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COMMITTEE D02 ON PETROLEUM PRODUCTS, LIQUID FUELS, AND LUBRICANTS

Issued: 03.26.2019

Reply to: Dan Worcester
Southwest Research Institute
6220 Culebra Rd.
San Antonio, TX 78238
Phone: 210.522.2405
Email: dworcester@swri.org

These are the unapproved minutes of the 03.23.2019 Sequence VI Conference Call.

The meeting was called to order at 9:04 AM Central Time by Chair Andrew Stevens.

Agenda

1.0 Roll Call: The Attendance list is Attachment 1.

1.1 There were no membership changes.

1.2 The Agenda is Attachment 2.

1.3 The minutes for the 11.30.2019 call were not discussed.

2.0 There was no Old Business.

3.0 New Business

3.1 Discussion about potential alternative fuel supplier Jim Carter

3.1.1 The Gage presentation is Attachments 3 and 4.

3.1.2 There was discussion on the history of EEE as the fuel for sequence testing.

3.1.3 The TGC [Technical Guidance Committee] has a Task Force to review future fuel needs for testing.

3.1.4 The spreadsheet shows the specifications for different fuels.

Bob: He had a question on the batch size to be made and size limits.

Jim: He stated there would be 30,000 tank batches.

Bob: Bob noted this would be about a 2 month supply when several labs were active.

Todd: There is concern about changes with the fuel sitting in a large batch too long.

Adrian: There was an industry desire for a larger batch. Currently labs request a tanker of fuel that lasts about 5-6 weeks.

Jim: These was a question on how to verify a new supplier.

Rich: Currently, labs do not run additional testing between batches, even for the large batch of EEE fuel used to make VIE fuel.

Pat: The TGC recommendation would be for Surveillance Panels to make this decision.

Amol: He asked if data showed a difference between the Michigan fuel used for some labs and the Nixon supply used in San Antonio labs.

Todd: There was some differences in the results.

ACTION: Recommend further calls on how to move forward with an alternate fuel supplier.

3.2 Discussion about availability of test given potential ACEA interest.

3.2.1 Bill Buscher sent a note, included as A1 in the Agenda. An estimate is about 10% of VIE testing would be for ACEA.

3.2.2 The labs have indicated this should not be a problem for the existing supply of engines.

Ron: He has attended meetings an indications are there is no interest in running the VIE for ACEA.

3.2.3

3.3 Break-In hours wording: VIE vs VIF Andrew

3.3.1 Agenda Appendix A2 has notes from Rich about wording in the two procedures. His opinion is the wording in D 8114 is correct, but does need minor corrections for grammatical changes.

3.3.2 There was discussion on when this Section should apply. There was an option to change “unacceptable” to “undesirable”. Rich commented a better word would be “anomalous”.

MOTION: Recommend to the Surveillance Panel that: Section 10.1.1.8 to be modified as follows: "For an engine to be considered “new” for calibration purposes following an anomalous reference test, a lab must run a minimum of an additional 50 h of break-in."

Motion by Andrew Stevens, second by Adrian Alfonso. This passed Unanimous.

3.3.3 Dan Worcester noted a difference in the forms for the VIE and VIF reports. The VIE includes the fuel specification sheets. The TGC is moving to standardize where fuel specifications are kept, so the two report packages will be modified for this change.

3.3.4 There was discussion about future implementation of 542-4 reference oil. Notes from Rich Grundza are in the Agenda Appendix A3. There will be a new 1000 gallon batch. Transition would occur at the end of 2019. Dan Worcester asked if an options would be for a lab to run a research run to check response of this oil blend prior to first use. Rich will make this blend available for that purpose.

5.0 Meeting Adjournment

The meeting adjourned at 10:15 AM Central Time

ASTM SEQUENCE VI

Name	Email/Phone	Company	Attend
drian Alfonso **Voting Member**	Phone: (210) 838-0431 Adrian.Alfonso@intertek.com	Intertek	**ATTEND**
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Dan Worcester **Voting Member**	Phone: (210) 522-2405 Dan.Worcester@swri.org	SwRI	**ATTEND**

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MOTION:				
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VOTES				

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Dan Lanctot **Voting Member**				
Ben Maddock **Voting Member**				
Brianne Pentz **Voting Member**				
Mike Raney **Voting Member**				
Andy Ritchie **Voting Member**				
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VOTES				

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Haiying Tang **Voting Member**				

ASTM SEQUENCE VI

Name	Email/Phone	Company	Attend

Dan Worcester **Voting Member**				
VOTES				

Sequence VI Surveillance Panel Call Meeting Agenda
March 22, 2019 @ 10:00-11:30 EST

Webex Meeting Details Below Agenda

1. Roll Call (start 10:05 EST)

1.1. SP Membership changes and additions

2. New Business

2.1	Discussion about potential alternative fuel supplier	Jim Carter
2.2	Discussion about availability of test given potential ACEA interest - See note from Bill Buscher in Appendix A1	Andrew Stevens
2.3	Breakin hours wording: VIE vs VIF - Wording is not consistent and potentially confers different meaning. References via a note from Rich Grundza in Appendix A2	Andrew Stevens
2.4	Discussion about future implementation of 542-4 reference oil - See note from Rich Grundza in Appendix A3	Rich Grundza

3. Next Meeting

3.1. SP Meeting: TBD

4. Meeting Adjourned

Hello,

Lubrizol Z-MechLab invites you to join this Webex meeting.

Seq VI Surviellance Panel Meeting
Friday, March 22, 2019
10:00 am | Eastern Daylight Time (New York, GMT-04:00) | 1 hr 30 mins

Meeting number (access code): 625 467 786

Meeting password: PWFYcFW7

Add to Calendar When it's time, join the meeting.

Join from a video system or application
Dial **625467786@lubrizol-1586.my.webex.com**
You can also dial 173.243.2.68 and enter your meeting number.

Join by phone
+1-510-338-9438 USA Toll
Global call-in numbers

Can't join the meeting?

Appendix

A1

Note from Bill Buscher regarding ACEA interest:

For the Seq. VI surveillance panel, there is not an official request for action due to the potential for ACEA to use the Sequence VIE in a future specification, but your surveillance panel is under advisement to consider, first conducting a survey of the labs to see if there is concern that Sequence VIE/F hardware might run short if ACEA utilizes one or both tests, and second, if there is a concern, then form a surveillance panel task force to investigate any potential options to extend Sequence VIE/F hardware life. It is entirely up to your surveillance panel to decide if any action needs to be taken. A brief discussion at a near future surveillance panel conference call or meeting, would be an adequate start.

A2

Note from Rich Grundza regarding breakin wording:

There are some inconsistencies in the wording of the requirements for additional breakin on failing references.

Specifically, section 10.1.1.8 of test method D 8114 reads "A laboratory must run a minimum of an additional 50 h of break-in, following an unacceptable reference test, in order for to be considered a new engine for calibration purposes."

Section 10.1.1.8 of D8226 states "For a new engine to be considered for calibration purposes, a lab must run a minimum of an additional 50 h of break-in, following an unacceptable reference test.", which is not consistent.

I believe the wording in D8114 is correct, save a grammatical error i.e it should read “A laboratory must run a minimum of an additional 50 h of break-in, following an unacceptable reference test, in order to be considered a new engine for calibration purposes.”

I can address the grammatical error in D8114 considering this change as editorial. We could discuss this change to D8226 further as given the ltms requirements for the VIF, this may never be pursued. As a minimum, two tests are necessary to calibrate a new stand engine and running the additional break in and calling it a new engine would not allow sufficient engine hours left to conduct non-reference oil tests.

A3

Note from Rich Grundza regarding 542-4:

We should also discuss the introduction of Reference oil 542-4.
There remain 132 gallons of 542-3, which translates to 21-22 tests worth of this oil.
This was a blend of 1000 gallons which will have been depleted in 4 years.
Another blend has been obtained and is available.
We probably won’t begin transitioning to it until late this year, but I think we should be prepared for it and have discussions about it before.

Gage Products Request To Become A Supplier Of Sequence VI Test Fuel

Sequence VI Surveillance Panel Meeting
March 22, 2019

Quick Overview of Gage Products

- **Gage Products is a leading provider of test and reference fuels in North America.**
- **Clients include major automotive OEM's and their suppliers.**
- **Production facilities in Ferndale, Michigan.**
- **ISO9001-2015 and ISO14001-2015 Certified.**
- **Further information found on www.gageproducts.com under the 'Fuels' tab.**

Request Background

- **In the early 1970's the industry had looked for batch repeatable test fuels for use in Sequence III and Sequence VI testing.**
- **It was determined that the Federal Emission Premium Certification Test Fuel at that time met the requirements.**
- **A Lube Cert version of the fuel was implemented for use in Sequences III and VI testing.**
- **In the early 2000's, EPA raised the sulfur level, including the addition of min and max limits, on the Emission Certification version; which became commonly known as Tier II Premium.**
- **Sequence III and VI Surveillance Panels elected to keep the sulfur specification at the lower levels for the Lube Cert versions.**
- **Gage Products has a product that meets the current version of the Tier II Premium fuel.**
- **Gage Products can easily produce the current version of the Sequence VI Lube Cert fuel by adjusting the sulfur level of the Tier II Premium fuel, by adding the Top Tier detergent and the color dye, and by making some minor specification limits changes.**
- **Gage Products is also confident in being able to produce the Sequence VI fuel based on any of the proposed changes to the specifications that are currently being considered by the TGC Fuels Task Force.**
- **Gage Products would like to be considered as a supplier for current and future versions of the Sequence VI test fuel.**
- **Gage Products also recommends some changes in the test methods of the Sequence VI specifications regardless of any version that the Fuels Task Force decides to use.**
- **Questions ?**
- **Thank you for your consideration of our request !**

JEC/3-21-19

Office: 248_541_3824 821 Wanda Avenue
Fax: 248_541_8970 Ferndale, MI 48220
gageproducts.com

Gage Products
Seq. VI Test Fuel Suppier Request
Seq. VI SP Meeting, 3-22-19
Update: 3-21-19 / J. Carter / B. Patzelt

Specification Title			Seq. VI Fuel HF-2003			Gage Products US EPA Cert Fuel 96 RON			Gage			ASTM Specs TABLE 4 Seq. VIE		
TEST	METHOD	UNITS	Seq. VI Specs			Specs			Typical	Comments	METHOD	HF2003		
			MIN	TARGET	MAX	MIN	TARGET	MAX	Values			MIN	TARGET	MAX
Distillation - IBP	ASTM D86	°C	23.9		35.0	23.9		35.0	30.1		ASTM D86	23.9		35.0
5%		°C												
10%		°C	48.9		57.2	48.9		57.2	51.9			48.9		57.2
20%		°C												
30%		°C												
40%		°C												
50%		°C	93.3		110.0	93.3		110.0	102.9			93.3		110.0
60%		°C												
70%		°C												
80%		°C												
90%		°C	151.7		162.8	148.9		162.8	155.7	Gage would change min value		148.9		162.8
95%		°C												
Distillation - EP		°C			212.8			212.8	183.1					212.8
Recovery		vol %		Report			Report		97.8					
Residue		vol %		Report				2.0	1.1					
Loss		vol %		Report			Report		1.1					
Gravity @ 60°F/60°F	ASTM D4052	°API	58.7		59.5		Report		59.1	Gage would add min & max values	ASTM D4052	58.7		61.2
Density @ 15° C	ASTM D4052	kg/l	0.734		0.744		Report		0.7425	Gage would add min & max values				
Reid Vapor Pressure	ASTM D5191	kPa	60.1		63.4	61.32		63.39	63.04		ASTM D323	60.0		63.4
Carbon	ASTM D3343	wt fraction		Report						Gage would add Report	ASTM E191		Report	
Carbon	ASTM D5291	wt fraction		Report			Report		85.99					
Hydrogen	ASTM D5291	wt fraction		Report			Report		14.01					
Hydrogen/Carbon ratio	ASTM D5291	mole/mole		Report			Report		6.138		ASTM E191		Report	
Oxygen	ASTM D4815	wt %			0.05		None		None	Gage would add max spec				
Sulfur	ASTM D5453	mg/kg	3		15	25		35	28.7	Gage would reduce S to meet specs	ASTM D5453	3		15
Benzene	ASTM D3606	vol %			1					Gage would add spec				
Lead	ASTM D3237	mg/l			2.6			0.05	0.00		ASTM D3237			0.01
Manganese	ASTM D3831	g/gal			0.01			0.02	0.00	Gage would change max value				
Phosphorus	ASTM D3231	mg/l			1.3			0.005	0.000		ASTM D3231			1.32
Silicon	ASTM D5185	mg/kg			4			4.00	0.00					
Composition, aromatics	ASTM D1319	vol %	26.0		32.5	25.0		33.0	27.1	Gage would change min & max values	ASTM D1319	26.0		32.5
Composition, olefins	ASTM D1319	vol %			10.0			10.0	0.4		ASTM D1319			10
Composition, saturates	ASTM D1319	vol %		Report			Report		72.5		ASTM D1319		Report	
Particulate matter	ASTM D5452	mg/l			1			1						
Particulate matter	GM Method	mg/l			1.0			1.0						
Oxidation Stability	ASTM D525	minutes	1000			960			>960		ASTM D525	240		
Copper Corrosion	ASTM D130				1			1A	1A					
Gum content, washed	ASTM D381	mg/100mls			5.0			5.0	0.00		ASTM D381			5.0
Gum content, unwashed	ASTM D381	mg/100mls						70.0	0.00					
Fuel Economy Numerator/C Density	ASTM D5291		2401		2441	2401		2441	2412					
C Factor	ASTM D5291			Report						Gage would add Report				
Research Octane Number	ASTM D2699		96.0			96.0		98.5	98.1		ASTM D2699	96		
Motor Octane Number	ASTM D2700			Report			Report		89.9				Report ?	
R+M/2	D2699/2700			Report		92.0			94.0				Report ?	
Sensitivity			7.5			7.5			8.2			7.5		
Net Heating Value, btu/lb	ASTM D3338	btu/lb		Report						Gage would add Report	ASTM D3338		Report	

Gross Heating Value, btu/lb	ASTM D240	btu/lb	Report					Gage would add Report		
Net Heating Value, btu/lb	ASTM D240	btu/lb	Report		Report		18653		ASTM D240	Report
Water and Sediment	ASTM D2709	vol%		0.01		0.01	0.00			
Color	VISUAL	ptb	Red					Gage would add spec		
Top Tier Additive		ptb	Report					Gage would add spec		