

Aeration test Task Force meeting  
July 1, 2014

**Attendees:**

Attendees: Barbra Goodrich, Martin Thompson, James McCord, Tim Griffin, Jim Moritz, Kevin OMalley, Bill Larch, Chris Mileti, James Rutherford, Jim Gutzwiller, , Caroline Laufer, Bob Salgueiro, Zack Bishop, Dan Lancott, Sean Moyer, Jeff Clark, , Mark Jarrett, Hatuey Campbell, Vince Caliendo, Hind Abi-Akar

**Engine tests:**

SWRI finished 75 hours of break-in.

Si level has not stabilized by the end of the 75 hours break-in.

Next steps:

Warm-up then run engine at C13 deposit test conditions, Sample the oil at Zero (after), 1 and 5 hours oil. Repeat this step until Si does not show an increase. Every drain and fill the engine goes through the warm-up and filter is replaced.

Note the CCP is not set during the break-in

Engines may vary and may require more or less oil test cycles

**Action:** Shakedown oil: LZ285386 is an option, Lubrizol will confirm availability and ability to have the oil at the labs by mid next week.

SWRI may have 30 G

**Status:**

1- SWRI engine appears to be stabilized (CCV, Blowby, ...), except for the Si as given above.

2- Intertek: building the engine this week, break-in starts this weekend at the existing test stand at Intertek.

3- Lubrizol engine: Break-in starts this week (Thursday) and will be through next week. Fuel rate: controlled through the torque control

(Hatuey's will send detailed spread sheet to the group; send Martin's spread sheet)

Mid next week engines will be ready.

**Test conditions:**

Gutzwiller: presentation of the test parameters. Hind will send out the information.

Hatuey will send break-in sheet to Gutzwiller. Jim will finalize and share with the team.

McCord will send information on test method (locations of measurements, etc)

Differences in the blow-by measurements between SWRI and Intertek were discussed.

Location of the control valve needs to be common: after the barrel and before the blow-by meter.

Apply the details in the Deposit test (hose ID, etc.)

Measure the oil sump temperature; nominal target is ~94 C; If considerably different (>4 C), investigate the causes.

Martin will investigate exhaust restriction impact

### **Test details and timeline**

Matrix is about 13 tests per lab. Need to confirm that the engine will last that long.

Labs position is that the engine will last through this matrix. Potentially, design the matrix to understand engine aging effect.

For this test stage (repeatability/reproducibility/discrimination), the test number is limited and may not see an effect of the engine.

Tests and data analysis have to be done prior to the NCDT meeting on Aug 14.

Consequently, the test matrix needs to be finalized at the most a week prior to the 14<sup>th</sup>.

### **Test Matrix:**

Kevin O'Malley gave a presentation on proposed test matrix. Balance of the minimum tests required and statistical rigor was discussed.

Preliminary, two oils will be tested. The test will be run at stages; data will be reviewed after the first stage and then a decision to add third oil or to repeat the two oils will be made.

High Aeration oil: Hind will communicate availability of this oil; potentially oil will be available in two weeks.

TF meetings will be set up weekly and/or as needed to ensure continued progress and common testing procedures.

Next meeting:

Wednesday: 9 – 11 AM CST.

If not available, please let Hind and Mark know.

Alternative:

Thursday: 9 – 11 AM