

Unapproved Minutes of the May 5, 2015  
Sequence VG Surveillance Panel  
Conference Call

The meeting was called to order by Chairman Andy Ritchie at 11:00 AM EDT.

Mike McMillan agreed to take the minutes of the meeting.

A list of the attendees on the call is included as Attachment 1.

Chairman Ritchie listed the agenda items he would like to cover in this call:

- 1) Approval of the minutes from the April 7, 2015 Sequence VG Panel Conference Call
- 2) Report from Labs on VH testing of Oil 940 in new fuel batch
- 3) Discussion of next steps in completing fuel approval matrix
- 4) Additional Old Business
- 5) New Business
- 6) Next meeting/call

Chairman Ritchie asked if there were any additions or corrections to the minutes from the April 7, 2015 VG Panel Conference Call. There being none, Jason Bowden moved and Ed Altman seconded a motion to approve the minutes. The motion was approved unanimously.

Chairman Ritchie asked Intertek and SwRI to update the Panel on their progress in testing Oil 940 to determine the severity of the new fuel batch in the VH test. Al Lopez indicated that Intertek had done an intermediate inspection of its test at 192 hours but saw only minimal sludge. They continued on to 240 hours, at which point the AES rating was 7.75. They managed to maintain fuel dilution in the desired range of 15-18%, which is comparable to that of the VG. Cole Hudson reported that SwRI completed its test, running out to 240 hours after intermediate inspections at 192 and 216 hours. The AES rating was 7.4 using the same rating sites as are used for the VG.

These results were discussed during a VH Development Task Force call held yesterday. Jason Bowden questioned whether we had ever figured out why

the VH had shifted mild compared to the VG even with the old (current) batch of fuel. Ed Altman replied that the Task Force is looking at operational differences between the VH and the VG in an attempt both to explain why the shift occurred, and to make changes in operational parameters to bring the VH test more in line with the VG. Some of the factors being considered are the lack of sufficient NO<sub>x</sub> in the blowby, differences in torque output, fuel flow rates, and crankcase and exhaust gas pressures and compositions. Chris Mileti commented that Lubrizol has done a lot of work investigating the effect of compression ratio, and has found that it has a strong effect on NO<sub>x</sub>. And since the new VH heads have a much different contour than the VG heads, we might have to alter the decking to bring the compression ratio in line with that of the VG. Al Lopez also remarked that Intertek had noticed a big effect on severity when they switched to the new VH pistons.

All of this work is being done by the Task Force in an attempt to increase sludge severity in the VH test with the new batch of fuel, so that the new batch doesn't have to be re-blended. Al Lopez, however, pointed out that the Task Force had also discussed the possibility that a re-blend might be necessary at some point, if operational changes could not increase severity sufficiently. If that were to be necessary, Al proposed making a small adjustment to a small batch (~3-4K gallons) of the new fuel and running some VH tests on that to be sure it was satisfactory, before re-blending the entire large batch of the new fuel. The rest of the Panel agreed with this approach, even though there is a possibility that when the large batch is later re-blended, it might not match the composition of the small re-blend. Ed Altman, Chairman of the VH Development Task Force, emphasized that the Task Force is not recommending that a re-blend be conducted at this time, but is asking Haltermann to consider what might have to be done to the fuel to increase sludge severity by about 1-1.5 merits. Mark Overaker from Haltermann acknowledged that he would look into that, and said if the Task Force wants to proceed in this direction, it should take about a week to actually blend a 3-4K gallon batch of higher severity fuel .

Chairman Ritchie suggested that this was about all that could be done on the call today. Ron Romano was not present on the call today, but the Task Force may be able to discuss future plans at the end of a Chain Wear Test Development Task Force call scheduled for tomorrow, or at a VH Test Development Task Force call to be scheduled soon thereafter. Chairman Ritchie indicated his intention to continue the monthly VG Panel calls, but

that the June call will be replaced by a face-to-face meeting in San Antonio on Wednesday, June 3. He further indicated that he might convene a conference call before then, if necessary, depending on progress made by the VH Test Development Task Force.

**Old Business:** There was no Old Business brought before the Panel.

**New Business:** There was no New Business brought before the Panel.

**Next Meeting:** The next VG Panel Meeting is planned for Wednesday, June 3, 2015 at 9:00 AM CST in San Antonio, TX.

The conference call was adjourned at 11:40 AM EDT.

## Attachment 1

### Attendance for 5/5/15 Sequence VG Call

**Infineum:** Andrew Ritchie, Mike McMillan, Gordon Farnsworth, Doyle Boese, Mike Warholic

**Ashland:** Amol Savant, Tim Caudell

**GM:** Bruce Matthews

**Haltermann :** Tracey King, Mark Overaker

**SwRI :** Dan Worcester, Cole Hudson

**Intertek:** Al Lopez, Bill Buscher

**Afton:** Ed Altman

**TMC:** Rich Grundza

**Lubrizol:** Jerry Brys, Michael Conrad, Chris Mileti, Kevin O'Malley

**Oronite:** Jo Martinez, Kaustav Sinha

**OHT:** Jason Bowden, Matt Bowden

**TEI:** Zack Bishop, Dan Lanctot