NCSLI 173 Metrology Practices
Condensed Minutes
Disneyland Hotel, Adventure Tower, Zambezi Meeting Room, 5 pm to 6 pm
4/6/2017

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1 Attendees, Introductions

Dennis Jackson, NSWC Corona
Gerhard Mihm, Bundeswehr
Marek Barylak, Amgen
Mark Kuster, Pantex Metrology
Nam Phan, NSWC Corona
Steve Dwyer, NSWC Corona

2 Minutes Review

Corrections to the July, 2016 meeting minutes: None

3 Status Updates Since Last Meeting

The committee heard RP development and related status updates and held discussion as follows, focused on our current priority, RP-19.

3.1 173.4 Measurement QA End-to-End (RP-19)
Working Group Chair: Howard Castrup, Integrated Sciences Group

Attendees discussed the RP’s status, prospects and options for moving forward. Howard Castrup had previously reported spending time supporting the ongoing Z540 Handbook work and other NCSLI efforts, thus delaying RP-19 work. Update: Howard Castrup informed the chair 5/26/2017 that he has a draft ready for review, and that his research had uncovered some new cost modeling material. Those who have
3.2 173.1 Calibration Interval Analysis (RP-1)

Working Group Chair: Mark Kuster, Pantex Metrology

Since RP-1’s last edition (2010) has already exceeded the NCSLI five-year review period, the committee began discussing its revision with hopes of working it in parallel with RP-19. Mark Kuster suggested variables data analysis as a primary topic for discussion; Howard Castrup has provided the methodology write-up. Steve Dwyer thought many practitioners would like to have this option. Dennis Jackson wondered about the practicality of assigning intervals by parameter or determining a combined interval for multiple test points. Expanding Ferling’s method to mention instrument models may help. Lack of as-left data and the complicated parameter projection may cause difficulty.

Dennis Jackson pointed out the variables data method’s divergence from the existing RP and suggested having separate variations for calibration (issuing values with uncertainty) and verification (tolerance testing). Steve Dwyer and Dennis Jackson said that the RP should explicitly define “tolerance” for issued values with uncertainty. Addressing that topic alone would significantly improve the RP since users may not even know how to apply the existing attributes data methods to such cases. Dennis Jackson offered to forward material on the subject.

As currently written, the variables data methodology regresses parameter value drift vs. time and fixes the drift intercept at zero for zero time. Steve Dwyer thought this correct though one may want to test the assumption. Dennis Jackson would prefer to use the as-found errors after the interval rather than determining drift from the previous as-left values. This method assumes nominal as-left values, allowing for those organizations that do not record as-left values. The Navy operates this way as do the German Armed Forces per Gerhard Mihm. Gerhard Mihm also indicated that variables data may not exist in electronic form except for out-of-tolerance reporting and opined that drift on tolerance-tested parameters had little relevance. Gerhard Mihm and Marek Barylak wondered about applicability to instruments whose parameter values drift up and down randomly.

Other discussion included on updating the RP with advances in data grouping based on Navy work. Steve Dwyer and Dennis Jackson indicated they would gather and perhaps clean up the available material before releasing it to the WG.

The WG would like to produce a new RP revision in approximately one year.

3.3 173.5 Uncertainty Analysis (RP-12)

Working Group Chair: Suzanne Castrup, Integrated Sciences Group

No progress on reformatting the uncertainty analysis examples.

3.4 173.2 Measurement Decision Risk Analysis (RP-18)

Working Group Chair: Howard Castrup, Integrated Sciences Group

No particular discussion—work remains on developing examples.

3.5 173.3 SPC for Metrology (RP-XX)

No discussion

At this point, the meeting adjourned.
4 Action Items

- RP-1 WG: Review the variables data methodology.
- RP-1 WG: Develop interval analysis validation data as part of the methodology effectiveness research (long term).
- Steve Dwyer, Dennis Jackson: Submit material on tolerancing reported values and improved data grouping methods.
- Jeff Gust, Bill Miller: Discuss DOI numbers and indexing for selected conference papers with the NCSLI Board.
- Greg Cenker: Identify a liaison between NCSLI and EPRI.
- Howard Castrup: Form a working group and issue a draft RP-19 for review and comments.
- Reviewers: Complete RP-19 reviews within six weeks of receiving a draft.
- Dennis Jackson, Suzanne Castrup: Refine the uncertainty analysis format.
- Chairs: Develop short RP presentations for use at region and section meetings.