Sequence V Surveillance Panel Meeting
December 20th, 2021 11 AM EST, via Webex

Roll Call:

Afton:	B. Maddock
ExxonMobil:	A. Meier, A. Montufar
General Motors:	M. Hopp
Haltermann:	P. Tumati
HCS Group:	I. Gabrel
Infineum:	D. Boese, C. Laufer, C. Leverett, A. Ritchie (Chair)
Intertek:	A. Lopez
Lubrizol:	A. Stevens
OHT:	J. Bowden
Oronite:	R. Stockwell
SwRI:	D. Engstrom, T. Kostan, P. Lang
TEI:	D. Lanctot
TMC:	R. Grundza
Valvoline:	A. Savant

Meeting Summary:

The group reconvened to discuss whether the updated 1011-1 means and standard deviations for the varnish parameters should be used. After lengthy discussion, a motion was made to:

Effective January 4th, 2022:

- **Keep AES and RAC means and standard deviations the same as for the original 1011 blend.**
- **Accept the severity adjusted AEV and APV means from the 1011-1 data but keep standard deviations from the original 1011 blend.**
- **Revisit and recalculate prior to the introduction of the next fuel batch.**

The motion passed: 8 approve, 1 negative, 5 waive.

The Engineering Task Force (Action item 1) has met and is making progress toward their goals. Separate minutes to be issued.

Open Actions:

1. From March 26th meeting: **Lab engineers** to meet to investigate severity shifts (share operational data, build data, ratings, etc.). 4 out of 5 lab inspections were recently completed by TMC and reports sent to OEM sponsor. Lab/Stand severity Task Force call scheduled for December 13th and lab engineers will make lab visits in early 2022.
2. From Sept 9th meeting: **Statisticians Group** led by Doyle Boese (Infineum) to provide update around potential ways to improve current lab-based system. Interim recommendation is to not adopt a stand-based system.
3. From Sept 9th meeting: **Haltermann** to report monthly inventory via email to V SP. Monthly updates are being provided.
4. From Nov 29th meeting: **Haltermann** to include extra column in fuels data to indicate which fuel goes with which test.

Next call: Thursday, February 10th, 2022 at tbd via Webex

Meeting Details:

Ben Maddock (Afton) motioned to approve the November 29th meeting minutes. Seconded by Jason Bowden (OHT). All in agreement.

The Chair reminded the group that we took a week time out to review the 1011-1 results before discussion today. Rich Grundza (TMC) re-shared the summary of results:

Summary of Test Results

testkey	val	ltmsdate	APPARATS	AP50	AP50 adj	AE50	AE50 adj	AES	AES adj	RAC	RACti	RAC adj
166475-VH	PC	20211027	G3	8.58	8.69	9.26	9.23	8.35	8.33	9.52	-0.73397	-0.52237
162991-VH	PC	20210923	G2	8.91	9.02	9.5	9.47	8.69	8.67	9.54	-0.7765	-0.5649
166479-VH	PC	20210923	G5	8.71	8.82	9.44	9.41	8.13	8.11	9.33	-0.4005	-0.1889
165542-VH	PC	20210923	A2	9.05	9.04	9.55	9.55	9.12	9.76	9.48	-0.6539	-0.6507
165541-VH	PC	20211010	A5	8.73	8.72	9.2	9.2	8.33	8.97	9.44	-0.5798	-0.5766
162745-VH	PC	20211012	D1	8.6	8.82	9.4	9.6	7.96	8.19	9.44	-0.5798	-0.5314
161669-VH	PC	20211023	G1	9.08	9.19	9.55	9.52	8.15	8.13	9.36	-0.4463	-0.2347
163350-VH	PC	20211121	A3	9.38	9.37	9.46	9.46	9.05	9.69	9.44	-0.57982	-0.57662
			Means	8.88	8.96	9.42	9.43	8.47	8.73	9.44	-0.59382	-0.48077
			Std dev	0.28	0.24	0.13	0.15	0.43	0.68		0.1289	0.1709
		Original	Target mean	8.67	8.67	9.26	9.26	8.43	8.43		-0.5294	-0.5294
			Target s	0.48	0.48	0.21	0.21	0.57	0.57		0.1924	0.1924

RAC in transformed (ln(10-RAC)) Units

Test Monitoring Center
https://www.astmtmc.org
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All on the call were in agreement that the sludge targets from the previous blend are fine to use going forward. The discussion is about whether we should use updated means and current standard deviations for both varnish parameters. The Chair opened the discussion, starting with the statisticians in the group.

- Travis Kostan (SwRI) explained his ambivalence: On one hand, we could leave it alone because we expect the reblended oil to be similar and if we update now, and later realize that the oil is more similar to the original targets, then it would be less intrusive to leave the targets alone than to change it once and change it again. On the other hand, this is the data we have which is the best estimate of the means, so there is argument to move it. Shrinking the standard deviations could risk calibrations. Travis could support either 1) updating the means and keeping the old standard deviations or 2) leaving it alone.

- Doyle Boese (Infineum) also can go either way, but favors making the adjustment to the varnish targets based on the data, but using the standard deviations from the previous batch.
- Travis shared that among the stats group discussion, Phil Scinto (Lubrizol) and Jo Martinez (Oronite) favored not changing the targets. Phil explained that it would be very difficult to change the targets later and that it could be the fuel or test (not the reblend as the reason for milder varnish) so the group should collect more evidence that it's the reblend before changing the targets.
- Robert Stockwell (Oronite) reiterated Jo's position that we move forward with the original targets until we have more data to indicate we should do something different.

Al Lopez (Intertek) motioned to introduce the 1011-1 targets, seconded by Dan Enstrom (SwRI):

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- **Revisit and recalculate prior to the introduction of the next fuel batch.**

Before the motion was voted on, there were several discussion points:

- Ben Maddock (Afton) asked if there is a big need or benefit to do this now and if the data is strong enough to make a decision like this now. The Chair commented that it might be another year before we collect another 8 data points, to which Rich Grundza (TMC) concurred. Travis Kostan (SwRI) added that we're coming up on the new fuel batch as well and asked how many clean data points we could get. Rich replied that most likely the next 1011-1 data would be with the new fuel batch.
- Al Lopez (Intertek) shared the Yi data for 1011 and he observed that most of the data is above zero and potentially warrants further investigation. He felt that this was strong support the use of the new means for varnish. Ben commented that we should then use the standard deviations as well. Doyle Boese (Infineum) explained that the use of the current standard deviations is recommended because the confidence interval for the same sample size is a lot tighter for a mean that it is for a standard deviation. He furthered that the standard deviations we've used in the past were based on a small amount of data and seems to have worked well.
- Robert Stockwell (Oronite) reiterated Jo Martinez's recommendations to keep the current means and current standard deviations and then revisiting it after more data is obtained.
- Rich Grundza (TMC) asked why does sludge look right but the varnish is off on the reblend?
- Amol Savant (Valvoline) asked if all the AES values include ICF, to which Rich confirmed yes.
- There was discussion about whether to use adjusted or unadjusted means. Doyle recommended to use the severity adjusted means. He explained it as pulling us back to the stake in the stand. Rich agreed. Doyle added that most of the data is from 2 labs, which supports the case for using the severity adjusted means.

The motion was voted on and had the following final results: 8 approve, 1 negative, 5 waive. Motion passes.

Intertek	Al Lopez	Approve
Valvoline	Amol Savant	Waive
Lubrizol	Andrew Stevens	Waive

ExxonMobil	Ashley Montufar	Approve
Afton	Ben Maddock	Approve
Infineum	Charlie Leverett	Approve
SwRI	Dan Engstrom	Approve
TEI	Dan Lanctot	Waive
HCS Group	Izabela Gabrel	Approve
OHT	Jason Bowden	Waive
General Motors	Meryn Hopp	Waive
Haltermann	Prasad Tumati	Approve
TMC	Rich Grundza	Approve
Oronite	Robert Stockwell	Negative

Robert Stockwell (Oronite) shared that he voted negative due to the guidance from Jo Martinez who advised we should keep the original 1011 targets and standard deviations. The motion changes something that we can't verify is right or wrong.

Rich Grundza (TMC) confirmed we have quorum and the motion passes. Implementation will be on Jan 4th. He confirmed this is an LTMS change and would not be an information letter.

Prasad Tumati (Haltermann) confirmed no changes to his last update on fuel inventory.

The Chair updated the group on the Engineering Task Force led by Charlie Leverett (Infineum) met last Monday and will be meeting again this afternoon. The group is working towards their objectives. Minutes will be sent to the group. Lab visits will be set up as soon as possible, pending COVID travel restrictions.

The meeting was closed with the Chair's thanks to the group for their hard work, participation, and lively discussions this year. Wishing everyone well for the holidays!

Meeting adjourned at 12:07 PM EST.