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Issued: February 16, 2016
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These are the unapproved minutes of the 02.16.2016 Sequence VI Surveillance Panel call.

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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 02.02.2016 meeting.

<ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIMinutes20160202ConferenceCall.pdf>

MOTION: Approve the minutes from the 02.02.2016 conference call.

[Nathan Moles, Dave Glaenzer, second] Minutes were approved unanimously.

3.0 Action Item Review

- 3.1 OHT to provide update on current VIE inventory and service engine order. –OHT
There are 28 -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: 0 engine Lubrizol is installing their last engine.
Lab3: 3 engines
Lab4: 1 engine
This will be an on-going effort.

- 3.3 Labs have run out of reference oil 541-1 so RO 540 is being assigned now.

MOTION: The LTMS will be modified to show reference oil 540 as the second oil assigned for a new engine.

Rich Grundza, Dave Glaenzer second. 12 yes, 0 waive, 0 no.

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 evaluating 80/20 ratio of BL before to after for FEI 1 and 10/90 for FEI 2.
Consider evaluating FEI 1 vs 100% BLB2 (or 3) and evaluating FEI 2 vs 100% BLA.
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
This will be an on-going effort.
- 4.2 Discussion on precision matrix. (Spreadsheet attached)–Rich Grundza/Labs.
38 tests are complete. [See Attachment 3](#). SwRI is running their portion of the extended matrix in Stand 55. Ashland has installed a new engine and will run their portion of the matrix. The final run order has been modified as shown below:

Step	Run Order	SwRI1	SwRI2	IAR1	IAR2	LZ	Afton	Ashland	XOM	Engine Hrs
1	1	544	1010-1	542-2	544	542-2	542-2	544	1010-1	350
	2	544	1010-1	1010-1	542-2	544	542-2	1010-1	544	550
	3	542-2	542-2	1010-1	1010-1	1010-1	544	542-2	544	750
	4	1010-1	544	544	1010-1	544	1010-1	542-2	542-2	950
2	5	544			542-2	544				1150
	6	1010-1			542-2	542-2				1350
	7	1010-1			544	542-2				1550
	8	542-2			544	1010-1				1750
	9	542-2			1010-1	1010-1				1950
	10	544			542-2	544				2150
	11	1010-1			544					2350

4.3 Update from task force, to investigate alternative test procedure Sequence “VIF” that would improve 0W-16. – Dan Worcester/Satoshi Hirano [SwRI has completed Sense Check 1. IAR 4th test will complete this week. The 8 tests will be reviewed and a decision made to continue to Sense Check 2. Hirano-san will provide some comparison data from a VID matrix and some VIE test results on 0W-16 oils. The next conference call will be 02.24.2016.](#)

4.4 Update from task force to investigate option to prolong usable life of the available VIE engines. –Adrian Alfonso/Bill Buscher [SwRI built one long block with new heads, short block and GM supplied parts. They ran a reference on RO 542-2. There will be a Build Workshop scheduled. Current plan is the week of 03.21 to coordinate with some other industry meetings.](#)

SRI (A)	2.32	1.41	3.73	779
SRI (A)	2.46	1.48	3.94	776
GM BLOCK	2.48	1.75	4.23	350

5.0 New Business

None

6.0 Next Meeting.

The next meeting will be 03.01.2016 conference call. The 02.23 meeting will be skipped.

The meeting adjourned at 8:23 AM.

Sequence VI Surveillance Panel Conference Call Agenda February 16 @ 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 February 2, 2015 Sequence VI Surveillance Panel.

<ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIMinutes20160202ConferenceCall.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 Q3

Lab1: 1 engines

Lab2: 0 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. Consider evaluating FEI 1 vs 100% BLB2 (or 3) and evaluating FEI 2 vs 100% BLA.
- 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.

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

Updated Matrix from stats group...

Step	Run Order	SwRI1	SwRI2	IAR1	IAR2	LZ	Afton	Ashland	XOM	Engine Hrs
1	1	544	1010-1	542-2	544	542-2	542-2	544	1010-1	350
	2	544	1010-1	1010-1	542-2	544	542-2	1010-1	544	550
	3	542-2	542-2	1010-1	1010-1	1010-1	544	542-2	544	750
	4	1010-1	544	544	1010-1	544	1010-1	542-2	542-2	950
2	5	544			542-2	544				1150
	6	1010-1			542-2	542-2				1350
	7	1010-1			544	542-2				1550
	8	542-2			544	1010-1				1750
	9	542-2			1010-1	1010-1				1950
	10	544			542-2	544				2150
	11	1010-1			544					2350

4.3 Update from task force, to investigate alternative test procedure Sequence “VIF” that would improve OW-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

SRI (A)	2.32	1.41	3.73	779
SRI (A)	2.46	1.48	3.94	776
GM BLOCK	2.48	1.75	4.23	350
	FEI 1	FEI 2	SUM	HRS

5.) New Business

6.) Next Meeting

Next Tuesday (reoccurring weekly meeting)

7.) Meeting Adjourned

ASTM SEQUENCE VI

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Dan Worcester Voting Member	Southwest	Phone: (210) 522-2405 dan.worcester@swri.org	ATTEND

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ASTM SEQUENCE VI

Name	Address	Phone/Fax/Email	Attendance
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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	2.32	1.41	779	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	1.54	1.95	785	544	1.04	1.64	768
1010-1	1.57	1.43	1003	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				544	LOST ENGINE							542-2	2.30	1.73	1154	544	0.89	1.02	1210												
1010-1												542-2	2.02	1.31	1371	542-2	1.91	1.07	1406					544							
1010-1												544	1.07	1.10	1568	542-2	1.84	0.78	1603					1010-1							
542-2												544	0.79	0.71	1767	1010-1	1.34	0.75	1799					542-2							
542-2												1010-1				1010-1								542-2							
544												542-2				544															
1010-1												544																			

		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

38 tests in TMC database 02/16/2016
36 OPVALID tests

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	2.32	1.41	3.73	779	0.33	-0.32	
SRI (A)	2	3	2.46	1.48	3.94	776	0.20	-0.85	600
APAL (C)	1	3A 2 nd engine							
APAL (C)	1	4A 2 nd engine							
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	2.02	1.31	3.33	1371	0.31	-0.32	1200
LZ (B)	1	6	1.91	1.07	2.98	1406	0.19	-0.51	800
LZ (B)	1	7	1.84	0.78	2.62	1603	0.24	-0.03	1200
SRI (A)	1	8							
SRI (A)	1	9							
IAR (G)	2	10							

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
APAL (C)	1	1A(2 nd engine)							
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)	1	5					0.39		
LZ (B)	1	5	0.89	1.02	1.91	1210	0.32	-0.07	1000
IAR (G)	2	7	1.07	1.10	2.17	1568	0.12	-0.09	1000
IAR (G)	2	8	0.79	0.71	1.50	1767	0.30		1100
SRI (A)	1	10							
LZ (B)	1	10							
IAR (G)	2	11							

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	1100
APAL (C)	1	2A(2 nd engine)							
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	1.57	1.43	3.00	1003	0.19	-0.68	700
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)	1	5							
SRI (A)	1	7							
LZ (B)	1	8	1.34	0.75	2.09	1799	0.15		600
IAR (G)	2	9							
LZ (B)	1	9							
SRI (A)	1	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	1.76	2.26	995	543				542-2	Invalid (EBP issue)			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

7 tests in TMC database 02/02/2016

7 OPVALID tests