HK CALIBRATION TECHNOLOGIES PTY LTD

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1. Difference between a NATA certified calibration and a traceable calibration:

- A NATA certified calibration will include the following as required by 1S0 17025-2005 which all NATA laboratories are accredited to.
  - All uncertainties of the measurements performed are reported within the NATA calibration report that is normally received by you.
  - These uncertainties of measurement (UOM) are reported within the NATA calibration report for the following two reasons: These UOM's calculations are used in a calculation only if the instrument is used to calibrate another instrument ie. if the instrument is used as a transfer standard to calibrate another instrument AND A NATA calibration report will show details of the reference instrument used which shows the calibration's traceability to Australian National Standards as required by ISO 17025-2005.

2. Traceable Calibrations:

- When a calibration is performed on an instrument that is used for **indication purposes only** similar to a pressure gauge, a micrometer or thermometer, the reporting of the uncertainty of measurement of the instrument renders itself worthless as its never used in further measurements as a reference standard.
- The most important aspect of a traceable calibration is the reporting of the status of the reference standard used to calibrate the instrument. The reference standard used has to have a current calibration status and provide traceability to a National or International Standard through an unbroken chain of calibrations. Refer to ILAC's view of this :- The ISO 9001-2008 section 7.3 doesn't mention NATA but does directs you to ensure that there is traceability of the calibration to a National or International Standard. This exactly what HK Calibrations provides you in order for you to be compliant to the ISO 9001-2008 standard that you are accredited to.

3. Traceability

- The abbreviated term "traceability" is sometimes used to mean metrological traceability as well as other concepts, such as 'sample traceability' or 'document traceability' or 'instrument traceability' or 'material traceability', where the history ("trace") of an item is meant. Therefore, the full term of "metrological traceability" is preferred if there is any risk of confusion.
- "43: The ILAC considers the elements for confirming metrological traceability to be an unbroken metrological traceability chain to an international measurement standard or a national measurement standard, a documented measurement uncertainty, a documented measurement procedure, technical competence, metrological traceability to the SI, and calibration intervals
- 44: Metrological traceability chain
- Traceability chain- sequence of measurement standards and calibrations that is used to relate a measurement result to a reference
- 45: Metrological traceability to - a measurement unit
- Metrological traceability to a unit- metrological traceability where the reference is the definition of a measurement unit through its practical realization"
- Also visit this link: http://www.hkcalibrations.com.au/calibrations-scope/
- An instrument that is used for indication of a pressure, temperature or a dimension is never used to transfer its accuracies/measurement to any other instrument and does renders the NATA calibration meaningless as no transfer of its measurement status /accuracy is ever transferred to an other instrument.

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Consider this:- In most cases, the uncertainty of measurement of an instrument is extremely low (refer to our UOM calculations:- http://www.hkcalibrations.com.au/calibrations-scope/?)

- That these calculated UOM quantities will have a minimal effect on an industrial type instrument that has a large tolerance band. (3% for a 63mm pressure gauge). The uncertainty of measurement here is negligent and worthless in the whole scheme of the function of the instrument. So why would you send your instruments to a NATA accredited lab. as this will be a complete waste of money and time, because what you receive(UOM) from a NATA lab. within its certificates will never be used or even be looked at by you.
- The only value in a NATA certified calibration report is its calibration traceability to a National or International Standard through an unbroken chain of calibrations to a National or International Standard as required by ILAC.(International Laboratory Accreditation Cooperation) http://ilac.org/
- The argument here is that any instrument used for measurement and for indication purposes only, does not need to be NATA certified as the uncertainty of measurements reported within the NATA certificate are never used and a sheer waste of time, as they are never used in further transfer of the instrument's accuracy.

4. Conclusion

- Instruments should only be NATA certified if they are going to be used as references in the transfer of their measurement accuracy to other instruments, but if the instrument is used only for indication purposes, like an indication of pressure in a pipeline, they will only require traceability to Australian National Standards as any UOM calculations contained within a NATA certified calibration report is worthless as these calculations are never used in any further calculations. Therefore in 95% of most calibration requirements in industry, a traceable calibration for an indication type instrument will satisfy the requirements of ILAC's requirements on the "traceability" element of their technical document.
- HK Calibrations will provide you a traceable calibration report that includes all the required traceability as required by ILAC to whom NATA is accredited by.

- I welcome any enquiries or concerns regarding the above and can assure you that the above is accurate in content as I have been a NATA signatory for many years and consider traceable calibrations are the way to go for industry if money and time is an object of concern.

Marcus Khan
Laboratory Manager/Managing Director
Further reading material on this subject:-

- Joint BIPM – OIML – ILAC – ISO Declaration on Metrological Traceability
- Joint BIPM, OIML, ILAC and ISO Declaration on Metrological Traceability This document builds on the tripartite statement issued by the BIPM, the OIML, and the ILAC on 23 January 2006 on the relevance of various international agreements on metrology to trade, legislation and standardization.
  http://ilac.org/?s=traceability