

Sequence V Surveillance Panel Meeting
February 25th, 2021 10 AM EST

Roll Call:

Afton: B. Maddock
ExxonMobil: A. Montufar
Ford: M. Deegan
Gage Products: J. Carter
General Motors: B. Cosgrove, T. Cushing
Haltermann: Q. Dunford, P. Tumati
HCS Group: I. Gabrel, T. King
Infineum: D. Boese, C. Laufer, C. Leverett, A. Ritchie (Chair)
Intertek: A. Lopez, B. Buscher
Lubrizol: J. Brys, J. Gleason
Oronite: R. Stockwell
SwRI: A. Chaudhry, D. Engstrom, T. Kostan, M. Lochte
TEI: D. Lanctot
TMC: R. Grundza

Meeting Summary:

The Surveillance Panel met to discuss 931 introduction but it was agreed that further investigation of the lab stand bias was needed first as this could impact correction factors and severity adjustments. For record keeping, a motion was made by TMC: "A laboratory that has a history of successful calibrations in the Seq VH test type is considered an existing laboratory." Motion was passed with 8 approve, 4 waive, 0 negative. A task force was formed to address test validity and will meet in the coming weeks.

Actions:

1. **Statisticians Group** to look at all the available data and analyze lab bias impact on correction factors, SAs, 931 targets.
2. **Robert Stockwell (Oronite)** to lead task force on obtaining clarity around test validity, QIs, 2 hours of no data, etc.
3. Open action from [Feb 15th meeting](#): **Jo Martinez (Oronite)** to lead the assessment of a stand-based system.
4. Open action from [June 24th meeting](#): **Haltermann** to look at fuel data from Sec 8.2.6 requirement and report back to panel.

Next meeting: Thursday, March 11th, 2021 @ 10 AM EST

Meeting Details:

[Minutes from the Feb 15th SP](#) call was unanimously approved (motion by Ankit Chaudhry - SwRI, second by Ben Maddock - Afton).

The Chair summarized the current state of the panel's discussion items:

- 931 targets need to be approved. The Chair reminded the panel that we agreed on a path forward re: calibration (see [July 22nd minutes](#)). We're now at a point where TMC is running out of time with the extensions provided.
- Although the last 15 calibration tests have calibrated, the panel acknowledges the mild shift, that started in the timeframe when the current fuel batch (GI0321NX10) was introduced.
- There is an understanding that some members of the panel believe it's too early to apply 931 targets. A proposal to apply a correction factor was made.
- Moving to a stand-based system has been proposed. But there is broad agreement that this group is not ready to address the stand-based system to replace the lab-based system.

and announced there are two additional items for the meeting agenda: one from Rich Grundza (TMC) and one from Robert Stockwell (Oronite).

Before sharing the 931 document (see appended slides from "931 targets.pptx"), Rich Grundza (TMC) thanked Jo Martinez (Oronite) and Martin Chadwick (Intertek) for their review when generating these targets.

- A summary of the review is listed in slide 2.
- On slide 3 (titled Summary of Severity Adjusted Test Results), Rich noted that there is not a huge difference between the mean AES with and without the correction factor (8.00 vs 7.99).
- Slide 4 (titled Comparison of Reference oil Means) shows 931 performing similarly to 1009.
- Rich commented that he ran f tests on the variances on Slide 5 (titled Comparison of Reference oil Standard Deviations) and concluded they are not significantly different.
- Slide 6 (titled Summary of Test Results, SA's and Corrected Results) has all the numbers there in case others want to double check any of the calculations.
- Finally, Slide 7 (titled Summary of Test Results with ICF, SA's, and Corrected Results) summarizes all the results. Rich remarked that the SAs are smaller but we're adding a fixed correction factor. So it should not be surprising that we end up in the same place with the same correction.

Based on the data shared, Chair Ritchie stated that it appears that 931 offers the role that 1009 played as a borderline oil (in between 940 and 1011). Rich Grundza (TMC) agreed and offered that if we implement these targets today, it should not impact any other decisions we make down the road with respect to a stand-based system or correction factors. It was commented by Doyle Boese (Infineum) that the changes to the targets shown are on the order of 1-2 hundredths, a very small fraction of a standard deviation. Worrying about 2 hundredths would not be a good use of time. Rich added that these are estimates and reminded the panel that these are not absolute.

Chair Ritchie asked what the consequences are from not setting targets soon. Rich Grundza (TMC) replied that 1 lab will have to run a calibration test with a shortened reference period. He added that there's potential for 1 test to fail on these targets.

A motion was made by Rich Grundza (TMC) to approve the targets, seconded by Doyle Boese (Infineum). With the motion on the table and recognizing that there is some disagreement, the

Chair asked for discussion. Interwoven in this discussion was also comments about the need for an industry correction factor.

- Jerry Brys (Lubrizol) stated that Phil Scinto (Lubrizol) asked for more time to analyze the data before approving the targets.
- Travis Kostan (SwRI) disagreed with how the targets were set, noting that we're using the lab SAs to correct for these results, but we've seen stand differences. He highlighted some additional analysis from Phil Scinto (Lubrizol) that changes the recommended correction factor, so it's not fair to say that all methods would result in differences of hundredths. He also shared that unfortunately, the stats group has not been able to meet yet. Chair Ritchie noted the tough week in Texas due to the storm and how this came in only 10 days ago and overtook the 931 process. Understanding the need to address the concerns, the Chair asked how long TMC could wait. Rich Grundza (TMC) stated that we could wait until March 15th. Given the unique set of circumstances and what Travis said, Rich agrees that it would be appropriate to see the other models as it sounds like it might impact the targets. He also added that unanimity is strived for under LTMS guidelines.
- Ben Maddock (Afton) is ok to accept the targets and move forward. However, he noted the importance of looking into lab bias driving the targets as well as the industry mild shift. He added that he is not in favor of a correction factor at this time.
- Jerry Brys (Lubrizol) believes applying a correction factor is the right thing to do. He agreed that although applying a correction factor will not significantly change the numbers, analyzing the data now when we have time is a good precedent.
- Al Lopez (Intertek) is in favor of a correction factor. He would like to consider the full review from the statisticians group before introducing 931. He believed coming to terms with the correction factor should come first. Al suggested that we give more time to do a proper analysis and allow time for the panel to digest via a pre-read.
- Ankit Chaudhry (SwRI) said we need a correction factor. 931 should wait so we can address the concerns listed by Travis.
- Amol Savant (Valvoline) said we need more time to review the data. He concurred with Travis in that we need to understand lab stand biases to understand if a correction factor is applicable or not.

Chair Ritchie summarized the broadly agreed thoughts from the group:

- Correction factor is the right thing to do
- Extra time is necessary to address stand bias / correction factors before setting 931 targets
- Moving to a stand-based system can come later, but the stands will be taken into account to assess correction factors.

Rich Grundza (TMC) withdrew the motion. The Chair confirmed with Travis Kostan (SwRI) that the statisticians will aim to meet the following week, before the March 15th deadline. The panel agreed with this approach and moved on to the next agenda item.

In LTMS, Rich Grundza (TMC) explained, we define criteria when stands exceed calibration. In cases where we have a stand that has not calibrated in x number of periods, there is a question if that becomes a new lab. So that there is no second guessing in the future, Rich requested this criteria to be documented for the Seq VH and put forward a motion:

A laboratory that has a history of successful calibrations in the Seq VH test type is considered an existing laboratory.

The motion was seconded by Al Lopez (Intertek). Some clarifying questions from Jeff Hsu (Shell), answered by Rich Grundza (TMC):

- Is this a private or public lab? Any.
- Will they go back to set codes for their lab? Yes.
- Would all their past references be available for audit? Yes.
- What is the difference between existing and new lab? To get back to calibration status, a new lab has to run 3 tests and an existing lab has to run 2.
- What is the timeframe involved? (ie: offline for 6 months or since VG/VE?) It would have to successfully calibrated under VH.

The Chair called a vote on the above motion from TMC and these are the results:
8 Approve, 4 Waive, 0 Negative

Ford	Mike Deegan	None recorded
Intertek	Al Lopez	Approve
SwRI	Ankit Chaudhry	Approve
ExxonMobil	Ashley Montufar	None recorded
General Motors	Brad Cosgrove	Approve
Afton	Ben Maddock	Approve
TEI	Dan Lanctot	Waive
Shell	Jeff Hsu	Waive
Lubrizol	Jerry Brys	Approve
Oronite	Robert Stockwell	Approve
HCS Group	Tracey King	Waive
Infineum	Caroline Laufer	Approve
Haltermann	Prasad Tumati	Waive
TMC	Rich Grundza	Approve

After the vote, the floor was opened to Robert Stockwell (Oronite). He shared some of his thoughts about test validity (see slide copied). He asked the panel if it would be beneficial to add more clarity around the ramping in the procedure. He wondered if tests will have limits on shutdowns and duration of shutdowns. And he also thought it would be useful to have more clarity on QIs and missing data for 2 hours.

During the last surveillance panel call, it was stated that with an operationally poor test the lab could still call the test valid if the oil passed. Bad tests can be mild or severe. This answer only protects the oil company, not the OEM.

I would like to consider developing a QI for the ramps (which are about 25% of test duration, this is simplified if we just define the ramps at 20 minutes each).

Consider limits for the number of allowed shut-downs and total duration of shutdowns – or is this meaningless since a re-rig would likely have more effect than lots of shut-downs?

It might be worthwhile to state that tests with a negative QI are invalid (or set a maximum – QI threshold) and limit the lab flexibility.

The no data for 2 hours maximum seems excessive to me. If a channel is not logging data the test should be stopped and repairs made. I might be more supportive of a 5-minute allowance on a single channel.

Other thoughts for continuous improvement?

I would be happy to chair a task force to develop these additional requirements.

Re: the ramps, Al Lopez (Intertek) commented that this is not about tighter limits but a matter of maintaining control. Agreed that we should not let our eye off this. Re: the 2 hours, Al said this is about data acquisition. He has manual data logs so not all is lost but this can be discussed more. Re: QIs, Al stated that this is engineering judgement but if it's causing concern for test buyers, then it should be discussed to avoid issues with test validity. He would join the proposed task force. In summary, those who volunteered to participate in the task force are as follows:

- Al Lopez (Intertek)
- Jerry Brys (Lubrizol)
- Ankit Chaudhry (SwRI)
- Amol Savant (Valvoline)
- Mike Deegan (Ford)
- Ben Maddock (Afton)
- Brad Cosgrove (GM)
- Rich Grundza (TMC)
- Charlie Leverett (Infineum)



Robert Stockwell (Oronite) thanked those who volunteered. He will set up a meeting in the next couple of weeks.

The Chair scheduled the next meeting, March 11th, to try to introduce 931. If we are unable to, we will meet again on March 15th, the TMC deadline.

Meeting adjourned at 11:18 AM EST.

Appended: TMC document “931 targets.ppt”

Slide 1:



Test Monitoring Center
<http://astmtmc.cmu.edu>

Reference Oil 931 Targets

All Reference data reported through 2/22/21

Summary of Review

- Reference Oil 931 is to replace Reference Oil 1009
 - Targets adjusted using lab SA from previous reference test in lab. A set of targets also generated with Industry correction factors for AES (0.32) and RAC (+0.0768) applied and severity adjustments calculated using industry corrected results.
 - Reference oil 931 means for RAC and AEV compare reasonably well with 1009, while AES and APV appear to be somewhat milder.
 - Standard deviations appear to be more variable for AES and RAC, while APV and AEV show some improvement when compared to 1009.
 - Summary of all results included at the end of the presentation.

Slide 3:

Summary of Severity Adjusted Test Results

	RAC Corrected	RAC Corrected using ICF	AES Corrected	AES Corrected using ICF	AEV Corrected	APV Corrected
	-0.4271	-0.42767	8.9	8.87	8.42	9.37
	1.0709	1.06682	7.48	7.61	9.23	8.59
	0.4941	0.524412	7.59	7.49	9.24	8.37
	0.1886	0.185038	7.99	7.97	8.53	8.03
	0.4314	0.438202	7.49	7.43	9.22	8.13
	-0.3881	-0.38377	8.56	8.55	8.82	7.6
Mean	0.2283	0.233839	8.00	7.986667	8.97	8.35
s	0.5715	0.57297	0.60	0.599389	0.30	0.60

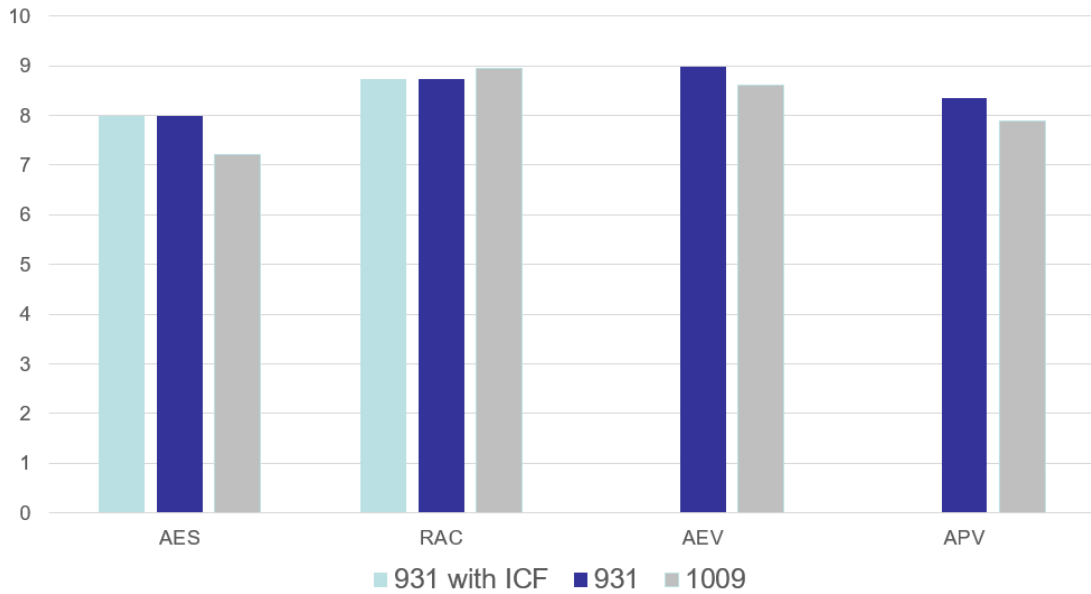
RAC in transformed ($\ln(10-RAC)$) Units

Test Monitoring Center
<http://astmcmc.cmu.edu>



Slide 4:

Comparison of Reference oil Means



RAC means calculated in transformed units (10-RAC) and converted back to original units

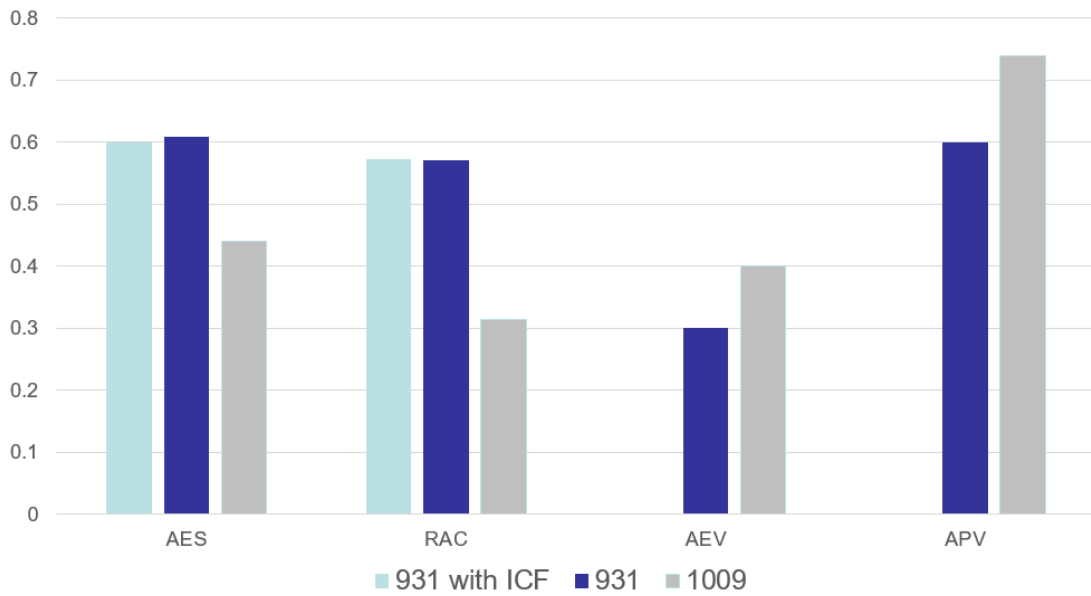
Test Monitoring Center
<http://astmcmc.cmu.edu>



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Slide 5:

Comparison of Reference oil Standard Deviations



Standard deviations not adjusted for lab

Test Monitoring Center
<http://astrimc.cmu.edu>



Slide 6:

Summary of Test Results, SA's and Corrected Results

ind	RAC	AES	AP50	AE50	RACti	RAC SA	AES Sa	APV Sa	AEV Sa	RAC Cor	AES Cor	AEV Cor	APV Cor
931	9.4	9.15	9.12	8.67	-0.5108	0.0837	-0.25	0.25	0.13	-0.4271	8.9	8.80	9.37
931	7.64	7.66	8.55	9.34	0.8587	0.2122	-0.18	0.04	-0.11	1.0709	7.48	9.23	8.59
931	8.54	7.77	8.2	9.16	0.3784	0.1157	-0.18	0.17	0.08	0.4941	7.59	9.24	8.37
931	9.08	8.37	8.2	8.64	-0.0834	0.272	-0.38	-0.17	-0.11	0.1886	7.99	8.53	8.03
931	8.72	7.99	7.7	9.07	0.2469	0.1845	-0.50	0.43	0.15	0.4314	7.49	9.22	8.13
931	9.4	9.2	7.64	8.88	-0.5108	0.1227	-0.64	-0.04	-0.06	-0.3881	8.56	8.82	7.6

Test Monitoring Center
<http://astmcmc.cmu.edu>



Slide 7:

Summary of Test Results with ICF, SA's and Corrected Results

	Lab	Ind	RAC	AES	RACti	AES Corrected	<u>RACti</u> Correction	RAC SA	AES Sa	RAC Corrected Final Result	AES Corrected Final Result
157264-VH	A	931	9.4	9.15	-0.51083	8.83	0.0768	0.006355	0.04	-0.42767	8.87
157255-VH	G	931	7.64	7.66	0.858662	7.34	0.0768	0.131358	0.27	1.06682	7.61
157260-VH	D	931	8.54	7.77	0.378436	7.45	0.0768	0.069176	0.04	0.524412	7.49
157256-VH	G	931	9.08	8.37	-0.08338	8.05	0.0768	0.191619	-0.08	0.185038	7.97
157258-VH	B	931	8.72	7.99	0.24686	7.67	0.0768	0.114542	-0.24	0.438202	7.43
157263-VH	A	931	9.4	9.2	-0.51083	8.88	0.0768	0.050255	-0.33	-0.38377	8.55
									Mean	0.233839	7.986667
									s	0.57297	0.599389