



TECHNICAL ASSESSORS' NEWS

CHANGES TO ASBESTOS TESTING



Loose fill blue asbestos insulation material (photo: UK Health and Safety Executive)

In February this year NATA issued Information Paper 11 - Asbestos testing: change in assessment focus which explained the changes in NATA's assessment of asbestos laboratories and the rationale behind this change.

The primary change is that NATA will no longer be involved in the granting of approval to individual counters and identifiers. NATA will be assessing the laboratory in total and not focusing on how a subset of the individuals in the laboratory operates.

NATA is not taking less responsibility for

asbestos laboratory accreditation.

We remain responsible for our accreditation activities and especially the level of technical rigour that is applied by the peer based assessment process. Under this change the laboratory is responsible for the granting of approval to counters and identifiers. NATA's role is to assess how this activity is conducted.

The Information Paper also explains how Proficiency Testing fits into the assessment of a laboratory and how NATA will be using the information gained from these programs.

CMT TECHNICAL ASSESSOR GUIDANCE

INTRODUCTION

General guidelines regarding the role of the Technical Assessor and NATA Lead Assessor are included in NATA's Assessor Resource Kit (ARK), which has been provided to each Technical Assessor and is maintained on NATA's web site. Some additional material has been prepared specifically for CMT Technical Assessors in fulfilling their role in determining the competency of CMT facilities. This information is being published in instalments within the Technical Assessor Newsletter. This is the third such instalment and deals with the following topics:

- Assessment plans
- Test Methods
- Technical records and test reports

Feedback from Assessors on these guidelines is welcome and may be forwarded to Brett Hyland, Sector Manager Infrastructure: brett.hyland@nata.com.au

ASSESSMENT PLANS

Assessment teams need to be satisfied with the competency of the organisation and we need to ensure that we are allowing adequate time to achieve this. At the same time, we want a framework that will assist us in avoiding any duplication of assessment effort, where there are overlapping competency elements across different tests. Establishing a plan for witnessing the performance of testing is important so that suitable samples are available before the assessment.

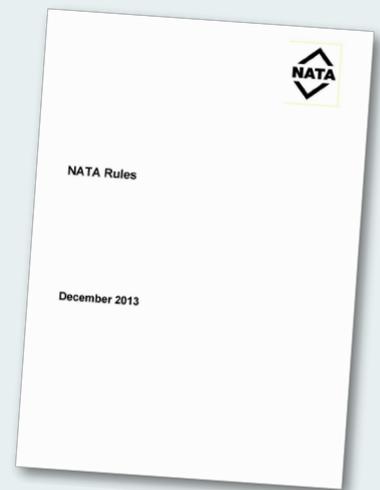
The proposed hierarchy shown below should help in framing the required extent of NATA assessment effort, as well as the breadth of quality assurance activities that are expected.

Product category – Class of test

Competency area – sub-class of test

Specific skill set – standard test descriptors

A proposed assessment plan will be discussed by the Lead Assessor prior to the visit with the facility and should be reviewed by the technical assessor to ensure the coverage is appropriate.



NEW VERSION OF NATA RULES PUBLISHED

Following the adoption of changes to NATA's constitution at the October 2013 annual general meeting of members, and approval of corresponding changes to the Regulations and Schedules by NATA's Board of Directors, the NATA Rules have been revised and published.

As advised to members earlier this year, the main changes made are:

- Discontinuation of associate membership and honorary membership;
- Discontinuation of multi-party accreditation;
- Discontinuation of State Committees;
- Expansion of the obligations of accredited facilities to include maintaining the health, welfare and safety of NATA personnel and assessment teams;
- The creation of a sixth schedule to document accreditation periods for each program; and
- Removal of all references to personal accreditation following the cessation of this program in 2012.

To view the latest version of the NATA Rules **click here**. For details on amendments made, please refer to the Amendment Sheet by **clicking here**.

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CMT TECHNICAL ASSESSOR GUIDANCE (cont)

As detailed in Information Paper #8, there should be at least one test performed for each competency area. This test should preferably be a different test to the one performed at the last RES.

Additionally, each specific skill set must be taken into consideration by the assessment team but it is up to the Technical Assessor to judge how deep the team needs to go in order to establish competency (i.e. the level of detail required for discussion and/or performance of additional tests) and this will depend to a great extent on the amount of overlap between the various skill sets. Test reports, results of QAA, differences in SRA methods vs AS, significance of results and feasibility must all be considered, in conjunction with the L4/L5 discussions in the context of establishing competency.

There are a few exceptional subclasses that cover more than one distinct competencies, most notably, soil classification tests (2.18.11) for which more than one test will normally need to be demonstrated to properly assess distinct competencies such as liquid limit, sieve analysis, dispersion and soil classification. The Technical Assessor needs to be assured that the facility is competent over the whole range of these tests. The same would apply for asphalt mechanical and volumetric properties (2.19.20, .30), where the assessor needs to ensure the competence over the whole range of such properties.

There will also be some competency elements which overlap across different competency areas, or even across different product categories, e.g. moisture content and sieve analysis are covered in asphalt, aggregate and soils.

Generally Technical Assessors have an approach that they like to follow, and that is actually the unique thing about the assessment process. The assessment should be guided by the structure and also from what the individual TA brings to the table. The assessment planning approach is designed to ensure adequate minimum coverage without adding too much prescription for the Technical Assessor.

TEST METHODS

Witnessing of tests at an assessment should be in accordance with the Assessment Plan (refer previous section) as far as possible.

Copies of the methods should be available to the technical assessor for referral, particularly during witnessing of testing. The Technical Assessor is to note the clause numbers within any methods for which non-conformances are observed and record this on the assessor record sheet, together with the method number.

Australian Standards, International and State Road Agency methods generally do not require

validation. However, they do require verification. If a variation to the method is followed, this must be documented and validated and the procedure followed must be unambiguously reported. Some methods, such as AS 1289 6.4.1, 6.6.1, may permit various alternative equipment and parameters and an in-house method may be needed to document the facility's approach (in such cases the test reports must identify the in-house method). Estimates of uncertainty of measurement will also be required where applicable.

If a method has not been listed on NATA's website or a State Road Agency website as meeting the requirements of Note 2 of Clause 5.4.6.2 relating to measurement uncertainty, the facility may consider alternative strategies:



(photo: O'Neill Service Group)

- Review the method in relation to the author, specification of equipment, processes and reporting requirement in relation to the details in Note 2 and deem that the method meets Note 2.
- Perform an estimate of the uncertainty of measurement using a method such as that shown on NATA's web site for MU for CMT.
- Other appropriate method for estimating uncertainty of measurement such as precision statements in methods, e.g. ASTM, or perform repeatability measurements.

In any of the above cases, the Technical Assessor must review the facility's approach in order to determine its adequacy.

Some facilities will use spread sheets which also

need to be validated by the facility and records kept. This validation should be done each time the spread sheet template is changed or the version of the spread sheet software is changed. If this is managed centrally, ie, for organisations with multiple accredited sites, the lead assessor may be able to advise how this validation has been reviewed at other sites and whether any new editions of the software have been issued.

TECHNICAL RECORDS AND TEST REPORTS

Technical Records

Technical records cover equipment checks and calibrations as well as the records for tests performed. The lead assessor can assist by checking that the facility has established a procedure for identification, maintenance and indexing of records but the Technical Assessor will need to look at completed records/worksheets to see that all the information required by the test method has been included, appropriate calculations have been made and checked.

Test records must be sufficient to enable the test to be repeated under conditions as close to the original as possible. Therefore, when there are multiple pieces of equipment that could be used, the equipment needs to be included on the worksheet, e.g. balances. If an additional test is to be added to the scope of accreditation, the Technical Assessor needs to check that the proposed recording system covers all the data required, the correct units are being used and during the performance of the test and operators are recording the correct data.

If corrections have been made to data shown on worksheets, the Technical Assessor can ensure that the correction has been crossed out, the original record not obliterated and then initialled and dated by the operator. However, some facilities use direct data entry and do not use hard copy worksheets and in some cases the equipment itself directly acquires the data. If corrections have been made to direct entry data, or computer records, an audit trail should be available to show what correction has been made, by whom and the time and date. A reputable Laboratory Management Information System should provide the audit trail. It is important that the operators are identified and that corrections can only be made by an approved person.

The Lead Assessor may also assist the technical assessor by checking that calculation and data transfers are subjected to appropriate checks in a systematic manner, although this should be confirmed by the Technical Assessor in regard to the particular records sighted. The Lead Assessor will also normally check that the procedure for backing up and protecting data is sufficiently detailed and followed, but may seek advice from the Technical Assessor in regard to adequacy or integrity of the process.

ELECTRONIC DEVICES CLEARED FOR TAKEOFF

Airline passengers in the United States will soon be able to read downloaded material on their smartphones and other portable electronic devices below 10,000 feet, under a new Federal Aviation Administration (FAA) rule announced 31 October, 2013.

The Consumer Electronics Association announced its support for the FAA committee recommendation that passengers generally be allowed to use typical lightweight electronic devices at all altitudes of flight on

airplanes hardened against radio interference.

It's been acknowledged for some time that mobile phones emit radio signals that have the potential to interfere with other electronic devices if they are not properly shielded.

When interviewed about the FAA's recommendation Electromagnetic safety consultant and NATA Technical Assessor, Dr Vitas Anderson, said that mobile phones transmitted signals via radio waves which were altered



Dr Vitas Anderson, Two Fields Consulting

ELECTRONIC DEVICES CLEARED FOR TAKEOFF (cont)

or “modulated” with different amplitude, phase or frequency to carry speech or digital data.

In some mobile phones, the radio signal modulation made it a significant source of interference for components of electronic devices, Dr Anderson told the Sydney Morning Herald’s Nicky Phillips:

“The thing they’re worried about on planes is interference with navigation systems between take-off and landing, and when you are landing 50-tonnes of metal onto a runway you really don’t want anything interfering,” Dr Anderson said.

In hospitals, Dr Anderson said, there is a small potential for mobiles to disrupt insulation pumps, monitoring equipment

and implanted devices like pacemakers and defibrillators.

But most electronic devices, including medical equipment and avionics, had to comply with design standards to ensure they were shielded from radio interference, he added.

DR VITAS ANDERSON

Dr Vitas Anderson is a consultant and researcher in the safety of human exposure to electromagnetic fields (EMF), an area he has pursued since 1989.

A NATA Technical Assessor since 2004, he is an Honorary Principal Fellow with the University of Wollongong and an Associated Investigator with the Australian Centre for Electromagnetic Bioeffects Research (ACEBR).

Dr Anderson was educated in engineering and the medical sciences at the University of Melbourne and was awarded his PhD in biophysics at Swinburne University in 2001.

His main area of expertise has been in the dosimetry (i.e. numerical modelling or measurement) of electromagnetic and thermal fields in the human body.

Dr Anderson has contributed extensively to the practical and technical aspects of managing safe exposure to radiofrequency (RF) and powerline electromagnetic fields (EMF).

He actively participates in standards committees and accreditation bodies for EMF safety and assessment both nationally and internationally and is also an expert advisor to major industry and government bodies.

MAJOR UPDATE TO NATA TECHNICAL NOTE 13

NATA’s technical note covering user checks and maintenance of laboratory balances has received a major update in response to correspondence from our members expressing concerns with the method for conducting the monthly single point check.

Today’s precision laboratory balances are generally the electronic type, have an internal check mass and advanced software that assists in providing good stability of measurements over time. However even with these advances, most manufacturers will still recommend recalibration intervals of 12 months. **Technical Note 13** suggests the recalibration interval may be extended (guidance intervals are provided in NATA’s publication **General Equipment - Calibration and Checks**) by providing information on performing a robust and valid method for a monthly single point user check.

However feedback from our members has highlighted a number of issues in the single point check method previously described in the Technical Note, including;

- the uncertainty of the balance calibrator’s mass not being taken into account;
- a user assigned mass has no uncertainty determination; and
- the uncertainty of the monthly check mass (calibrated externally or user defined) is not being taken into account.

Addressing these issues, the method for conducting a single point monthly check has now been amended to take into account these uncertainties.

At the same time, an equivalent amount of feedback has been received by other members requesting assistance with their understanding and application of the user check methods. The differences in the feedback highlights the diversity of testing activities amongst NATA’s members and the difficulty in producing a Technical Note that is fit for purpose for all applications. Thus a second method for user checks of balances has been included with this revision where in place of the precision method for monthly user checks, laboratories may instead perform a single point user check daily or before use, comparing any variation from their calibrated check mass to their own action limit or



Laboratory balances vary considerably in construction (photo - Advanced Technocracy Inc.)

error allowance. By performing the single point check to this method, it is recommended the recalibration interval be 12 months.

To ensure the value associated with the single point user check mass is suitable for use, these masses must be calibrated and the uncertainty of measurement reported on the calibration certificate compared to the repeatability of the balance being checked.

How to calculate a minimum mass has also been added to the Technical Note as guidance on what the minimum mass value is appropriate for each balance to measure.

Plus acknowledging the advances in technology of design of weighing devices mentioned above, guidance has been included for verification checks to be conducted after a balance has been moved. These verification measurements maybe performed in place of a full recalibration after a balance is relocated.

POLICY CIRCULAR 7 – NATA PRIVACY POLICY UPDATED

Policy Circular 7 - NATA Privacy Policy has been recently updated on the website. The document can be downloaded from the ‘Accreditation Publications’ section of our website:

Accreditation Publications > General Information about NATA > **Policy Circular 7 - NATA Privacy Policy**



ASSESSOR DEVELOPMENT PROGRAM (ADP)

In 2013, the ADP content was reviewed and then amended to better represent the way the Technical Assessor interacts with the NATA Lead assessor within the assessment team.

The first of these refreshed courses has been presented recently in Sydney and all future courses will be run to this new format..

The on-line ADP will be also revised to bring it in line with the new ADP content.

This may be a good time for you to consider a revisit to the ADP. The 2014 dates and locations for these courses are:



TADP.304	Newcastle	12 May 2014
TADP.302	Brisbane	29 April 2014
TADP.303	Sydney	5 May 2014
TADP.305	Melbourne	5 June 2014
TADP.306	Darwin	7 July 2014
TADP.307	Launceston	21 July 2014
TADP.308	Brisbane	28 July 2014
TADP.309	Sydney	21 August 2014
TADP.310	Melbourne	25 August 2014
TADP.311	Adelaide	25 September 2014
TADP.312	Sydney	27 October 2014
TADP.313	Perth	7 November 2014
TADP.314	Melbourne	13 November 2014

More information about the ADP can be found on the NATA website at:

<http://www.nata.com.au/index.php/assessor-development-programs/adp-schedule>

If you have any queries regarding these courses please contact Glenn Biollo in the NATA Sydney office – (02) 9736 8222.

CONTRIBUTIONS WELCOME

This is a great place to share some of all that experience you've gained, whether it's from working in the laboratory or while conducting assessments.

Stories, technical articles, photos, jokes – all contributions from our Technical Assessors are welcome.

Send them via email to: corpcomm@nata.com.au or to: NATA Communications, PO Box 7507, Silverwater NSW 2128.

WE'D LIKE YOUR THOUGHTS ON 'TECHNICAL ASSESSORS' NEWS'

Are the contents interesting? Do you feel it's relevant to your role as a Technical Assessor? How many issues would you like to receive each year? And anything else you'd like to tell us.

Please send your response to us via email at corpcomm@nata.com.au

REGULATION 13 CERTIFICATES AND THEIR ROLE IN ACHIEVING LEGAL (AND METROLOGICAL) TRACEABILITY IN NATA ACCREDITED FACILITIES

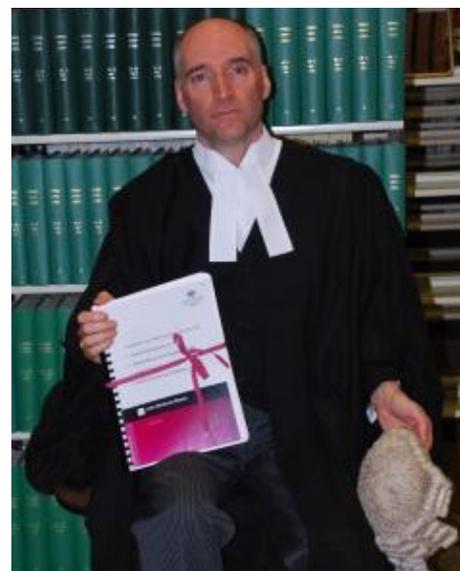
Introduction

Previously in *NATA Technical Assessors News*¹ the key features of legal traceability were identified and explained. Its relationship to metrological traceability², when it is necessary, and its place and role in NATA accredited facilities were outlined. Means of achieving legal traceability were also considered. The *reference standards of measurement*³ referred to in that article are one of the principal means of achieving legal traceability amongst the multiple legal traceability pathways provided in the *National Measurement Act 1960* (Cth)⁴. They are also a means of achieving metrological traceability⁵ and satisfying the traceability requirements of AS ISO/IEC 17025⁶ in NATA

accredited facilities. This paper provides further details of the documentation associated with *reference standards of measurement* i.e. certificates issued under regulation 13 of the *National Measurement Regulations 1999* (Cth) and their role in demonstrating legal (and metrological) traceability in NATA accredited facilities. It also discusses the nature and purpose of deemed standards which may also be issued with regulation 13 certificates.

What is a regulation 13 certificate?

A regulation 13 certificate is similar in some ways to a measurement report but takes the form of a certificate⁷ which is a legal instrument (i.e. a document with legal



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Dr Richard Brittain LLB

LEGAL TRACEABILITY – THE FREQUENTLY ASKED QUESTIONS (cont)

standing and/or effect). They are issued by verifying authorities appointed under the *National Measurement Regulations 1999* (Cth). Verifying authorities for **reference standards of measurement** are one of the three types of legal metrology authorities⁸ appointed by the National Measurement Institute's (NMI) Chief Metrologist⁹ under the national measurement legislation. This function is exercised within the object of coordinating the national measurement system¹⁰ as required by the *National Measurement Act 1960* (Cth). Regulation 13 certificates relate to the calibration of a physical **standard of measurement**¹¹ and bestow upon a **standard of measurement** the status of **reference standard of measurement**. A regulation 13 certificate has evidential status in any court of law in Australia¹². It is evidence of the matters stated in it and has presumptions associated with it that cover the issue, signature and signatory such that these are taken to be bona fide unless the contrary is established. Additionally a regulation 13 certificate describes the calibration (or verification) of a **reference standard of measurement** and contains information or data pertaining to that standard. In short it is a means of putting what scientists know as data into what lawyers know as evidence. The standard itself must of course embody one of a limited number of possible physical quantities¹³ and typically a **standard of measurement** takes a form that may include: weights, rules and tapes and volume measures that are used to promulgate values of physical quantities and check the calibration and/or accuracy of measuring instruments. They may also take the form of electrical or electronic standards such as frequency, voltage, resistance and energy standards.

Forms of regulation 13 certificates

A regulation 13 certificate may itself contain the complete information or data relating to the verification of a standard, but alternatively, it may be attached or appended to a measurement report or NATA report for a **standard of measurement** and refer to the measurement information

and/or data contained in that report. It is also possible to produce what is effectively a combined regulation 13 certificate and NATA report when a verifying authority with appropriate scope of accreditation by NATA puts the NATA endorsement on a regulation 13 certificate that it issues. For **standard(s) of measurement** generally, and intermediate level standards within the standards hierarchy provided by the national measurement legislation¹⁴, the reported information or data typically consists of calibration values for the standard and the associated uncertainties. These standards include State secondary standards of measurement. For lower level standards such as those used for routine checking of measuring instruments used for trade, the information is typically limited to the deemed nominal value and confirmation that the standard is within the maximum variation around the nominal value and uncertainty permitted for the class and denomination of the standard¹⁵ (see also below Deemed standards).

The need for a regulation 13 certificate

As stated previously in *NATA Technical Assessors News*¹⁶ metrological traceability is achieved when the value of a standard can be related to a high level national standard through an unbroken chain of comparisons all having known and appropriate uncertainties. Legal traceability is achieved only when the traceability of the value of the standard has been effected using an appropriate method from those listed in section 10 of the *National Measurement Act 1960* (Cth), and a certificate of verification has been issued. It is appropriate to ensure legal traceability in the event that the reliability of measurements may need to be demonstrated in legal situations such as contractual arrangements, government regulations or where the sale price of goods is determined according to measurement of quantity or quality (unit price).

The principal function of a regulation 13 certificate is to provide evidence (in the legal sense) of traceability through Australian national standards of measurement to

Australian legal units of measurement. Legal traceability is not needed for general scientific metrology where metrological traceability is sufficient¹⁷. This means that for most NATA accredited facilities regulation 13 certificates are not necessary. However, should they be deployed in such circumstances NATA Assessors may accept them as evidence of traceability as required by AS ISO/IEC 17025¹⁸.

Obtaining a regulation 13 certificate

Regulation 13 certificates can only be obtained from laboratories appointed as verifying authorities for verifying reference standards of measurement. Generally these verifying authorities are NATA accredited facilities that also need to comply with the traceability requirements of AS ISO/IEC 17025¹⁹. Advice and information on regulations 13 certificates is available from verifying authorities or from the NMI Legal Metrology Section. The NMI website www.measurement.gov.au provides information on legal metrology in general and a list of verifying authorities and the range of standards that they may verify.

Comparison of regulation 13 certificates with other calibration reports

Table 1 below provides a summary of the key features of regulation 13 certificates in comparison to NATA endorsed reports and un-endorsed reports. This table highlights the fact that the fundamental difference between regulation 13 certificates and other measurement reports is their legal traceability and evidential status. Regulation 13 certificates have a legal status throughout Australia over and above the requirements of AS ISO/IEC 17025²⁰ and consequently can be accepted by NATA as demonstrating measurement traceability. Legal traceability may be considered to be a special case of metrological traceability that is recognised at law²¹.

Further information on regulation 13 certificates

A regulation 13 certificate may be issued for any suitable **standard of measurement**, making it a **reference**

Certificate/ report type	Attests to appropriate metrological traceability?	Complies with NATA's traceability requirements?	Provides legal traceability and has evidential status under national measurement legislation?	Standards may be used to verify or certify instruments used for legal purposes including trade
Regulation 13 certificate	+	+	+	+
NATA endorsed report	+#	+	*	*
Un-endorsed report	*	*	*	*

+ Yes * No # Endorsement must state traceability to Australian standards

Table 1 - A summary of the key features of regulation 13 certificates in comparison to NATA endorsed reports and un-endorsed reports

LEGAL TRACEABILITY – THE FREQUENTLY ASKED QUESTIONS (cont)

standard of measurement, regardless of its denomination and whether or not it is described in the schedules of the *National Measurement Regulations 1999* (Cth)²². A *reference standard of measurement* is a standard that has been verified in accordance with the relevant regulations in the *National Measurement Regulations 1999* (Cth)²³ and for which a current certificate of verification exists²⁴. Regulation 13 certificates cannot be issued retrospectively and cannot be issued on an Australian primary standard of measurement or an *Australian secondary standard of measurement, a State primary standard of measurement or a recognized value standard of measurement*.

The term “value” in a regulation 13 certificate²⁵ indicates the quantity that the standard has been determined to represent. “Actual value” is a term sometimes used to describe the quantity measured or determined. “Nominal value” is the quantity indicated by the denomination of the standard. “Deemed equal to its denomination” refers exclusively to Inspectors’ class standards²⁶ and means that the measured value of the standard is equal to its nominal value within the relevant limits (maximum permissible variation) specified in the schedules of the *National Measurement Regulations 1999* (Cth)²⁷ and that this has been determined with an uncertainty of measurement no greater than the relevant corresponding limits (maximum permissible uncertainty) specified in those schedules²⁸.

The values for maximum permissible uncertainty given in the schedules²⁹ are for expanded uncertainties of measurement having a level of confidence of 95%. Uncertainties of measurement relating to results given in regulation 13 certificates are estimated in accordance with the principles in the *JCGM 100: 2008 - Evaluation of measurement data - Guide to the expression of uncertainty in measurement* and reported as expanded uncertainties at a level of confidence of 95%.

Deemed standards

Inspectors’ class standards³⁰ are generally used for testing and verifying measuring instruments such as weighing scales and fuel dispensers used for trade and because of the tight metrological controls in place for these instruments there is no requirement to estimate the associated uncertainties. If however an Inspectors’ class standard is used for an atypical function that requires an uncertainty to be estimated, then it is possible to use the measured value and its associated expanded uncertainty if they have been reported. Alternatively, the deemed value of the standard rather than the measured value may be used and the uncertainty is then estimated from the combined values of the maximum permissible variation and maximum permissible uncertainty given in the schedules of the *National Measurement Regulations 1999* (Cth)³¹. In this scenario the uncertainty of the value of the standard may be considered to be the semi-range of a rectangular distribution that approximates the dispersion of possible values for the standard (i.e. the maximum permissible variation) combined appropriately with the maximum permissible uncertainty prescribed for the standard.

Powers of verifying authorities and regulation 13 certificates

The verification of a *reference standard of measurement* by a verifying authority is on application³² and a verifying authority may choose not to verify a “standard” that does not satisfy all criteria relevant to defining it as a *standard of measurement*. A verifying authority also has the discretion to grant relatively short verification periods if there is doubt as to the longer term stability or maintenance of the value of the standard. Once a verifying author has verified a *reference standard of measurement* a regulation 13 certificate must be issued. Under certain circumstances, a verifying authority may choose to issue a calibration report with no associated regulation 13 certificate. Unless the verifying authority is accredited by NATA

to perform the calibration and the report carries a NATA endorsement, these reports do not demonstrate an adequate level of traceability to be accepted within the NATA system. These reports have no legal status under Australian national measurement legislation and are not evidential certificates. However, documents issued by a State or Territory authority may have a legal status in the State or Territory in which it is issued provided that they are not inconsistent with the requirements of the national measurement legislation.

Conclusion

Regulation 13 certificates³³ provide evidence of the legal³⁴ (and metrological³⁵) traceability of *reference standards of measurement*³⁶. They may be issued by verifying authorities³⁷ appointed by the NMI’s Chief Metrologist acting under of the *National Measurement Regulations 1999* (Cth) and must contain the information required by those regulations to be valid³⁹. All *reference standards of measurement* have a regulation 13 certificate associated with them and it is not possible for these to have the required legal traceability without also having metrological traceability. Therefore they are an acceptable means of complying with the traceability requirements of AS 17025⁴⁰ in NATA accredited facilities. Regulation 13 certificates may also be issued for certain types of *standards of measurement* that are deemed equal to their denomination under conditions prescribed in the *National Measurement Regulations 1999* (Cth)⁴¹. These deemed standards are of three classes⁴² and are specifically intended for use to calibrate measuring instruments of corresponding classes that are in use for trade measurement and provide legal traceability to the calibration (verification) of these measuring instruments. The basis for this is that their permitted variation about their nominal value and uncertainty may be regarded as negligible relative to the accuracy of the measuring instruments that they are used to calibrate (or verify). Deemed standards are generally Not an appropriate means of promulgating traceability any further along a calibration chain.

1 Legal Traceability – the Frequently Asked Questions NATA Technical Assessors News issues 4, November 2013.

2 BIPM JCGM 200:2012 International vocabulary of metrology – Basic and general concepts and associated terms (VIM) 3rd edition clause 2.41.

3 National Measurement Act 1960 (Cth) s 3(1) definition of ‘reference standard of measurement’.

4 National Measurement Act 1960 (Cth) s 10.

5 BIPM JCGM 200:2012 International vocabulary of metrology – Basic and general concepts and associated terms (VIM) 3rd edition clause 2.41.

6 AS ISO/IEC 17025 – 2005 General requirements for the competence of testing and calibration laboratories clause 5.6.3.1.

7 National Measurement Regulations 1999 (Cth) r 3 definition of ‘certificate’.

8 Approving, certifying and verifying authorities.

9 National Measurement Regulations 1999 (Cth) r 73.

10 National Measurement Act 1960 (Cth) para 4(1)(c).

11 National Measurement Act 1960 (Cth) s 3(1) definition of ‘standard of measurement’.

12 National Measurement Regulations 1999 (Cth) r 90.

13 National Measurement Guidelines 1999 (Cth) s 5.

14 National Measurement Act 1960 (Cth);

National Measurement Regulations 1999 (Cth);

National Measurement Guidelines 1999 (Cth).

National Measurement Regulations 1999 (Cth) regs 30 to 34;

16 Legal Traceability – the Frequently Asked Questions NATA Technical Assessors News issues 4, November 2013.

17 BIPM JCGM 200:2012 International vocabulary of metrology – Basic and general concepts and associated terms (VIM) 3rd edition clause 2.41.

18 AS ISO/IEC 17025 – 2005 General requirements for the competence of testing and calibration laboratories clause 5.6.3.1.

19 AS ISO/IEC 17025 – 2005 General requirements for the competence of testing and calibration laboratories clause 5.6.3.1.

20 AS ISO/IEC 17025 – 2005 General requirements for the competence of testing and calibration laboratories clause 5.6.3.1.

21 National Measurement Regulations 1999 (Cth) r 90.

22 National Measurement Regulations 1999 (Cth) sch 4 to 10.

23 National Measurement Regulations 1999 (Cth) r 13, 30 to 34.

24 National Measurement Act 1960 (Cth) s 3(1) interpretation of ‘reference standard of measurement’.

25 National Measurement Regulations 1999 (Cth) para 19(1)(d).

26 National Measurement Regulations 1999 (Cth) sch 7 to 10.

27 National Measurement Regulations 1999 (Cth) sch 7 to 10.

28 Ibid.

29 National Measurement Regulations 1999 (Cth) sch 4 to 10.

30 National Measurement Regulations 1999 (Cth) r 3 definition of ‘Inspectors Class Standard’, ‘Inspectors Class 2 Standard’ and ‘Inspectors Class 3 Standard’.

31 National Measurement Regulations 1999 (Cth) sch 7 to 10.

32 National Measurement Regulations 1999 (Cth) r 12.

33 National Measurement Regulations 1999 (Cth) r 13.

34 National Measurement Act 1960 (Cth) s 10; and National Measurement Regulations 1999 (Cth) r 90.

35 BIPM JCGM 200:2012 International vocabulary of metrology – Basic and general concepts and associated terms (VIM) 3rd edition clause 2.41.

36 National Measurement Act 1960 (Cth) s 3(1) definition of ‘reference standard of measurement’.

37 National Measurement Act 1960 (Cth) s 3(1) definition of ‘verifying authority’.

38 National Measurement Regulations 1999 (Cth) r 73.

39 National Measurement Regulations 1999 (Cth) r 19.

40 AS ISO/IEC 17025 – 2005 General requirements for the competence of testing and calibration laboratories clause 5.6.3.1.

41 National Measurement Regulations 1999 (Cth) r 30 to 34.

42 National Measurement Regulations 1999 (Cth) sch 7 to 10.