Australian Government
Department of Industry, Science, Energy and Resources

National Measurement Institute

Verifier's recognition kit – subclasses 5.1, 5.2, 5.3 Milk flowmeters and 18.1

MSMSS00010 Trade Measurement Verification (Liquid Measuring Instrument Using Volume Measures) - Subclasses 5.1 and 5.3 milk flowmeters

MSMSS00008 Trade Measurement Verification (Complex Measuring Instrument) - Subclass 5.2

MSMTMVER302 Verify simple measuring instruments - Subclass 18.1

Version 3.0 – April 2021

Complete this kit by typing directly into the document.

Applicant's name:	
Subclasses requested for assessment:	
Observation assessment method requested (select one)	☐ Video calling (VC) – not generally available for 5.1 or 5.2) ☐ Pre-recorded video/s - (not generally available for 5.1 or 5.2) ☐ In-person observation (applicant's choice of site)

Contents

Version changes

Version number	Main changes
V3.0	• Version now includes mandatory observation • Added pre-completion checklist to establish readiness (inc. LLN) • Re-wording of some questions/instructions, including to aid clarity. Some questions removed and new questions added. • Test report questions removed for 5.1 and 18.1. • Verification form task changed to require completion using the electronic version of the form. • Supervisor/mentor report now called third party report with comments required for each checkpoint. • Kit should be completed electronically.

Introduction

This kit enables you to demonstrate your competence as a verifier of measuring instruments used for trade against the performance criteria and assessment requirements set out in the nationally recognised units of competency for the skill set:

MSMSS00010 – Trade Measurement Verification (Liquid Measuring Instrument Using Volume Measures) – for licence subclasses 5.1 and 5.3 [milk flowmeters]

- MSMTMREF301 – Use and maintain reference standards.
- MSMTMVER402 – Verify liquid measuring instruments.

and/or:

MSMSS00008 - Trade Measurement Verification (Complex Measuring Instrument) – for subclass 5.2

- MSMTMREF301 – Use and maintain reference standards.
- MSMTMVER501 – Verify complex measuring instruments.

and, if including subclass 18.1(consoles), for the additional unit of competency:

- MSMTMVER302 Verify simple measuring instruments.

On successful completion of assessment, you will receive the appropriate statement/s of attainment.

Read these instructions carefully in combination with the Recognition kit instructions and Instructions for observation assessments documents. In addition, carefully read the instructions included at the start of each section.

Before you complete and submit your recognition kit, you should:

- read through the whole kit to understand what is required of you
- spend time in the field with an experienced verifier learning about the topics in the following checklist
- complete the checklist below, to self-assess your skills and knowledge.

Please contact the NMI Administrator if you have difficulties in understanding the requirements for compiling/submitting your kit.

Email: NMIadministrator@measurement.gov.au **Tel:** 02 8467 3789

I have adequate skills and knowledge in the following to be able to complete this kit, and perform these tasks in the workplace, without direct assistance:	Yes	No	Not sure
Spoken English communication	☐	☐	☐
Mathematics	☐	☐	☐
English reading skills	☐	☐	☐
Computer skills	☐	☐	☐
The instruments I intend to verify	☐	☐	☐
The techniques used in testing instruments, including planning and preparation	☐	☐	☐
Storing, maintaining and handling reference standards/test equipment	☐	☐	☐
Likely impacts of the environment on the function of instruments and/or the standards/test equipment used to verify them.	☐	☐	☐
Work health and safety considerations relevant to testing instruments	☐	☐	☐
My organisation's and NMI requirements for recording and reporting details of verifications and other licensing matters	☐	☐	☐
Any adjustments or corrections that may be needed during the verification process	☐	☐	☐
Marking instruments for verification (what to mark and where to place the mark)	☐	☐	☐
Communicating to the owner/user of the instrument and requesting any assistance	☐	☐	☐

If you have checked 'no' or 'unsure' to any of the items in the table above, and are unsure what you need to do to be in a position to answer 'yes', please speak to your supervisor.

Check the LLN section of the Participant's handbook if you need to develop your mathematics or English skills (speaking or reading) before you attempt this assessment.

In addition, you should have personally tested instruments, ideally under supervision, using the relevant national instrument test procedures to develop your skills - either in the workplace or in a simulated workplace environment.

Assessment instructions

Completion of the kit

You should complete this kit by typing directly into the document or clicking on checkboxes, where appropriate. If you have any problems with the functionality of the fillable kit, please email the kit to the NMI Administrator, detailing the issues that you are having, specifying which page/question etc.

Submit the whole document along with any additional scanned reports, documents, video/s. DO NOT, print it out and scan it.

The kit comprises a number of components for you to complete/submit, relevant to the subclasses for which you are being assessed, including the following:

- **Your work history**
- **Written assessments** – including test report questions for subclasses 5.2 and 5.3. Complete only the parts relevant to the subclass/es you wish to verify.
- **A specific question** that asks you to complete one or more verification forms (Form 6) using the information provided.
- **Test reports** and, if you are being assessed for consoles (18.1), any **documents** printed from instruments you have tested.
- **Third party report/s** – a report/s from the verifier/s who worked with you during your training, or a work colleague (where you have no access to a verifier).

In addition, you will be asked to **demonstrate your skills** by completing one or more simulated verifications, observed by your assessor or an NMI-appointed skills observer.

MAKE SURE YOU COMPLETE ALL PARTS OF THE RECOGNITION KIT APPROPRIATE TO THE INSTRUMENT SUBCLASSES YOU WISH TO VERIFY

Skills assessment requirements

In your workplace

This assessment requires that you **demonstrate** your practical skills, by completing one or more simulated **initial** verifications on instruments, in a real or simulated environment. During training within your organisation, you should have practised these skills, ideally under supervision of an experienced verifier/s, including completing the appropriate test reports that you will submit as evidence (workplace documents).

The experienced verifier/s that observe you should complete a third party report and sign the test reports you will submit.

Wherever possible, include examples from instruments that did not meet the requirements for verification, to show your understanding of unacceptable instrument performance.

For fuel dispensers and milk flowmeters (subclasses 5.1, 5.3)

You must provide copies of test reports relating to instruments you have tested (ideally) under supervision. You should have personally completed all the processes required as if you were completing **initial** verification of the instruments, without assistance. You will need to provide **three (3)** reports in total, including the report you complete during your skills observation/video. (The third report should be submitted immediately following observation).

Where you are being assessed for more than one subclass, a report should be included for each subclass included in this assessment.

For bulk flowmeters (subclass 5.2)

You must provide copies of test reports relating to instruments you have tested (ideally) under supervision. You should have personally completed all the processes required as if you were completing **initial** verification of the instruments, without assistance. You will need to provide **at least one (1)** report.

If you wish to be assessed for more than one **test method**, you should have tested an instrument using each test method, and submit a report from each of those tests.

You will complete additional report/s during your skills observation which will be submitted immediately following observation.

For consoles (subclass 18.1)

You must provide copies of **test reports** relating to consoles you have tested (ideally) under supervision. You should have personally completed all the processes required as if you were completing **initial** verification of those instruments, without assistance. You will need to provide **three (3) test reports in total**, including the report you complete during your skills observation/video which will be submitted immediately following observation. **In addition**, you must provide the **dockets printed during testing**.

See the Workplace test reports section for more information.

NMI observation

Your assessor will need to confirm you have the necessary practical and communication skills required when verifying measuring instruments and consoles. This includes you demonstrating knowledge of, and implementing, safe work practices. Depending on the circumstances, this will be completed by one of the following methods:

- *Video calling - The assessor will use video calling to complete a direct observation of you, either at your work place or another suitable location (trader's site).
- *Pre-recorded video/s - You will provide a video, or series of videos, showing you completing all the stages required for verification of an instrument, in a real or simulated situation.
- In-person observation (your choice and arrangement of site) - The assessor, or an NMI-appointed skills observer, will observe you completing all the processes required for verification of an instrument either at your work place or another suitable location (e.g. a trader's site).

***Video calling (VC) and pre-recorded video (PRV) options are not generally available when testing instruments used for measuring fuel.** This is because VC/PRV equipment poses a safety hazard due to its potential to trigger an explosion and also the risk for the camera operator not being aware of other hazards, such as traffic. For consoles, these methods can be used **BUT ONLY to record operations completed in a kiosk**.

Be sure to mark your preferred observation method option on the front of this kit and on the Recognition kit checklist.

- If you choose to complete the observation using video calling, your assessor will contact you to schedule a suitable time and date.
- If you have chosen to provide a video/s, and you are unable to email the video file/s, the NMI Administrator will provide a link where you can upload your video/s, after we have received your kit.
- For in-person observation at your workplace, or other suitable location of your choice, you will liaise with the assessor or skills observer.

IMPORTANT – Please see separate Instructions for observation assessment.

Third party reports

You should supply a report from a person (or persons) who has worked directly with you, and who can comment on your workplace performance over time. Ideally, this person is a verifier who has worked directly with you during your training AND who holds a statement/s of attainment relevant to this skillset/unit of competency and instrument subclasses. If you don't have access to a verifier during your training but have a workplace supervisor or colleague who works with you, ask them to provide a report. **Note, you may be asked to complete additional observations if you cannot provide a third party report from a verifier.**

Ask the person/s completing the report/s to read the instructions for completing their report **before** you finalise this kit. **If more than one person can provide evidence to support your assessment, have each of them complete a separate copy of the report, for submission:**

- An existing verifier should complete the Third party report (experienced verifier) only.
- Any other work colleague, who isn't a verifier, should complete the Third party report (non-verifier).

If you have access to an existing verifier, ensure they observe you testing the instruments for which you will provide workplace test reports for this kit. **They should sign each report you provide**, to confirm that you have correctly followed the relevant, current, national instrument test procedures for initial verification.

If you don't have access to anyone in your workplace who can provide either of the above third party reports, please contact the NMI Administrator.

IMPORTANT - Submission of the kit and enrolment

Once you have completed all relevant components, complete the separate **Recognition kit checklist** and the checklist on the **Applicant's details form,** to confirm that you are submitting **all** the components required for this assessment.

Save this document on your computer, and name the file by adding your name to the file name. For example, if your name is Joe Smith, the file name for your completed kit will be:

RK 5.1, 5.2, 5.3 MFS & 18.1 F V3.0 Joe Smith.

Scan each of the **additional** documents you have completed, and save them by the name of document and the kit e.g. scan and save the test reports you are submitting as:

RK 5.1, 5.2, 5.3 MFS & 18.1 F V3.0 Test report 1 Joe Smith

If submitting videos, name them **RK 5.1, 5.2, 5.3 MFS & 18.1 F V3.0 Video <*instrument subclass*> Joe Smith**

Include a number for each video so your assessor can watch them in order, e.g. Video 18.1 (1); Video 18.1 (2) etc.

Email the kit and the other scanned documents to nmiadministrator@measurement.gov.au and keep your original kit and documents. Your assessor will ask questions about your kit when they speak to you, so you need to have it available.

The NMI Administrator will advise you how to submit the video/s if you are unable to email them.

Once we have received all parts of your kit, the NMI Administrator will contact you regarding enrolment.

Assessment

Your assessor uses a number of forms to record the results of each part of your assessment. The forms are included at the end of this kit for your information.

Following enrolment, you will be assigned an assessor and an NMI-appointed skills observer (SO) for your observation (where applicable).

If a SO completes your observation, they will contact you to make arrangements. Following observation, they will provide their report to your assessor.

Once your assessor receives your submitted material, and any observation report, they will:

- assess the submitted material
- determine if any further evidence is required
- discuss your workplace skills with the person/s providing any third party report (if necessary)
- contact you to confirm arrangements for any skills observation (if they are completing the observation)
- contact you to arrange a mutually convenient time to call you, if required, to:
  - confirm your understanding
  - discuss the reports/documents/videos you submitted
  - ask any other questions to confirm your competence.
- record your results and provide feedback on the assessment recording form
- return the kit to the NMI Administrator for processing and confirmation of the result of your assessment by email, and posting out your statement of attainment, when successful.

Applicant's details

Applicant to complete this section

Name:	**First**	**Middle**	**Family**

Email address:

Telephone: Work **Mobile**

Name of any third party providing a report:

Third party's telephone number:

Third party's email address:

Company name:

Check the licence subclass/es of the instruments you are being assessed for - relating to the skill set MSMSS00010 – Trade Measurement Verification (Liquid Measuring Instrument Using Volume Measures) and/or MSMSS00008 - Trade Measurement Verification (Complex Measuring Instrument):

- ☐ 5.1 – Fuel dispensers used for petroleum products other than LPG
- ☐ 5.3 – Flowmeters used for liquids other than petroleum products – Milk flowmeters
- ☐ 5.2 – Flowmeters used for petroleum products tested using a volume measure
- ☐ 5.2 – Flowmeters used for petroleum products tested using a master meter
- ☐ 5.2 – Flowmeters used for petroleum products tested gravimetrically

☐ **Check if you also wish to be assessed for the unit of competency MSMTMVER302 Verify simple measuring instruments for the licence subclass 18.1 (consoles)**

Checklist to ensure you have included all required components of this kit.
Check all that apply:

- ☐ Applicant's work history
- ☐ Third party report/s
- ☐ Written assessment (all subclasses)
- ☐ Written assessment 5.1
- ☐ Written assessment 5.2 (common questions)
- Written assessment 5.2 (test specific questions):
  - ☐ Volume measure method
  - ☐ Master meter method
  - ☐ Gravimetric method
- ☐ Written assessment 5.3
- ☐ Written assessment 18.1

Completed verification form/s **for subclasses:**

- ☐ 5.1 - Fuel dispensers
- ☐ 5.2 - Flowmeters used for petroleum products
- ☐ 18.1 - Consoles
- ☐ 5.3 - Milk Flowmeters

Continued on next page

Applicant's details

Completed test report questions **for:**

☐ 5.3 Milk flowmeter

5.2 Flow meter used for petroleum products:

☐ Volume measure method

☐ Master meter method

☐ Gravimetric method

Test reports **from tests you have completed in the workplace (Check all relevant to the subclasses/test methods you wish to be assessed for):**

☐ 5.1 - Fuel dispensers used for petroleum products other than LPG

☐ 5.3 - Flowmeters used for liquids other than petroleum products – Milk flowmeters

☐ 18.1 - Control systems for liquid-measuring systems (consoles)

☐ 5.2 – Flowmeters used for petroleum products – tested using a volume measure

☐ 5.2 – Flowmeters used for petroleum products – tested using a master meter

☐ 5.2 – Flowmeters used for petroleum products – tested gravimetrically

Applicant declaration: I verify that I personally completed all the work and activities related to, and submitted as part of this kit, without assistance.

(Complete the declaration once you are ready to submit the kit)

Name: **Date kit submitted:**

Complete your work history in the next page

Applicant's work history and training

Details of current employment

Organisation:

Postal address:

Date employment started:

Date training related to these subclasses started:

Title of your current position:

Details of previous relevant employment

Organisation:

Postal address:

Period of employment: From: To:

Title of your previous position:

Relevant work experience

Specify the length of time you have been testing each subclass of instrument, the type of instruments you have worked with and the approximate number of instruments you have tested (including under supervision and in simulated workplace situations).

Detail any relevant training courses you have attended (name and date) and attach copies of any relevant trade qualifications:

Assessment recording form (assessor)

Assessor to complete this section and sign it.

Applicant:

Assessor name: **Date kit received:**

Summary of evidence used to assess the applicant:

☐ Written assessments	☐ Completed verification form task/s
☐ Third party reports	☐ Conversation with applicant
☐ Review of test reports/transaction records	☐ Skills observation/report/review of video/s
☐ Other – specify	

To obtain the skill set MSMSS00010 - Trade Measurement Verification (Liquid Measuring Instrument Using Volume Measures), applicants must demonstrate competence in both units of competency.

This applicant was assessed as:	**Competent**	**Not yet competent**
MSMTMVER402 Verify liquid measuring instruments using volume measures	☐	☐
MSMTMREF301 Use and maintain reference standards	☐	☐

To obtain the skill set MSMSS00008 - Trade Measurement Verification (Complex Measuring Instrument), applicants must demonstrate competence in both units of competency.

This applicant was assessed as:	**Competent**	**Not yet competent**
MSMTMVER501 Verify complex measuring instruments	☐	☐
MSMTMREF301 Use and maintain reference standards	☐	☐

To obtain the separate unit of competency - MSMTMVER302 Verify simple measuring instruments for consoles, applicants must demonstrate competence in the single unit of competency.

This applicant was assessed as:	**Competent**	**Not yet competent**
MSMTMVER302 Verify simple measuring instruments	☐	☐

CONTINUED ON NEXT PAGE:

Assessment recording form (assessor)

Check whether they are satisfactory or not yet satisfactory for each subclass/test method requested:

	Satisfactory	Not yet satisfactory
5.1 Fuel dispensers used for petroleum products other than LPG	☐	☐
5.2 Flowmeters used for petroleum products:		
- tested volumetrically (Volume measure)	☐	☐
- tested volumetrically (master meter)	☐	☐
- tested gravimetrically	☐	☐
5.3 Flowmeters used for liquids other than petroleum products (Milk flowmeters)	☐	☐
18.1 Control systems for liquid-measuring instruments	☐	☐

Applicant's ID checked at interview: ☐

Assessor's name: **Date:**

RTO Manager's signature: **Date:**

Assessor's feedback form

Assessor: Please include feedback to the applicant here and sign the form. Particularly where you have assessed the applicant as NYC, ensure you identify which assessment requirements the applicant has not yet demonstrated (e.g. Performance criteria (PC) 2.4 of the unit of competency (UoC) MSMTMREF301 – Use and maintain reference standards was not met as you were unable to correctly validate the reference standard suitability).

Assessor's name: **Date:**

Instructions for all written assessments

You must complete the 'all subclasses questions'

In addition, complete all questions relating to the specific subclasses you wish to verify.

For multiple choice questions, check the correct answer, or answers. If you make a mistake, you can simply uncheck the box/es and check the new correct box/es.

For free text questions, type in the text box provided below each question. Include any calculations you use. The text box shouldn't limit how much you can write, but the size of the box indicates the expected maximum length of your answer.

If you have any problems writing your calculations in the text box, write them on a separate document, referencing the question they relate to (e.g. Subclass 5.1 Q6), then scan or photograph them and email along with your kit.

Name the added document **RK 5.1, 5.2, 5.3 MFS & 18.1 F V3.0 Calculations Joe Smith**

Written assessment 'all subclasses'

If you are completing more than one recognition kit at the same time, you only need to answer these 'all subclasses' questions once.

1. In your own words, describe:

    a) what a hazard is.

    ☐ Correct ☐ Incorrect

    b) what a risk is.

    ☐ Correct ☐ Incorrect

2. List **four** basic duties you have under the safety legislation in your state or territory, as an employee or worker.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

3. List the main workplace health and safety **hazards** that you face when verifying measuring instruments or measures. Your answer should relate to the environments and method/s of verification for instruments/measures for which you are currently being assessed. Write your answer below. **Include at least 5 common hazards (add another 5 per additional kit you are completing at the same time).** In addition, identify the main controls you apply to ensure your safety, and list any specific workplace procedure that applies to the hazard.

Hazards	Controls	Workplace procedures
1.		
2.		
3.		
4.		
5.		
1.		
2.		
3.		
4.		
5.		
1.		
2.		
3.		
4.		
5.		

☐ Satisfactory ☐ Incomplete ☐ Incorrect

4. Do you know what a SDS and a SWMS are?

   a) Explain what a SDS is:

   b) Give an example of when you would use a SDS:

   ☐ Correct ☐ Incorrect

   c) Explain what a SWMS is:

   ☐ Correct ☐ Incorrect

   d) Give an example of when you would use a SWMS:

   ☐ Correct ☐ Incorrect

   ☐ Correct ☐ Incorrect

5. As part of the licence conditions, a servicing licensee is required to maintain a quality management system. From the following list, select each item that is included in your quality management system manual. Check **all** that apply.

   a) ☐ The requirement for all measuring instruments/measures to be of an approved pattern and comply with their certificate of approval.

   b) ☐ Details of mandatory reverification periods for instruments/measures used for trade.

   c) ☐ References to the national instrument test procedures relevant to the servicing licence.

   d) ☐ Procedures relating to instruments/measures that cannot be verified.

   ☐ Satisfactory ☐ Incomplete ☐ Incorrect

6. Which document, maintained by the servicing licensee, details the required format of the mark that verifiers, working under that servicing licence, must apply to show an instrument/measure has been verified? Choose the single correct answer.

   a) ☐ The National Trade Measurement Regulations 2009.

   b) ☐ The licensee's quality manual.

   c) ☐ The National Instrument Test Procedures.

   d) ☐ The licensee's servicing licence.

   ☐ Correct ☐ Incorrect

7. You have just changed your home address. What are you required to do? Choose the single correct answer.

   a) ☐ Nothing.

   b) ☐ Notify my employer who will notify NMI within 2 months.

   c) ☐ Notify my employer who will notify NMI within 14 days.

   d) ☐ Call my local trade measurement inspector and leave a message.

   ☐ Correct ☐ Incorrect

8. If you verify a measuring instrument/measure, how long do you have to submit notice of the verification to the National Measurement Institute on the approved form? Choose the single correct answer.

a) ☐ 7 days

b) ☐ 14 days

c) ☐ 21 days

d) ☐ 1 month

☐ Correct ☐ Incorrect

9. Select the actions you would take when you test a measuring instrument/measure in use for trade and you determine that you cannot verify it. Check **all** that apply.

a) ☐ Replace the verification mark with one indicating the instrument/measure can no longer be used for trade.

b) ☐ Remove any existing verification mark (where feasible).

c) ☐ Notify the owner within 14 days.

d) ☐ Notify the owner immediately.

e) ☐ Notify NMI within 14 days

f) ☐ Notify NMI immediately.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

10. What could be the consequence if you failed to provide the trader with a notice of non-verification when you have been unable to verify a measuring instrument/measure used for trade? Check **all** that apply.

a) ☐ No consequence provided I told the trader they couldn't use the instrument/measure for trade.

b) ☐ Customers could get incorrect measure.

c) ☐ Nothing, it's the trader's responsibility to check the instrument/measure is correctly marked.

d) ☐ I could be fined.

e) ☐ I could be restricted from verifying instruments/measures.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

11. If you were unsure of the correct way to apply a verification mark to a measuring instrument/measure, or any other requirement relating to the verification process, what would you do? Write your answer below. Include at least **three** points.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

12. How often must a measuring instrument/measure used for trade (excluding weighbridges used for public weighing) be re-verified? Choose the single correct answer.

a) ☐ Every 3 years.

b) ☐ Every 5 years.

c) ☐ Whenever it has been adjusted/repaired or every 2 years.

d) ☐ Whenever an adjustment or repair affects its metrological performance.

☐ Correct ☐ Incorrect

13. Can you verify a measuring instrument/measure where its certificate of approval states 'cancelled in respect of new instruments as from 1 January 2014'? Choose the single correct answer.

a) ☐ No, never.

b) ☐ Yes, always.

c) ☐ Yes, if the instrument/measure was manufactured before 1 January 2014.

d) ☐ Yes, provided the instrument is new.

☐ Correct ☐ Incorrect

14. What markings would you apply to an instrument/measure you verified on 26 May 2020 if your servicing licensee code is DBA and you have the verifier number VR 01278? Choose the single correct answer.

a) ☐ DBA 1278 B0

b) ☐ 1278 B 20

c) ☐ DBA 1278 E20

d) ☐ DBA 1278 E0

e) ☐ 1278 DBA B20

☐ Correct ☐ Incorrect

15. The following questions relate to the connection of auxiliary devices to measuring equipment.

a) Which document specifies the requirements for the installation of auxiliary indicating or printing devices and POS systems installed prior to 1 August 2012? Choose the single correct answer.

i. ☐ S1/0/A

ii. ☐ S1/0B

iii. ☐ Supplementary certificate of approval for the device/system

iv. ☐ Measuring instrument approval

☐ Correct ☐ Incorrect

b) Which document specifies the requirements for the installation of auxiliary indicating or printing devices installed after 1 August 2012, **excluding** POS or Control systems? Choose the single correct answer.

i. ☐ S1/0/A

ii. ☐ S1/0B

iii. ☐ Supplementary certificate of approval for the device/system

iv. ☐ Measuring instrument approval

☐ Correct ☐ Incorrect

c) Which document specifies the requirements for the installation of POS systems installed after 1 August 2012? Choose the single correct answer.

i. ☐ S1/0/A

ii. ☐ S1/0B

iii. ☐ Supplementary certificate of approval for the device/system

iv. ☐ Measuring instrument approval

☐ Correct ☐ Incorrect

d) When verifying an instrument which has an auxiliary device (other than a POS or control system) connected to it, what are the requirements for verification marking? Choose the single correct answer.

i. ☐ Apply a mark to the instrument only

ii. ☐ Apply a mark to the auxiliary device only

iii. ☐ Apply a mark to both the auxiliary device and the instrument

☐ Correct ☐ Incorrect

16. Provide a couple of examples of how a trader's use of an instrument/measure may impact on its performance. (Give **two** examples per instrument type you are being assessed for at this time).

☐ Satisfactory ☐ Incomplete ☐ Incorrect

17. In your organisation, how do you maintain records relating to verification? You should include at least 2 points.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

18. In order to verify instruments/measures, what are the principal legal requirements for the business and the individual completing a verification? Include at least 3 points in your answer.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

The questions listed below apply specifically to the knowledge requirements for the unit of competency MSMTMREF301 - Use and maintain reference standards.

19. List the **reference standards/test equipment** you use when verifying measuring instruments or measures. (Include capacity ranges, scale intervals and class/es, where appropriate) The answer you give should relate to **all** instrument subclasses for which you are being assessed. Write your answer below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

20. How do you protect the integrity of the **reference standards and test equipment** you described in the previous question? Your answer should relate to storage, transportation and handling of reference standards and equipment. Write your answer below. Include **at least four** points.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

21. This question relates to the reference standards/test equipment you use, not the instrument/measure being tested.

What environmental factors could influence the integrity of the **reference standards and test equipment** that you use when verifying instruments/measures? The answer you give should relate to any instrument subclasses for which you are being assessed. Check **all** that apply.

a) ☐ Temperature
b) ☐ Humidity
c) ☐ Electrical interference
d) ☐ Wind/air movement
e) ☐ Rain/water
f) ☐ Gravity
g) ☐ Dust/dirt
h) ☐ Instrument level
i) ☐ Pressure
j) ☐ Vibration
k) ☐ Other (detail):

☐ Satisfactory ☐ Incomplete ☐ Incorrect

22. How do you control these factors when undertaking a verification? The answer you give should relate to the standards/equipment for all subclasses for which you are being assessed. Write your answer below. You should include **at least one** control per item selected above.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

23. You have damaged a reference standard used to verify measuring instruments/measures. What should you do with it? Choose the single correct answer.

a) ☐ Fix the damage
b) ☐ Quarantine it, until it has been repaired, tested and approved for use by the appropriate authority.
c) ☐ Use it until it can be repaired.
d) ☐ Quarantine it and then use it once repaired, if it is repairable.

☐ Correct ☐ Incorrect

24. When using reference standards/test equipment, what signs/symptoms/measurement results might alert you to a possible problem/fault/damage with those standards/test equipment? Provide answers for each of the types of standards or equipment you use when verifying instruments/measures of the subclass/es you are being assessed for. Include **at least two** points per different type of reference standard/test equipment you use.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

25. You have verified and marked a measuring instrument/measure when you notice that a reference standard/test equipment used for the verification is damaged or faulty. What should you do with regards to the verified instrument/measure? Write your answer below. Include **at least two** points.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

26. What does your quality management system require your organisation to do when there is a change to the reference standards/test equipment you use, i.e. when you acquire new standards/test equipment, when your standards/test equipment are re-verified, when you dispose of standards/test equipment that are broken/excess to requirements? Check **all** that apply.

a) ☐ Ensure that new standards/test equipment have the appropriate certification.
b) ☐ Allocate a junior member of staff to clean the new standards/test equipment.
c) ☐ Update the list of reference standards/test equipment.
d) ☐ Supply a copy of the updated list of reference standards/test equipment to NMI within 30 days of the change.
e) ☐ Supply a copy of the updated list of reference standards/test equipment to NMI within 14 days.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

27. What is the principal purpose of a certificate of verification (e.g. a Reg. 13 certificate)? Write your answer below

☐ Satisfactory ☐ Incomplete ☐ Incorrect

28. What procedures does your business need in place for maintenance and calibration of your reference standards/test equipment? Refer to your quality manual. Write your answer below. Include **at least two** points.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

29. Can you identify any limitations of the reference standards/test equipment you use during verification related to the verification or the environment in which they are used? Address this question to all reference standards/test equipment you may use for the subclasses you are currently being assessed for, describing the limitations and how significant they might be.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

30. Where could you find the legal units of measurement for Australia? Choose any that apply.

a) ☐ On the NMI internet pages.

b) ☐ In the National Measurement Act 1960

c) ☐ In the National Measurement Regulations1999.

d) ☐ In the licensee's quality manual

☐ Correct ☐ Incorrect

31. Who is responsible for determining whether a particular model of instrument can legally be used for trade in Australia?

☐ Correct ☐ Incorrect

32. What are organisations who are authorised to verify reference standards called?

☐ Correct ☐ Incorrect

33. MPEs for instruments/measures may be given in a number of different documents. If the instrument/measure you are to verify was first approved on the 20th January 2020, where would you find the correct MPE to use during testing?

☐ Correct ☐ Incorrect

Written assessment (Subclass 5.1 specific questions)

Complete ONLY if you are being assessed for this subclass

1. What is the difference between actual value and nominal value reference standards, and how does this change how you would use them when verifying a fuel dispenser?

☐ Satisfactory ☐ Incomplete ☐ Incorrect

2. When determining which measure to use for a verification, which of the following parameters do you need to consider? Choose the **single** correct answer.

   a) ☐ The volume of the measure.
   b) ☐ The combined variation and uncertainty of the measure.
   c) ☐ The maximum flowrate of the fuel dispenser.
   d) ☐ The MPE of the fuel dispenser.
   e) ☐ All of the above.

☐ Correct ☐ Incorrect

3. Would a nominal value 15 L measure, with a combined variation and uncertainty of ±15 mL, be suitable to use for verifying a liquid measuring instrument with:

   - a maximum flowrate of 55 L/min
   - a minimum flowrate of 5 L/min
   - a V_{min} of 2 L
   - a maximum permissible error of ±0.3%?

   Write your answer, with an explanation of your reasoning below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

4. Which volume of reference standard is suitable for testing a diesel fuel dispenser with a maximum approved flowrate of 80 L/min? Choose the single correct answer.

   a) ☐ 10 L
   b) ☐ 15 L
   c) ☐ 50 L
   d) ☐ 200 L

☐ Correct ☐ Incorrect

5. Define density and explain in your own words what happens to the density of fuel as the temperature increases.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

6. Are gallons legal units of measurement in Australia?

☐ Yes ☐ No

☐ Correct ☐ Incorrect

7. Consider the Regulation 13 certificate of verification which follows, and answer the following questions that relate to it.

a) When do the reference standards expire? Choose the single correct answer.

i. ☐ 24 April 2022
ii. ☐ 11 September 2017
iii. ☐ 14 September 2020
iv. ☐ 24 April 2020

☐ Correct ☐ Incorrect

b) What is the value of the reference standards referred to in the certificate of verification? Choose the single correct answer.

i. ☐ 15 L
ii. ☐ Inspectors' Class 1 standard of volume
iii. ☐ 15°C
iv. ☐ TMQ-25 & 26

☐ Correct ☐ Incorrect

c) What conditioning process, if any, is applicable to the use of these measures? Write your answer below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Verification of a Reference Standard of Measurement in accordance with Regulation 13 of the *National Measurement Regulations 1999* (Cth) in accordance with the *National Measurement Act 1960* (Cth)

Certificate Number RN200716

Description of standard of measurement: Inspectors' Class 1 standard of volume: Stainless steel cylindrical twin trolley volume measure, 15 L, 2 pieces

Permanent distinguishing marks: TMQ-25 and TMQ-26

Date of verification: 24 April 2020

Period of certificate: From date of verification until 24 April 2022

Value(s) of standard of measurement and accuracy of verification: Deemed equal to the denomination, in accordance with Regulations 30 and 31

Relevant influence factors: Prior to use the measure is required to be conditioned as follows. Fill to the reference mark, open the outlet valve and then allow a further 30 seconds of drain time after the constant flow changes to drops. The volume has been calculated for a reference temperature of 15 °C.

Signature: G. L. Buckley

Name: Mr Greg Buckley

Date: 27 April 2020

Being a person with powers delegated by the Chief Metrologist acting under section 18D of the *National Measurement Act 1960* (Cth) in respect of regulation 13 of the *National Measurement Regulations 1999* (Cth), I hereby certify that the above standard is verified as a reference standard of measurement in accordance with the regulations.

Test Method: NTM 14.2

Signature:

Name: Mr Rolf Grubwinkler

NMI approved signatory

Date: 27 April 2020

NATA Accredited for compliance with ISO/IEC 17025 - Calibration.

Accreditation Number 1.

The measurement results presented in this document are traceable to Australian standards.

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GPO Box 2013
Canberra ACT 2601
Australia
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8. Which tests are **not** required for a dispenser approved as 5/6A/215 with submersible turbine pumping units?

☐ Satisfactory ☐ Incomplete ☐ Incorrect

9. You are conducting an annual accuracy check at a site when you notice that the dispenser marked 5/6A/204 model T900A2ND is being used to dispense bio-diesel. When verified, it was used to dispense unleaded fuel. What do you do? Choose the single correct answer.

a) ☐ Nothing, the dispenser is approved for bio-diesel.
b) ☐ Remove the mark, as the instrument no longer meets the requirements for verification, as this model is not approved to dispense bio-diesel.
c) ☐ Tell the controller of the site that he must change back to unleaded fuel, and leave the dispenser to test another time.
d) ☐ Test the dispenser for accuracy and gas elimination to see if it measures correctly. If it does not, then remove the mark.

☐ Correct ☐ Incorrect

10. You have just been employed by a licensee who holds a licence for instruments of subclasses 18.1, 18.2, 5.1 and 5.2. You have just been issued your statement of attainment for verifying subclass 5.1 instruments and about 10 years ago, you used to repair and verify bulk fuel flowmeters (subclass 5.2). Your employer has just received a call out from a valued customer with whom he has a maintenance contract, to fix and verify a bulk fuel flowmeter that had been rejected by a trade measurement officer. His usual verifier is on leave for a week, so he asks you to repair and verify the flowmeter. What should you do? Choose the single correct answer.

a) ☐ Repair and verify the instrument.
b) ☐ Verify the instrument using the other verifier's verifier number.
c) ☐ Tell your employer that you are not competent to re-verify the flowmeter.
d) ☐ Repair the flowmeter and leave without verifying it, providing no explanation to the customer.

☐ Correct ☐ Incorrect

11. You have been carrying out a quarterly accuracy check at a busy service station that your company has been servicing for a number of years and you notice that every dispenser you test seems to be giving away fuel. What could be the cause of this? Write your answer below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

12. What factors might affect the performance of a fuel dispenser used for refuelling boats at a marina? Write your answer below. Include **at least two** factors.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

13. What action could you take to minimise the effects of those factors? Write your answer below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

14. You arrive at a small airfield in Central WA to repair and test their Avgas fuel dispenser in the middle of summer. Prior to your arrival at the airfield, you have been testing diesel fuel dispensers at a truck stop nearby. The airfield is not surfaced, and the ground around the dispenser and the storage tank is roughly gravelled. You have a twin 15 L measure on wheels with a sight glass to determine volume dispensed (see picture below) and the fuel supply is stored in an above-ground tank a few metres away. The dispenser is situated on the airfield, with no covering canopy. Because Avgas is used in aircraft, it is vital the fuel is not contaminated, as the consequences could be fatal.

a) What factors might affect the operation of the fuel dispenser and the use of the reference measure and how might you control those factors? Include **at least 2** possible factors below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

b) In the situation above, you request assistance from the airfield manager to empty your reference measures. What instruction would you provide to the manager to ensure he provides the assistance safely? Write your answer below detailing **at least 4** points.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

15. Name 5 of the principal metrological components of a fuel dispenser? – Briefly describe their function.

Component	Function

☐ Satisfactory ☐ Incomplete ☐ Incorrect

16. Which of the following would trigger the need to re-verify a fuel dispenser? Check all that apply.

a) ☐ Replacement of a worn hose
b) ☐ Calibration adjustment of instrument
c) ☐ Replacement of a pulse generator.
d) ☐ Repair to missing segments of the digital indicator
e) ☐ All of the above

☐ Satisfactory ☐ Incomplete ☐ Incorrect

Written assessment (18.1 Control systems specific questions)

Complete ONLY if you are being assessed for this subclass

1. You are verifying the instrument with approval number S436. Which of the following components is **NOT** acceptable for this pattern of console? Choose the single correct answer.

   a) ☐ Partner Tech model CD5220-II purchaser indicator line display.
   b) ☐ IBM 4610 model receipt printer.
   c) ☐ Postec PCC4 controller.
   d) ☐ Fujitsu model 3000L CD 15 customer display.
   e) ☐ Storeline POS console.

   ☐ Correct ☐ Incorrect

2. Refer to the supplementary certificate of approval NMI S440. If you were conducting an initial verification of this control system, are there any additional checks required to ensure the uninterruptable power supply (UPS) complies with its certificate of approval? Check **all** that apply.

   a) ☐ Inspect the UPS to see that it is the correct model UPS 600.
   b) ☐ There are no specific checks required for the UPS.
   c) ☐ Disconnect the UPS and check that no new transactions can be authorised.
   d) ☐ Disconnect the main power supply from the UPS and check that a second delivery cannot be authorised until the first delivery has been cleared.
   e) ☐ Take the paper out of the printer and check that the LCD display gives an error message.

   ☐ Satisfactory ☐ Incomplete ☐ Incorrect

3. In addition to the NITP, what other document/s specify additional tests required for the verification of control systems? Choose the single correct answer.

   a) ☐ NMI M7.
   b) ☐ The supplementary certificate approval for the control system
   c) ☐ The control system installation manual
   d) ☐ The servicing licensee's quality manual

   ☐ Correct ☐ Incorrect

4. Refer to the supplementary certificate of approval NMI S422 to answer the following questions.

   a) How many fuel dispensers can be connected to this system for self-service operation? Choose the single correct answer.

      i. ☐ 8
      ii. ☐ 16
      iii. ☐ 24
      iv. ☐ 32

   ☐ Correct ☐ Incorrect

b) How many transactions can be authorised per fuel dispenser without clearing a stored transaction? Choose the single correct answer.

i. ☐ 1
ii. ☐ 2
iii. ☐ 3
iv. ☐ 4

☐ Correct ☐ Incorrect

c) Can an Epson model TM-U220 receipt printer be used as a part of this control system? Provide an explanation for your answer below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

d) Would it be acceptable to install this system at an unattended truck stop located in Birdsville, QLD with the console components located in a waterproof cabinet? Provide an explanation for your answer below. Include at least **two reasons** to justify your answer.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

5. Where would you place a verification mark on the control system approved as supplementary certificate of approval S548? Choose the single correct answer.

a) ☐ On the Retalix Model Store Point POS.
b) ☐ On the Retalix Forecourt Server (RFS).
c) ☐ On the Forecourt Interface Box (FIB).
d) ☐ On either of the two components detailed at ‘a’ and ‘b’ above.
e) ☐ On both of the two components detailed at ‘a’ and ‘b’ above.
f) ☐ On all the components at a, b and c above adjacent to the data plate.

☐ Correct ☐ Incorrect

6. When installing a console, what external factors might you need to consider that could affect the performance of the console? Write your answer below, detailing at least **three factors**.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

7. During a routine service check of a console (NMI S555), you notice that the PIPI has been turned round so the customer cannot see it. Describe what would you do/say to the store manager? Include **at least two** points.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

8. You have just been employed by a licensee who holds a licence for instruments of licence subclasses 18.1, 5.1 and 5.2. You have a statement of attainment for instruments of subclass 5.1 and 5.2 and used to install consoles about 10 years ago but have yet to obtain your statement of attainment for 18.1. Your employer asks you to go and install and verify a console as a replacement for a defective system at a busy service station. It is an urgent job and the usual console verifier is on leave. What should you do? Choose the single correct answer.

a) ☐ Install and verify the console using your verifier number.
b) ☐ Install and verify the console using the other verifier's number.
c) ☐ Tell your employer that you are not competent to verify the console.
d) ☐ Install the console and leave without verifying it, the customer will know not to use it until a verification mark has been applied.

☐ Correct ☐ Incorrect

9. Name 3 of the principal metrological components of a console? – Briefly describe their function.

Component	Function

☐ Satisfactory ☐ Incomplete ☐ Incorrect

10. Which of the following would trigger the need to re-verify a console? Check all that apply.

a) ☐ Replacement of printer.
b) ☐ Major upgrade to the metrologically relevant software.
c) ☐ Replacement of the customer display with an identical model.
d) ☐ All of the above

☐ Satisfactory ☐ Incomplete ☐ Incorrect

Written assessment (Subclass 5.2 common questions)

Complete ONLY if you are being assessed for this subclass. Complete these questions for all test method/s for 5.2 you are being assessed for.

1. What is the liquid temperature range listed in the certificate of approval number 5/6B/204A? Choose the single correct answer.

   a) ☐ -25°C to 55°C.
   b) ☐ -5°C to 45°C.
   c) ☐ -10°C to 50°C.
   d) ☐ -2°C to 40°C.

☐ Correct ☐ Incorrect

2. Using the calibration table of a reference standard thermometer, as shown below, what is the corrected (true) temperature when the thermometer has a reading of 26°C? Show your calculations.

☐ Correct ☐ Incorrect

Reference Temperature (°C)	Device under test indicated Temperature (°C)	Temperature Correction (°C)	Uncertainty (± °C)
0.0	+0.7	-0.7	0.1
10.0	10.3	-0.3	0.2
20.0	20.1	-0.1	0.2
30.0	29.8	+0.2	0.2
40.0	39.7	+0.3	0.2
50.0	49.6	+0.4	0.2
0.0	+0.6	-0.6	0.1

3. You have tested a vehicle mounted flowmetering system with diesel and verified it. What products can it be used to measure, in trade situations? Choose the single correct answer.

   a) ☐ Diesel only
   b) ☐ Diesel, kerosene and heating oil
   c) ☐ Diesel and petrol
   d) ☐ Any product with a similar viscosity of diesel

☐ Correct ☐ Incorrect

4. Name 5 of the principal metrological components of a bulk fuel flowmetering system? – Briefly describe their function.

Component	Function

☐ Satisfactory ☐ Incomplete ☐ Incorrect

5. Which of the following flowmetering systems require a meter creep test? Check **all** that apply.

a) ☐ Pipeline.
b) ☐ Loading Rack (Gantry) - top loading.
c) ☐ Loading Rack (Gantry) - bottom loading.
d) ☐ Vehicle Mounted with nozzle transfer device.
e) ☐ Drum filler with drum-filling spear.
f) ☐ Drum filler with nozzle transfer device.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

6. Which of the following repairs would trigger the need to reverify a bulk fuel flowmetering system? Check **all** that apply.

a) ☐ Replacement of a faulty nozzle.
b) ☐ Adjustment of the calibration settings.
c) ☐ Changes to the software version in the indicator.
d) ☐ Repair of a faulty non-return valve.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

7. Define density and explain in your own words what happens to the density of fuel as the temperature increases.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

8. Are gallons legal units of measurement in Australia?

Yes ☐ No ☐

☐ Correct ☐ Incorrect

9. You have been asked to carry out annual accuracy checks on vehicle mounted flowmetering systems at a depot and to repair and re-verify any that are outside MPE/faulty. You notice that the vent valve for the air eliminator on the first system you check has been tampered with, so the valve can no longer open. You check other vehicles and notice that air eliminators on other tankers in the depot have also been altered. What should you do? Check **all** that apply.

a) ☐ Nothing, it's none of your business.
b) ☐ Repair the valves and continue with testing as usual.
c) ☐ Report the business to NMI as such tampering can lead to short measure deliveries.
d) ☐ Remove the verification mark, and issue a notice of non-verification without testing further.
e) ☐ Tell the controller of the site of your findings and see what he will do for you to keep quiet about it.
f) ☐ Inform the controller of your findings and advise that such modifications could lead to criminal penalties and discuss options for rectification before considering any other action.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

10. You have just been employed by a licensee who holds a licence for instruments of licence subclasses 5.1, 5.2 and 5.3. You have a statement of attainment for instruments of sub- classes 5.2 and 5.3 and, about 10 years ago, you used to repair and verify fuel dispensers (subclass 5.1). Your employer has just received a call out from a valued customer, with whom he has a maintenance contract, to repair a number of fuel dispensers rejected by a trade measurement officer. His usual verifier is on leave for a week, so he asks you to repair and re-verify the instruments. What should you do? Choose the single correct answer.

a) ☐ Repair and verify the fuel dispensers.
b) ☐ Verify the fuel dispensers using the other verifier's verification number.
c) ☐ Tell your employer that you are not competent to re-verify the fuel dispensers.
d) ☐ Repair the fuel dispensers and leave without verifying them, providing no explanation to the customer.
e) ☐ Tell your employer to do it himself.

☐ Correct ☐ Incorrect

11. You are asked to complete an annual re-verification of meters on fuel tankers at a depot that has 8 tankers. The tankers are in continuous use between the hours of 6 am and 8 pm, Monday- Saturday. Tankers only return for reloading between deliveries. The depot is closed on Sundays. 6 tankers meter diesel, two tankers meter kerosene.
What arrangements would you make to complete the verifications of all tankers over a single week, to minimise the downtime for the tankers, ensure you have access to any assistance and equipment/product you may need in moving the vehicles, connecting to fuel supplies etc. and to ensure most efficient use of resources? Write your answer below as dot points.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

Written assessment (Subclass 5.2 test method-specific questions)

Complete the questions relevant to the test method/s for which you are being assessed.

Volumetric test method using a volume measure

1. Would a nominal value 200 L measure with a combined variation and uncertainty of 150 mL be suitable to verify a liquid measuring instrument with a maximum permissible error of ±0.3%? Write your answer below, giving your reasoning and include any calculations that support your answer.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

2. What is the coefficient of thermal expansion for mild steel? Choose the single correct answer.

   a) ☐ 0.000 033/°C
   b) ☐ 0.000 051/°C
   c) ☐ 0.000 069/°C
   d) ☐ Irrelevant. Not a consideration for this test method.

☐ Correct ☐ Incorrect

3. What is the coefficient of thermal expansion for Stainless steel? Choose the single correct answer.

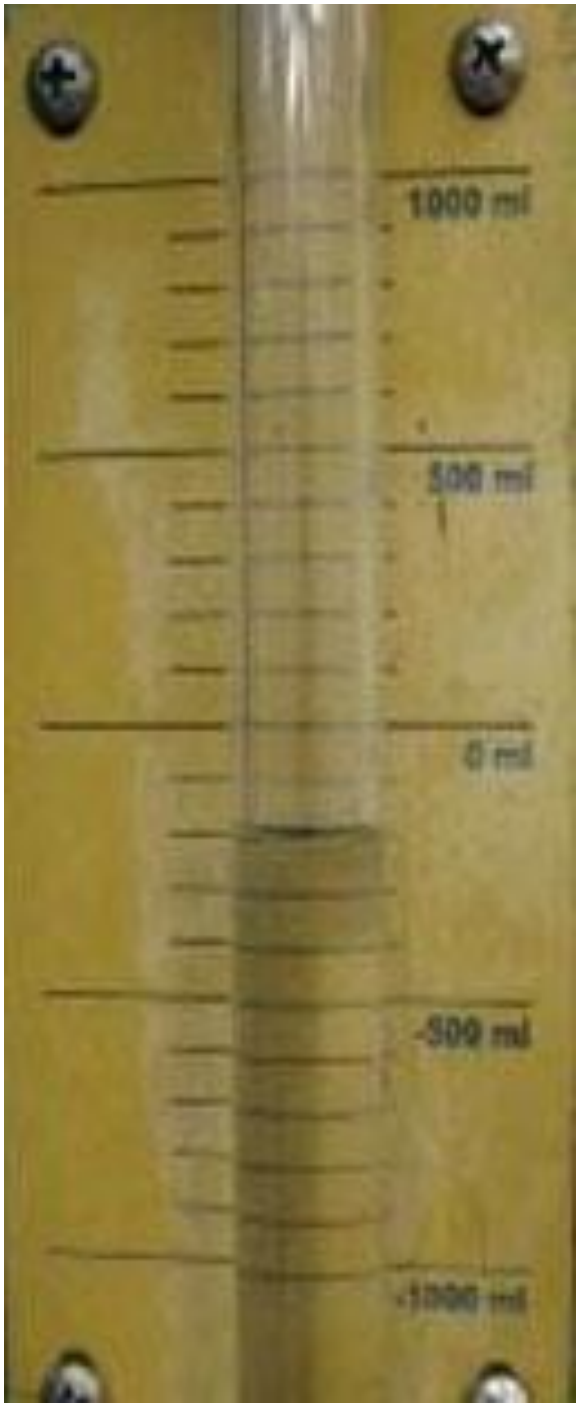
   a) ☐ 0.000 033/°C
   b) ☐ 0.000 051/°C
   c) ☐ 0.000 069/°C
   d) ☐ Irrelevant. Not a consideration for this test method.

☐ Correct ☐ Incorrect

4. What is the difference between actual value and nominal value reference standards, and how does this change how you would use them when verifying a bulk fuel flowmetering system?

☐ Satisfactory ☐ Incomplete ☐ Incorrect

5. The figure below shows a sight glass on a mild steel volume reference measure with a 120 L nominal capacity. The temperature of the liquid contained in the measure is 26.7°C. Determine the correct volume of liquid contained in the measure to two decimal places. The reference temperature of the measure is 15ºC. Show all your calculations in your answer.



☐ Satisfactory ☐ Incomplete ☐ Incorrect

6. What would you do if you noticed a dent in your reference measure half way through testing a meter? Check **all** that apply.

a) ☐ Complete testing, mark the instrument and have the measure checked on return to your depot. If it is incorrect, have it repaired and re-verified and then make arrangements to re-verify the meter.
b) ☐ Cease testing and provide a notice of non-verification to the controller of the instrument.
c) ☐ On return to the depot quarantine the measure as 'out of use' until the measure can be re-verified.
d) ☐ Complete the testing, making an allowance for the measure being a bit smaller than normal.
e) ☐ Arrange for the measure to be repaired (if required) and re-verified as soon as possible.

☐ Correct ☐ Incorrect

7. The following questions relate to the Regulation 13 certificate of verification provided on the following page.

a) What is the reference temperature for the reference standard that this certificate of verification relates to? Choose the single correct answer.

i. ☐ Ambient
ii. ☐ 25°C
iii. ☐ 15°C
iv. ☐ 20°C

☐ Correct ☐ Incorrect

b) Which of the following actions should you take, before you use this measure as a reference standard? Check any of the following that are part of the preparation. Check **all** that apply.

i. ☐ Place the measure on a stable base.
ii. ☐ Ensure you have correctly levelled the measure.
iii. ☐ Fill the measure to the reference mark and then drain prior to use.
iv. ☐ Check there is no damage to the measure.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Verification of a Reference Standard of Measurement in accordance with Regulation 13 of the *National Measurement Regulations 1999* (Cth) in accordance with the *National Measurement Act 1960* (Cth)

Certificate Number RN200660

Description of standard of measurement: Inspectors' Class 1 standard of volume: Mild steel (galvanised) cylindrical volume prover, 200 L

Permanent distinguishing marks: K 1

Date of verification: 23 April 2020

Period of certificate: From date of verification until 23 April 2022

Value(s) of standard of measurement and accuracy of verification: Deemed equal to the denomination, in accordance with Regulations 30 and 31

Relevant influence factors: Prior to use the measure is required to be conditioned as follows. Fill to the reference mark, open the outlet valve and then allow a further 60 seconds of drain time after the constant flow changes to drops. The volume has been calculated for a reference temperature of 15 °C.

Signature: G.J. Buckley

Name: Mr Greg Buckley

Date: 24 April 2020

Being a person with powers delegated by the Chief Metrologist acting under section 18D of the *National Measurement Act 1960* (Cth) in respect of regulation 13 of the *National Measurement Regulations 1999* (Cth), I hereby certify that the above standard is verified as a reference standard of measurement in accordance with the regulations.

Test Method: NTM 14.2

Signature: G.J. Buckley

Name: Mr Greg Buckley

NMI approved signatory

Date: 24 April 2020

NATA Accredited for compliance with ISO/IEC 17025 - Calibration.

Accreditation Number 1.

The measurement results presented in this document are traceable to Australian standards.

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Master meter test method

1. What is the effect of pressure on the measured liquid volume when testing a flowmetering system using the master meter method, and how would you compensate for this effect during testing? Write your answer below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

2. Using the calibration table below, determine the meter correction factor at a flow rate of 700 L/min. Show your calculations.

Meter Factors		
Product	**Indicated flow rate (L/min)**	**Meter factor**
Unleaded petrol	250	1.0026
	600	1.0016
Density @ 15°C 740.0 kg/m^3	1200	1.0000
	1800	0.9994
	2300	0.9986
	2500	0.9976

☐ Correct ☐ Incorrect

Gravimetric test method

1. You are testing a flowmeter with a maximum approved flowrate of 150 L/min. The product measured by the meter is lubricating oil with a density @ 15°C of 0.945 kg/L. The vessel you shall use to collect the oil has an initial tare weight of approximately 65 kg and it can hold 200 L.

   a) Which of the following weighing instruments would be suitable to use in the testing? Choose the single correct answer.

      i. ☐ A Class III 1 t platform scale with a 1 kg scale interval.
      ii. ☐ A Class III 600 kg platform scale with a 200 g scale interval.
      iii. ☐ A class III 300 kg platform scale with a 100 g scale interval.
      iv. ☐ A Class III 200 kg platform scale with a 100 g scale interval.
      v. ☐ All of the above.
      vi. ☐ None of the above.

      ☐ Correct ☐ Incorrect

   b) From the options below, what is the **minimum** weight of reference standards you should use to test the weighing instrument? Choose the single correct answer.

      i. ☐ 1000 kg
      ii. ☐ 600 kg
      iii. ☐ 300 kg
      iv. ☐ 250 kg
      v. ☐ 200 kg
      vi. ☐ 65 kg

      ☐ Correct ☐ Incorrect

   c) What requirements apply to weights used for testing the weighing instrument? Check **all** that apply.

      i. ☐ All weights must have a current Regulation 13 certificate.
      ii. ☐ Uncertainties of weights used must be no more than 1/3 of the MPE of the weighing instrument.
      iii. ☐ All weights used must be Inspectors' Class 3 standards or better.
      iv. ☐ Reference weights must be made of cast iron.

      ☐ Satisfactory ☐ Incomplete ☐ Incorrect

   d) When should you test the weighing instrument? Choose the single correct answer.

      i. ☐ Provided it is a verified instrument, it is irrelevant when it was tested.
      ii. ☐ Immediately before using the instrument to test the flowmeter.
      iii. ☐ Within the 24 hours prior to testing of the flowmeter.
      iv. ☐ Within the 7 days prior to testing of the flowmeter.

      ☐ Correct ☐ Incorrect

2. You are planning to test a flowmeter with a maximum approved flowrate of 4000 L/min, using a 5-compartment road tanker (4500 L per compartment) to contain the delivered product from each test run, and a weighbridge to determine the weight of each delivery. The flowmeter is to be used to measure bitumen with a density @ 15°C of 1.03 kg/L, at loading temperature (120 °C). The C_{tlFS} for bitumen is 0.9383. The unloaded weight of the tanker is 10.46 t.

   What capacity (kg) and scale interval (kg) weighbridge would be suitable for your test and what would be the requirements for testing of the weighbridge? Write your answer below and include any calculations.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

Written assessment (Subclass 5.3 specific questions)

1. What is the name, current version number and release date for the national test procedure used to verify milk flowmetering systems? Choose the single correct answer.

   a) ☐ NITP 0 First edition - February 2015
   b) ☐ NITP 5.3 First Edition - October 2013
   c) ☐ NITP 5.2 First edition - December 2011
   d) ☐ NMI V 9-1 First Edition - September 2008

   ☐ Correct ☐ Incorrect

2. What is the maximum flow rate that an instrument approved with the pattern approval number 5/6E/13A may have? Choose the single correct answer.

   a) ☐ 70 L/min
   b) ☐ 700 L/min
   c) ☐ 1500 L/min
   d) ☐ 4500 L/min

   ☐ Correct ☐ Incorrect

3. What is the difference between actual value and nominal value reference standards, and how does this change how you would use them when verifying milk flowmetering systems?

   ☐ Satisfactory ☐ Incomplete ☐ Incorrect

4. Define density and explain in your own words what happens to the density of milk as the temperature increases.

   ☐ Satisfactory ☐ Incomplete ☐ Incorrect

5. Are gallons legal units of measurement in Australia?

   Yes ☐ No ☐

   ☐ Correct ☐ Incorrect

6. Consider the Regulation 13 certificate of verification provided after this question and answer the following questions that relate to it.

   a) What is the reference temperature for the reference standard that this certificate of verification relates to? Choose the single correct answer.

      i. ☐ 20°C
      ii. ☐ Ambient
      iii. ☐ 25°C
      iv. ☐ 15°C

   ☐ Correct ☐ Incorrect

b) Which of the following actions should you take, before you use this measure as a reference standard? Check any of the following that are part of the preparation. Check **all** that apply.

i. ☐ Check there is no damage to the measure.
ii. ☐ Place the measure on a stable base.
iii. ☐ Ensure you have correctly levelled the measure.
iv. ☐ Fill the measure to the reference mark and then drain prior to use.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Certificate of Verification of a Reference Standard of Measurement in accordance with Regulation 13 of the *National Measurement Regulations 1999* (Cth) in accordance with the *National Measurement Act 1960* (Cth)

Certificate Number RN200660

Description of standard of measurement:	Inspectors' Class 1 standard of volume: Mild steel (galvanised) cylindrical volume prover, 200 L
Permanent distinguishing marks:	K 1
Date of verification:	23 April 2020
Period of certificate:	From date of verification until 23 April 2022
Value(s) of standard of measurement and accuracy of verification:	Deemed equal to the denomination, in accordance with Regulations 30 and 31
Relevant influence factors:	Prior to use the measure is required to be conditioned as follows. Fill to the reference mark, open the outlet valve and then allow a further 60 seconds of drain time after the constant flow changes to drops. The volume has been calculated for a reference temperature of 15 °C.

Signature: G.P. Buckley
Name: Mr Greg Buckley
Date: 24 April 2020

Being a person with powers delegated by the Chief Metrologist acting under section 18D of the *National Measurement Act 1960* (Cth) in respect of regulation 13 of the *National Measurement Regulations 1999* (Cth), I hereby certify that the above standard is verified as a reference standard of measurement in accordance with the regulations.

This document may not be published except in full unless permission for the publication of an approved extract has been obtained in writing from the Chief Metrologist, National Measurement Institute.

Test Method: NTM 14.2

Signature: G.P. Buckley
Name: Mr Greg Buckley
NMI approved signatory
Date: 24 April 2020

NATA Accredited for compliance with ISO/IEC 17025 - Calibration.
Accreditation Number 1.

The measurement results presented in this document are traceable to Australian standards.

Measurement Standards Unit, Brisbane
33 Kingtel Place
Geebung QLD 4034
Australia
Telephone: +61 2 9449 0139
Facsimile: +61 7 3613 6198

Headquarters:
GPO Box 2013
Canberra ACT 2601
Australia
Telephone: +61 2 8467 3600

7. When determining which measure to use for verification of milk meters, which of the following parameters do you need to consider? Choose the single correct answer.

a) ☐ The volume of the measure
b) ☐ The combined variation and uncertainty of the measure
c) ☐ The maximum flow rate of the milk metering system
d) ☐ The MPE of the milk metering system
e) ☐ The minimum delivery
f) ☐ All of the above

☐ Correct ☐ Incorrect

8. Would a nominal value 200 L Inspectors' Class 1 volume measure be suitable to verify a milk flowmeter of the following specifications? Provide your answer with any reasons and supporting calculations below.

- V_{min} 100 L
- Q_{max} 2000 L/min
- Q_{min} 200 L/min
- Accuracy class 0.5

☐ Satisfactory ☐ Incomplete ☐ Incorrect

9. What liquids can you use when verifying milk meters? Check **all** that apply.

a) ☐ Milk
b) ☐ Water
c) ☐ Beer
d) ☐ Any potable liquid

☐ Satisfactory ☐ Incomplete ☐ Incorrect

10. Name 5 of the principal metrological components of a milk flowmetering system? – Briefly describe their function.

Component	Function

☐ Satisfactory ☐ Incomplete ☐ Incorrect

11. Define the term 'priming quantity'. Write your answer below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

12. From where would you find the priming quantity for the system you wish to verify? Check **all** that apply.

a) ☐ On the data plate
b) ☐ In the certificate of approval
c) ☐ In the NITP
d) ☐ In the installation manual
e) ☐ By calculation during testing for a new system

☐ Correct ☐ Incorrect

13. Which of the following is an acceptable method for determining the priming quantity? Choose the single correct answer.

a) ☐ Starting with an empty system, pump milk until you can see the milk just enter the collection vessel/compartment, the indicated amount is the priming quantity.
b) ☐ Starting with an empty/drained flowmetering system, pump milk from the full reference measure until the 'collection' is complete, note the indication on the meter. Refill the volume measure and complete a further test run at the same speed, without draining the flowmetering system. The priming quantity is the difference between the readings of the 2 meters.
c) ☐ Starting with an empty drained system, pump milk from the full reference measure until the 'collection' is complete, note the indication on the meter. The priming quantity is the difference between the volume indicated on the meter and the corrected volume of the reference volume measure, making allowance for any error in the meter.
d) ☐ Starting with an empty/drained system, pump milk from the full reference measure until the 'collection' is complete, note the indication on the meter. Complete three further test runs without draining the flowmetering system primed and determine the average of those three runs. The priming quantity is the difference between the corrected average volume for the three test runs, and the corrected volume of the unprimed test.

☐ Correct ☐ Incorrect

14. If a milk metering system has removable components, can those components be removed and replaced, without the system being re-verified? Write your answer and supporting reasons below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

15. What is the actual volume of milk contained in a stainless steel reference volume measure when filled to nominal capacity - 1,183.5 L, if the temperature of the milk is 4.3°C and the reference temperature for the reference measure is 20°C? Assume the reference measure has undergone any required conditioning. The coefficient of thermal expansion of stainless steel is given as 0.000051 per °C. Show any calculations in the text box below. Choose the single correct answer.

a) ☐ 1 182.55 L.
b) ☐ 1 183.50 L.
c) ☐ 1 181.52 L.
d) ☐ 1 182.83 L

☐ Correct ☐ Incorrect

16. What is the purpose of the empty compartment test? Choose the single correct answer.

a) ☐ To check the pump will operate after air has been introduced into the system.
b) ☐ To check the compartment empties completely.
c) ☐ To check the motor will restart after changing to another compartment.
d) ☐ To ensure air introduced into the system is not measured.

☐ Correct ☐ Incorrect

17. You are asked to carry out annual accuracy checks on tanker milk flowmetering systems at a depot and to repair and re-verify any that are outside MPE/faulty. You notice that the vent valve for the air eliminator on the first system you check has been tampered with, so the valve can no longer open. You check other vehicles and notice that air eliminators on other tankers in the depot have also been altered. What should you do? Check **all** that apply.

a) ☐ Nothing, it's none of your business.
b) ☐ Repair the valves and continue with testing as usual.
c) ☐ Report the business to NMI as such tampering can lead to short measure deliveries.
d) ☐ Remove the verification mark, and issue a notice of non-verification without testing further.
e) ☐ Tell the controller of the site of your findings and see what he will do for you to keep quiet about it.
f) ☐ Inform the controller of your findings and advise that such modifications could lead to criminal penalties and discuss options for rectification before considering any other action.

☐ Correct ☐ Incorrect

18. You have been carrying out a routine customer re-verification of milk flowmeters at a local milk haulier's depot, when you notice that every meter you test seems to be giving away milk. What could be the cause of this? Write your answer below.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

19. You have just been employed by a licensee who holds a licence for instrument subclasses 18.1, 5.1, 5.2, and 5.3. You have past experience repairing and verifying subclass 5.2 instruments, but have yet to gain a statement of attainment for that subclass. You have just been issued a statement of attainment for milk flowmeters, subclass 5.3.

    Your employer has just received a call out from a valued customer, with whom he has a maintenance contract, in relation to a bulk fuel tanker flowmeter (subclass 5.2) that has been rejected by a trade measurement officer. His usual verifier is on leave for a week, so he asks you to repair/adjust and re-verify the instrument. What should you do? Choose the single correct answer.

    a) ☐ Repair and verify the flowmeter.
    b) ☐ Verify the flowmeter using the usual verifier's verification number.
    c) ☐ Repair the flowmeter and leave without verifying it, providing no explanation/paperwork to the customer.
    d) ☐ Tell your employer to do it himself.
    e) ☐ Tell your employer that you are not competent to re-verify the flowmeter.

    ☐ Correct ☐ Incorrect

20. You are due to carry out annual verifications of milk meters on a fleet of tankers at a local milk haulier.

    The tankers are in continuous use between the hours of 4:30 am and 8:00 pm, daily. Tankers usually only return to the depot at the end of their shifts.

    What arrangements would you make to complete the verifications of all tankers over a single week, to minimise the downtime for the tankers, ensure you have access to any assistance and equipment/product you may need in moving the vehicles, accessing suitable test liquid supplies etc. and to ensure most efficient use of resources? Write your answer below as dot points.

    ☐ Satisfactory ☐ Incomplete ☐ Incorrect

    21. Which of the following would trigger the need to re-verify a milk flowmetering system? Check **all** that apply.

    a) ☐ Replacement of a hose connector.
    b) ☐ Adjustment of the calibration settings.
    c) ☐ Repairs to the pump.
    d) ☐ Repair of a faulty non-return valve.

    ☐ Correct ☐ Incorrect

Verification form task

Download a certificate of verification or notice of non-verification of a measuring instrument from (Form 6) from the verifying measuring instruments page of the industry.gov.au website **for each task.**

DO NOT print the form out

Complete **all required fields** into the **electronic** form using the information given below. Including the appropriate instrument performance code.

Once you have completed the forms, save it/them, named, as described in the instructions, and include in your submitted recognition kit.

For subclass 5.1

- Verification carried out at Avalon Fuel Stop at 4 Western HWY, Avalon, 3999, ABN424256567878.
- Verification carried out on the 1/04/21 by Jeff Smith verifier number VR-00987.
- Licensee is FuelFil Pty Ltd SL-0435. Licensee's Mark is ABC. Licensee's ABN is 111122223333.
- Instrument verified is a Gilbarco model T334EG Fleetline Mk4 fuel dispenser for motor vehicles, approval number NMI 5/6A/214, serial number S321456, unleaded pump 1
- Instrument was verified following adjustment after the instrument was rejected by a trade measurement inspector.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

For subclass 5.2

- Verification carried out at Goldfields Fuel Depot, Unit 3, 6424 Eastern HWY, Avalon, WA 8999, ABN 232425262728
- Verification carried out on the 3/03/21 by Jim Burrows verifier number VR-08999.
- Licensee is Fueltank Pty Ltd SL-0765. Licensee's Mark is ZZZ. Licensee's ABN is 123412341234
- Instrument verified is a Schlumberger Neptune model Type 4E bulk flowmetering system, approval number 5/6B/88, serial number E42473634568
- Maximum approved flow rate 570 L/min, minimum flow rate 57 L/min, maximum achievable flow rate 485 L/min
- Instrument was verified following a replacement of the indicator.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

For subclass 5.3

- Verification carried out at Bendigo Bulk Dairy Transport depot, 28 Lazarus St, West Bendigo, 3550, ABN 918273646758.
- Verification carried out on the 12/02/21 by Bob Cadenza verifier number VR-09091.
- Licensee is Bendigo Bulk Dairy Transport Pty Ltd SL-0987. Licensee's Mark is BBT. Licensee's ABN is 425242524252
- Instrument verified is an ACSE model FMS 112012 Milk Flowmetering System, approval number NMI 5/6E/19, serial number T656463.
- Maximum approved flowrate 3600 L/min; minimum flowrate 480 L/min; maximum achievable flowrate 2895 L/min
- Instrument was verified during an annual quality system reverification and didn't require adjustment.

☐ Satisfactory ☐ Incomplete ☐ Incorrect

See next page for 18.1

For subclass 18.1

- Verification carried out at Avalon Fuel Stop at 4 Western HWY, Avalon, 3999, ABN987687657654.
- Verification carried out on the 5/03/21 by Jeff Smith verifier number VR-00987.
- Licensee is FuelFil Pty Ltd SL-0435. Licensee's Mark is ABC. Licensee's ABN is 111122223333.
- Instrument Verified is a Datafuel Model DF9000 Control System for Fuel Dispensers for Motor Vehicles, supplementary approval number NMI S651, serial number S134258, connected to 8 Gilbarco Model T334EG Fleetline Mk4 fuel dispensers.
- Instrument was verified following installation **AND** simultaneous removal of a similar model console, serial number S100254**.**

☐ Satisfactory ☐ Incomplete ☐ Incorrect

Test report questions (subclasses 5.2 and 5.3)

Complete any test report questions specific to the subclass/es of instrument and test methods you wish to be assessed for. (None required for subclasses 5.1 or 18.1)

Test report question (Subclass 5.2 – tested volumetrically using a prover)

Complete the test report for subclass 5.2 – verification using volume measure using the information provided. Where any calculations are required to complete any parts of the test report, then complete the calculations so you can fully populate the test report form. **At the bottom of the form state whether the instrument has passed or failed and give reasons for any failure**.

Scan the completed form and include it in your recognition kit.

Assume that ALL tests required to be completed for the instrument for INITIAL verification have been carried out and passed, where not described below, and complete the form appropriately.

If you do not currently have a verifier number, use the verifier number VR-09999.

Details:

Verification carried out at FastFuels Fartown, Units 40-48, 567 Alhambra Rd, Fartown, WA 8999 on 14 November 2020.

Contact person – Depot Manager Antonio Ribaldi.

Instrument owned by FastFuels Pty Ltd, Level 2, 465 Queen St, Perth, WA 8000.

Instrument verified – Liquid Controls Model MSA-7- C-1 Bulk flowmetering system Accuracy class 0.5.

Instrument fitted to tanker registration – FFF 123.

Instrument data:

Visual inspection: All components are as per certificate of approval and the instrument is in good condition, with no leaks.

Data plate markings:

Manufacturer's name or trade mark – Pec Fuel Pumps Ltd

Meter Model – 946C03PS

Serial number – 864578

NSC approval number – NSC No 5/6B/78A

Maximum flow rate – 380 L/min

Minimum flow rate – 76 L/min

Nominal flow rate – N/A

Minimum quantity – 100 L

Type of liquid for which the meter is verified – petrol

Single data plate permanently attached to the indicator No printer or pre-set fitted. No low-level cut off

Indicator model Veeder Root 7887

Test results:

Maximum achievable flow rate 225 L/min

Runs at max. achievable flow rate:

Volume in prover (L)	Volume displayed on flowmeter system (L)	Temperature of prover (°C)
500	499.9	19.8
500	499.9	20.3
500	499.8	20.6

Run at min. achievable flowrate 80 L/min:

Volume in prover (L)	Volume displayed on flowmeter system (L)	Temperature of prover (°C)
500	500	20.7

Meter creep test:

Volume in prover (L)	Volume displayed on flowmeter system (L)	Temperature of prover (°C)
500	499.9	19.8

Gas elimination test:

Volume in prover (L)	Volume displayed on flowmeter system (L)	Temperature of prover (°C)
500	500.5	20.8

Anti-drain 505 mL

Test report for Subclass 5.2 – verification using volume measure

Test report reference number Date of test

Type of test (check one) ☐ Verification ☐ In-service inspection

For in-service inspection record the verification mark.

Trading name

Address of test site

Name of contact at test site

Manufacturer Model Accuracy class

Serial number/s Certificate/s of approval number(s)

Vehicle registration (if applicable)

Product/s approved to deliver Product/s being dispensed

Maximum flow rate L/min Minimum flow rate L/min

Nominal flow rate L/min Minimum measured quantity.

Reading of the non-resettable totaliser (if applicable)

Software version and indicator model in use (if applicable) Yes/No/NA

Does the flowmetering system comply with its certificate/s of approval?	
Are all mandatory descriptive markings clearly and permanently marked on a data plate which is fixed to the flowmetering system?	
Are all permanently attached components rigidly fixed, e.g. meter, indicator, gas elimination device?	
Are the indications legible and clearly visible under all conditions?	
Are hoses, if any, in a serviceable condition?	
Are there any leaks?	
Indicating devices (clause 4.1)	
Zero setting (clause 4.2)	
Non-return valve (clause 4.3)	
Interlock (clause 4.4)	
Maximum flow rate (clause 4.5)	
Accuracy (clause 4.6)	
Repeatability (clause 4.7)	
Meter creep (clause 4.8)	
Conversion device (clause 4.9)	
Gas elimination device (clause 4.10)	
Low level cut-off (clause 4.11)	
Pre-set indications (clause 4.12)	
Anti-drain (clause 4.13)	
Printing device (clause 4.14)	
Overall result	

(a) Volumetric testing using a reference volume measure

D_{15} = kg/L	Accuracy clause 4.6.1 Q_{max}	Q_{max}	Q_{max}	Q_{min}	Meter creep clause 4.8.1	Repeatability clause 4.7	Gas elimination clause 4.10	Pre-set clause 4.12	L point 1	L point 2	L point 3
Flow rate L/min											
V_{FS}											
V_{RSM}											
T_{RSM}											
CTS_{RSM}											
$V_{REF} = V_{RSM} \times CTS_{RSM}$											
$E_{FS} = (V_{FS} - V_{REF})/V_{REF} \times 100$											
E_{av}											
$E_D = E_{av} - E_{FS}$											
Conversion device Method 1 (clause 4.9.1)											
T_{FS}											
V_{FS15}											
C_{tlFS} (using density at 15°C, T_{FS})											
$V_{FS,c} = V_{FS} \times C_{tlFS}$											
$E_C = (V_{FS15} - V_{FS,c})/V_{FS,c} \times 100$											
Conversion device Method 2 (clause 4.9.2)											
V_{FS15}											
C_{tlRSM} (using D_{15},T_{RSM})											
$V_{REF15} = V_{REF} \times C_{tlRSM}$											
$E_{FS15} = (V_{FS15} - V_{REF15})/V_{REF15} \times 100$											
$E_C = E_{FS} - E_{FS15}$											
Max E_{FS} – Min E_{FS}											

Verifier's name Identification number

Comments

Test report question (Subclass 5.2 – tested volumetrically using a master meter)

Complete the test report for Subclass 5.2 – verification using master meter using the information provided. Where any calculations are required to complete any parts of the test report, complete the calculations so you can fully populate the test report form. At the bottom of the form, state whether the instrument has passed or failed and give reasons for any failure.

Scan the completed form and include it in your recognition kit.

Assume that ALL tests required to be completed for the instrument for INITIAL verification have been carried out and passed, where not described below, and complete the form appropriately.

If you do not currently have a verifier number, use the verifier number VR-09999.

Details:

Verification carried out at Fartown Airport, Excelsior Drive, Fartown, WA 8999 on 3 January 2021

Contact person - Security Manager Julian Green

Instrument owned by Air Fuels Pty Ltd, Level 2, 465 Queen St, Perth, WA 8000

Instrument verified - Oilmeter Model SBM75 Bulk Flowmetering System accuracy class 0.5

Instrument is an aviation hydrant meter utilising a dry-break coupling as the transfer device, installed on Refueller EQ33.

Instrument data:

Visual inspection: All components are as per certificate of approval and the instrument is in good condition, with no leaks.

Data plate markings:

Manufacturer's name or mark – Oilmeter

Meter Model - SBM75

Serial number – 4678

NSC approval number - 5/6B/71A

Maximum flow rate - 500 L/min

Minimum flow rate - 50 L/min

Nominal flow rate - 250 L/min

Minimum delivery – 100 L

Type of liquid for which the system is verified – Jet A1

Operating air temperature range -10 °C to + 45 °C

Single data plate permanently attached to the indicator.

Indicator model EMH500 NMI S351A.

Jet A1 density @ 15 °C - 0.800 kg/L

Totaliser reading 1804061

No conversion device, no common indicator or pumping unit, no preset.

Test results:

Gas Elimination test – Not conducted on meters used for re-fuelling aircraft.

Repeatability test N/A

Low level cut-off N/A

Printer is fitted.

Maximum achievable flow rate 250 L/min

Runs at Max. achievable flow rate:

Volume master meter (L)	Meter factor master meter	Volume displayed on flowmeter system (L)	Pressure master meter (kPa)	Temperature master meter (°C)
500	0.999475	499	20	25
500	0.999475	499	20	24
500	0.999475	499	20	24

Run at min. Achievable flowrate 100 L/min:

Volume master meter (L)	Meter factor master meter	Volume displayed on flowmeter system (L)	Pressure master meter (kPa)	Temperature master meter (°C)
500	0.99979	499	210	24

Test report for Subclass 5.2 – verification using master meter

Test report reference number Date of test

Type of test (check one) ☐ Verification ☐ In-service inspection

For in-service inspection record the verification mark

Trading name

Address of test site

Name of contact at test site

Manufacturer Model Accuracy class

Serial number/s Certificate/s of approval number(s)

Vehicle registration (if applicable)

Product/s approved to deliver Product/s being dispensed

Maximum flow rate L/min Minimum flowrate L/min

Nominal flow rate L/min Minimum measured quantity

Reading of the non-resettable totaliser (if applicable)

Software version and indicator model in use (if applicable)

Does the flowmetering system comply with its certificate/s of approval?	Yes, No or N/A
Are all mandatory descriptive markings clearly and permanently marked on a data plate which is fixed to the flowmetering system?	
Are all permanently attached components rigidly fixed, e.g. meter, indicator, gas elimination device?	
Are the indications legible and clearly visible under all conditions?	
Are hoses, if any, in a serviceable condition?	
Are there any leaks?	
Indicating devices (clause 4.1)	
Zero setting (clause 4.2)	
Non-return valve (clause 4.3)	
Interlock (clause 4.4)	
Maximum flow rate (clause 4.5)	
Accuracy (clause 4.6)	
Repeatability (clause 4.7)	
Meter creep (clause 4.8)	
Conversion device (clause 4.9)	
Gas elimination device (clause 4.10)	
Low level cut-off (clause 4.11)	
Pre-set indications (clause 4.12)	
Anti-drain (clause 4.13)	
Printing device (clause 4.14)	
Overall result	

(b) Volumetric testing using a master meter

D_{15} = 0.800 .....kg/L	Accuracy clause 4.6.2 Q_{max}	Q_{max}	Q_{max}	Q_{min}	Meter creep clause 4.8.1	Repeatability clause 4.7	Pre-set clause 4.12	L point 1	L point 2	L point 3
Flow rate L/min										
T_{MM}										
P_{MM}										
F_{MM}										
V_{MM}										
V_{FS}										
C_{plMM}										
MF_{MM}										
$V_{REF} = (V_{MM} \times MF_{MM} \times C_{plMM})$										
$E_{FS} = (V_{FS} - V_{REF})/V_{REF} \times 100$										
Conversion device Method 1 (clause 4.9.1)										
T_{FS}										
C_{tlFS} (using D_{15} T_{FS})										
V_{FS15}										
$V_{FS,c} = V_{FS} \times C_{tlFS}$										
$E_C = (V_{FS15} - V_{FS,c})/V_{FS,c} \times 100$										
Conversion device Method 2 (clause 4.9.2)										
V_{FS15}										
C_{tlMM} (using T_{MM} , D_{15})										
$V_{REF15} = V_{REF} \times C_{tlMM}$										
$E_{FS15} = (V_{FS15} - V_{REF15})/V_{REF15} \times 100$										
$E_C = E_{FS} - E_{FS15}$										
Max E_{FS} – Min E_{FS}										

Verifier's name Identification number

Comments

Test report question (Subclass 5.2 – tested gravimetrically)

Complete the test report for Subclass 5.2 – verification using gravimetric method using the information provided. Where any calculations are required to complete any parts of the test report, then complete the calculations so you can fully populate the test report form. **At the bottom of the form, state whether the instrument has passed or failed and give reasons for any failure**.

Scan the completed form and include it in your recognition kit.

Assume that ALL tests required to be completed for the instrument for INITIAL verification have been carried out and passed, where not described below, and complete the form appropriately.

If you do not currently have a verifier number, use the verifier number VR-09999.

Details:

Verification carried out at Budget Fuels, 268 Valiant Drive, Newtown, NT 0899 on 15th February 2021.

Contact person - Depot Manager Victor Schwarz.

Instrument owned by Budget Fuels Pty Ltd, Unit 6, 1200 George St, Sydney, NSW 2000 Instrument verified - Liquid Controls M5 Flowmeter - accuracy class 0.5.

Instrument is a vehicle-mounted flowmeter with a hose reel and nozzle transfer device, installed on tanker registration BF5 345.

Instrument data:

Visual inspection: All components are as per certificate of approval and the instrument is in good condition, with no leaks.

Data plate markings:

Manufacturer's name or mark – Liquid Controls

Meter Model - M5

Serial number – 46782

NSC approval number - 5/6B/30

Maximum flow rate - 140 L/min

Minimum flow rate - 20 L/min

Minimum delivery – 5 L

Type of liquid for which the system is verified – Kerosene

Single data plate permanently attached to the indicator

Indicator model Veeder Root 1624

Kerosene density @ 15°C - 0.800 kg/L

Totaliser reading 423821

Test results:

No conversion device, no common indicator or pumping unit, no preset.

Repeatability test N/A

Low-level cut-off N/A

Printer is fitted.

Maximum achievable flow rate 105 L/min

Runs at max. achievable flow rate:

Flow rate (L/min)	Volume displayed on flowmeter system (L)	Temperature flowmeter system (°C)	Tare kg	Gross kg
105	110	18.5	18.5	105.9
102	110	18.7	18.5	106.1
104	109	18.8	18.8	105.2

Run at min. achievable flow rate 100 L/min:

Flow rate (L/min)	Volume displayed on flowmeter system (L)	Temperature flowmeter system (°C)	Tare kg	Gross kg
100	110	18.6	18.5	106.1

Meter Creep:

Flow rate (L/min)	Volume displayed on flowmeter system (L)	Temperature flowmeter system (°C)	Tare kg	Gross kg
104	111	18.9	18.5	106.8

Gas elimination test – flowrate slowed considerably:

Flow rate (L/min)	Volume displayed on flowmeter system (L)	Temperature flowmeter system (°C)	Tare kg	Gross kg
105	106	18.9	18.5	103.1

Anti-drain – 45 mL

Test report for Subclass 5.2 – verification using gravimetric method

Test report reference number Date of test

Type of test (check one) ☐ Verification ☐ In-service inspection

Trading name

Address of test site

Name of contact at test site

Manufacturer Model Accuracy class

Serial number/s Certificate/s of approval number(s)

Vehicle registration (if applicable)

Product/s approved to deliver Product/s being dispensed

Maximum flow rate L/min Minimum flow rate L/min

Nominal flow rate L/min Minimum measured quantity

Reading of the non-resettable totaliser (if applicable)

Software version and indicator model in use (if applicable)

Does the flowmetering system comply with its certificate/s of approval?	Yes, No or N/A
Are all mandatory descriptive markings clearly and permanently marked on a data plate which is fixed to the flowmetering system?	
Are all permanently attached components rigidly fixed, e.g. meter, indicator, gas elimination device?	
Are the indications legible and clearly visible under all conditions?	
Are hoses, if any, in a serviceable condition?	
Are there any leaks?	
Indicating devices (clause 4.1)	
Zero setting (clause 4.2)	
Non-return valve (clause 4.3)	
Interlock (clause 4.4)	
Maximum flow rate (clause 4.5)	
Accuracy (clause 4.6)	
Repeatability (clause 4.7)	
Meter creep (clause 4.8)	
Conversion device (clause 4.9)	
Gas elimination device (clause 4.10)	
Low level cut-off (clause 4.11)	
Pre-set indications (clause 4.12)	
Anti-drain (clause 4.13)	
Printing device (clause 4.14)	
Overall result	

(c) Gravimetric testing

	Accuracy clause 4.6.3				Meter creep clause 4.8.2	Repeatability clause 4.7	Gas elimination clause 4.10	Pre-set clause 4.12	L point 1	L point 2	L point 3
D_{15} = ... kg/L	Q_{max}	Q_{max}	Q_{max}	Q_{min}							
Flow rate (L/min)											
T_{FS}											
V_{FS}											
Mass of product											
V_{REF15} = mass of product/D_{15}											
C_{tlFS} (using D_{15}, T_{FS})											
$V_{FS,c} = V_{FS} \times C_{tlFS}$											
$E_{FS} = (V_{FS,c} - V_{REF15})/V_{REF15} \times 100$											
E_{av}											
E_D ($E_{av} - E_{FS}$)											
Conversion device Method 1 (clause 4.9.1)											
V_{FS15}											
$E_C = (V_{FS15} - V_{FS,c})/V_{FS,c} \times 100$											
Max E_{FS} – Min E_{FS}											

Verifier's name

Identification number

Comments

Test report question (Subclass 5.3)

Complete the test report for milk flowmeters using the information provided. Where any calculations are required to complete any parts of the test report, then complete the calculations so you can fully populate the test report form. **At the bottom of the form state whether the instrument has passed or failed, and given reasons for any failure.**

Scan the completed form and include it in your recognition kit.

Assume that ALL tests required to be completed for the INITIAL verification have been carried out and passed, where not described below and complete the form appropriately.

If you do not currently have a verifier number, use the verifier number VR-09999.

Device under test Temperature (°C)	Reference Temperature (°C)	Temperature Correction (°C)	Uncertainty (± °C)
+0.3 (ice point before)	0.0	-0.3	0.1
10.4	10.0	-0.4	0.1
20.4	20.0	-0.4	0.1
30.4	30.0	-0.4	0.1
40.4	40.0	-0.4	0.1
50.4	50.0	-0.4	0.1
+0.3 (ice point after)	0.0	-0.3	0.1

Verification carried out at Milkmaster Haulage Pty Ltd Fartown, Units 40-48, 567 Alhambra Rd, Fartown, VIC 3545 on 8 March 2021.

Contact person – Depot Manager Antonio Ribaldi

Instrument owned by Milkmaster Haulage Pty Ltd

Instrument verified – Diessel Model IZM-E DN50 G2 Milk Flowmetering System fitted to tanker registration - FFF 123

Instrument data:

Visual inspection: All components are as per certificate of approval and the instrument is in good condition, with no leaks.

Data plate markings:

Manufacturer's name or trademark – Flo-Gineering Pty Ltd

Meter Model - IZM-E DN50 G2

Serial number - 864578

Pattern approval number - NMI No 5/6E/13A

Maximum flow rate, Q_{max} - 700 L/min

Minimum flow rate, Q_{min} - 70 L/min

Minimum measured quantity, V_{min} – 200 L

Priming quantity - L

Approved for use with milk

Single data plate permanently attached to the indicator

No printer fitted.

Calculator/Indicator model Diessel Zevodat/M

Totaliser reading 1804061

Reference standard:

Inspectors' Class I Stainless Steel Standard of Volume, serial number 1056/98

Nominal volume 1498 L

Certificate number RN187395

Date of verification 14/5/2019

Certificate valid until 14/5/2020

Test results:

Maximum achievable flow rate 545 L/min

Runs at max. achievable flow rate:

Flowrate L/min	V_{RSM} L	V_{FS} L	T_{RSM} Observed °C
545	Priming run	1489	-
545	1498	1501	4.6
545	1498	1500	4.6
545	1498	1502	4.7

Run at min. achievable flow rate:

Flowrate L/min	V_{RSM}	V_{FS}	T_{RSM} Observed °C
286	1498	1505	4.8
284	1498	1504	4.8

Test report for milk flowmeters

Test report reference number Date of test

Type of test (tick one) ☐ Verification ☐ In-service inspection

For in-service inspection or reverification, record the verification mark

Name of owner/user

Address of owner/user

Name of contact person on premises

Address of instrument location

Description of instrument

Manufacturer Model

Serial number/s Certificate of Approval number(s)

Vehicle registration

Maximum flow rate L/min Minimum flow rate L/min

Reading of the non-resettable totaliser (if applicable)

Software version and indicator model in use (if applicable)

Details of the reference (clause 2)

Reference	
Make (if applicable)	
Model (if applicable)	
Serial number	
Description	
Reference certificate number (e.g. Regulation 13 certificate, etc)	
Certificate expiry date	

General characteristics (clause 3.2)	Yes, no or N/A
Does the instrument comply with its certificate(s) of approval?	
Is the instrument being used in an appropriate manner?	
Are all mandatory descriptive markings clearly and permanently marked on the data plate?	
If applicable, is the data plate fixed on the instrument?	
Is the instrument complete?	
Is the instrument clean?	
Is the instrument operational?	
Is the operation of the instrument free of any apparent obstructions?	
If applicable, is the instrument securely mounted on a firm and level base?	
Does the operator (and where applicable, the customer) have a clear and unobstructed view of the indicating device and the entire measuring process?	
If applicable, is the instrument adequately protected against abnormal dust, air movement, vibrations, atmospheric conditions and any other influence likely to affect its performance?	

Test results

	Priming Delivery	**Accuracy Q_{max} Run 1**	**Accuracy Q_{max} Run 2**	**Accuracy Q_{max} Run 3**	**Accuracy Q_{min} Run 4**	**Accuracy Q_{min} Run 5**
Flowrate L/min						
V_{FS}						
V_{RSM}						
T_{RSM} Observed (°C)						
T_{RSM} Corrected (°C) (Show to 3 decimal places)						
CTS_{RSM} (show to 6 decimal places)						
V_{RSM} (Litres) (Show to 2 decimal places)						
E_{FS} % (Show to 3 decimal places)						
$V_{FS, AV}$ (Primed) Average (Litres)						
Calculated Priming Quantity (Litres)						

Does instrument pass or fail these tests? ☐ Yes ☐ No

Comments

Workplace test reports and documents

In your workplace, you need to develop your skills by testing instruments in accordance with the national instrument test procedures, ideally under the supervision of an experienced, competent verifier. When completing tests, record all your results, the details of the instruments tested and the reference equipment used, in test reports as used in your workplace. Show any calculations you use during the process.

Wherever possible, include reports for testing different types of instruments, and non-compliant instruments, to demonstrate your knowledge of the requirements.

If you have access to an experienced verifier, ask them to sign each test report (and any printed documents) to indicate they have observed you test the instrument, in accordance with the relevant NITP, before scanning the reports you will submit.

For subclasses 5.1 and 5.3

You must provide **three (3)** test reports in total.

From the pool of reports you have produced, submit a minimum of **two (2**) **reports**, **with accompanying calculations**, representing your best work and demonstrating your understanding of the test procedures and processes required for **initial verification** of the instruments.

Indicate on the report where you would apply the verification mark to each instrument tested.

Be sure to include at least one (1) report for each subclass being assessed.

You must provide an additional report/s from the test/s you complete when doing your observation/video.

Scan the test reports and include them with your completed recognition kit, named as described in the instructions.

For subclass 5.2

From the pool of reports you have produced, submit **a minimum of one (1) report**, **with accompanying calculations** representing your best work and demonstrating your understanding of the test procedures and processes required for **initial verification** of the instruments. Indicate on the report where you would apply the verification mark to each instrument tested.

Be sure to include at least one (1) report for each test method being assessed.

You must provide an additional report/s from the test/s you complete when doing your observation.

Scan the test reports and include them with your completed recognition kit, named as described in the instructions.

For subclass 18.1

You must provide three (3) **test reports** in total, along with any documents printed during testing of these instruments. **Be sure that the format of your test report is based on the current example test report given in the NITP.**

From the pool of reports you have produced, submit a minimum of **two (2) reports**, **with accompanying calculations**, representing your best work and demonstrating your understanding of the test procedures and processes required for **initial verification** of consoles. **Include copies of any printed documents produced during testing for each console.**

Indicate on the report where you would apply the verification mark to each instrument tested.

You must provide a **third test report** from the test you complete when doing your observation/video.

Scan the test reports and printed documents and include them with your completed recognition kit; identified as described in the **instructions**.

Once you have completed all your written assessments and test reports, ask the relevant person/s to complete one or more of the following third party forms before emailing your whole kit and additional documents/videos to the NMI Administrator.

Third party report (experienced verifier)

Applicant:

Use this report ONLY if you hold the relevant statement/s of attainment for the skill set/unit of competency and subclass/es being assessed. For example, if you do not have a statement of attainment that includes 18.1, another verifier who holds the relevant statement of attainment should also complete a copy of this form, referring to that part of the kit.

Persons providing a report must have directly supervised the applicant during training and completion of the simulated verifications for which the applicant is providing test reports. If other verifiers have also supervised the applicant, ask each of them to complete an additional report.

You must complete all pages of this report, in particular, you must include written comments to support your responses in the checklist (other than where N/A). It is essential that you detail your observations of how the applicant ensured safety for self and others and how clearly and effectively the applicant communicated with clients/colleagues.

We thank you for your contribution. The applicant's assessor may need to contact you to clarify your responses, or to gain additional information.

Are you a verifier, or inspector of trade measurement? ☐ **Yes** ☐ **No**

Verifier/inspector number:

What subclass/es of instrument are indicated on the statement/s of attainment you hold (e.g. 5.1, 18.1)?

Have you verified instruments of these subclasses within the last 18 months? ☐ **Yes** ☐ **No**

State approximate numbers verified for each subclass:

Describe briefly your level of experience in testing and verifying instruments of the subclasses for which the applicant is being assessed. For example, how long have you been working with these instruments and in what ways (repairs, installation, verification).

During the last 12 months I have personally observed the applicant test the undermentioned instruments (including those detailed in the test reports I have signed), without assistance, and in accordance with the National Instrument Test Procedures, paying close attention to detail and accuracy, while correctly selecting, using and handling the appropriate reference standards/test equipment:

	Yes	No	If yes, number of instruments tested
5.1 Fuel dispensers used for petroleum products (other than LPG)	☐	☐	
5.2 Bulk flowmetering systems for liquid hydrocarbons – tested using a volume measure	☐	☐	
5.2 Bulk flowmetering systems for liquid hydrocarbons – tested using a master meter	☐	☐	

Third party report (experienced verifier)

	Yes	No	If yes, number of instruments tested
5.2 Bulk flowmetering systems for liquid hydrocarbons – tested gravimetrically	☐	☐	
5.3 Milk flowmetering systems	☐	☐	
18.1 Control systems for liquid- measuring systems (consoles)	☐	☐	
In addition, the applicant has demonstrated to me correctly, on at least two occasions (in a simulated environment), how a verification mark should be made and where it should be applied to instruments of this/these subclasses.	☐	☐	

Have you observed the applicant:	Yes	No	Not applicable or not able to comment
• liaise effectively with traders when organising site visits to ensure any assistance/equipment is provided, and to minimise impacts on traders, customers and employees – in accordance with company expectations?	☐	☐	☐
• explain verification procedures and outcomes clearly and effectively to traders, including respectfully communicating any inadequacies in the way traders use instruments?	☐	☐	☐
• correctly select, and ensure the suitability of, **reference standards/test equipment** for the specific task, as required by the relevant national instrument test procedures?	☐	☐	☐

Third party report (experienced verifier)

Have you observed the applicant:	Yes	No	Not applicable or not able to comment
• maintain the integrity of **reference standards/test equipment** during their storage, transport and use to ensure they are suitable for use?	☐	☐	☐
• identify, access and correctly interpret and apply certificates of approval and certificates of verification (e.g. Reg 13 or other appropriate certificates of verification of reference standards)?	☐	☐	☐
• identify, access and correctly interpret and apply relevant test procedures when testing instruments?	☐	☐	☐
• evaluate the impact of the **operating environment** on the performance of the **instrument/standards/test equipment** and make any adjustments to ensure there was no impact?	☐	☐	☐

Third party report (experienced verifier)

Have you observed the applicant:	Yes	No	Not applicable or not able to comment
• identify local hazards and apply appropriate safety precautions as relevant to the hazard/s, in accordance with local legislation and company procedures? Include in your comments: ○ how they ensure safety for self and others when testing instruments ○ examples of compliance with local induction requirements ○ how they establish access to first aid	☐	☐	☐
• correctly apply calculations to determine the verification result, as required by the national instrument test procedures?	☐	☐	☐
• correctly identify and apply the correct maximum permissible errors for each individual test, as determined by national trade measurement legislation and the national instrument test procedures?	☐	☐	☐

Third party report (experienced verifier)

Have you observed the applicant:	Yes	No	Not applicable or not able to comment
• analyse test results to determine whether an instrument could be marked for trade use, in accordance with the national instrument test procedures?	☐	☐	☐
• record, report and maintain test results and findings clearly, accurately, securely and in accordance with company policy?	☐	☐	☐
• correctly assess for compliance any **auxiliary** printing and indicating devices (non-POS) attached to measuring instruments?	☐	☐	☐
• solve routine or unexpected problems and seek advice, when required? Provide at least one example.	☐	☐	☐

Detail the approximate date range during which you have observed the applicant as detailed above:	**From:**	**To:**
The applicant has demonstrated oral and written language skills and numeracy skills to a standard expected for this role in our organisation.	**Yes** ☐	**No** ☐
Name of third party:	**Date:**	
Telephone number of third party		

Third party report (non-verifier)

(This form is only for use where the applicant has not been supervised/trained by an experienced verifier of instruments relating to this kit)

Applicant:

Use this form if you have worked with the applicant but do NOT hold statements of attainment for this skill set (and unit of competency, if applicable)/subclasses.

You must complete all pages of this report. In particular, you must include written comments to support your responses in the checklist, including details of how the applicant ensured safety for self and others and how clearly and effectively the applicant communicated with clients/colleagues. We thank you for your contribution. The applicant's assessor may need to contact you to clarify your responses, or to gain additional information.

Describe briefly your working relationship to the applicant and the types of work activities you have observed the applicant undertake:

Have you observed the applicant:	**Yes**	**No**	**Not applicable or not able to comment**
• liaise effectively with traders when organising site visits to ensure any assistance/equipment is provided, and to minimise impacts on traders, customers and employees – in accordance with company expectations? Provide at least one example.	☐	☐	☐
• communicate clearly, effectively and respectfully with clients and colleagues? Give at least two examples.	☐	☐	☐

Third party report (non-verifier)

Have you observed the applicant:	Yes	No	Not applicable or not able to comment
• identify local hazards and apply appropriate safety precautions as relevant to the hazard/s, in accordance with local legislation and company procedures? Include in your comments: ○ how they ensure safety for self and others when testing instruments ○ examples of compliance with local induction requirements ○ how they establish access to first aid	☐	☐	☐
• record, report and maintain test results and findings clearly, accurately and securely and in accordance with company policy?	☐	☐	☐
• solve routine or unexpected problems and seek advice, when required? Provide at least one example	☐	☐	☐

Detail the approximate date window during which you have observed the applicant as detailed above:	**From:**		**To:**	
The applicant has demonstrated oral and written language skills and numeracy skills to a standard expected for this role in our organisation.	**Yes**	☐	**No**	☐
Name of third party:		**Date:**		
Telephone number of third party:				

Record of assessor's conversation with third party (if required)

The assessor will speak to any third party/s where they have not provided sufficient confirmation of the performance of the applicant they have observed. This form will be used to record the outcomes of any conversation between the assessor and a third party.

Name/s of third party/ies

Assessor's name: **Date:**

Outcome of assessor's review of applicant's test reports/ printed documents

Applicant:

As part of your assessment, your assessor will use this form to record the accuracy of your submitted workplace documents.

Assessor: Use the check boxes to record if the documents have been completed/evaluated satisfactorily.

Instrument subclass/test method	Satisfactory	Unsatisfactory	Not applicable
5.1 Fuel dispensers used for petroleum products (other than LPG)	☐	☐	☐
5.2 Bulk flowmetering systems for liquid hydrocarbons – tested using a volume measure	☐	☐	☐
5.2 Bulk flowmetering systems for liquid hydrocarbons – tested using a master meter	☐	☐	☐
5.2 Bulk flowmetering systems for liquid hydrocarbons – tested gravimetrically	☐	☐	☐
5.3 Milk flowmetering systems	☐	☐	☐
18.1 Control systems for liquid- measuring systems (consoles)	☐	☐	☐

Please provide comments to support your findings on the submitted documents.
Where videos are provided, use the Skills observation report form for your comments:

Assessor's name: **Date:**

Record of conversation with the applicant (to be completed by the assessor)

Applicant:

As part of your assessment, you will have a conversation with your assessor who may ask questions to clarify your knowledge in the following areas. Your assessor will use this checklist to record your responses.

Assessor: Use the check boxes to record the competency areas where you have asked questions. **You need not ask questions for all areas**, particularly where satisfactory evidence of competence has already been provided. You should include a list of questions asked, with expected answers and responses given, in a separate Word document. Note each correct answer provided or detail any incorrect response.

	Satisfactory	Unsatisfactory	Not asked/not required
• Preparation, planning and communication with trader	☐	☐	☐
• Using and maintaining reference standards and/or test equipment	☐	☐	☐
• Certificates of approval	☐	☐	☐
• Operating environment	☐	☐	☐
• Work, health and safety including use of SDS/SWMS	☐	☐	☐
• Maximum permissible errors	☐	☐	☐
• Test procedures	☐	☐	☐
• Test points	☐	☐	☐
• Analysis of test results	☐	☐	☐
• Marking instruments and verification documentation	☐	☐	☐
• Auxiliary devices	☐	☐	☐
• Reporting test results	☐	☐	☐
• Inappropriate use of instruments by trader	☐	☐	☐
• Servicing licence documentation and procedures including maintaining confidentiality and security of data	☐	☐	☐

Applicant's ID checked at interview: ☐

Assessor's name: **Date:**

Skills observation report
to be completed by the assessor or an NMI-appointed skills observer (SO)

Name of applicant:

Skill set/unit of competency being assessed:

Subclass of instrument being observed:

Name of observer: **SO** ◯ **Assessor** ◯

Contact number for skills observer:

Applicant's photo ID viewed by observer ☐ **Type of ID viewed:**

Test report attached ☐

Time at observation site:

As part of your assessment, you will need to demonstrate completing a simulated initial verification of at least one instrument/measure in a real or simulated workplace environment. This is a requirement of the performance evidence you must demonstrate for this skill set/unit of competency. During the observation, you should complete a test report for each instrument/measure tested and provide a copy of this to the person completing the skills observation. See also the Instructions for observation assessments.

Your assessor, or an NMI-appointed skills observer, will observe you. They will contact you to discuss arrangements for this part of your assessment.

During the observation, the assessor/observer will use this checklist to record your skills in verifying measuring instruments/measures in accordance with legal requirements. They will also be noting how you:

- interact with businesses and their employees before, during and after completing testing
- assess and manage safety during the task
- store, use and handle any reference standards or equipment used (where applicable)
- consider any real or potential environmental impacts on the instrument/measure under test (and the standards and equipment used in testing) and take any necessary steps to account for any impacts
- identify, access and interpret relevant documentation
- record, analyse and report the findings of testing
- communicate the results of testing and any other factors relevant to the usage of instruments/measures
- identify the location for, and simulate the application of, a verification mark

For subclasses 6.1-6.3 and some simple measures/measuring instruments, you may be invited to complete the observation in the trade measurement office in your local city.

For skills observations for other instrument/measure types, or where you do not live in a major city, we will ask you to arrange a site local to you, where a suitable instrument/measure is available. We will contact you with further instructions.

Skills observation report
to be completed by the assessor or an NMI-appointed skills observer (SO)

Observer: Use the check boxes to record your conclusions regarding each of the specific items detailed in the following list, where applicable. You must record additional notes and comments that are relevant to, and support, your conclusions, under each item. Essentially, you should describe what you have observed that supports the finding you have checked (what the applicant did).

NOTE: Items 2, 3, 4, 5, 6 and 9 not applicable for subclasses 18.1 and 18.2.

(Use one form per instrument observed)

I have observed the applicant complete a simulated verification test on the following instrument/measure and simulate applying a verification mark: (Include details of instrument/measure tested, reference standards/equipment used and dates/locations):

Did the applicant:	Yes	No	Not applicable
1. liaise and communicate effectively with the trader prior to, during and after testing to ensure verification testing was carried out safely and with minimal disruption to the trader's business?	○	○	○
2. select and validate the suitability of reference standards/equipment for the specific verification task?	○	○	○

Name of assessor/SO: **Date:**

Skills observation report
to be completed by the assessor or an NMI-appointed skills observer (SO)

Did the applicant:	Yes	No	Not applicable
3. determine whether reference standards/equipment were suitable for use for the verification task/not defective?	○	○	○
4. maintain the integrity of reference standards/equipment during their transport, storage and use?	○	○	○
5. use the reference standards/equipment in the correct manner?	○	○	○

Name of assessor/SO: **Date:**

Skills observation report
to be completed by the assessor or an NMI-appointed skills observer (SO)

Did the applicant:	Yes	No	Not applicable
6. evaluate and (where required) adjust the impact of the operating environment on the performance of the standards/equipment?	○	○	○
7. evaluate and (where required) adjust the impact of the operating environment on the performance of the instrument/measure?	○	○	○
8. apply appropriate safety precautions and conduct testing safely?	○	○	○

Name of assessor/SO: **Date:**

Skills observation report
to be completed by the assessor or an NMI-appointed skills observer (SO)

Did the applicant:	Yes	No	Not applicable
9. identify, access, interpret and apply certificates of verification for reference standards/equipment?	○	○	○
10. identify, access, interpret and apply certificates of approval?	○	○	○
11. identify, access, interpret and apply relevant test procedures?	○	○	○

Name of assessor/SO: **Date:**

Skills observation report
to be completed by the assessor or an NMI-appointed skills observer (SO)

Did the applicant:	Yes	No	Not applicable
12. use specified calculations to determine the performance result?	○	○	○
13. apply appropriate maximum permissible errors?	○	○	○
14. analyse test results to determine whether the measure could be marked for trade use?	○	○	○

Name of assessor/SO: **Date:**

Skills observation report
to be completed by the assessor or an NMI-appointed skills observer (SO)

Did the applicant:	Yes	No	Not applicable
15. report results and findings clearly and accurately?	○	○	○
16. demonstrate how to apply the verification mark?	○	○	○
17. identify and communicate any inadequacies in trader's use of the instrument/measure?	○	○	○

Name of assessor/SO: **Date:**