June 8, 2016

Caterpillar Surveillance Panel Teleconference Minutes

Attendees: Names Highlighted in Yellow attended the conference

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Agenda Items

COAT

EMERSON representative to answer questions on the Density and Temperature outputs of the MicroMotion units.

Andy Burnett was the Emerson representative on the call but he had not received any answers to earlier questions.

There was discussion on closing the gap between the COAT sample temperature and the Micromotion (MM) sensor temperature (T). Four options were mentioned:

1. Laboratories could calibrate the MM T to match COAT T.
2. Emerson could calibrate the MM T to the range of the COAT test.
3. Laboratories could supply the COAT T to the MM transmitter
4. Artificially set the MM T to 90C

Emerson's Smart Meter Verification was briefly described as an assessment of the health of the senor tube. A check could be performed prior to each COAT test, and can be performed using either the new transmitter's LCD screen or with laptop software. It gives confidence that the unit is still calibrated.

Questions for Emerson

1. What range is the MM temperature sensor calibrated over?
2. Why doesn't Emerson calibrate the RTD at high temperatures?
3. Does Emerson set the RTD temperature environment during its calibration? At what temperature?
4. Can the laboratories calibrate the temperature sensor themselves?
5. Should the laboratories use measured fluid temperature values to calibrate the MM sensor, or send a temperature signal to the transmitter to use?
6. Can laboratories calibrate the instrument for density, and what is the procedure?
7. If sensors are identical and software allows for temperature calibration, why do old and new systems not react in the same manner to artificial changes in temperature?
8. Do new systems use the RTD temperature?
9. Do the new systems require additional authorization to respond to changes to slope and offset, or is there another calibration procedure?
10. Does the coriolis tube temperature measurement reading adjust both density and mass flow?
11. What does Emerson recommend to assure universality of MM setup across labs?
12. Should its Smart Meter Verification be incorporated into the COAT procedure?
    a. Can it be used in lieu of yearly calibrations?
    b. Is Zero verification part of the Smart Meter Verification?

Action Item: Secretary to send a list of these questions to Emerson and panel members (attached). Panel members should add any further questions and send them to the secretary (jcarroll@swri.org) who will compile them and forward them to Emerson.

Review the Temperature/Density experiments run at the 3 engine labs

The results of the experiment at SwRI were sent to the surveillance panel. There was no discussion

HUMIDITY CALIBRATION INSTRUMENT (1P and 1R)

- May 4th CAT SP Agenda was listed as 1N/1K/1P/1R tests. May 4th meeting minutes reflect motion to change just the 1K and 1N tests.

The current text in the 1N and 1P procedures was re-worded by the panel on May 4th as follows:

"Calibrate the primary humidity measuring system during the stand calibration or within 48 h of the start of a stand calibration test with a chilled mirror dew point hygrometer or equivalent having an accuracy of + or - 0.55 °C at 24 °C dew point and moisture content in dry air of + or - 0.6 g ⁄ kg. Perform additional stand calibrations when ambient temperature and ambient humidity conditions differ from the last semi-annual ambient test condition to ensure that the stand humidity remains within test requirements."

MOTIONS

- A motion was made, and seconded, to incorporate the revised wording into the 1P procedure. There was no opposition and no waivers. The motion carried.

- A motion was made, and seconded, to incorporate the revised wording into the 1R procedure. There was no opposition and no waivers. The motion carried.

SOLE SOURCE SUPPLY OF DIESEL TEST FUEL (All Caterpillar Test Procedures)

ASTM asked the laboratories to confirm that they are using sole source suppliers listed in all the Caterpillar procedures. All the laboratories on the call confirmed that they are.

ASTM will incorporate revised wording into the Caterpillar test procedures (where necessary) to update them all with the same wording regarding sole source diesel fuel.

HARDWARE UPDATE FROM CATERPILLAR

- Update on timing of the "new" C13 Liners

Caterpillar still expects to have the new liners available in the 3rd quarter of 2016.
Lubrizol, Intertek, and SwRI all have references coming up in October 2016.

Action Item: Caterpillar will coordinate with the laboratories to get the liners to them before the references are due, and keep the panel appraised of the schedule.

- Any other parts issues

Intertek asked which number on the new C13 pistons corresponds to the manufacture date.
Action item: Caterpillar will inform the laboratories of the new coding.

Intertek noted that the new 1P injector labels looked different and had changed in 2015, and they had one fail at 200 hours.
Action item: Caterpillar will inform the laboratories if there were any changes made to the injectors and/or labels.

The nest two paragraphs were revised by Caterpillar:

Caterpillar informed the panel that ~~two~~ needle valve~~s~~ PN 1Y246 ~~and~~ used in PN 1Y455 oil and water control group can be purchased externally (such as ~~found to be available~~ at Lowes).
~~These valves are both used in a control module (PN 1Y246) for oil/water temperature control.~~
Caterpillar will send more details to the panel.

Caterpillar is requesting to know if a brass needle valve alternative is acceptable. Cat has identified a brass alternative that can replace this component.

The silicon free gasket sets for the COAT test are available and Caterpillar will send the PN to the panel.

Caterpillar asked if anyone had a used 1P/1R crankshaft that needed to be remanufactured. CAT has developed a supplier for the rebuild.
Action Item: Laboratories will inform CAT. SwRI does not have a need at this time.

CAT informed the panel that 1K/1N heat exchangers are also available, but any heat exchanger can be used as long it can control to test specifications.

Caterpillar asked if the panel should make changes to the 1N/1K/1P/1R procedures to allow the use of 'equivalent' parts.
Action item: Sean Moyer of TMC will draft a motion to allow the use of equivalent parts that meet test specifications for the panel.

The June 13, 2015 minutes had a report by Caterpillar on parts issues. Caterpillar has updated the report and it is included with these minutes.

OLD BUSINESS / NEW BUSINESS

None

It is noteworthy that this conference ended early!