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COMMITTEE D02 ON PETROLEUM PRODUCTS, LIQUID FUELS, AND LUBRICANTS

Issued: January 26, 2016

Reply to: Dan Worcester
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Phone: 210.522.2405
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These are the unapproved minutes of the 01.26.2016 Sequence VI Surveillance Panel call.

The meeting was called to order at 8:00 AM Central Time by Nathan Moles.

Agenda

The Agenda is the included as Attachment 1.

1.0 Roll Call

The Attendance list is Attachment 2.

2.0 Approval of minutes

2.1 Approval of the minutes of the 01.12.2016 meeting.

ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIMinutes20160112ConferenceCall.pdf

MOTION: Approve the minutes from the 01.12.2016 conference call.

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[Nathan Moles, Dan Worcester, second] Minutes were approved unanimous.

3.0 Action Item Review

3.1 OHT to provide update on current VIE inventory and service engine order. –OHT
There are 34 -001 engines and 144 of the -002 version.

3.2 Labs reported VID engine inventory and expected depletion date of VID engines.
-Expected life of engines range from 2016 Q1 to 2018
Lab1: **1** engine
Lab2: 1 engine
Lab3: 3 engines
Lab4: 1 engine SwRI has one engine still in storage.

4.0 Old Business

4.1 List of items to be reviewed after the Precision Matrix
Do we really need to run three RO tests to establish the new engine for LTMS?
Discussion of reducing the new reference requirement to two oils, then a third oil run after a defined number of candidates.
Discussion of using FEI 2 and FEI Sum for references to match candidate pass/fail criteria.
Discussion of evaluating 80/20 ratio of BL before to after for FEI 1 and 10/90 for FEI 2.
Should the acceptance bands value of 1.96 be rounded up? Due to the rounding on FEI 1 and 2 the actual pass limit is 1.91 and 1.92.
-SP chair and test sponsor to investigate what is needed to establish VID equivalent limits for VIE
-Discussion of changing BLB1 to BLB2 delta acceptable limits
- Discussion of evaluating 80/20 ratio for BL before to after for FEI 1 and 10/90 for FEI 2.
This will be an on-going effort.

4.2 Discussion on precision matrix. (Spreadsheet attached)–Rich Grundza/Labs.

We started the 5th run on VIE stand SW2 on reference oil 544. There was an extended shutdown for lab repairs during C2 aging. There was then problems restarting the engine. I checked the response for stages 1 through 3 for FEI 2 and it had gone negative.

We found #4 cylinder had a burned exhaust valve. The test was aborted and then engine will be replaced. This was the stand performing extended runs for the precision matrix, so the industry will need a resolution on where to run those additional tests.

Stand 55 is running the second oil and would have two more runs over the next few weeks. One option would be to move the runs to that stand to achieve similar hours. D.Worcester

30 tests are complete. See Attachment 3. SwRI aborted the 5th test on Stand 73 for a burned valve. Those tests will be moved to Stand 55 at the completion of the current 4 tests scheduled for that engine. The Statistics Group will provide the oil run order. This will be an Action Item for the next meeting. The 3rd test at Ashland exceeded the oil consumption limit. There was discussion on how to proceed. They will run 542-2 again to FEI 1 to see how it compares to the invalid test. They will then install a new engine and run their matrix oils again.

4.3 Update from task force, to investigate alternative test procedure Sequence "VIF" that would improve 0W-16. – Dan Worcester/Satoshi Hirano IAR continues to run their Sense Check tests. SwRI is waiting for a purchase order to run the 4th test for the Sense Check series.

4.4 Update from task force to investigate option to prolong usable life of the available VIE engines. –Adrian Alfonso/Bill Buscher SwRI has received and built one long block with new heads, short block and the parts to build a long block. Parts have been reviewed and a parts list created. GM will provide pricing this week. SwRI will install the built engine and run a reference. There will be a Build Workshop scheduled in February.

5.0 New Business

None

6.0 Next Meeting.

The next meeting will be 02.02.2016 conference call.

The meeting adjourned at 8:36 AM.

Sequence VI Surveillance Panel Conference Call Agenda
January 26 @ 9:00-10:00AM EST

Call-in information is included below:

Call-in Number: 866-528-2256
Conference Code: 3744024

1.0) Roll Call

Do we have any membership changes or additions?

2.0) Approval of minutes

2.1 Approve the minutes from the January 12, 2015 Sequence VI Surveillance Panel.

ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIMinutes20160112ConferenceCall.pdf

3.0) Action Item Review

3.1 OHT to provide update on current VIE inventory and service engine order. –OHT

3.2 Update of VID engine inventory and expected depletion date of VID engines.

-Expected life of engines range from 2016 Q1
Lab1: 2 engines
Lab2: 1 engines
Lab3: 3 engines
Lab4: 1 engines

4.) Old Business

4.1 List of items to be reviewed after the Precision Matrix

-Do we really need to run three RO tests to establish the new engine for LTMS?
-Discussion of reducing the new reference requirement to two oils, then a third oil run after a defined number of candidates.

-Discussion of using FEI 2 and FEI Sum for references to match candidate pass/fail criteria.
-Discussion of evaluating 80/20 ratio of BL before to after for FEI 1 and 10/90 for FEI 2.
-Should the acceptance bands value of 1.96 be rounded up? Due to the rounding on FEI 1 and 2 the actual pass limit is 1.91 and 1.92.
-SP chair and test sponsor to investigate what is needed to establish VID equivalent limits for VIE
-Discussion of changing BLB1 to BLB2 delta acceptable limits
-Discussion of evaluating 80/20 ratio for BL before to after for FEI 1 and 10/90 for FEI 2.

4.2 Discussion on precision matrix. (Spreadsheet attached)–Rich Grundza/Labs

-*We started the 5th run on VIE stand SW2 on reference oil 544. There was an extended shutdown for lab repairs during C2 aging. There was then problems restarting the engine. I checked the response for stages 1 through 3 for FEI 2 and it had gone negative.*

We found #4 cylinder had a burned exhaust valve. The test was aborted and then engine will be replaced. This was the stand performing extended runs for the precision matrix, so the industry will need a resolution on where to run those additional tests.

Stand 55 is running the second oil and would have two more runs over the next few weeks. One option would be to move the runs to that stand to achieve similar hours. D.Worcester

4.3 Update from task force, to investigate alternative test procedure Sequence “VIF” that would improve 0W-16. – Dan Worcester/Satoshi Hirano

4.4 Update from task force to investigate option to use short blocks to supplement engine inventory. –Adrian Alfonso/Bill Buscher

5.) New Business

6.) Next Meeting

Next Tuesday (reoccurring weekly meeting)

7.) Meeting Adjourned

ASTM SEQUENCE VI

Name	Address	Phone/Fax/Email	Attendance
Adrian Alfonso **Voting Member**	Intertek Automotive Research	Phone: (210) 838-0431 adrian.alfonso@intertek.com	
Jason Bowden **Voting Member**	OH Technologies	Phone: (440) 354-7007 jhbowden@ohtech.com	ATTEND
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Dan Worcester **Voting Member**	Southwest Research Institute	Phone: (210) 522-2405 dan.worcester@swri.org	ATTEND

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Chris Taylor	Chris.taylor@vpracingfuels.com	VP Racing Fuels	

ASTM SEQUENCE VI

Name	Address	Phone/Fax/Email	Attendance

SEQUENCE VIE RESULTS WITH NO HOUR ADJUSTMENT

SW 1 (Lab A)				SW2 (Lab A)				IAR 1 (Lab G)				IAR 2 (Lab G)				LZ (Lab B)				Afton (Lab D)				Ashland (Lab C)				XOM (Lab F)			
	FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr
544	1.07	0.49	374	1010-1	1.60	1.74	374	542-2	2.34	1.70	390	544	1.36	1.83	363	542-2	3.00	1.86	399	542-2	2.77	1.70	370	544	2.14	2.08	368	1010-1	2.12	2.14	364
544	1.44	1.47	579	1010-1	1.84	1.59	574	1010-1	1.67	1.51	602	542-2	2.93	2.16	561	544	1.48	1.64	597	542-2	2.53	1.74	571	1010-1	2.18	1.82	570	544	0.84	1.51	569
542-2				542-2	2.46	1.48	776	1010-1	1.59	1.49	803	1010-1	1.95	2.12	758	1010-1	1.77	1.99	794	544	1.48	1.24	772	542-2				544	1.04	1.64	768
1010-1				544	1.24	1.11	978	544	1.10	1.04	1002	1010-1	1.71	2.00	956	544	1.04	1.38	992	1010-1	1.83	1.68	928	542-2				542-2	2.86	2.13	968
				544	LOST ENGINE							542-2	2.30	1.73	1154	544	0.89	1.02	1210													
				1010-1								542-2	est1.93			542-2															
				544								544				542-2															
				542-2								544				1010-1															
				542-2								1010-1				1010-1															
				1010-1								544				542-2															
				1010-1								542-2																			

Sequence VID Targets (Engine Hour Adjusted)			
		FEI 1	FEI 2
RO 542-2	0W-20	1.49	0.80
RO 1010-1	5W-20	1.34	1.10
RO 544	5W-30 T1	N/A	N/A

30 tests in TMC database 01/18/2016

542-2

Lab	Stand	Stand Run		FEI 1	FEI 2	FEI Sum	EOT Hours	BLB1/BLB2 Shift	BLB2/BLA Shift	Oil Consumption
IAR (G)	1	1		2.34	1.70	4.04	390	0.23	0.60	700
LZ (B)	1	1		3.00	1.86	4.86	399	0.36	0.76	600
Afton (D)	1	1		2.77	1.70	4.47	370	0.17	1.03	400
IAR (G)	2	2		2.93	2.16	5.09	561	0.08	-0.30	800
Afton (D)	1	2		2.53	1.74	4.27	571	0.18	0.08	400
SRI (A)	1	3								
SRI (A)	2	3		2.46	1.48	3.94	776	0.20	-0.85	600
APAL (C)	1	3								
APAL (C)	1	4								
XOM (F)	1	4		2.86	2.13	4.99	965	0.23	-0.19	700
IAR (G)	2	5		2.30	1.73	4.03	1154	0.28	-0.63	1000
IAR (G)	2	6		est. 1.93				0.31		
LZ (B)	1	6								
LZ (B)	1	7								
SRI (A)	2	8								
SRI (A)	2	9								
LZ (B)	1	10								
IAR (G)	2	11								

544

Lab	Stand	Stand Run		FEI 1	FEI 2	FEI Sum	EOT Hours	BLB1/BLB2 Shift	BLB2/BLA Shift	Oil Consumption
SRI (A)	1	1		1.07	0.49	1.56	374	0.33	0.90	1000
IAR (G)	2	1		1.36	1.83	3.19	363	0.23	0.72	600
APAL (C)	1	1		2.14	2.08	4.22	368	0.16	1.52	700
SRI (A)	1	2		1.44	1.47	2.91	579	0.31	0.06	800
LZ (B)	1	2		1.48	1.64	3.12	597	0.24	0.46	1000
XOM (F)	1	2		0.84	1.51	2.35	569	0.22	-0.50	650
Afton (D)	1	3		1.48	1.24	2.72	772	0.30	0.12	800
XOM (F)	1	3		1.04	1.64	2.68	768	0.09	-0.37	700
SRI (A)	2	4		1.24	1.11	2.35	978	0.22	-1.53	700
IAR (G)	1	4		1.10	1.04	2.14	1002	0.11	-0.19	1600
LZ (B)	1	4		1.04	1.38	2.42	992	0.36	-0.60	800
SRI (A)	2	5		est. 1.40				0.39		
LZ (B)	1	5		0.89	1.02	1.91	1210	0.32	-0.07	1000
SRI (A)	2	7								
IAR (G)	2	7								
IAR (G)	2	8								
IAR (G)	2	10								

1010-1

Lab	Stand	Stand Run		FEI 1	FEI 2	FEI Sum	EOT Hours	BLB1/BLB2 Shift	BLB2/BLA Shift	Oil Consumption
SRI (A)	2	1		1.60	1.74	3.34	374	0.34	0.51	600
XOM (F)	1	1		2.12	2.14	4.26	364	0.28	0.84	500
SRI (A)	2	2		1.84	1.59	3.43	574	0.22	-0.05	700
IAR (G)	1	2		1.67	1.51	3.18	602	-0.01	-0.02	1100
APAL (C)	1	2		2.18	1.82	4.00	575	0.21	0.68	800
IAR (G)	1	3		1.59	1.49	3.08	803	-0.08	-0.22	1700
IAR (G)	2	3		1.95	2.12	4.07	758	0.39	-0.09	1000
LZ (B)	1	3		1.77	1.99	3.76	794	0.28	-0.46	1000
SRI (A)	1	4								
IAR (G)	2	4		1.71	2.00	3.71	956	0.29	-0.51	1100
Afton (D)	1	4		1.83	1.68	3.51	928	0.12	-0.20	900
SRI (A)	2	6								
LZ (B)	1	8								
IAR (G)	2	9								
LZ (B)	1	9								
SRI (A)	2	10								
SRI (A)	2	11								

SEQUENCE VIF RESULTS WITH NO HOUR ADJUSTMENT

SW 1 (Lab A)				SW2 (Lab A)				IAR 1 (Lab G)				IAR 2 (Lab G)			
	FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr		FEI 1	FEI 2	EOT hr
543	1.75	2.33	369	1011				542-2	2.10	1.44	371	1011			
542-2	2.42	1.59	572	542-2				543	1.59	1.66	621	543			
542-2	2.28	1.46	777	1011				543	1.68	1.74	820	1011			
543				543				542-2				542-2			
1011				543				1011				542-2			
543				1011				543				1011			
542-2				542-2				1011				543			
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 two engines/2labs

6 tests in TMC database 01/14/2016