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November 23, 2005

Reply to: Frank M. Farber

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Unapproved Minutes of the November 9, 2005 Sequence VG Surveillance Panel Meeting Held in San Antonio, TX

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Chairman Ritchie called the meeting to order at 1:02 pm. The Agenda was passed out and reviewed. {The Agenda is shown in Attachment 1.}

Chairman's comments: Past Chairman Gordon Farnsworth is feeling well after a recent illness.

**Membership Changes**: A Membership list, which was circulated at the meeting, is shown in Attachment 2. Perkin Elmer will now be called Intertek AR. Steve Combs and Jim Azzouz (FORD) called in to the meeting at 2:30pm.

Motion & Action Item Recorder: Bill Buscher is the Motion & Action Item recorder for this meeting.

**Approval of 5/19/05 Meeting Minutes:** The minutes for the meeting were approved unanimously and without comment.

### **Review of Action Items:**

### NOVEMBER 9<sup>th</sup> 2005 REVIEW OF MAY 19<sup>th</sup> 2005 ACTION ITEMS

Motions and Action Items

### As Recorded at the Meeting by Bill Buscher

- 1. Motion Approval of Minutes for 11/16/04. Approved without changes. Dwight Bowden / Bill Buscher III / Passed unanimously
- 2. Action Item Jim Carter will supply Dow contact information to the laboratories for acquiring information on remaining allocations of the current SVGM2 fuel batch.

#### COMPLETED.

3. Action Item – The TMC will survey the laboratories on what Sequence VG parts they would be interested in purchasing if Ford Power Products would be willing to issue an additional parts solicitation. Dan Worcester and Bill Buscher will generate a parts list and forward it to the TMC for this survey.

IN PROCESS. TMC COMPILED AND CIRCULATED LIST.

4. Action Item – Mike Riley to contact Ford Power Products and TEI to evaluate the potential of offering an additional Sequence VG parts solicitation and an additional Sequence VG cylinder head build.

IN PROCESS. TO BE DISCUSSED AT THIS (NOV.) MEETING.

5. Motion – Discontinue the requirement for the roller follower pin wear and ring gap increase rate and report items from the Sequence VG test procedure. Effective 05/19/05. Bill Buscher III / Jerry Brys / Passed unanimously

### COMPLETED. INFORMATION LETTER ISSUED.

6. Motion – Modify the Sequence VG test procedure to state if a test has greater than 2 hours of lost electronic data acquisition on any controlled parameter, the test will be considered operationally invalid.

Dan Worcester / Bill Buscher III / Passed unanimously COMPLETED. INFORMATION LETTER ISSUED.

7. Motion – Use the linear regression correction equation (2.175 + AES)/1.192 for AES, the linear regression correction equation ((RAC + 0.627)/1.040 for RAC, a fixed correction factor +0.19 for AEV, a fixed correction factor +0.54 for APV and no correction factor for OSCR as industry correction factors to be applied to all tests conducted using the new Haltermann SVGM2 fuel (batch number TA1921LS15). These temporary industry correction factors will be reviewed and finalized when 5 tests are available on reference oils 1009, 1006-2 and 925-3.

Dwight Bowden / Mike Riley / 7 For 1 Against 2 Waive

Final vote will be updated Tuesday 05/24/05.

COMPLETED. BALLOT PASSED. INFORMATION LETTER ISSUED.

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8. Action Item – Include superscripts on test report form defining the industry correction factors that will be applied to all tests conducted using the new Haltermann SVGM2 fuel (batch number TA1921LS15).

INCOMPLETE. REPORT REVISION TO BE ISSUED.

9. Motion – New fuel batch will be only added to a laboratory's fuel tank when the current fuel level is below 10% of the final fuel mixture's total volume.

Dwight Bowden / Dave Glaenzer / Passed unanimously

### COMPLETED.

10. Motion – Update the test method precision statement in D6593 to reflect LTMS SA standard deviations.

Frank Farber / Dan Worcester / Passed unanimously

COMPLETED. INFORMATION LETTER ISSUED.

11. Action Item – Chairman of the LTMS, Ben Weber to investigate the pros and cons of the new IIIG LTMS system and study how well it could potentially be applied to the VG. Report back to the group by the November meeting.

INCOMPLETE.

12. Motion – Modify Sequence VG test procedure section 13.4.1.3 to state: "Determine the percentage of the total screen opening that is obstructed with sludge. Determine the percentage of the total screen opening that is obstructed with debris."

Rich Grundza / Dave Glaenzer / Passed unanimously

COMPLETED, INFORMATION LETTER ISSUED.

**TMC Report** – Rich Grundza noted that the TMC has received new fuel batch tests on 1009 and 1006-2 and is anticipating a result on 925-3 shortly.

**TMC Report** –the TMC report at the Chairman's request. His full report can be reviewed at the following link:

ftp://ftp.astmtmc.cmu.edu/docs/gas/seguencev/semiannualreports/vg-10-2005.pdf

The current reference oil trends are shown below:

Parameter	Average Δ/s	Shift	Direction
RAC	0.189	0.08	Mild
AES	0.016	0.01	On Target
APV	-0.183	-0.05	Severe
AEV	-0.520	-0.05	Severe
OSCR	-0.014	-0.02	On Target

**RSI** Report – There were no questions regarding the emailed report.

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**Fuel Supplier Report** – SVGM2 fuel batch TF2221LS20 was reviewed by Bob Rumford (See Attachment 3-3A). On 6/23/2005 Dow made adjustments to get RVP( they had dropped to 8.6) back within spec (Isobutane and Isopentane were used for the adjustment). Amounts used for the adjustments are listed in gallons. The old fuel batch 9906416 analysis and adjustment history are shown on 3B-3C. Dave Glaenzer noted that the C of A's being supplied by Dow do not represent the most recent tank analysis of the fuel batch. Bob Rumford said that Dow would correct this problem.

Operational and Hardware Items – Dan Worcester presented Attachment 4. Approved. 10/0/1.

Test Sponsor Report - Rocker breathers are no longer available. The panel requested that Steve Combs (Ford) investigate a suitable substitute. Ford FCS (Ford Component Sales) is managing the parts supply now and is developing strategies to ensure parts availability till 2015. They estimate 4 to 6 weeks before final part commitments can be firmed up. Front covers need to be procured first based on the lab needs. Pistons and rings sets are the next parts of interest for labs. Engine kits (A & B) and gasket kits would be next. Estimates of \$1.6 million worth of parts need to be purchased to ensure industry part supply till 2015. Ford does not think that there is a need for all parts to be procured as one large purchase. However, Ford noted that there may be parts that are going to be phased out by suppliers that will need to be purchased in one large batch. Also, Ford noted that some part procurements will need to satisfy minimum purchase requirements. The panel felt that Ford's proposal was acceptable. The panel felt that a parts solicitation in the spring of 2006 was needed to capture GF-5 part supply needs. Part supply status will need to be revisited on an ongoing basis to determine if parts are slatted for phase out by the various suppliers. The panel will hold a conference call for Tuesday, January 10, 2006 @ 10:00 eastern time for determining the final GF-4 parts supply need.

**Scope and Objectives** – Chairman Ritchie presented the Scope and Objectives of the Sequence VG Surveillance Panel for review (Attachment 5). The objectives were modified as shown.

Old Business – There was no old business.

New Business – Rater Calibration proposal (Attachment 6) was made by Rich Grundza and accepted.

The meeting was adjourned at 3:15 pm.

### Motions and Action Items

### As Recorded at the Meeting by Bill Buscher

- 1. Motion Approval of Minutes for 05/19/05. Approved without changes. Andy Ritchie / Bill Buscher / Passed unanimously
- 2. Action Item Include superscripts on test report form defining the industry correction factors that will be applied to all tests conducted using the new Haltermann SVGM2 fuel (batch number TA1921LS15).

NOTE: Carryover from May 2005 Surveillance Panel meeting.

3. Action Item – Chairman of the LTMS, Ben Weber to investigate the pros and cons of the new IIIG LTMS system and study how well it could potentially be applied to the VG. Report back to the group by the November meeting.

NOTE: Carryover from May 2005 Surveillance Panel meeting.

- 4. Action Item Bob Rumford will change the SVGM2 fuel Certificate of Analysis that accompanies fuel shipments to the laboratories to indicate the most recent tank analysis on the current fuel batch instead of the initial analysis on the current fuel batch.
- 5. Motion Change the Sequence VG test procedure as follows: Section 9.6.1.1 change to: "Suitable devices are available from the suppliers listed in X2.1."

Section 9.6.1.2 change to: "Calibrate, zero and span the Horiba units per the Users Manual. Calibrations shall be done prior to a stand reference oil test. Calibrations are not required for the PLX devices."

Section 9.6.1.1 delete: "No adjustments can be made to change the exhaust gas lambda." And change to: "Lambda values can be affected by the EEC, ignitions system, fuel injection, or vacuum leaks."

Annex A3.16 change to: "Modify range for Lambda sensors from 102 to 152 mm (4 to 6 inches)."

Dan Worcester / Ed Altman / 10 For 0 Against 1 Waive

6. Action Item – Dan Worcester will research an acceptable replacement for the current oil breathers.

Sequence VG Surveillance Panel Meeting November 9, 2005 San Antonio, TX

- 7. Motion VG rater is required to attend CRC Light-Duty Rating Workshop on an annual basis and generate data that meets CRC's definition of Blue, Red or White. If the rater is unable to attend a CRC Light-Duty Rating Workshop for causes beyond his/her control, the rater must attend the next CRC Workshop (which could be a Heavy-Duty Rating Workshop). If the rater does not attend the very next CRC Light-Duty/Heavy-Duty Rating Workshop, the rater is no longer able to rate VG reference oil or candidate oil tests until attending a CRC Light-Duty Rating Workshop. Effective with the next scheduled Light-Duty Rating Workshop. This applies only to varnish deposit rating.
  - Rich Grundza / Dan Worcester / 11 For 0 Against 0 Waive
- 8. Action Item Ford Component Sales will research and develop a hardware procurement plan for GF-4 and GF-5 within the next 4 to 6 weeks.
- 9. Action Item Andy Ritchie to schedule a Surveillance Panel conference call for Tuesday January 10, 2006 at 10:00am CST to review Ford Component Sale's hardware procurement plan.
- 10. Action Item Ford Component Sales will investigate a replacement or the possibility of an additional production run for the current oil separator used for the Sequence VG test.

# Agenda Sequence VG Surveillance Panel November 9, 2005 1.00 - 5.00 P.M San Antonio

1. Chairman comments.	
2. Attendance sign-in distribution.	
3. Membership changes.	
4. Motion and Action recorders.	
5. Approval of minutes for May 19 2005.	All
6. Review action items from last meeting.	Andy Ritchie
7. Test Sponsor report.	Mike Riley/Steve Combs
- Status of VG parts buy for remainder of GF-4.	•
<ul> <li>Options for securing VG parts for GF-5.</li> </ul>	
8. TMC Report.	Rich Grundza
- Questions on semi-annual report.	
9. RSI Report.	Bill Mahoney
- Questions on semi-annual report.	•
10. Fuel Supply Report.	James Carter
- Update on new fuel.	
11. Operational and Hardware Items.	All
12. Review Scope and Objectives.	All
13. Old business	All
14. New business	All
15. Adjourn	

NOV 9th 2005.

### MEMBERSHIP ASTM SEQUENCE VG SURVEILLANCE PANEL

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PRODUCT: SVGM2 Batch No.: TF2221LS20 TF2221LS20 TF2221LS20 TF2221LS20 TF2221LS20 TF2221LS20

TMC No.:

TMO No.:

 PRODUCT CODE:
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TEST	METHOD	UNITS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
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Distillation - IBP	ASTM D86	°F	86	84	89	81	82	82
5%		°F	112	107	112	110	110	110
10%		°F	125	123	125	124	130	124
20%		°F	147	145	146	146	149	147
30%		°F	174	172	173	175	178	176
40%		°F	208	206	205	205	208	208
50%		°F	227	226	226	226	229	228
60%		°F	238	237	238	237	241	240
70%		°F	252	252	254	256	254	254
80%		°F	288	287	287	288	291	290
90%		°F	341	341	341	341	344	343
95%		°F	360	358	358	359	360	361
Distillation - EP		°F	409	410	403	410	410	411
Recovery		vol %	98.3	97.1	97.7	97.5	98.0	97.5
Residue		vol %	1.0	1.0	1.0	1.0	1.0	1.0
Loss		vol %	0.7	1.9	1.3	1.5	1.0	1.5
Gravity	ASTM D4052	°API	57.2	57.2	57.2	57.3	56.7	57.2
Specific Gravity	ASTM D4052	-	0.750	0.750	0.750	0.749		0.750
Reid Vapor Pressure	ASTM D323	psi	9.0	9.1	9.1	9.2	8.6	9.1
Reid Vapor Pressure	ASTM D5191	psi	8.9	9.0	9.0	9.1	8.6	9.1
Oxidation Stability	ASTM D525	minutes						
Existent gum, unwashed	ASTM D381	mg/100mls	1	1	1	1	1	2
Existent gum, washed	ASTM D381	mg/100mls	<1	<1	<1	1	1	1
	!					after adj, used for july report	To be adjusted	

APPROVED BY: JCM JCM JCM JCM JCM JCM JCM JCM/HCD

	Date of	Blendstock	Amount		RVP before	RVP after	API	Amount	Final
	Adjustment	used	used		Adjustment	Adjustment	Gravity	Adjusted	Inventory
TK 74	6/23/2005	Isobutane	1450	0.25%	8.6	9.1	57.2	573387	580462
TK 74	6/23/2005	Isopentane	5626	0.98%	8.6	9.1	57.2	573387	580462

 PRODUCT:
 SVGM2
 Batch No.:
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after adjust after adjust

Analysis Date: 5/12/2005 4/6/2005

		Analysis Date:		4/6/2005	3/3/2005	1/6/2005	12/2/2004
TEST	METHOD	UNITS	RESULTS		RESULTS	RESULTS	RESULTS
Distillation - IBP	ASTM D86	°F	82	81	83	88	94
5%		°F	220	109	111	113	118
10%		°F	125	124	128	130	133
20%		°F	149	145	156	156	159
30%		°F	180	174	187	189	189
40%		°F	212	208	217	218	218
50%		°F	231	227	232	233	234
60%		°F	242	238	242	243	245
70%		°F	256	251	258	259	260
80%		°F	296	289	296	296	295
90%		°F	342	342	343	344	344
95%		°F	359	360	359	359	361
Distillation - EP		°F	403	413	403	404	407
Recovery		vol %	98.0	97.5	97.2	97.5	97.4
Residue		vol %	1.0	1.0	1.0	1.0	1.0
Loss		vol %	1.0	1.5	1.8	1.5	1.6
Gravity	ASTM D4052	°API	56.8	57.1	56.2	56.2	56.3
Specific Gravity	ASTM D4052	-	0.751	0.750	0.754	0.754	0.754
Reid Vapor Pressure	ASTM D323	psi	9.0	9.0	9.0	8.9	8.9
Reid Vapor Pressure	ASTM D5191	psi	9.0	9.0	9.0	8.8	8.9
Existent gum, unwashed	ASTM D381	mg/100mls	1	1	1	1	2
Existent gum, washed	ASTM D381	mg/100mls	<1	<1	<1	<1	<1

SVGM-2 adjustment data

					D5191	D5191	D4052		
	Data of		Diameterals	A	RVP before	RVP after		A	
Taul. / Oanasit. / asl)	Date of		Blendstock	Amount			API	Amount	0/ 0 -1:41
Tank / Capacity (gal)	Adjustment		used	used	Adjustment	Adjustment	Gravity	Adjusted	% Adjusted
tk 74; 1,200,000	Jun-99		Initial batch made	0	9.20	9.20	57.3	1,114,350	0.00%
tk 74	Dec-99			0	9.15	9.15	57.2	1,068,530	
tk 74	Mar-00			0	9.10	9.10	57.2	1,031,030	
tk 74	Jun-00			0	9.10	9.10	57.0	900,325	0.00%
tk 74	Sep-00			0	9.00	9.00	57.0	804,802	0.00%
tk 74	Dec-00			0	9.00	9.00	57.0	734,167	0.00%
tk 74	Mar-01			0	8.90	8.90	56.9	695,111	0.00%
tk 74	May-01		Isobutane	4212	8.80	9.15	57.4	638,231	0.66%
tk 74	Aug-01	*	Isobutane	3505	8.70	9.20	57.3	580,804	0.60%
tk 74	Aug-01	*	Isopentane	1000	8.70	9.20	57.3	580,804	0.17%
tk 74	Dec-01			0	9.10	9.10	57.2	532,485	0.00%
tk 74	Mar-02	*	Isobutane	3327	8.7	9.2	57.3	485,092	0.69%
tk 74	Mar-02	*	Isopentane	500	8.7	9.2	57.3	485,092	0.10%
tk 74	Jun-02			0	9.1	9.1	57.3	479,454	0.00%
tk 74	Sep-02			0	8.9	8.9	57.1	458,454	0.00%
tk 74	Dec-02			0	8.8	8.8	57.1	390,565	0.00%
tk 74	Oct-03		Isobutane	1508	8.65	9.2	57.4	295,793	0.51%
tk 74	Apr-04		Isobutane	1099	8.6	9.1	56.4	189,754	0.58%
tk 65; 200,000	Jul-04	*	Isobutane	597	8.6	9.2	56.3	137,284	0.43%
tk 65	Jul-04	*	Isopentane	1493	8.6	9.2	56.2	137,284	1.09%
tk 65	Aug-04		Isobutane	598	8.7	9.1	56.3	128,324	0.47%
tk 65	Oct-04		Isobutane	672	8.5	9.0	56.4	95,994	0.70%

## **VG MOTIONS**

11.09.2005
VG SURVEILLANCE PANEL
SAN ANTONIO, TX

## D6593 MOTIONS - A

- Recommend to the Surveillance Panel the following procedure changes as a motion:
  - Section 9.6.1.1 Change to: "Suitable devices are available from the suppliers listed in X2.1
  - Section 9.6.1.2 Change to: "Calibrate, zero and span the Horiba units per the Users Manual. Calibrations shall be done prior to a stand reference oil test. Calibrations are not required for the PLX devices.

## D6593 MOTIONS - B

- Recommend to the Surveillance Panel the following procedure changes as a motion:
  - Section 9.6.1.1 Delete: "No adjustments can be made to change the exhaust gas lambda." Change to: "Lambda values can be affected by the EEC, ignitions system, fuel injection, or vacuum leaks."
  - Annex A3.16 Change to: Modify range for Lambda sensors from 102 to 152 mm (4 to 6 inches).

### ASTM SEQUENCE V SURVEILLANCE PANEL

### SCOPE AND OBJECTIVES

### **SCOPE**

The Sequence V Surveillance Panel is responsible for the surveillance and continued improvement of the Sequence VG test documented in ASTM Standard D6593 as updated by the Information Letter System. Data on test precision and laboratory versus field correlation will be solicited and evaluated at least every six months. Improvements in rating technique, test operation, test monitoring and test validation will be accomplished through continual communication with the Test Sponsor, ASTM Test Monitoring Center, ASTM BO.01, Passenger Car Engine Oil Classification Panel, ASTM Light Duty Rating Task Force, ASTM Committee B0.01, CMA Monitoring Agency and CRC Motor Rating Methods Group. Actions to improve the process will be recommended when deemed appropriate based on input from the preceding. Industry transition to new engine hardware batches will be monitored and redistribution of existing hardware facilitated to accomplish uniform industry implementation. Development and correlation of updated test procedures with previous test procedures will be reviewed by the panel. This process will provide the best possible test procedure for evaluating automotive lubricant performance with respect to the lubricant's ability to prevent engine sludge, engine varnish, oil screen plugging, oil ring clogging and ring sticking.

Objectives Target Date

1. Future engine supply plan

May, 2006

2. Review temporary fuel severity corrections when 5 tests are available on all three oils – 925-3, 1009, 1006-2

May, 2006

Andy Ritchie, Chairman Sequence VG Surveillance Panel

Updated November 9, 2005 San Antonio, TX

## Motion

- Rater is required to attend CRC Light-Duty Rating Workshop on annual basis and generate data that meets CRC's definition of Blue, Red and White.
- If rater is unable to a attend CRC Light-Duty Rating
  Workshop for causes beyond his control the rater must
  attend the next CRC Workshop (which could be a heavyduty). If the rater does not attend the very next CRC
  Heavy-Duty Workshop. The rater is no longer able to
  rate Sequence IIIG reference oil or candidate tests until
  attending a CRC Light-Duty Workshop.