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Unapproved Minutes of the May 12, 2004 Sequence III Surveillance Panel Meeting held in Detroit, Michigan

The meeting was called to order at 8:00 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 attached (Attachment 2).

Membership Changes

John Moffa from Castrol has requested removal as a member and from the mailing list. Mark Sutherland replaces Mark Cooper from Chevron-Texaco.

Meeting Minute Status

Minutes from the October 29, 2003 meeting and subsequent teleconference minutes are posted on the TMC website. All were approved by the surveillance panel.

Sequence IIIG LTMS Review – Ben Weber

Presentation attached (Attachment 3). The attached presentation is a result of the prior day's task force meeting and revisions made at the surveillance panel meeting. Two motions were made concerning the LTMS revisions.

Frank Farber motioned and Sid Clark seconded that if a test result has a 3.0>Yi > 2.0 when an SA exists on that same parameter from the previous test, the calibration period is 75 days or 18 starts (plus grace periods from other lab/stand issues) Effective - May 12, 2004

1 oppose, 0 waive, 9 approves

Ben Weber motioned, Gordon Farnsworth seconded a motion to approve the attached LTMS revisions. The motion was approved with the following tally: For 8, 0 oppose, 2 waives.

IIIG TMC Test Status

It was noted that the TMC Sequence IIIG semi-annual report contained an error on page 1, which indicated that Lab E had five stands which is incorrect. The TMC will post a correction to the website. No report given.

RSI Report

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

IIIG/IIIF CPD Reports

OHT

Jason Bowden presented Attachment 4. Parts rejected for the period of 10/29/2003 to 5/10/2004 are shown. There was one IIIG cam that was rejected because of lobe height. The CPD will forward ideas on a lobe height spec to the O&H chairman for review. Batch Code changes were also reviewed without comment. One Technical Memo was released by the CPD. Report accepted.

GM Motorsports

Sid Clark summarized verbally the GM Motorsports report. Below is the report given to the secretary after the meeting.

GM Raceshop
Sequence III Test Hardware Report

- Cylinder Heads
  - 200 heads CNC machined per month
    - Current laboratory usage = about 75% monthly production
    - All labs are working off back order status
    - Raceshop is giving priority to San Antonio Lab orders
    - Raceshop has order at Plant 36 for 1836 castings to be delivered over the next 90 days
  - 320 heads in rework processing (exhaust seat pocket)
    - 190 complete, remaining balance due May 31, 2004
    - Heads will then be inspected, repackaged, and identified as rework material.
    - Distribution at laboratory level not to exceed 10% each order
  - Laboratories may choose to increase that percentage to supplement internal inventory

- Cylinder Blocks
  - 68 fully machined blocks on the shelf
  - Additional material in processing

- Connecting Rods
  - 1452 rods on the shelf
  - Next order at Raceshop will be Powdered Metal Rods

Testing:
GM in cooperation with SwRI (O&H Laboratory) ran two tests, one IIIF and one IIIG to prove out the reworked cylinder heads and Powdered Metal Rods. Both tests generated passing results.
(Previously approved for test usage during March 2004 Sequence III Conference Call)

O&H Report

Pat Lang presented Attachment 5 as the O&H report. Motions 1 & 2 of the attachment were approved.

Pat noted that reference oil 435 on percent viscosity increase is showing mild results with the new honing procedure.

Rater Workshop feedback: Pat Lang motioned(MTK seconded) to revise the IIIF/IIIG test procedures to include revised wording describing the undercrown rating area based on recommendations from May 2, 2004 Rater Workshop. Also, the use of the 20-segment breakdown cap when rating ring lands and grooves was approved. Effective June 1, 2004. Motion passed.

The Phase III Round Robin honing exercise was discussed and was agreed to be dropped as an O&H action item.

The two San Antonio labs will redo their honing machine calibration using the Sunnen rig by June to see if there has been any changes since Sunnen calibrated the machines.

The O&H motions were made by Pat Lang and seconded by Charlie Leverett. Both passed. June 17, 2004 is the effective date for pre-test cam lubricating procedure (see attachment).

A review by O & H of QI limits was requested by Charlie Leverett. Labs are requested to submit operationally valid CSV files to the TMC of tests that they would like to be included in a QI review.

Category Reference Oil Response

No overwhelming response supporting the new reference oil has been received. The Surveillance Panel Chairman will report that the current reference oil supply is acceptable. No other oils for the IIIG have been brought to the chair's attention to date or presented at this meeting for discussion.

IIIGA TMC Test Status Highlights

No report given. Refer to the TMC website for the posted report.

IIIF/IIIG/IIIGA Reporting Issue

Pat Lang requested that pass/fail parameter transformations be shown of the report forms and included in the data dictionary description fields to aid users of the test reports. This request was approved by a voice vote of the panel.

Pat also noted that when yield stress is less than 35 Pa labs are currently reporting 'NM' in the yield stress field. It is more accurate to use '<35'. Pat motioned the above. Gordon Farnsworth seconded. Motion passed by a voice vote of the panel. This item will be effective with the release of a revised data dictionary.

Increase IIIG/IIIGA MRV field length to 7 to handle 100,000 cP. The motion was approved by a voice vote of the panel.

During the discussion it was mentioned that there is still an objective item to resolve the reporting of apparent viscosity and yield stress using D4684. The panel felt they needed additional information before making any decisions and decided to wait until Chris May's MRV Task Force addresses used gasoline oils.

IIIF TMC Test Status Highlights

No report was given. Refer to TMC website for posted report.

Fuel Supplier Report

Report attached shows the summary of the 3 batches, everything is in spec. (Attachment 6).

Status of IIIG Research Report

The IIIG research report ballot is scheduled to close May 17, 2004. One comment has been reported to date.

Previous Meetings Action & Motion Items

The previous surveillance panel action & motion items are shown on Attachment 7.

Two items still need attention:

The 20-hour and EOT oil consumption limits need resolution by the O&H panel as well as the monitoring of ring batches 1 – 4. Both items moved to current objectives. After some discussion, ring batch monitoring was later dropped as an objective. The surveillance panel felt there was no issue with ring batches.

Scope & Objectives

A copy of the revised scope and Objectives is shown as Attachment 8.

Rater Calibration

Scott Parke made a presentation concerning rater calibration (Attachment 9). Scott made a point to ask the surveillance panel if they were interested in pursuing rater calibration beyond what is currently in place. The panel agreed to listen to the TMC ideas and eventually formed a task force to discuss rater calibration ideas. During the discussion it was noted that some earlier round robin work highlighted rating differences between raters.

New Business

Discussion of the performance of reference oil 435:

Mild results on percent viscosity increase with the new honing procedure have been noted. The panel felt that it was best to suspend the use of reference oil 435 until new hone data is reviewed and addressed. The surveillance panel will hold a teleconference call on May 18, 2004 10 am eastern. Dwight Bowden motioned to do this and Charlie Leverett seconded. This motion was approved by a voice vote of the panel.

Life of Sequence IIIF: It was noted that the Heavy Duty Class Panel will probably keep the IIIF in their next category so the Sequence IIIF may need to live on.

Cam Batch Info (Dip batch, etc.): It was noted that the TMC data base has not been fully populated with this information. It was also noted that labs are not required to report this information to the TMC. The CPD has not been getting requests from labs

for this information. Labs are requested to send this information to the TMC. Batch requests can be sent to Jason Bowden to obtain the information to send into the TMC.

Motions & Action ItemsAs Recorded at the Meeting by Bill Buscher

1. Motion – Modify IIIG LTMS to read: When lab Yi > 2 on critical parameters during a time when the Shewhart Severity K has been increased to 3.0, because the lab has an existing severity adjustment from the previous reference oil test, the lab calibration period will be reduced as follows: Yi > 2 = 75 days or 18 test starts (plus grace periods)

Effective 5/12/04
Frank Farber / Sid Clark / 9-1-0

2. Motion – Accept all changes to the IIIG LTMS that are included in the report from the 5/11/04 LTMS Task Force meeting.

Ben Weber / Gordon Farnsworth / 8-0-2

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

4. Action Item – TMC to add new hone introduction to industry IIIG LTMS timeline.

5. Motion – Modify IIIF and IIIG test procedures to revise the description of the under-crown, based upon input from the raters, developed during the 5/2/04 Rating Workshop. In addition, it is now mandatory to use the 20-segment rating aid when rating the ring lands and grooves.

Effective 6/1/04
Pat Lang / Mike Kasimirsky / 10-0-0

6. Motion – Modify IIIF and IIIG test procedures to change the accuracy requirement stated in section 10.8.5 for Coriolis fluid flow meters from 0.25% to 0.75% of reading.

Pat Lang / Charlie Leverett / 10-0-0

7. Motion – Modify IIIF and IIIG test procedures to state: when performing the pre-test cam and lifter lubricating procedure, use 4-oz of test oil. Any volume remaining from this sample should be poured into the engine so that all tests are built with equal volumes of new oil.
   Effective 5/17/04
   Pat Lang / Charlie Leverett / 10-0-0

8. Action Item – O&H Sub-panel 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.

9. Action Item – 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.

10. Action Item – 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 oils 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.

11. Motion – Modify IIIGA test procedure to change the required note from "NM" to "<35" in the yield stress field, when the yield stress is less than 35 Pa.
    Effective with release of revised data dictionary.
    Pat Lang / Gordon Farnsworth / 10-0-0

12. Motion – Modify IIIG test procedure to include all critical parameter transformations in the data dictionary so that they can be checked during beta testing. List the transformation formulas on Form 4 of the test report.
    Effective with release of revised data dictionary.
    Pat Lang / Dwight Bowden / 10-0-0

13. Motion – Modify IIIF (if needed) and IIIGA test procedures to increase the field length for MRV from 6 to 7 in order to handle results greater than 100,000.
    Effective with release of revised data dictionary.
    Pat Lang / Dwight Bowden / 10-0-0

14. Action Item – O&H Chairman to follow up with Chris May concerning objective no. 11 from current Sequence III Scope & Objectives.

15. Action Item – Surveillance Panel Chairman to contact Chairman of Heavy Duty Classification Panel to discuss their future need for the IIIF test and the life expectancy of the IIIF test.

16. Action Item – Add to 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 in '99 asked to review and comment on Scott Parke's presentation made today.

17. Action Item – 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.

18. Motion – Suspend issuing IIIG reference oil 435 until the data is analyzed and a resolution is devised. A teleconference will be scheduled on 05/18/04 at 10:00am Eastern Time to address this issue.
Dwight Bowden / Charlie Leverett / 10-0-0

Adjournment

The meeting adjourned at 3:30 pm with our next meeting scheduled for 5-18-04 with a teleconference at 10:00 am eastern.

ATTACHMENT 1

ASTM SEQUENCE IIIF LIST

May 12, 2004 Detroit, Michigan

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May 12, 2004 Detroit, Michigan

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Sid Clark GM Powertrain General Motors Corporation MC - 483-730-322 823 Joslyn Rd. Pontiac, MI 48340-2920 USA	248-857-9959 sidney.l.clark@gm.com Test Sponsor Rep	☑ IIIF SURV PANEL ☐ IIIF MAILING LIST ☑ O&H SUBPANEL ☐ O&H Mailing List	Present Sid
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May 12, 2004 Detroit, Michigan

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May 12, 2004 Detroit, Michigan

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May 12, 2004 Detroit, Michigan

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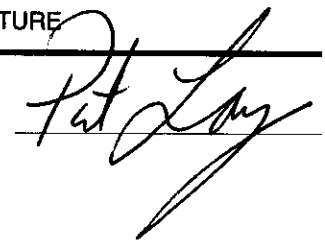
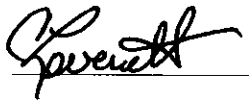
Patrick Lang Southwest Research Institute 6220 Culebra Road P.O. Box 28510 San Antonio, TX 78228 USA	210-522-2820 210-684-7523 plang@swri.edu O&H Subpanel Chairman	☑ IIIF SURV PANEL ☐ IIIF MAILING LIST ☑ O&H SUBPANEL ☐ O&H Mailing List	Present 
Charlie Leverett PerkinElmer Automotive Research, 5404 Bandera Road San Antonio, TX 78238 USA	210-647-9422 210-523-4607 charlie.leverett@perkinelmer.com	☑ IIIF SURV PANEL ☐ IIIF MAILING LIST ☑ O&H SUBPANEL ☐ O&H Mailing List	Present 
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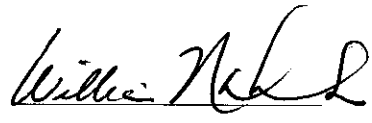
William M. Nahumck The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, OH 44092 USA	440-347-2596 440-347-4096 wmn@lubrizol.com Surveillance Panel Chair	☑ IIIF SURV PANEL ☐ IIIF MAILING LIST ☑ O&H SUBPANEL ☐ O&H Mailing List	Present 

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May 12, 2004 Detroit, Michigan

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May 12, 2004 Detroit, Michigan

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Ben O. Weber Southwest Research Institute 6220 Culebra Road P.O. Box 28510 San Antonio, TX 78228 USA	210-522-5911 210-684-7530 bweber@swri.edu Sub-Committee D02.B01 Chair	☐ IIIF SURV PANEL ☑ IIIF MAILING LIST ☐ O&H SUBPANEL ☐ O&H Mailing List	Present

SEQUENCE III SURVEILLANCE PANEL MEETING
GUEST LIST
May 12, 2004
Detroit, Michigan

NAME/ADDRESS	PHONE/FAX/EMAIL	SIGNATURE
Scott Parke ASTM TMC		
Robert Salgueiro Infineum USA L.P.	908 474 2492 Bob.Salgueiro@Infineum.com	
Jason Bowden Oil Technologies, Inc.	440-354-7007 jhbowden@intech.com	
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Add to mailing List

ADD to Mailing List

ATTACHMENT 2

AGENDA
SEQUENCE III SURVEILLANCE PANEL MEETING

Four Points by Sheraton Hotel, Detroit Michigan
May 12, 2004
9:00 AM to 5:00 PM

1. APPOINTMENT OF RECORDER OF ACTIONS/MOTIONS
2. AGENDA REVIEW
3. MEMBERSHIP CHANGES
4. Approval of Minutes from the October 2003 meeting and the December 15, 2003, January 20, 2004, February 11, 2004 and March 23, 2004 Teleconferences.

SEQUENCE IIIG

1. IIIG LTMS Review – Ben Weber
2. IIIG TMC TEST STATUS HIGHLIGHTS – Mike Kasimirsky
3. IIIF RSI REPORT – Rick Oliver
4. IIIF O&H REPORT – Pat Lang
5. IIIG CPD SUPPLIER REPORTS
   A. OHT
   B. GM MOTORSPORTS
6. IIIG O&H REPORT – Pat Lang
7. CATEGORY REFRENCE OIL RESPONSE – Bill Nahumck

SEQUENCE IIIGA

1. IIIGA TMC TEST STATUS HIGHLIGHTS – Mike Kasimirsky
2. IIIGA TEST REPORTING ISSUES

SEQUENCE IIIF - D6984

1. IIIF TMC TEST STATUS HIGHLIGHTS – Mike Kasimirsky
2. IIIF FUEL SUPPLIER REPORT
3. IIIF CPD SUPPLIER REPORTS
   A. OHT
   B. GM MOTORSPORTS

OLD BUSINESS

1. Status of IIIG Standard – Bill Nahumck
2. Review of Scope & Objectives – Bill Nahumck
3. Rater Calibration – Scott Parke

NEW BUSINESS

1. Discussion of the performance of Reference Oil 435
2. Life of the Sequence IIIF test
3. Reference oil cam dip batch code data

ADJOURNMENT

Suggested Modifications of the IIIG LTMS

LTMS Task Force

May 10, 2004

Detroit, MI

ATTACHMENT 3

Why Modify the IIIG LTMS?

- Recent problem at one laboratory on one stand highlighted the need for change and strengthening of the IIIG LTMS system
- Request from the Surveillance Panel

What Happens When a Stand Fails a Single Reference Test?

At the Stand Level

- The stand may attempt another reference (a different reference oil will be assigned if possible) or be removed from the system
- The stand has 10 days from EOT to start another reference or it will automatically be removed from the system
- Previously calibrated stands that are removed from the system after a failed calibration attempt must generate 2 OVSA tests (not necessarily in a row) to get back into the system

What Happens When a Stand Fails a Single Reference Test?

At the Lab Level

- Lab control charts are not updated with any information from that stand and lab severity adjustments remain unchanged (lab control charts are not updated with information from a stand until that stand successfully calibrates)
  - Until stand calibrates, no SAs updated (no retroactivity)
- The lab must still satisfy the requirement of a successful reference every 100 days (115 days with grace period) or 25 candidates (25 + # currently calibrated stands with grace period x 2)
- The lab has the option of moving to the next stand in the rotation to maintain lab calibration independent of its action on the offending stand
  - If original failing stand starts within 10 days, then it stays in the system (no 2 OVSA).

What Happens When a Stand Fails Two or More Reference Tests on the Same Parameter but in Different Oils?

At the Stand Level

- The stand must generate 2 OVSA tests (not necessarily in a row) to get back into the system
- All other previous stand points apply
  - Engineering judgement may be used

What Happens When a Stand Fails Two or More Reference Tests on the Same Parameter but in Different Oils?

At the Lab Level

- All other previous lab points apply

What Happens When a Currently Calibrated Stand (Successfully Referenced) is Removed from the System or Skips its Rotation in the Lab Calibration Process?

- If the lab decides to bring that stand back into the system within 90 days from when it skipped its reference assignment
  - SP will decide this issue when it comes up
  - Notify TMC, if possible
- After 90 days, only 1 OVSA test is needed for that stand to get back into the system

What About Precision?

Consequences regarding precision are eliminated

- The frequency of the calibration data isn't sufficient enough to justify the consequences and their costs
- Value and cost better utilized in confirming stand performance; hence, the reason to increase stand data when a stand fails
- Lab precision will still by monitored and charted
- 6 month TMC report will include lab charts in coded format

Other Enhancements to Discuss and Possibly Consider

1 When lab Yi > 2 on critical parameters during a time when the Shewhart Severity K has been increased to 3.0, because the lab has an existing adjustment from the previous reference oil test, the lab calibration period will be reduced as follows

Yi > 2 = 75 days or 18 test starts (plus grace periods)

Other Enhancements to Discuss and Possibly Consider

- Modification of Dual IIIF/IIIG Calibrations
  - Any stand failing a calibration attempt, will require TMC & lab review and agreement regarding the continuation of the calibration of the other test type
  - If a consensus can't be reached between the TMC and the lab, either party can bring the issue up for debate within the Surveillance Panel via conference call or special face-to-face meeting
- TMC stated that these two tests are independent and thus not connected what so ever

Other Enhancements to Discuss and Possibly Consider

- What about adjusting the lab calibration frequency for high calibration abort and/or invalid rates?
  - Let TMC review our current database and make some recommendations
- No consensus reached on this item!

Other Enhancements to Discuss and Possibly Consider

- The LTMS TF will review the current LTMS documents regarding industry precision alarms (each SP chair will be asked to review this)
  - In particular, the words about meeting when these alarms occur need to be reviewed and modified as necessary
  - Others?
- TMC to confirm proper stand rotation

What about other Test Types?

- Original IIIG LTMS proposal was to review the new system after one year, make modifications as necessary, and consider the other test types then
  - How about another 6-month review period to see how these changes go? Yes

ATTACHMENT 4

CENTRAL PARTS DISTRIBUTOR REPORT
OH Technologies, Inc.

Sequence III Surveillance Panel Meeting
Four Points by Sheraton Hotel, Detroit, MI
May 12, 2004

1.) **Rejections from 10/29/2003 to 05/10/2003:**

PART	REASON	RESOLUTION
OHT3F-008-6 (IIIF CAM)	#4 LOBE UNDERCUT	REPLACED
10 EA. OHT3F-029-3 ACI LIFTERS	VARIOUS DEFECTS	REPLACED
2 EA. 3F042-02 MAIN BRG	FLASH PLATING ON FLANGE SURFACE	REPLACED
1 EA. OHT3F-029-3	DEFECT	REPLACED
1 EA. OHT3F-008-8 (IIIG CAM)	OUT-OF-ROUND JOURNAL	REPLACED
CONN ROD BRG	THICKNESS / TAPER	REPLACED
1 EA. OHT3F-008-8 (IIIG CAM)	LOBE HEIGHT	REPLACED
1 EA. OHT3F-029-3 ACI LIFTER	VISIBLE SEAM IN LIFTER BODY	REPLACED

2.) **Technical Memos Issued**

Tech Memo #9: BC10 OH104 Main Bearing Incorrectly stamped "upper."

3.) **Batch Code Changes**

IIIF	Batch Code	Date Introduced
Camshaft	PC 10 (PK)	10/31/03
Grade 12 Piston	BC 13 & BC 14	2/2/04 & 3/16/04 respectively
Grade 34 Piston	BC 14	3/19/04
Grade 56 Piston	BC 14	12/19/03
Rocker Arm	BC 7	12/11/03
Main Bearing	BC9 & BC 10	11/18/03 & 4/14/04 respectively
Conn. Bearing	BC 11	12/11/03
Cam Bearing	BC9	1/23/04

IIIG	Batch Code	Date Introduced
Camshaft	PC 10 (PK)	3/2/04
Grade 12 Pistons	BC 13 & BC 14	2/17/04 & 3/11/04 respectively
Grade 34 Pistons	BC 14	3/26/04
Grade 56 Pistons	BC 14	12/19/04
Runs 1 - 4 Rings	BC 3A	Oct. / Sept.
Run 5 Ring	BC 4	4/14/04
Run 6 Ring	BC 4	4/26/04
IIIG Spring	BC 3	2/17/04
Rocker Arm	BC 7	11/25/03
Main Bearing	BC 9 & BC 10	11/7/03 & 4/14/04 respectively
Conn. Bearing	BC 11	12/11/03
Cam Bearing	BC 9	1/5/04

4.) OLD BUSINESS

OHT fulfilled its commitment of supplying each lab with one single engine run kit for the tests run in cooperation with the Honing Task Force.

ATTACHMENT 5

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

Presented by
Pat Lang
May 12, 2004

Action Items from 10/28/03

The SP tasked the O&H Subpanel with the following action items regarding honing refinements:

1. Review of honer configuration and calibration of all CV-616 honers with the portable torque meter by Sunnen. **DONE**

2. New stone break-in procedure guidelines. **DONE**

3. Determine if batch code information for stones, brushes, and fluid is available and useful. **DONE**

4. Conduct a workshop for laboratory technician training. **DONE, workshop hosted by Lubrizol in December 2003.**

5. Run a reference test in each laboratory to verify performance. **DONE**

O&H Action Items From 10/28/03 Meeting

- TMC to review if piston under crown description that is in the procedure is acceptable.
  - **Topic put on May 2nd 2004 Rating Workshop agenda**
- Phase III Round-Robin honing exercise
  - **No action taken at this point**
- Section 11.8.5 - O&H will review precision requirements defined for all flow meters.
  - **For Coriolis fluid flow meters it is recommended that the accuracy be changed from 0.25% of reading to 0. 75% of the reading..**

O&H Action Items From 10/28/03 Meeting

- O&H Chairman & Sid Clark will determine if the volume of EF-411 and pre-test oil used engine assembly and camshaft pre lube was previously specified
  - **Documentation on the quantity could not be located; possible that discussions took place but never made it to procedure.**
  - **O&H recommends 4-oz of test oil be used during cam and lifter installation**

Motions

1) Change the accuracy requirement stated in section 10.8.5 of the IIIF and IIIG Procedures for Coriolis fluid flow meters from 0.25% to 0.75% of reading.
2) When performing the IIIF/ IIIG pre-test cam and lifter lubricating procedure, use 4-oz of test oil. Any volume remaining from this sample should be poured into the engine so that all tests are built with equal volumes of new oil.

Future O&H Work

- The O&H has been tasked by the test developer to investigate the blowby evacuation systems that are currently in place in an attempt to better standardize.

ATTACHMENT 6

PRODUCT: EEE Unleaded Gasoline
PRODUCT CODE: HF003

Batch No.:	SD1521LS11	SC2321LS11
Tank No.:	2012	2014
Analysis Date:	4/22/2004	3/31/2004

TEST	METHOD	UNITS	FED Specs		HALTERMANN Specs			RESULTS	RESULTS
			MIN	MAX	MIN	TARGET	MAX		
Distillation - IBP	ASTM D86	°F	75	95	75		95	90	87
5%		°F						116	112
10%		°F	120	135	120		135	128	126
20%		°F						147	147
30%		°F						170	170
40%		°F						197	198
50%		°F	200	230	200		230	219	220
60%		°F						230	232
70%		°F						242	244
80%		°F						264	265
90%		°F	305	325	305		325	322	322
95%		°F						338	338
Distillation - EP		°F		415			415	386	393
Recovery		vol %				Report		98.2	97.0
Residue		vol %				Report		1.0	1.0
Loss		vol %				Report		0.8	2.0
Gravity	ASTM D4052	°API	58.7	61.2	58.7		61.2	59.2	59.1
Density	ASTM D4052	kg/l			0.734		0.744	0.742	0.742
Reid Vapor Pressure	ASTM D323	psi	8.7	9.2	8.7		9.2	9.2	9.2
Reid Vapor Pressure	ASTM D5191	psi				Report		9.1	9.2
Carbon	ASTM D3343	wt fraction				Report		0.8667	#REF!
Carbon	ASTM E191	wt fraction				Report		0.8643	0.8631
Hydrogen	ASTM E191	wt fraction				Report		0.1326	0.1343
Hydrogen/Carbon ratio	ASTM E191	mole/mole				Report		1.823	1.854
Oxygen	ASTM D4815	wt %					0.05	<0.05	<0.05
Sulfur	ASTM D5453	ppm		1000	3		15	4	3
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	31.6	30.9
Composition, olefins	ASTM D1319	vol %		10.0			10.0	0.4	0.4
Composition, saturates	ASTM D1319	vol %				Report		68.0	68.7
Particulate matter	ASTM D5452	mg/l					1	1.0	0.6
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	2427
C Factor	ASTM E191					Report		1.0010	0.9996
Research Octane Number	ASTM D2699		93.0		96.0			97.0	97.2
Motor Octane Number	ASTM D2700					Report		87.9	88.3
Sensitivity			7.5		7.5			9.1	8.9
Net Heating Value, btu/lb	ASTM D3338	btu/lb				Report		18441	18448
Net Heating Value, btu/lb	ASTM D240	btu/lb				Report		18465	18473
Color	VISUAL	1.75 ptb				Report		RED	RED

PRODUCT: EEE Unleaded Gasoline
PRODUCT CODE: HF003

Batch No.: SB2021LS11
Tank No.: 2016
Analysis Date: 3/1/2004

TEST	METHOD	UNITS	FED Specs		HALTERMANN Specs			RESULTS
			MIN	MAX	MIN	TARGET	MAX	
Distillation - IBP	ASTM D86	°F	75	95	75		95	89
5%		°F						115
10%		°F	120	135	120		135	127
20%		°F						147
30%		°F						170
40%		°F						197
50%		°F	200	230	200		230	219
60%		°F						230
70%		°F						241
80%		°F						261
90%		°F	305	325	305		325	319
95%		°F						337
Distillation - EP		°F		415			415	400
Recovery		vol %				Report		97.6
Residue		vol %				Report		1.0
Loss		vol %				Report		1.4
Gravity	ASTM D4052	°API	58.7	61.2	58.7		61.2	59.4
Density	ASTM D4052	kg/l			0.734		0.744	0.741
Reid Vapor Pressure	ASTM D323	psi	8.7	9.2	8.7		9.2	9.2
Reid Vapor Pressure	ASTM D5191	psi				Report		9.2
Carbon	ASTM D3343	wt fraction				Report		#REF!
Carbon	ASTM E191	wt fraction				Report		0.8639
Hydrogen	ASTM E191	wt fraction				Report		0.1350
Hydrogen/Carbon ratio	ASTM E191	mole/mole				Report		1.862
Oxygen	ASTM D4815	wt %					0.05	<0.05
Sulfur	ASTM D5453	ppm		1000	3		15	3
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	29.1
Composition, olefins	ASTM D1319	vol %		10.0			10.0	0.2
Composition, saturates	ASTM D1319	vol %				Report		70.7
Particulate matter	ASTM D5452	mg/l					1	0.5
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	2422
C Factor	ASTM E191					Report		1.0033
Research Octane Number	ASTM D2699		93.0		96.0			97.0
Motor Octane Number	ASTM D2700					Report		88.2
Sensitivity			7.5		7.5			8.8
Net Heating Value, btu/lb	ASTM D3338	btu/lb				Report		18475
Net Heating Value, btu/lb	ASTM D240	btu/lb				Report		18367
Color	VISUAL	1.75 ptb				Report		RED

ATTACHMENT 7

Motions & Action Items

As Recorded at the Meeting by Ben Weber

1. TMC, OHT & fuel supplier reports were unanimously accepted as presented.
2. (Frank Farber/Dwight Bowden) For the IIIGA, the MRV parameter will only have severity adjustments and no LTMS pass/fail repercussions. Accept the use of the IIIG viscosity increase Yi values for MRV on oil 435 only. Oil 434 & 438 will have the MRV results charted as normal. Use a natural log transformation for MRV and a pooled standard deviation .41868 *(note this number was subsequently changed to 0.30673)* for severity adjustment calculations. Effective November 3, 2003. The motion passed unanimously with one waive from TMC.
3. (Ben Weber/Sid Clark) Motion for the Sequence III SP to accept the ILSAC/Oil recommendation to register the IIIGA as an engine test for measuring MRV & CCS only. The test procedure will be an annex to the IIIG and the first draft is available now. The test report and datacomm will be finalized shortly with separate report packages and data-dictionaries. The first Sequence IIIG run on a candidate oil will be dually registered as a Sequence IIIG and a Sequence IIIGA. Subsequent attempts to obtain passing MRV results would be registered as Sequence IIIGA. Effective as the same date of RSI registration. The MRV & CCS data reported in the IIIG prior to this motion will be used as IIIGA data. Passed unanimously with one waive from TMC.
4. The SP will add to their scope and objectives to monitor appropriate limits for the 20-h and EOT oil consumption with oil effects like volatility, etc. taken into account are necessary. The SP already has a limit of 4.65L for EOT oil consumption interpretability, but will continue to monitor it. Also keep in mind the SP is about to adopt several other changes such as honing, etc. that need to be evaluated before implementing any new/suggested limits.
5. The monitoring of the 1-4 rings will also be added to the SP scope and objectives.
6. The 12 recommended changes from the O&H panel report were accepted as presented with the modification of #10 from 100-h to EOT. All items relate to both the IIIF and IIIG, unless otherwise specified. Motion passed unanimously.
7. Pat Lang/Mike K motion that all raters who rate Sequence III parts must attend a rating workshop annually. If a rater misses a scheduled workshop, they must attend alternative training within 90 days, as directed by the TMC. Passed unanimously.
8. Dwight Bowden/Sid Clark made the motion the Surveillance Panel agreed that the honing process described by PerkinElmer and discussed by the O&H sub-panel is considered a refinement, not a change, to the Sequence III test procedures. Passed unanimously.
9. The five items listed under Honing Recommendations from the O&H report will be addressed by the Surveillance Panel.
10. Pat Lang/Dave G moved to accept Pat's report as presented.
11. Pat Lang/Mike K moved that the yield stress units on form 6 should be Pa versus cP and calculate the Pa by multiplying the weight in grams by 3.5. The TMC database will be corrected as well. Motion passed unanimously.
12. Charlie L/Pat Lang motioned to move the APV to the other results of form 4. Motion passed unanimously.

ATTACHMENT 8

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, CMA 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.~~	~~Ballot the IIIF Test Method for elevation to ASTM Standard~~	~~December 2003~~
~~2.~~	~~Sequence III Control System Clarification~~	~~December 2003~~
~~3.~~	~~Prepare ballot for the IIIG Test Method Research Report~~	~~March 2004~~
4.	Prepare the IIIG Test Method for elevation to ASTM Standard	December 2004
~~5.~~	~~Investigate and bring to resolution IIIG lab severity differences~~	~~December 2003~~
~~6.~~	~~Introduce a IIIGA Test as part of the IIIG Test~~	~~December 2003~~
~~7.~~	~~Resolution of IIIG and IIIGA LTMS issues~~	~~May 2004~~
~~8.~~	~~Response to PCEOCP for need of Category Reference Oil~~	~~May 2004~~
9.	Review of Oil Consumption Limits for validity for 20 hour and EOT interpretability for the Sequence IIIG test	November 2004
~~10.~~	~~Monitoring of the performance of the Size 1 thru 4 piston rings~~	~~May 2004~~
11	Reporting of used oil D4684 apparent viscosity and yield stress	November 2004
12.	Develop a Sequence III rater calibration proposal	November 2004

William M. Nahumck, Chairman
Sequence IIIF Surveillance Panel

Updated May 12, 2004
Detroit, Michigan

Rater Calibration:

How?

1. Generate data
2. Devise a criteria to judge what is acceptable and what isn't

ATTACHMENT 9

Currently:

Data is generated in an annual CRC workshop

ASTM Rater Calibration Task Force recommended criteria:
1. Rater attend the workshop
2. Rater generate data
3. Rater's data be included with the published data

Is the current system adequate?

Stop/hold.

Improvements:

1. Change the data

2. Change the judgment criteria

Change the data?

1. Use workshop data

2. Generate our own ASTM data

Workshop data:

Why?

- It already exists
  Thus no additional overhead (time or labor or money)

Why not?

- Integrity of the data hasn't always been what it could be
- Hardware doesn't necessarily always include test-specific parts

ASTM data:

Why?

- Surveillance Panel has full control and can thus…
- Focus specifically on ASTM needs

Why not?

- Cost
- Complication in ensuring hardware integrity
- Duplicative work

  Participation level is not there to support both a CRC and an ASTM workshop

Fix the Workshop data

How?

Specific requirements from IIIG SP

Things such as:

- Rater must attend workshop (all hours, all days)
- Twelve IIIG pistons must be rated
- Ratings must be without assistance or collaboration
- Rater must participate in data review

Show (distribute) examples of data in TMC presentation format

Improve Acceptability Criteria

Again, specific requirements from IIIG SP

- 60% of standardized rating values (yi's) must be between +/-1
- 90% of yi's must be between +/-2
- Average standard deviation for all piston areas must be <1

Remedial Action

What if acceptability criteria is not met?

- Rater is placed on "probation" until next workshop (still permitted to rate – candidate or reference)

Then what?

Any of the following *could* happen:

- Rater receives outside training
- Rater receives inside training
- Rater hones skills through practice or concentrates his attention on IIIG rating
- Nothing

At the Next Workshop:

If rater *again* fails acceptability criteria (second consecutive time)

- Rater is not permitted to rate standard tests

What if a rater misses a workshop?

- Rater placed on probation until next workshop