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Unapproved Minutes of the November 17, 2004  
Sequence III Surveillance Panel Meeting  
held in San Antonio, Texas

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The meeting was called to order at 9:00 am by Chairman Bill Nahumck. A membership list was circulated for members & guests to sign in. It's shown in Attachment 1.

Agenda Review

Bill Buscher is Action & Motion recorder.

The Agenda was accepted as shown on Attachment 2.

## Membership Changes

Ed Altman from Afton replaces Dave Glaenger.  
Clayton Knight from TEI added as a new member.

## Meeting Minute Status

The May 12, 2003 meeting minutes were approved by the surveillance panel.

## Review of Action Items from Last Meeting

### Action Items

Sequence III Surveillance Panel

May 12, 2004

As Recorded at the Meeting by Bill Buscher

1. OHT to respond back to Surveillance Panel with details on the IIIG camshaft rejected for lobe height. OHT to provide lobe height pre-test specifications to O&H Chairman for inclusion into the procedure.

OHT accepted the rejected camshaft even though the camshaft was in specification. This camshaft was a reground camshaft. OHT reported that 200 lab camshafts were measured and found to be within specifications. OHT will not supply lobe height data to the industry to avoid confusion. The Test Sponsor stated that subtly differences in lobe heights that can be observed and can be misleading to the end user. The Test Sponsor feels that the surface finish of the lobe is the more important specification.

2. TMC to add new hone introduction to industry IIIG LTMS timeline.

TMC Semi-Annual Report Memo 04-101 contains a note in the IIIG timeline when the new honing procedure was approved. An additional note will be added when the first test was reported on the new honing procedure.

3. O&H Subpanel to investigate the blowby evacuation systems that are currently in place in an attempt to better standardize. O&H Chairman to report back to the Surveillance Panel by November 2004.

See O&H report at this meeting

4. Any candidate oil test QI data, especially data close to or below the QI threshold, to be sent to the TMC for review to determine if the current upper and lower control limits are appropriate.

No data has been submitted to the TMC at this point.

5. Surveillance Panel Chairman will report that the Surveillance Panel discussed the GF-4 category calibration oil and the Surveillance Panel felt that the current slate of calibration oil s provided the best selection to date. No other oils for the IIIG have been brought to the chair's attention to date or presented at this meeting for discussion.

Done.

6. O&H Chairman to follow up with Chris May concerning objective no. 11 from the current Sequence III Scope & Objectives.

Chris May's group still working on MRV issues.

7. Surveillance Panel Chairman to contact chairman of the HDEOCF to discuss their future need for the IIF test and the life expectancy of the IIF test.

Done.

8. Add to the Sequence III Scope & Objectives to review the IIIG data from the recent Rating Workshop(s) to develop a IIIG rater calibration proposal. Establish a Task Force to accomplish this. Scott Parke volunteered to be the chair and asked those who are interested to please contact him regarding being a member or who have input for consideration. It was also suggested that the previous Rater Calibration Task Force that reported on this issue at the TGC I 1999 asked to review and comment on Scott Parke's presentation made today.

Recommendations due in May 2005.

9. Further analyze IIIG reference oil 435 data to determine if there is an influence on severity from the new hone and if new targets should be set. The other IIIG reference oils should also be analyzed when sufficient data is present.

Resolved through teleconferences. Targets will be updated at 20, 25, 30 and 35 tests.

#### IIIF/IIIG/IIIGA TMC Test Status

No report given. The TMC reports are posted to the TMC website.

#### RSI Report

No RSI attendance. Reports have been previously emailed to panel members and posted to the RSI website.

#### Fuel Supplier Report

Jim Carter presented data from the last 3 fuel batches. All items were within specification. Jim noted that basestock prices were driving up the cost of the finished product. See Attachment 3.

#### IIIG/IIIF CPD Reports

##### OHT

Report accepted (Attachment 4).

##### GM Motorsports

Sid Clark summarized verbally the GM Motorsports report. Items mentioned were that the parts inventory was in good supply with 1900 rods, 61 cranks, 243 new heads and 101 reworked heads

##### O&H Report

Pat Lang's report is Attachment 5. Pat noted that Blowby evacuation pressure and condensation drain back will be focused on for difference amongst labs. Drain back of condensate is to go back into the engine and there is not be any draw on the blowby.

Build sheets with the critical measurements will be added to the IIIF/IIIG procedures. Labs will have to supply build data electronically when requested.

Blowby limits were modified as follows: Eliminate as a validity requirement from the Sequence IIIF procedure, the requirement to maintain an average blowby of 23.0 L/min for the first 26 hours of the test.

See Motions & Action Items for additional motions.

### Status of IIIG Standard

The Sequence IIIG Test Method is being worked on by Pat Lang and is currently being reviewed. The Test Method will be balloted March 2005.

### Scope & Objectives

See Attachment 6.

### New Business

The TMC requested that RO 432 (not currently used in Sequence III referencing) be released by the Sequence III Surveillance Panel for use by one of the bench test areas. Motioned passed.

Replacement electronic components (circuit board) for the SPS torque wrench are difficult to obtain. Ingersoll Rand is working on a replacement wrench but the availability date is not known. PerkinElmer has had some success in getting wrenches repaired. Sid Clark will check with the GM rebuild center to see what is currently being used. OHT has two backup torque wrenches that can be made available if necessary.

The meeting was adjourned at 11:05 am.

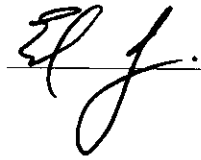
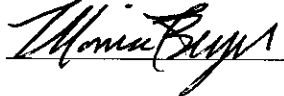
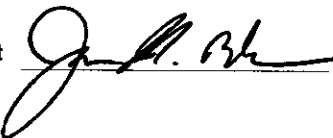

Motions and Action Items As Recorded at the Meeting by Bill Buscher

1. Motion – Surveillance Panel to release control of reference oil 432.  
Mike Kasimirsky / Charlie Leverett / Passed unanimously
2. Action Item – GM to send the San Antonio laboratories a machined engine block for inspection, before the machining process is completed on the entire batch of blocks.
3. Motion – Implement the suggested Sequence III engine build worksheet into the annex of the Sequence IIIF and IIIG procedures. Laboratories will be required to perform all of these measurements during the build and retain the data. Data should be made available for TMC lab audits or Surveillance Panel requests.  
Effective with release of information letter.  
Pat Lang / Sid Clark / Passed unanimously
4. Motion – Eliminate as a validity requirement from the Sequence IIIF procedure, the requirement to maintain an average blowby of 23.0 L/min for the first 26 hours of the test (procedure section 12.14.3). Effective 11/17/04.  
Pat Lang / Monica Beyer / Passed unanimously
5. Motion – The mineral spirits requirement will only require that the aromatic content, flash point and color requirements of ASTM D 235, Type II, Class C solvent must be met. Laboratories will use the Certificate of Analysis documentation for each batch to verify that these requirements have been met.  
Pat Lang / Dwight Bowden / Passed unanimously
6. Motion – Revise yield stress units from cP to Pa on form 6 of the Sequence IIIF test report.  
Pat Lang / Mike Kasimirsky / Passed unanimously
7. Action Item – O&H Subpanel to research a replacement torque wrench or options for repairing existing torque wrench.

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**November 17, 2004**

**San Antonio, Texas**

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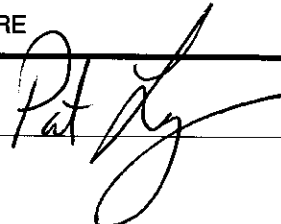


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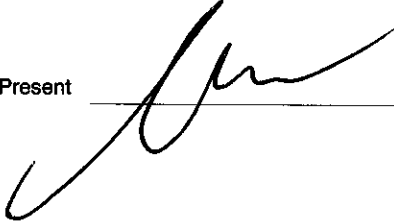

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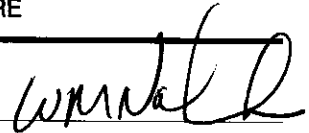

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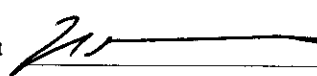
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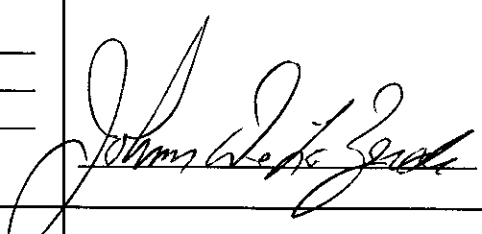


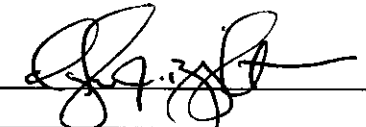
SEQUENCE III SURVEILLANCE PANEL MEETING

Attachment  
1

GUEST LIST

November 17, 2004

San Antonio, Texas

NAME/ADDRESS	PHONE/FAX/EMAIL	SIGNATURE
Johnny De la Zepeda PERKIN ELMER Auto Research 3104 Bandera Rd S. A. TX 78234 johnnyde.lazepeda@perkinelmer.com	210-523-4621	
WILLIAM A BUSCHEN III SWRI 6220 CULEBRA RD SA, TX 78228 wbuschen@swri.edu	210-522-6802	
ZACK Bushop TEI Reunion Meeting List ZRBI@TEI-NET.COM	210-877-0223	
CLAYTON J. KNIGHT TEI (Test Engineering, Inc.) 12718 Cimarron Path San Antonio, Texas 78249 CKNIGHT@TEI-NET.COM	210 877-0228	PLEASE add ME AS A member 

**AGENDA**  
**SEQUENCE III SURVEILLANCE PANEL MEETING**

Southwest Research Institute, San Antonio, Texas

November 17, 2004

9:00 AM to 2:00 PM

1. APPOINTMENT OF RECORDER OF ACTIONS/MOTIONS
2. AGENDA REVIEW
3. MEMBERSHIP CHANGES
4. APPROVAL OF THE MINUTES FROM THE MAY 2004 MEETING
5. REVIEW OF ACTION ITEMS FROM THE LAST MEETING

TMC TEST SEMIANNUAL REPORT HIGHLIGHTS – Mike Kasimirsky

SEQUENCE IIIF – D6984

SEQUENCE IIIG

SEQUENCE IIIGA

IIIG LTMS Review – Ben Weber

RSI SEMIANNUAL REPORT– Bill Mahoney

SEQUENCE IIIF – D6984

SEQUENCE IIIG

SEQUENCE III FUEL SUPPLIER REPORT – James Carter

SEQUENCE III CPD SUPPLIER REPORTS

1. OHT
2. GM MOTORSPORTS

O&H REPORTS– Pat Lang

SEQUENCE IIIF

**Sequence IIIF blowby specification**

SEQUENCE IIIG

SEQUENCE IIIGA

**Configuration of the blowby evacuation system**

**Engine rebuild measurement recording**

**Solvent specification in the procedures**

OLD BUSINESS

1. Status of IIIG Standard – Bill Nahumck
2. Review of Scope & Objectives – Bill Nahumck

NEW BUSINESS

1. RO 432
2. Torque Wrench



PRODUCT: EEE Unleaded Gasoline  
 PRODUCT CODE: HF003

Batch No.: SJ1521LS11 SI2121LS11  
 Tank No. 2012 2014  
 Analysis Date: 10/26/2004 9/28/2004

TEST	METHOD	UNITS	FED Specs		HALTERMANN Specs			RESULTS	RESULTS
			MIN	MAX	MIN	TARGET	MAX		
Distillation - IBP	ASTM D86	°F	75	95	75		95	88	87
5%		°F						115	112
10%		°F	120	135	120		135	127	125
20%		°F						149	146
30%		°F						173	171
40%		°F						201	199
50%		°F	200	230	200		230	222	221
60%		°F						234	232
70%		°F						246	246
80%		°F						269	268
90%		°F	305	325	305		325	324	323
95%	°F						340	338	
Distillation - EP		°F		415			415	415	395
Recovery		vol %				Report		98.0	98.0
Residue		vol %				Report		1.0	1.0
Loss		vol %				Report		1.0	1.0
Gravity	ASTM D4052	°API	58.7	61.2	58.7		61.2	58.8	59.0
Density	ASTM D4052	kg/l			0.734		0.744	0.743	0.743
Reid Vapor Pressure	ASTM D323	psi	8.7	9.2	8.7		9.2	9.1	9.2
Reid Vapor Pressure	ASTM D5191	psi				Report		9.0	9.1
Carbon	ASTM D3343	wt fraction				Report		0.8655	0.8671
Carbon	ASTM E191	wt fraction				Report		0.8638	0.8648
Hydrogen	ASTM E191	wt fraction				Report		0.1349	0.1338
Hydrogen/Carbon ratio	ASTM E191	mole/mole				Report		1.861	1.843
Oxygen	ASTM D4815	wt %					0.05	<0.05	<0.05
Sulfur	ASTM D5453	ppm		1000	3		15	3	4
Lead	ASTM D3237	g/gal		0.05			0.01	<0.01	<0.01
Phosphorous	ASTM D3231	g/gal		0.005			0.005	<0.0008	<0.0008
Composition, aromatics	ASTM D1319	vol %		35.0			35.0	29.1	32.2
Composition, olefins	ASTM D1319	vol %		10.0			10.0	0.3	0.3
Composition, saturates	ASTM D1319	vol %				Report		70.6	67.5
Particulate matter	ASTM D5452	mg/l					1	0.8	0.8
Oxidation Stability	ASTM D525	minutes			240			>1000	>1000
Copper Corrosion	ASTM D130						1	1	1
Gum content, washed	ASTM D381	mg/100mls					5	<1	<1
Fuel Economy Numerator/C Density	ASTM E191				2401		2441	2430	2430
C Factor	ASTM E191					Report		1.0029	1.0045
Research Octane Number	ASTM D2699		93.0		96.0			96.5	96.4
Motor Octane Number	ASTM D2700					Report		87.8	88.0
Sensitivity			7.5		7.5			8.7	8.4
Net Heating Value, btu/lb	ASTM D3338	btu/lb				Report		18472	18430
Net Heating Value, btu/lb	ASTM D240	btu/lb				Report		18368	18388
Color	VISUAL	1.75 ptb				Report		RED	RED

PRODUCT: EEE Unleaded Gasoline  
 PRODUCT CODE: HF003

Batch No.: SH1221LS11  
 Tank No. 2016  
 Analysis Date: 8/24/2004

TEST	METHOD	UNITS	FED Specs		HALTERMANN Specs			RESULTS
			MIN	MAX	MIN	TARGET	MAX	
Distillation - IBP	ASTM D86	°F	75	95	75		95	85
5%		°F						110
10%		°F	120	135	120		135	125
20%		°F						145
30%		°F						169
40%		°F						197
50%		°F	200	230	200		230	220
60%		°F						232
70%		°F						245
80%		°F						267
90%		°F	305	325	305		325	323
95%	°F						338	
Distillation - EP		°F		415			415	394
Recovery		vol %				Report		97.0
Residue		vol %				Report		1.0
Loss		vol %				Report		2.0
Gravity	ASTM D4052	°API	58.7	61.2	58.7		61.2	59.2
Density	ASTM D4052	kg/l			0.734		0.744	0.744
Reid Vapor Pressure	ASTM D323	psi	8.7	9.2	8.7		9.2	9.1
Reid Vapor Pressure	ASTM D5191	psi				Report		9.0
Carbon	ASTM D3343	wt fraction				Report		0.8662
Carbon	ASTM E191	wt fraction				Report		0.8640
Hydrogen	ASTM E191	wt fraction				Report		0.1326
Hydrogen/Carbon ratio	ASTM E191	mole/mole				Report		1.829
Oxygen	ASTM D4815	wt %					0.05	<0.05
Sulfur	ASTM D5453	ppm		1000	3		15	4
Lead	ASTM D3237	g/gal		0.05			0.01	<0.01
Phosphorous	ASTM D3231	g/gal		0.005			0.005	<0.0008
Composition, aromatics	ASTM D1319	vol %		35.0			35.0	30.7
Composition, olefins	ASTM D1319	vol %		10.0			10.0	0.3
Composition, saturates	ASTM D1319	vol %				Report		69.0
Particulate matter	ASTM D5452	mg/l					1	0.8
Oxidation Stability	ASTM D525	minutes			240			>1000
Copper Corrosion	ASTM D130						1	1
Gum content, washed	ASTM D381	mg/100mls					5	<1
Fuel Economy Numerator/C Density	ASTM E191				2401		2441	2430
C Factor	ASTM E191					Report		1.0020
Research Octane Number	ASTM D2699		93.0		96.0			96.4
Motor Octane Number	ASTM D2700					Report		87.8
Sensitivity			7.5		7.5			8.6
Net Heating Value, btu/lb	ASTM D3338	btu/lb				Report		18452
Net Heating Value, btu/lb	ASTM D240	btu/lb				Report		18424
Color	VISUAL	1.75 ptb				Report		RED

# Attachment 4

## CENTRAL PARTS DISTRIBUTOR REPORT OH Technologies, Inc.

Sequence III Surveillance Panel Meeting  
Southwest Research Institute, San Antonio, TX  
November 17, 2004

### 1.) Rejections from 5/10/2004 to 11/17/2004 :

<u>PART</u>	<u>REASON</u>	<u>RESOLUTION</u>	<u>LABS</u>
2 EA. OHT3F-014-1 WRIST PIN	VISUAL DEFECT IN WELD	REPLACED	1
11 EA. OHT3F-029-3 ACI LIFTER	VARIOUS VISUAL DEFECTS	REPLACED	1
OHT3F-030-2 MODIFIED OIL COOLER	IMPROPER WELD ON BYPASS	REPLACED	1
CONN ROD BRG	SIDE CLEARANCE / BURRS	REPLACED	1
1 SET CONN ROD BRG	ZERO CALCULATED CLEARANCE	REPLACED	1
5 EA. POS. 1 & 4 CAM BRG	CLEARANCE	REPLACED	2
1 EA. POS. 2 & 3 CAM BRG	CLEARANCE	REPLACED	1
OHT3F-053-1 GR12 PISTON	NICK IN GROOVE	REPLACED	1
OHT3F-055-1 GR56 PISTON	SKIRT UNDERSIZED	REPLACED	1
OHT3G-085-1 FRONT COVER	CASTING FLAW	REPLACED	1

### 2.) Technical Memos Issued

Tech Memo #10: BC 4, OHT3G-059-1 IIIG, Spring, Valve (Color Code Pink)  
Not Painted

### 3.) Batch Code Changes

## Attachment 4 (continued)

<b><u>IIIF</u></b>	<b><u>Batch Code</u></b>	<b><u>Date Introduced</u></b>
Camshaft	PC 11 (RH)	11/4/04
Pushrod	BC 7	9/10/04
Grade 12 Piston	BC 15 & BC 16	9/16/04 & 10/29/04 respectively
Grade 34 Piston	BC 15	10/22/04
Grade 56 Piston	BC 15 & BC 16	8/5/04 & 10/26/04 respectively
IIIF Spring	BC6	10/29/04
Rocker Arm	BC 8	7/2/04
Cam Bearing	BC 10	6/24/04
Conn. Bearing	BC 12	8/5/04

<b><u>IIIG</u></b>	<b><u>Batch Code</u></b>	<b><u>Date Introduced</u></b>
Camshaft	PC 11 (RH)	11/4/04
Pushrod	BC 7	9/10/04
Grade 12 Pistons	BC 15 & BC 16	9/16/04 & 10/29/04 respectively
Grade 34 Pistons	BC 15	10/22/04
Grade 56 Pistons	BC 15 & BC 16	8/5/04 & 10/26/04 respectively
RUNS 1-4 Rings	BC 4	8/6/04
IIIG Spring	BC4	11/8/04
Rocker Arm	BC 8	7/2/04
Cam Bearing	BC 10	6/24/04
Conn. Bearing	BC 12	8/5/04

**Report of the O&H Subpanel  
to the  
Sequence III Surveillance Panel**

**Presented by**

**Pat Lang**

**November 17, 2004**

# O&H Action Items From 5/12/04 Meeting

1. OHT was asked to investigate a camshaft that was rejected for lobe height.
  1. Individual camshaft in question was deemed to be within specification.
  2. CPD also reviewed height measurement data from SwRI and PerkinElmer and deemed all material to be within specification.
  3. Data was shared with test developer.
  4. No further action to be taken.

## 5/12/04 Action Items (cont'd)

- O&H Subpanel to investigate the Sequence III blowby evacuation system.
  - Photos were collected from all labs identifying the various systems.
  - Test Developer and O&H chairman reviewed photos and identified the differences.
  - Standardization efforts will be focused on rocker cover plumbing, oil drain back into the breather tube and venting pressure (vacuum).

## 5/12/04 Action Items (cont'd)

- O&H Chairman to follow up with Chris May regarding used oil MRV matrix.
- Chris reported that a round robin has been completed and the group is expecting to have a draft of the research report completed by the end of the year. He anticipates the addition of a separate used oil precision statement for D-4684.



## 5/12/04 Action Items (cont'd)

- A suggestion was made to better outline and document critical engine build measurements.
  - O&H group put together a Seq. III engine build worksheet to outline required measurements.
  - Labs will be expected to collect these measurements for TMC review or requests by Surveillance Panel.

# Motion #1

- Implement the suggested Sequence III engine build worksheet into the Annex of the IIF and IIG procedures. Laboratories will be required to perform all of these measurements during the build. Data should be made available for TMC lab audits or Surveillance Panel requests.

# New Business

- The Sequence IIIF procedure has a validity requirement for the blowby to average 23.0 L/min or greater for the first 26 hours of test. Several labs have observed tests that are skirting this limit (running low).
  - **Spec was chosen based on running 5W oils.**
  - **Changes in the hone may have affected blowby**
  - **No mechanism for labs to 'fix' low blowby**

## Motion # 2

Eliminate from the IIF Procedure the requirement to maintain an average blowby of 23.0 L/min for the first 26 hours of test (procedure section 12.14.3).

## New Business (cont'd)

- Information Letters have been issued to cover the following:
  - Front and rear crank seals, oil pan gasket
    - GM part # change, CPD to supply current seals
  - New exhaust valve part number
    - slight change in seat width
  - Powder metal connecting rods
    - Already in use at some labs

## New Business (cont'd)

- Concerns were brought up in the Gear area that there may be a problem with available solvents (mineral spirits) meeting all criteria under the ASTM D235 spec for Type II, Class C solvent.
- Clarifications may need to be added to the procedure to specify what criteria are critical for individual test types.

# Sequence III Data Dictionary

## Items

- On Form 6 of the Sequence IIIF test report, the units for yield stress are still listed as “cP”, this should be “Pa”.

## THE ASTM SEQUENCE III SURVEILLANCE PANEL

### SCOPE & OBJECTIVES

#### SCOPE

The Sequence III Surveillance Panel is responsible for the surveillance and continual improvement of the Sequence IIIF and IIIFHD test documented in ASTM Standard D6984-03 as update by the Information Letter System. The Sequence III Surveillance Panel is also responsible for the surveillance and continual improvement of the new Sequence IIIG and IIIGA tests which will be documented as an ASTM Standard DNNNN-XX and updated by the Information Letter System. Data on test precision and laboratory versus field correlation will be solicited and evaluated at least every six (6) months for Sequence III test procedures. The Surveillance Panel is to provide continual improvement of rating techniques, test operation, test monitoring and test validation through communication with the Test Sponsor, ASTM Test Monitoring Center, Operations and Hardware Subpanel, the Central Parts Distributor, fuel supplier, ASTM B0.01 Passenger Car Engine Oil Classification Panel, ASTM Light Duty Rating Task Force, ASTM Committee B0.01, ACC Monitoring Agency and CRC Motor Rating Methods Group. Actions to improve the process will be recommended when appropriate based on input to the Surveillance Panel from one or more of the previously stated groups. Develop updated test procedures when necessary and review the correlation with previous test procedures. This process will provide the best possible Sequence III Type Test Procedure for evaluating automotive lubricant performance with respect to the lubricant's ability to prevent oil thickening, varnish formation, oil consumption and engine wear.

#### OBJECTIVES

#### TARGET DATE

- |   |                          |
|---|--------------------------|
| 1. Prepare the IIIG Test Method for elevation to ASTM Standard  | January 2005             |
| 2. Issue the IIIG Test Method for ballot to ASTM for approval as a Standard   | March 2005               |
| <del>2. Review of Oil Consumption Limits for validity for 20 hour and EOT interpretability for the Sequence IIIG test</del> | <del>November 2004</del> |
| 3. Reporting of used oil D4684 apparent viscosity and yield stress  | May 2005                 |
| 4. Develop a Sequence III rater calibration proposal  | May 2005                 |

William M. Nahumck, Chairman

Updated November 17, 2004