Cummins Surveillance Panel Teleconference
July 8, 2020 14:00 – 15:30 EDT

Attendance:

Sean Moyer - TMC
Jim Matasic - LZ
Christian Porter, Bob Campbell, Abaigh Ritzenthaler, Todd Dvorak - Afton
Jose Starling, Bob Warden - SwRI
Andrew Smith - Intertek
Mark Cooper - Chevron Oronite
Dan Lanctot - TEI
Phil Shelton, Ryan Denton, Corey Trobaugh - Cummins
Elisa Santos, David Brass - Infineum
Prasad Tumati - Haltermann Solutions
Jon VanScoyoc – CP Chem
Steve Jetter - ExxonMobil

Agenda:

1) **Alternate Fuel Supplier Proposal Presentation, Prasad Tumati**
2) **ISB ACSW (Camshaft wear) Zi Action Alarm was triggered (presentation)**
3) **Fuel Additive Update, Jonathan VanScoyoc**
4) **"Walk-ins" as needed**

Meeting Minutes:

1) **Alternate Fuel Supplier Presentation –** Prasad Tumati presented a proposal (see attached presentation) for a testing regimen and acceptance criteria for the ISB and ISM tests for Haltermann to be considered as an alternate fuel supplier.

   Motion: Andrew Smith motioned that the Cummins SP consider an alternate fuel supplier and develop acceptance criteria for testing an alternate fuel. Prasad Tumati seconded the motion. There were no negatives and no waives.

2) **ISB ACSW (Camshaft wear) Zi Action Alarm -** Abaigh Ritzenthaler made a presentation (attached) of ISB test parameter situation focusing on the average camshaft wear parameter. Elisa Santos pointed out that because the reference oil batch and hardware batches changed at the same time the data is confounded as to what the driving severity factor is. Todd asked that the reference oil data book be updated with as much analytical data as possible. Abaigh then moved on to the analysis of tappet weight loss and that the model highlights that 831-4 seems to perform much differently than previous re-blends of the oil. Jose Starling asked Dan Lanctot for an update on the current camshaft batch. Dan indicated that the current batch has 67 cams left but that the camshaft reject rate is approximately 60% so that they probably only really have about 27 camshafts left. Dan stated that

the camshafts will now be manufactured in Spain instead of Mexico from the same castings. Dan also gave an update on existing and coming hardware batches:

New Batches
Received 3888 Tappets (Batch F)
Received 3500 Crossheads (Batch F)
New Cams (Batch M) expected to arrive in late July. Machined in Spain with the same cam castings and on the same cam grinding model machine previously used in Mexico.
New Push Rods (Batch D) expected to arrive in early August

Existing Batches
1805 Tappets (Batch E) left with a 50% rejection rate will allow 75 more kits
516 Crossheads (Batch E) left with a 50% rejection rate will allow 22 more kits
67 Cams (Batch L) left with a 60% rejection rate will allow 27 more kits
452 Push Rods (Batch C) with a 40% rejection rate will allow 23 more kits

The group continued to discuss the proper path forward for oil target updates or correction factors. The tappet data suggests a performance difference between 831-3 and 831-4 however it was pointed out that there was a limited amount of data on the KD hardware.

Motion: Christian Porter motioned that the SP adopt option 3 from the presentation for ACSW from -18.5 to -30.8 for batch L camshafts and E tappets effective for candidates EOTing on or after July 8th. The motion was tabled so that it could be considered further ahead of another meeting on July 15th at 10 AM Eastern.

Corey Trobaugh asked for the history behind this investigation. The panel began investigating the severity shift once the last 2 tests triggered a Zi action alarm.

3) **Fuel Additive Update -** Jonathan VanScoyoc gave an update about the fuel anti-oxidant. The current supplier intends to discontinue it but the current supply is approximately 5 years. Jonathan also indicated that the supplier will have a similar replacement component that CP Chem will be willing to run trials on to validate.

Meeting adjourned at 15:45 EDT.