John Hargrave comments on President’s review of RP-O3 for final signoff

2Nov19

This draft has a very long history of “changes” and development. It seems, since this is an initial release, that this would be removed from this document. Users do not need blow by blow steps of the development of the document.

The document number seems very complicated. My first guess is that this is part of Andy aligning our formats with AIAA. Seems overly done, but if we’re buying in to their bureaucracy…I suppose the longer, complicated, confusing naming version is the latest and greatest – good luck on selling new tricks to old dogs.

Is the address for SAWE really correct? Long Beach?

**Consistent Results** – ….project defined uncertainty for the calibration of the load cells – e.g. +/-0.5%.

**Load cell** – a calibrated compression device utilizing electronic strain gauges to measure an applied weight. *TAKE NOTE*: *Load cells are accepted as the ‘standard’ for weighing offshore assemblies and modules. Using pressure transducers on hydraulic jacks are an alternative if project is able to accept increased uncertainty (up to +/-5%*).

**Wow that’s a leap in uncertainty. Surprising it’s acceptable. Maybe they meant to say .5%?**

**Weight data.** this is stated in two places. I guess the developers intend this, but it provides an opportunity for inconsistency in case it gets changed in one place and not the other. Not really sure why it warrants singling out this defn vs the others.

The definition, Weight Control Lead, in this RP context implies it should be incorporated into the Certification Development. Here it states the Project chooses someone. We could help ensure that person has demonstrated qualifications toward this important responsibility.

Determination of Weighing Correction Factor to me this terminology is a bit misleading. To me, Factor means multiplying a number for correction/calibration. In the context of this document, it is the DIFFERENCE. Not really a factor.

Table 4-1 uses the European spelling for centre of gravity, vs center of gravity. **My opinion is that we should use the US version of spellings throughout.**

Environmental operating ranges for temperature and humidity are stated as being defined by each project. Then it says you should have the load cell manual on hand. To me this dances around any real guidance. In my experience the operator’s manual for the load cell states temperature and maybe humidity. That provides specific criteria, and I think this should be stated. If a project warrants more conservative criteria for whatever reason, then that would be more restrictive. But a project should never set a criteria that would not adhere to the restrictions of the weighing equipment. I don’t think this RP clearly states this criteria.

1. A statement that the weighing shall take place during time of suitable natural lighting. Artificial lighting meeting local health and safety requirements may be used to permit a safe operation during times of insufficient natural lighting.

This is self-contradicting. First it SHALL use natural lighting. But if that’s insufficient….artificial lighting must meet criteria of x. Needs to be re-written.

Fabricator shall provide to the Weight Control Lead with three-week written notice of the date and location of the calibration. The Weight Control Lead, shall be afforded the opportunity of witnessing the calibration.

Provide what? Seems to lack a noun here.

Where the reading given by the load cell is dependent on the length of cable between the load cell and the display, the calibration is to be for the combined system – i.e. load cell, display, amplification devices and interconnecting cable.

The above paragraph seems to imply some homework and research for the user and lacks guidance or info regarding impact of cable length on a load cell reading. If cable length is important enough to mention (and it is) then we’re leaving a hole in this RP guidance.

Post-weighing recalibration should be reserved for load cells that have been used but may have produced spurious results. Recalibration of load cells that have produced acceptable values may result in a recalibration that casts doubt on the original results due to damage caused to the load cell while being handled between the weighing and the recalibration. Recalibrations should be considered if it is expected to reduce uncertainty in the weighing data obtained. Unless load cells can easily be recalibrated within the same country as they were originally calibrated (i.e. a short transportation time), recalibration should be considered only if necessary. Requirement for recalibration shall be agreed to by all parties involved in the weighing process.

**Unclear, needs re-writing!** This paragraph is full of weasely caveats. It doesn’t give good guidance or a definitive recommended practice. Earlier in the document it states that you have to do a post weighing re-calibration. Here it states do it only if you think it’s in your best interest. **Self contradicting – needs fixing!**

1. name, address and contact information (telephone number) of the organisation performing the calibration,

again, using European spelling version – organization vs organization (SAWE documents should have a policy on this.)

regarding calibration certificate – list of information does not include longitude,latitude, and altitude. Some weighing equipment requires user to enter this info. Might want explore whether that should be included in this list. Same for humidity, which isn’t listed here but is stated elsewhere as a restriction for operations.

European spelling of Finalise. Finalize.

1. Disconnect any restraints (e.g. external scaffolding connected to the Assembly or Module and supported from ground) that will impact the measured weight data as it is raised from its supports. During a preliminary test weighing, raise the Assembly or Module an additional height (e.g. 25mm). If the weight should increase, investigate for items supported from the ground and still connected to the Assembly or Module.

This phrase is likely of British origin. But for me, it could have a dual meaning and needs re-phrasing.

I would change to If the weight increases, investigate….

8 rigid connections should be released. I don’t know what that means specifically. Does it mean disconnected? Does it mean freed up? I believe this needs a more understandable term.

9 the note about external access during weighing should really be it’s own criteria. Here it’s stated due to safety reasons, but not highlighted as part of the weighing procedures, which I feel it should be.

10 Revie the location(s) of the load cells to insure compliance with locations specified in the weighing procedure. Flag any device that has been relocated. Measure new location and update relevant documents after the weighing.

I think Revie is probably Review without the w. I’m a bit shocked that having load cells in the wrong location would be acceptable for a later correction. Could this pose a safety issue? Or equipment overload issue? A lot of emphasis is on the preparation and prediction, but this violates those assumptions. Also, if the RP is going to state that it’s ok for a load cell to be relocated, I would think there would be an acceptable variation stated, again for safety purposes.

1. consistent readings. Is the meaning of consistent defined somewhere? It should be.

10 for weighings performed outdoors, environmental conditions (air temperature, relative humidity, wind speed and direction) at the time of recording the weighing readings,

I think this should further require that the wind direction be related to the as weighed coordinate system on the associated diagrams for best understanding of wind force influences and any related diagnostics