

# CAT Aeration Test Task Force meeting Jan , 2014

## Matrix Progress and Data Review

**Attendees:** Names Highlighted in **Yellow** attended the meeting

| Participant | Name   | Email   |             |
|-------------|--|---|-------------|
| 1           | Caroline Laufer<br>Elisa Santos<br>Pat Fetterman<br>James Gutzwiller<br>Bob Salgueiro                        | caroline.laufer@infineum.com<br>elisa.santos@infineum.com<br>pat.fetterman@infineum.com<br><a href="mailto:james.gutzwiller@infineum.com">james.gutzwiller@infineum.com</a><br><a href="mailto:bob.salgueiro@infineum.com">bob.salgueiro@infineum.com</a> | Infineum    |
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| 22          | Heather Debaun   |   | Navistar    |

## **Testing Updates**

Tests reported:

SWRI, Martin: test 14, Oil K, repeat to replace run 1. Tests reported in the official format except for the last two tests.

LZ, Greg: all tests are finished. Official test reports will be sent to TMC

EG, Tim: all tests are done. Test reports are planned to go to TMC Monday.

**Action:** all the labs will have all the Data Dictionary files uploaded to TMC by the **23<sup>rd</sup> of Jan at the latest**. This is a critical step since the data files are of common format and can be referred for data analysis.

TMC, Sean: working on the processing of the files.

Deadline: all the files will be processed and available by the **26<sup>th</sup> of Jan**.

## **Technical Data review, Caroline Laufer**

A review of the technical data reported was conducted.

Key outcomes:

### **1- Oil aeration calculations:**

The calculations conducted by Caroline was identical to SWRI and LZ. Average was identical to EG, but there was a range in the “delta check”.

Tim: Density calculations is through an internal loop, which is resulting in the discrepancy. Statistically no difference, since the discrepancy is 0.02%, but this needs to be resolved.

Tim will resubmit the report with revised aeration calculations.

### **2- Silicon**

Values of Si shows that the engines are passivated. There is some variation in the values of the new oil Si, so the first hour difference shows most discrepancies. This variation is most probably due to ICP measurement technique and not to engine hours.

A question was raised if the calibration at the labs is the key source of variation.

The group will discuss the RR of Si in separate meetings.

### **3- Repeatability:**

Dvt has some differences among the labs, but since the temperature is held constant, this parameter has no impact.

### **4- Average aeration:**

Only one lab has a clear trend of the second test of lower value.

Discussion: there could be operational impact; tests during the second half of the test may be show a trend lower due to engine operational parameters, not only engine hours.

Is there a severity change with engine hours? A correlation of engine parameters to the potential trend of lower aeration may be needed. Oil pressure is one of the parameters that can be used as an indicator and can be re-adjusted.

Seq 6 is a precedence where there is a correction based on hours.

Discussion of the “decay” and the severity differences among labs.  
Data analysis is necessary to understand if the trends apparent now are within the expected severity of this test.

#### **5- Operational conditions:**

Qi has to be set for the engine parameters. Separate face-to-face meetings are needed for the deep dive to determine the Qi for the operational parameters of this test.

#### **6- MM temperature:**

T-in/T-out original spec was +/- 1 deg. A discussion was on the initial limit or intent: a total of 1 or +/- 1. The current data is was intended to be at a delta of <1 deg.

Current and based on the addition of the box and the available Matrix data: Delta of 1 deg or less from inlet to outlet needs to be the limit.

**Action:** The TF agreed to rerun of Oil G test 1 at EG. The TF also agreed to quarantine the data of this test until the new test is run.

The TF will determine if the first test will be invalidated once the new test data is available.

**Action:** define the Qi limits, which can be conducted after the acceptance of the test.

Review of data of first test K from SWRI was done. This test was invalidated mainly due to the pump speed signal output.

#### **7- Shut down data:**

Shutdown data, including during warm up, was requested from the labs. The group discussed the quick changes during the first hour of the test. It was agreed that shutdowns should be are reported in the test report

The data shows few tests with shutdowns. The data in general gets back to the prior test level in about 5 hours. The longest shutdown was test 5 at EG and it was ~24 hours

Suggestion: extend the test by the amount of data omitted.

Certain Operational data appear to be impacted by the shutdown.

**Action:** we need to study the data of tests with shutdown to determine the number of hours that need to be excluded.

**Action:** All agreed to consider the data in more depth and come back with proposals.

**8- NCDT meeting:**

Planning for the meeting: show some preliminary test results and declare that operational data and operational reviews are ongoing.

**9- Next meetings**

Phone call: 30<sup>th</sup> of Jan. 9:30 AM CST. Hind will send invitation.  
Plan for a face-to-face meeting 10 and 11 of Feb. San Antonio.