Unapproved Minutes of the May 21, 2013
Sequence VG Surveillance Panel
Conference Call

The meeting was called to order by Chairman Andy Ritchie at 2:00 PM EST.

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) Review and approval of minutes from May 3, 2013 call
2) Discussion of results from modified Row 3 of fuel approval matrix for Batch No. AK2821NX10 fuel
3) Plans and Timeline for future testing, if any
4) Old Business.
5) New Business.
6) Next Meeting

Chairman Ritchie asked if there were any corrections to the minutes from the May 3, 2013 VG Panel conference call. There being none, Ed Altman made a motion to approve the minutes. Matthew Bowden seconded the motion. The motion was approved unanimously.

Chairman Ritchie briefly reviewed the chart he had sent out with the meeting reminder notice indicating the status of the fuel approval matrix testing which was either completed, under way or not yet completed.

Lab	A		G		D
Stand	1	2	1	2	1
Run 1*	1009	925-3	925-3	1009	925-3
Run 2*	925-3	1009	1009	925-3	1009
Run 3	925-3	1006-2	1006-2	1009	1006-2

Completed - new data - big blend
Completed - big blend
Completed - small blend
Running

Raham Kirkwood indicated that in Lab A, the Stand 1 run had to be re-worked while the Stand 2 run was fine. Al Lopez indicated that both of his runs in Lab G were fine, although there had been one re-gap in one of the runs. Ed Altman said his test in Lab D was scheduled to end this Thursday.

Chairman Ritchie then asked Jo Martinez to go through the highlights of the analysis she had conducted on the matrix results to date. (See Attachment 2) For AES, Oil 1006-2 gave a significantly higher value than both Oil 1009 and 925-3, but no statistically significant difference existed between Oils 1009 and 925-3. For AEV, the oils were not statistically different from one another, and the results were highly variable. For APV, Oil 925-3 was significantly lower than Oil 1006-2, but Oils 1009 and 925-3 were not significantly different. For OSCR, Oil 925-3 was significantly lower than Oil 1006-2 and Oil 1009, but Oils 1009 and 1006-2 are not significantly different. There were no significant differences among the labs, with the exception that for OSCR Lab A was significantly higher than Lab G, and the big blend was not found to be significantly different from the small blend for any of the parameters.

Rich Grundza indicated that he agreed with Jo's findings, and from his analysis everything looks good except AEV. Al Lopez expressed his concern about AEV as well, citing no separation between Oils 1009 and 925-3, as well as the poor precision of the AEV results and the possibility that this could trip precision alarms. Doyle noted that Oil 925-3 has the highest variability in varnish, so maybe we want to run additional 925-3 oils. Rich Grundza indicated we have enough of Oil 925-3 to run another test or two, if that's what the Panel decides to do. Doyle questioned whether there had been anything strange going on in tests with Oil 925-3 that could account for such wide variability in the AEV results, but the lab engineers present indicated that nothing out of the ordinary had been noted. Ron Romano stated he was more concerned about the lack of separation between Oils 1009 and 925-3 in sludge and wondered if it were possible to correct for 1 oil with a mean on the mild side of target and the others with a mean on the severe side of target. Doyle Boese responded that it is possible to do so, but noted that at this point we have a very limited amount of data to work with. Doyle indicated the statisticians haven't looked at correction factors yet.

Chairman Ritchie asked Mark Overaker if he thought there was anything that could be done by way of a modification in the fuel composition to either increase the separation between oil sludge results or to decrease the variability of the varnish results. Mark indicated there was nothing he could think of that might do this, and other Panel members agreed it was not likely that anything like this could be found to help here. Further discussion led the Panel members to conclude that, despite its drawbacks, we don't want to "throw out" this fuel batch, and should do what we can to make it acceptable. The sentiment seemed to be to complete the modified fuel approval matrix by running the two Oil 1009 runs in Row 1, or to substitute Oil 925-3 for those two runs. After much discussion, Rich Grundza moved that the 4 runs shown in Row 1 of the matrix for Labs A and G be conducted; i.e., two runs each on Oil 1009 and Oil 925-3. Ron Romano seconded the motion. A roll call vote was taken, and the motion passed with 9 affirmative, 0 negatives and 3 waives.

Old Business: None.

New Business: None

Next Meeting: Allowing time for completion of the 4 additional tests approved today, the next VG Panel conference call was scheduled for Tuesday, June 11, 2013 at 2:00 PM ET. A second call was scheduled for June 18, 2013 at 2:00 PM ET, with the intent of discussing the results of the statisticians' analyses of the matrix data.

Attachment 1

Attendees during 5/21/2013 Sequence VG Surveillance Panel Call

BP Castrol – Irwin Goldblatt

Afton – Ed Altman

Ford - Ron Romano

General Motors – Bruce Matthews

Haltermann – Mark Overaker, Tracey King

Infineum – Andy Ritchie, Mike McMillan, Doyle Boese

Intertek – Al Lopez

Lubrizol – Chris Mileti, Jerome Brys

OHT – Matthew Bowden, Dwight Bowden

Oronite– Jo Martinez

SwRI – Raham Kirkwood

TEI – Clayton Knight

TMC – Rich Grundza

Attachment 2

Seq VG Fuel Approval Matrix Analysis

Jo Martinez

May 21, 2013

ADDING UP™

Summary

AES:

- Big blend is not statistically different than small blend
- 1006-2 significantly higher than 1009 and 925-3, 1009 and 925-3 has a difference of 0.55 merits with p-value=0.23
- Labs are not statistically different from one another
- RMSE=0.46 comparable with LTMS s=0.13

RCS:

- Big blend is not statistically different than small blend
- 925-3 significantly lower than 1009 and 1006-2, 1009 is not significantly different than 1006-2
- Labs are not statistically different from one another
- RMSE=0.16 comparable with LTMS s=0.25

Summary

AEV:

- Big blend is not statistically different than small blend
- Oils are not statistically different from one another; 1009 and 925-3 has a difference of 0.79 merits with p-value=0.15
- Labs are not statistically different from one another
- RMSE=0.56 quite large compared to LTMS s=0.16

APV:

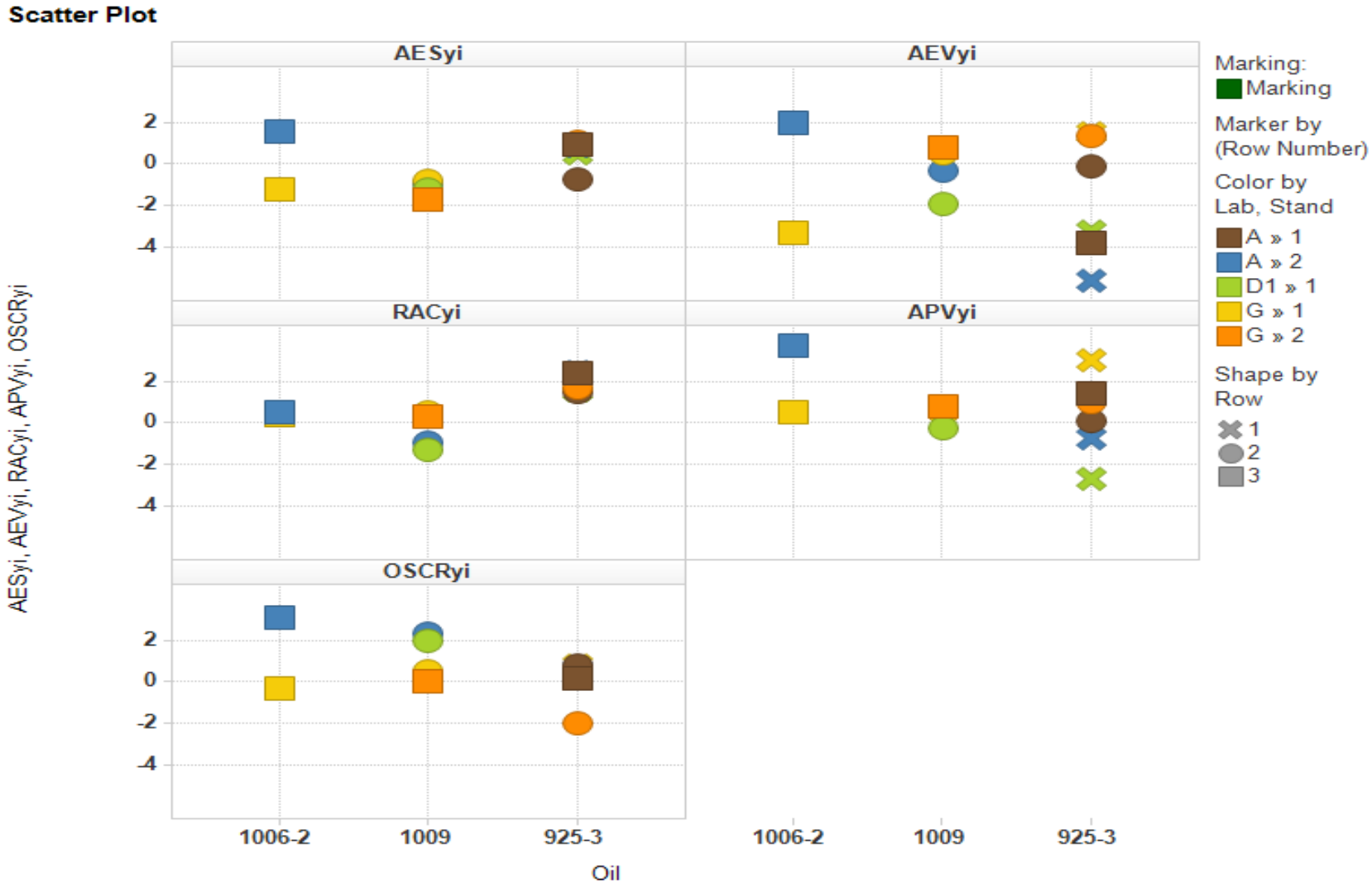
- Big blend is not statistically different than small blend
- 925-3 is significantly lower than 1006-2, 1009 and 925-3 has a difference of 0.51 merits with p-value=0.20
- Labs are not statistically different from one another
- RMSE=0.40 comparable to LTMS s=0.31

Summary

OSCR:

- Big blend is not statistically different than small blend
- 925-3 significantly lower than 1009 and 1006-2, 1009 is not significantly different than 1006-2
- Lab A is significantly higher than Lab G
- RMSE=0.68 comparable to LTMS s=0.793

Fuel Approval Matrix: Yi



Fuel Approval Matrix: Actual