methods			Assessment Instruments/Tools	Reference		
			Oral Questioning	Written Assignment	Practical Performance		Trainer's Guide	Learner's Guide	Slides
CE1 Identify the needs and expectations of customer populations to develop customer profiles.									
PC 1.1	UK 1.1 techniques for conducting customer	Tell Me (Knowledge)							
Sample Format for reference to develop the Cross Reference Matrix									
Research of the customer with the organization's policies and procedures for collecting, accessing and managing customer information.	<p>Range & Context Research techniques may include:</p> <ul style="list-style-type: none"> o interviews; o observations; o surveys; <p>Research may focus on areas which may include:</p> <ul style="list-style-type: none"> o individual influences on customer behavior; o social influences on customer behavior; & o Lifestyle influences on customer behavior. <p>Customers may include:</p> <ul style="list-style-type: none"> o internal or external customers; 	<ul style="list-style-type: none"> o observations; o surveys; o questionnaires; o database analysis; o interpreting third party research output; and o Use of business excellence tools such as Voice of Customer, Quality Function Deployment (QFD). <p>Identify the needs and expectations of your customers.</p> <p>Show Me (Process) Research the demography of your customers by:</p>	X			AA01OQ Q1, Q2	10 - 28	9 - 32	10 - 62
					X	AA01PP R1			

	<ul style="list-style-type: none"> ○ <i>new or repeat customers;</i> <p>Customer information may include:</p> <ul style="list-style-type: none"> ○ <i>results of customer satisfaction surveys;</i> ○ <i>statistical information from].</i> <p>For the purposes of research, customer information might be sorted into discrete groups which may include:</p> <ul style="list-style-type: none"> ○ <i>individuals;</i> ○ <i>businesses;</i> ○ <i>households;</i> ○ <i>geographically based groups;</i> ○ <i>product specific customers;</i> <i>and</i> ○ <i>Customer groups characterized by age, gender, cultural factors or purchasing power.</i> 	<ul style="list-style-type: none"> ○ Focusing on customer behavior. ○ Defining your customers ○ Sourcing customer information ○ Sorting customer information into discrete (demographic) groups <p>Show me (Product) Customer intelligence report identifying the needs and expectations of customer populations.</p>		X		AA05 Q1A			
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I. Overview of Assessment for the Competency Unit

Competency unit:

Purpose of assessment

Context of assessment	Details
Organisational requirement	
Operational environment	
Industry requirement	
Legal requirements	

Assessment venue:

Description of candidates: (at least four characteristics)

Special needs of candidates (at least one special need)

Any other special requirements :(at least one special requirement)

Stakeholders in AP development team and their role:

Title	Name	Support in Developing Assessment Plan

Competency Elements	Methods

Method	Duration	Ratio of assessor to candidate	Remarks
Total		--	--

II. Assessment Matrix

Mapping of Assessment Methods with Performance and Knowledge Requirements

Content	Lecture (Hour)	Practical (Hour)	Assessment Mode	Total (Hour)
Day 1				
Theory: UK1. Safe work practices and regulatory requirement UK2. Roles and responsibilities for personnel involved in confined space and related work UK3. Types of atmospheric, physical and biological manhole and/or confined space hazards UK4. Risk Assessment	7			7
Practical: PS1. Prepare for gas testing based on safe work practices and regulatory requirement PS2. Identify types of atmospheric, physical and biological manhole and/or confined space hazards				
Day 2				
Theory: UK5. Manhole and/or confined space entry permit system UK6. Gas monitoring test procedures UK7. Types of gas monitoring instruments	5			5
Practical: PS4. Implement manhole and/or confined spaces hazard preventive and control measures				
Day 3				
Theory: UK8. Manhole and/or confined spaces hazard preventive and control measures UK9. Lesson points from accident case studies on confined spaces/manholes	3			3
Practical: PS3. Perform gas monitoring test procedures by using appropriate types of gas monitoring instruments				
Day 4				
Theory: UK10. Types of personal protective equipment UK11. Communication and emergency response plan	3			3

Practical: PS5. Identify, set up and perform pre-checking of personal protective equipment prior entering manhole and/or confined space PS6. Prepare and conduct period monitoring schedule for atmospheric hazards based on typical manhole with connection to other underground spaces			
WRITTEN /PRACTICAL ASSESSMENT			
TOTAL (Hours) – Written Assessment			2
TOTAL (Hours) – Practical Assessment			1
TOTAL (Hours)			30

WA = Written Assessment PA = Practical Assessment

III. Assessment Specifications for Practical Performance

These instructions concern the practical assessment for the Learner's competency.

Specification Item	Details on Specifications
Learning outcome	To meet the learning objectives for safe entry/work in confined spaces and manholes
Duration	1 hour
Venue	Practical training area
Set up	<ul style="list-style-type: none"> • Learners to assess on the following: <ul style="list-style-type: none"> ○ Implement gas testing plan ○ Identify atmospheric hazards ○ Propose gas monitoring instruments to obtain representative atmospheric measurements ○ Propose periodic monitoring schedule for atmospheric hazards based on typical manhole with connection to other underground spaces eg sewage tunnels • Assessor to Learner ratio is 1:10

IV. Assessment Specifications for Written Assessment

These instructions concern the written assessment of the Learner's competency.

Specification Item	Details on Specifications
Learning outcome	Fulfil the course learning objectives for all topics to be assessed
Duration	2 3 hours
Venue	Classroom
Set up	<ul style="list-style-type: none"> • Classroom setup for 20 Learners. • Tables & chairs for individual seating • Projector and monitor • Whiteboard & markers of different colours • Whiteboard duster • 2B pencil and eraser for each Learner • Printed answer sheet

	<ul style="list-style-type: none"> • Common Clock
Conduct of the Written Test	<ul style="list-style-type: none"> • Brief Learners to check if they have been given the correct test set • Brief Learners on the time allocated for the test • Brief Learners on the close book test format. • Brief Learners that they cannot refer to any material or notes or discuss the questions with any other Learners during the test • Brief Learners that they are allowed to ask the assessor to explain the question/s • Brief Learners on the 70% passing mark requirement

V. Assessment Record for Practical Performance (PP)

Candidate's Name: _____ **End Time :** _____

NRIC ID Number : _____ **Start Time :** _____

Assessor's Name: _____

PERFORMANCE CHECKLIST				
Performance Statement/Underpinning Knowledge	Assessment Criteria	Tick		Evidence of 'C' and 'NYC' must be recorded
		C	NYC	
PS1. Prepare for gas testing based on safe work practices and regulatory requirement	Candidate is able to show the following: <ul style="list-style-type: none"> • Able to identify safe work practices and regulatory requirement • Able to identify roles and responsibilities for personnel involved in confined space and related work • Able to identify types of atmospheric, physical and biological manhole and/or confined space hazards 			

VI. Assessment Record for Written Assessment

Candidate's Name: _____ End Time : _____

NRIC Number : _____ Start Time : _____

Assessor's Name: _____

KNOWLEDGE CHECKLIST				
Underpinning Knowledge	Assessment Criteria	Tick		Evidence of 'C' and 'NYC' must be recorded
		C	NYC	
UK 1 ...	<ul style="list-style-type: none"> • Sample Questions..... • Suggested Answers... 			
UK 2 ...	<ul style="list-style-type: none"> • Sample Questions..... • Suggested Answers... 			
UK 3 ...	<ul style="list-style-type: none"> • Sample Questions..... • Suggested Answers... 			
UK 4 ...	<ul style="list-style-type: none"> • Sample Questions..... • Suggested Answers... 			

VII. SUMMARY ASSESSMENT RECORD

Assessment Centre :		
Competency Unit :		
Candidate Name :		
Candidate ID No. :		
Assessor Name :		
Assessment Method :	Practical Performance (PP)	Written Assessment (WA)
Assessment Date :		
Start Time :		
End Time :		

Summary

Performance Statement	Assessment Method		Result
	PP	WA	

This candidate has been assessed as:

- COMPETENT
 NOT YET COMPETENT

Assessor signature: _____

Candidate signature: _____

Feedback on outcome by assessor/feedback by candidate:

In the event of “NYC” result:

- Candidate does not wish to appeal
- Candidate wishes to appeal

Candidate signature:

VIII. Assessment Tools Required and other Related Documents

- **Other required Assessment Tools for this assessment plan**
e.g. case studies, role play scenarios, written test papers, logistics checklist

- **Pre-Assessment Briefing Checklist**

- **Appeal Process**

- **Version Control Record**

Version	Effective Date	Changes	Author
1.0		New release	

- **Other required Assessment Tools for this assessment plan**
e.g. case studies, role play scenarios, written test papers, logistics checklist

CODE OF PRACTICE FOR ASSESSORS

Assessment specialists have developed an international code of ethics and practice (The National Council for Measurement in Education (NCME)). The Code of Practice below is based on the international standards.

1. The differing needs and requirements of the person(s) being assessed, the local enterprise(s) and/or industry are identified and handled with sensitivity.
2. Potential forms of conflict of interest in the assessment process and/or outcomes are identified and appropriate referrals are made, if necessary.
3. All forms of harassment are avoided throughout the planning, conduct, reviewing and reporting of the assessment outcomes.
4. The rights of the candidates (s) are protected during and after the assessment.
5. Personal or interpersonal factors that are not relevant to the assessment of competency must not influence the assessment outcomes.
6. The candidate(s) is made aware of rights and processes of appeal.
7. Evidence that is gathered during the assessment is verified for validity, reliability, authenticity, sufficiency and currency.
8. Assessment decisions are based on available evidence that can be produced and verified by another assessor.
9. Assessments are conducted within the boundaries of the assessment system policies and procedures.
10. Formal agreement is obtained from both the candidate(s) and the assessor that the assessment was carried out in accordance with agreed procedures.
11. Assessment tools, systems, and procedures are consistent with equal opportunity legislation.
12. The candidate(s) is informed of all assessment reporting processes prior to the assessment.
13. The candidate(s) is informed of all known potential consequences of decisions arising from an assessment, prior to the assessment.
14. Confidentiality is maintained regarding assessment result.
15. Results are only released with the written permission of the candidate(s).
16. The assessment results are used consistently with the purposes explained to the candidate.

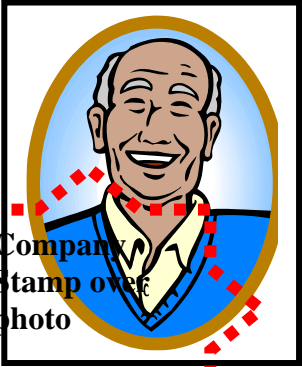

17. Self-assessments are periodically conducted to ensure current competencies against the assessment and Workplace Training Competency Standards.
18. Professional development opportunities are identified and sought.
19. Opportunities for networking amongst assessors are created and maintained.
20. Opportunities are created for technical assistance in planning, conducting and reviewing assessment procedures and outcomes.

Format of Safety Pass

The safety pass is to be issued by SSG Approved Training Organisations to all trainees who are certified competent.

Do note that the reference below is intended only to present the format of the pass, and should not be used as an actual template for direct printing.

Front

Approved Training Organization Logo	
WSQ Course Title: WSQ Perform Manhole Safety Assessment	
Name: Tan Ah Boon	WSQ logo
ID: E12345678	
Serial Number: ABC- WP-PR-308E-1-001-[R#]	
Issued Date: 01/07/2013	
CPD Approval Code: XXX	
	

Ang Boon Chuan General Manager ABC Training Centre	

Back

- Use of card is governed by terms and conditions of < Name of Approved Training Organization>
- < Name of Approved Training Organization> is a SkillsFuture Singapore Agency's Approved Training Organization at the date of issuance of the pass
- This card is not transferrable.
- Holder of the card has been certified competent in the WSQ Course on the issued date as indicated in front.
- This card will expire <xx> years from the date of issue.*
- This card is the property of < Name of Training Organization> and must be returned on request.
- Card shall be retained if it has been tampered with, misused or replaced.
- This card is issued by < Name of Training Organization>. If found, please return to <Name of Training Organization> at < Address of Training Organization>.
- For enquiries, please contact < Name of Approved Training Organization> at <hotline>

*Note: *For courses with no recertification requirements , this sentence can be omitted*

Instructions to ATOs for filling in of information on the safety pass

- The company stamp has to be over the trainee's full face photo for laminated paper passes
- ID can be FIN, NRIC, Passport Number or any unique official identifier
- Course Title will be the corresponding WSQ Competency Unit title as indicated in SkillsConnect
- Serial Number will be the number issued by the Approved Training Organisation (ATO) after the uploading of the results into SkillsConnect.

Please see the explanation of the abbreviation below:

- ABC: ATO initials
 - WP-PR-308E-1: Corresponding WSQ course code
 - 001: Running order of the trainees who are being certified competent which must be a unique number for each individual. ATO may also include the class intake/ batch number in addition
 - R[#] : For reissuance of cards, R1 = first replacement, R2 = second replacement
- The Continuing Professional Development (CPD) Approval code is an optional field if the course is approved by CPD Board for Safety Development Units points.
 - The issued date will be the date of assessment where the trainee is certified competent
 - Depending on MOM requirements, the expiry date will vary and it will be from the date of assessment where the trainee is certified competent.
 - If MOM has no requirements for the particular course to have an expiry date, this field may be omitted.