

## Minutes of the Sequence VIF Task Force Teleconference Call

February 10, 2016 08:00 CST

The Sequence VIF Task Force was called to order by Chairman Dan Worcester at 08:00 CST. The meeting Agenda is included as Attachment 1. The meeting attendance roster is included as Attach. 2.

The minutes from the January 27, 2016 meeting were approved as written and are available on the ASTM-TMC web site. A motion for approval was made by Dan Worcester, second by Adrian Alfonso.

<ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIFTaskForceMinutes20160127.pdf>

Attendance for this call was light due to Sequence IIIH activities underway as well as travel to Industry meetings by some of the normal participants.

"Sense Check" testing continues. Southwest Research has completed four runs (RO 543, RO 542-2, RO 542-2 & RO 543). IAR has completed three tests (RO 542-2, RO 543 and a second RO 543). A problem has arisen with the fourth IAR run (RO 542-2). Following completion and with a result lower than expected, a stand calibration was undertaken which discovered a shift in measured Exhaust Back Pressure. Adrian Alfonso's email to Task Force is included as Attachment 3. It is not known if the reduced performance of the RO tested was due to the EBP shift or some other reason. Investigation of data generated during the test could not pinpoint when the shift may have occurred. The error was discovered during a "mini-calibration". IAR asked for advice from the Task Force. Following discussion of the occurrence as well as discussion of the test limits on the parameter, it was decided that IAR would declare the test Invalid and rerun the test on the same RO. The Statisticians in attendance on the call did not feel any re-ordering of the ROs was warranted. The retest at IAR will EOT on about February 19.

Runs that have been reported to the ASTM-TMC are available at:

<ftp://ftp.astmtmc.cmu.edu/refdata/gas/vif/data/>

Used oil samples are being delivered to IAR to complete additional analytical testing as noted in Agenda Item 5.1. Dan Worcester will distribute used oil analytical data to the group.

Following the initial four tests at the two labs, the Stats Group will be able to assess the data. Assuming that data is acceptable, testing will continue. With the final test in the initial "Sense Check" not completing before February 17, it was decided that the next call will be held on Wednesday, February 24 at 08:00 CST.

Having no further business, the meeting was adjourned at 08:23 CST.

Respectfully submitted,

David L. Glaenger, Afton Chemical Corporation

**GF-6B Sequence VIF Task Force**  
**02.10.2016**

Toll-free dial-in number (U.S. and Canada):  
(866) 588-1857  
International dial-in number:  
(678) 373-4882  
Conference code:  
1908975

Scope

The ASTM Sequence VI Surveillance Panel requested a Task Force be formed to determine if the Sequence VIE could be used for OW 16 oils. The TF will look at development of the VIF test using 100 °C oil temperature and 94 °C coolant temperature for stages 1, 3, 4, and 6.

Objective

Review the Toyota proposal and work on selection of reference oils, stands to support testing, and running the Sense Check and test matrices.

The agenda for this meeting is shown below.

- 1.0 Chairman's Comments
- 2.0 Roll Call
- 3.0 The minutes for 01.27.2016 are posted. They are:  
<ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIFTaskForceMinutes20160127.pdf>
- 4.0 All reference oils are ready at the two test labs.
  - 4.1 Results for Stage 1 Sense Check at SwRI

543	1.75	2.33	369
542-2	2.42	1.59	572
542-2	2.28	1.46	777
543	1.76	2.26	995

- 5.0 The matrix is running Stage 1 Sense Check tests. IAR had a problem with exhaust back pressure on their 4<sup>th</sup> test. Stage 2 Sense Check will start after review of the first 8 tests is completed.

Run	EOT Hour	SwRI#1	SwRI#2	IAR#1	IAR#2
1	350	543	1011	542-2	1011
2	550	542-2	542-2	543	543
3	750	542-2	1011	543	1011
4	950	543	543	542-2	542-2
5	1150	1011	543	1011	542-2
6	1350	543	1011	543	1011
7	1550	542-2	542-2	1011	543
8	1750	1011		542-2	

Stage 1 Sense Check Runs will be tested in 2 engines/2 labs

Stage 2 Sense Check Runs will be tested in the other 2 engines/2labs

TMC543 - Oil 400

5.1 Additional Chem for FEI 2 for the matrix

ICP D-5185

TAN D-664

TBN D-4739

FTIR IIIG METHOD E-168

VIS D-445

SwRI will send out data for the 4 tests.

6.0 Next meeting will be Conference Call on 02.17.2016.

Attachment 2

Name	Affiliation
Adrian Alfonso	Intertek
Amol C Savant	Ashland
Andrew Ritchie	Infineum
Charlie Leverett	Intertek
Chris Castanien	Nesteoil
Cliff Salvensen	ExxonMobil
Cole Hudson	SwRI
Dan Worcester Jr.	Chairman, SwRI
David Glaenzer	Secretary, Afton Chemical
Denny Gaal	ExxonMobil
Doyle Boese	Infineum
Eric Liu	SwRI
Gordon Farnsworth	Infineum
Guy Stubs	SwRI
Jason Bowden	OH Technologies
Jim Linden	Toyota
Jo Martinez	Chevron
Kaustav Sinha	Chevron
Kevin OMalley	Lubrizol
Mark Adams	Tribology Testing
Mark Mosher	ExxonMobil
Martin Chadwick	Intertek
Matthew Bowden	OH Technologies
Michael Conrad	Lubrizol
Mike McMillan	Infineum
Nathaniel Moles	Lubrizol
Patrick Lang	SwRI
Ray Burn	ExxonMobil
Rich Grundza	ASTM Test Monitoring
Robert Stockwell	Oronite
Ron Romano	Ford Motor Company
Satoshi Hirano	Toyota
Teri Kowalski	Toyota
Timothy Cushing	General Motors
Todd Dvorak	Afton Chemical
Tracy King	Haltermann
Valerie Lieu	Chevron
William Buscher	Intertek
Bob Campbell	Afton
Mike Ragomo	ExxonMobil
Travis Kotan	SwRI
Thomas Hickl	GM Europe
Jonas Leber	GM Europe
Jerry Brys	Lubrizol
Christine Eickscade	SwRI

	12/16/15	01/06/16	01/27/16	02/10/16
	P	P	P	P
V		P	P	P
V			P	
V		P		
		P		
V				
	P	P	P	P
V	P	P	P	P
	P		P	P
	P			
V	P	P		
V	P	P	P	
			P	
V	P	P	P	
V	P		P	
	P	P		
	P		P	P
V	P	P	P	P
	P		P	
V				
	P	P	P	
		P	P	
V		P		
	P		P	P
V	P	P	P	
	P			
		P	P	
		P		P
		P		

**Glaenger, Dave**

**From:** Adrian Alfonso Intertek <adrian.alfonso@intertek.com>  
**Sent:** Wednesday, February 03, 2016 11:13 AM  
**To:** Worcester Jr, Dan E.; Michael.Warholic@infineum.com; Mark Adams; Sinha, Kaustav; Conrad, Michael; Amol C Savant; Intertek Automotive, Leverett, Charlie; Ford, Romano, Ron; Martinez, Jo G. (jogm); (timothy.cushing@gm.com); doyle.boese@infineum.com; jhbowden@ohtech.com; Bill Buscher Intertek; SATOSHI HIRANO; gordon.farnsworth@infineum.com; Moles, Nathaniel; Lieu, Valerie H; 'Mark Mosher'; Andrew.Ritchie@Infineum.com; Teri Kowalski (TEMA TTC); Robert.Stockwell@chevron.com; Glaenger, Dave; Lang, Patrick M.; Jim Linden; King, Tracey; Matthew Bowden; Kevin OMalley; mmcmillan123@comcast.net; Stubbs II, Guy H.; Martin Chadwick Intertek; Rich Grundza; Dvorak, Todd; Kostan, Travis G.; Guy; Rais, Khaled; Castanien Chris; Eickstead, Christine M.  
**Subject:** IAR VIF PM Test 4 Results Review

Good morning all,

Last week I reported the preliminary results of the 4<sup>th</sup> VIF PM test. The results of our 4<sup>th</sup> VIF test shifted severe compared to the first run on the same oil. The oil is 542-2 which was used for our first and fourth run for the sense check. The results of the first run were FEI1= 2.10, FEI2= 1.44 the results of the fourth run were FEI1= 1.38, FEI2= 0.95.

As you can see both FEI1 and FEI2 shifted severe. We reviewed the data and everything looked normal and in spec; MAP did not shift at all throughout the test, fuel flow did not shift, load did not shift, AFR etc. and also those parameters are in the same range for both tests.

I proceeded to complete a mini-Cal and found that the EBP was out of calibration. The results are shown below:

Calibration Cart Reading (KPa)	Stand Reading (KPa)	Deviation (KPa)
90.01	87.22	-2.79
97.8	94.99	-2.81
104.01	101.19	-2.82

What this means is that if the test was recording 105 KPa it was actually running at ~107.8 (this is based on the Cal results and assuming the EBP was out of spec throughout the test). A full stand Cal was completed before starting the matrix and all parameters were in spec. I am not sure how much EBP could have had influence the results especially if there was no shift in any other parameter.

What I would like to do is present this issue to the group and together make a determination whether the test should be valid or invalid.

If the test is considered invalid, then we will need direction from the stats group before continuing with the matrix.

Regards,

Adrian Alfonso  
**Project Engineer**  
 Seq. VI & Seq. VIII

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**Transportation Technology Business Line**  
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