

ASTM TECHNICAL GUIDANCE COMMITTEE MEETING
April 18, 2001

Courtyard by Marriott Hotel
Coraopolis, Pennsylvania

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CALL TO ORDER

The ASTM Technical Guidance Committee (TGC) met on Wednesday, April 18, 2001 at 8:30 a.m. at the Courtyard by Marriott Hotel in Coraopolis, Pennsylvania. The meeting agenda is shown in Attachment 1. There were ten voting members, one non-voting member, and nine guests present. The attendance roster is shown in Attachment 2.

CHAIRMAN'S COMMENTS

Chairman Gordon Farnsworth briefly explained the purpose of the TGC, confirmed member voting status, and reviewed the meeting agenda.

ACTION ITEMS, MOTIONS, AND RECOMMENDATIONS

Ben Weber volunteered to record all action items, motions, and recommendations brought forth by the TGC. These are summarized in Attachment 3.

TEST PRECISION QUERY FROM API

Gordon Farnsworth presented a letter from API (Attachment 4) requesting TGC input on what standard deviations to use for the Engine Oil Licensing and Certification System (EOLCS), Aftermarket Audit Program (AMAP). The TGC recommended that the LTMS Severity Adjustment standard deviation for the specific test type be used and that AMAP testing should only be scheduled during periods when the specific test is in control, as indicated by the industry and laboratory LTMS precision charts. The TGC unanimously approved this recommendation.

RATER CALIBRATION METHOD

Zack Bishop presented a proposal from the Rater Calibration Task Force. Frank Farber presented comments from the TMC on rater calibration (Attachment 5) and described the rater calibration system currently under study by the L-37 Surveillance Panel (Attachment 6). The TGC unanimously approved a list of revisions to the Rater Calibration Task Force proposal along with other recommendations to the Test Monitoring Board (see Attachment 3). Zack Bishop will present the updated Rater Calibration Task Force proposal (Attachment 7) to the surveillance panels and the TMB in May/June.

Walter Groff noted that the TMC is investigating becoming more involved in the organization of CRC/ASTM rating workshops. Mike Pansza stated that there is a particular need for help in organizing a light-duty workshop in 2001.

CONSENSUS RATINGS

The TGC discussed the need for a standard practice of consensus rating for all tests. Gordon Farnsworth presented a motion on consensus ratings passed by the TGC in 1992 (Attachment 8) and summarized special consensus rating statements found in several test procedures (Attachment 9). The TGC unanimously approved a recommendation to add a consistent statement (see Attachment 3) on consensus rating to each test procedure.

GF-3 CATEGORY REFERENCE OIL

The TGC considered the need for a GF-3 category reference oil. Gordon Farnsworth summarized the reference oils currently used in GF-3 engine tests (Attachment 10). The TGC agreed that it is worth pursuing the identification and procurement of a GF-3 category reference oil. Companies wishing to submit 5W-20 or 5W-30 oils for consideration should send all available data to the TMC by June 1, 2001. Reference oil 1008 will also be considered.

TMC WEB SITE

The TGC unanimously approved a recommendation that all reference oil test data, valid or invalid, be posted on the TMC web site. Acting on a request from Ben Weber (Attachment 11) the TGC approved a recommendation that the TMC develop and post an Excel file for each test type containing, as a minimum, the data summarized in Attachment 3.

NEW BUSINESS

Gordon Farnsworth presented a concern raised by Rick Oliver (RSI) about the lack of consistency and understanding of the criteria for non-interpretable tests. Rick has communicated his concerns via email (Attachment 12) to all PCMO surveillance panels. The TGC approved a recommendation that each surveillance panel needs to confirm their criteria for non-interpretable tests and document them in their test procedures.

SECRETARIES FOR SURVEILLANCE PANELS

John Zalar reported that he had received a request to consider the possibility of TMC engineers becoming permanent secretaries for the five PCMO surveillance panels. John summarized the current status of surveillance panel secretaries and proposed partial assistance from the TMC (Attachment 13). Walter Groff suggested the possibility that the independent laboratories could provide secretaries if all surveillance panel meetings are held in San Antonio. This issue was not resolved and remains open for further discussion.

LTMS SYSTEM

Ben Weber presented some thoughts and observations on the overall effectiveness of the LTMS system (Attachment 14). Frank Farber presented a summary of false alarm rates (Attachment 15). The TGC approved the formation of a task force, led by Ben Weber, to conduct an in-depth review of the LTMS system and to develop recommendations for any needed changes. Industry statisticians will be invited to participate.

OTHER AGENDA ITEMS

The agenda item regarding the Sequence VIB reference oil was referred to the Sequence VIB Surveillance Panel. The issue of differences between invalid test rates for reference versus non-reference oil tests was deferred to the next meeting.

ADJOURNMENT

The meeting was adjourned at 4:20 p.m.

Respectfully submitted,

John L. Zalar

John L. Zalar, Secretary
ASTM Technical Guidance Committee

Agenda
ASTM Technical Guidance Committee
April 18, 2001

- 1.) Chairman's comments
- 2.) Secretary, action recorder, motion recorder
- 3.) Sequence Test Precision query from API
 - Response to API request
 - What precision info should TMC report on web
- 4.) Rater calibration method.
 - Calibration proposal - Zack Bishop
 - TMC comments - Frank Farber
- 5.) Consensus rating. Should a standard practice be developed for all tests?
- 6.) GF-3 reference oil.
- 7.) Sequence VIB reference oil.
- 8.) LTMS warning and action alarms. Are they meaningful? Is surveillance panel response adequate?
 - Two references for new stand & reduced K
 - Are precision alarm consequences too severe
- 9.) Invalid test rate (reference versus candidate tests – why are they different?)
- 10.) TMC web site data. Should invalid data be posted.
- 11.) TMC proposal for writing minutes for passenger car surveillance panel meetings.
- 12.) New business
- 13.) Adjourn

TECHNICAL GUIDANCE COMMITTEE
ATTENDANCE ROSTER
April 18, 2001 - Pittsburgh, PA

Members

NAME	COMPANY AND ADDRESS	PHONE NUMBER E-MAIL ADDRESS FAX NUMBER	PRESENT
Bartlett, Don Chairman, L-37 SP	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, OH 44092-2298	Phone: (440) 347-2388 e-mail: dib@lubrizol.com FAX: (440) 943-9044 347-2878	<i>Don Bartlett</i>
Bendele, Larry Chairman, Seq. IVA SP	Southwest Research Institute 6220 Culebra Road San Antonio, TX 78228-0510	Phone: (210) 522-2824 e-mail: lbendele@swri.org FAX: (210) 684-7523	<i>LMB</i>
Bishop, Zack Chairman, Seq. VIII SP	Chevron Chemical Company Oronite Global Technology 4502 Centerview Drive, Suite 210 San Antonio, TX 78228	Phone: (210) 731-5605 e-mail: zrbj@chevron.com FAX: (210) 731-5699	<i>ZRB</i>
Bondarowicz, Frank OEM	International Truck and Engine 10400 West North Ave. Dept. 555 Melrose Park, IL 60160	Phone: (708) 865-4030 e-mail: frank.bondarowicz@nav-international.com FAX: (708) 865-4229	
Clark, Sid OEM	General Motors Fuels and Lubricants Department Mail Code 480-106-160 30500 Mound Road Warren, MI 48090-9055	Phone: (810) 986-1929 e-mail: sidney.i.clark@gm.com FAX: (810) 986-2094	
Farnsworth, Gordon Chairman, TGC Chairman, Seq. VG SP	Infineum USA L.P. 1900 East Linden Avenue Linden, NJ 07036-0536	Phone: (908) 474-3351 e-mail: gordon.farnsworth@infineum.com FAX: (908) 474-3637	<i>GDF</i>
Florkowski, Dennis OEM	DaimlerChrysler Corporation 800 Chrysler Drive East CIMS 482-00-13 Auburn Hills, MI 48326-2757	Phone: (248) 576-7477 e-mail: df11@daimlerchrysler.com FAX: (248) 576-7490	
Gropp, Jerrold Chairman, L-60-1 SP	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092-2298	Phone: (440) 347-1223 e-mail: ilg@lubrizol.com FAX: (440) 943-8994	
Guinther, Greg Chairman, D02.B.1	Ethyl Corporation 500 Spring Street Richmond, VA 23218-2158	Phone: (804) 788-5368 e-mail: greg_guinther@ethyl.com FAX: (804) 788-6207	

Members (continued)

NAME	COMPANY AND ADDRESS	PHONE NUMBER E-MAIL ADDRESS FAX NUMBER	PRESENT
Hahn, Al OEM	Caterpillar Inc. Technical Center Building L P. O. Box 1875 Peoria, IL 61656-1875	Phone: (309) 578-3617 e-mail: hahn_al_c@cat.com FAX: (309) 578-4232	
Kaperick, Joe Chairman, OSCT SP	Ethyl Corporation 500 Spring Street Richmond, VA 23218-2158	Phone: (804) 788-6393 e-mail: ioe.kaperick@ethyl.com FAX: (804) 788-6243	
Lai, Patrick Chairman, 2-Stroke SP	Imperial Oil, Limited 453 Christina St. S Sarnia, Ontario CANADA N7T 8C8	Phone: (519) 339-5611 e-mail: patrick.k.lai@esso.com FAX: (519) 339-5866	
Larkin, Danny OEM	Detroit Diesel Corp. 13400 W. Outer Drive, K15 Detroit, MI 48239-4001	Phone: (313) 592-5730 e-mail: danny.larkin@detroitdiesel.com FAX: (313) 592-5952	
Layton, Kevin Chairman, L-42 SP	Ethyl Corporation 500 Spring Street, P.O. Box 2158 Richmond, CA 23218	Phone: (804) 788-5363 e-mail: kevin_layton@ethyl.com FAX: (804) 788-6358	Kevin Layton
Leverett, Charlie Chairman, Seq. VIB SP	PerkinElmer Automotive Research 5404 Bandera Road San Antonio, TX 78238-1993	Phone: (210) 647-9422 e-mail: charlie.leverett@perkinelmer.com FAX: (210) 523-4607	Charlie Leverett
Marty, Steve Chairman, HTCT SP	Southwest Research Institute 6220 Culebra Road San Antonio, TX 78228-0510	Phone: (210) 522-5929 e-mail: smarty@swri.edu FAX: (210) 680-1777	Represented by L. Buckle
Nahumck, William Chairman, Seq. IIF SP	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092-2298	Phone: (440) 347-2596 e-mail: wmmn@lubrizol.com FAX: (440) 943-9613 347-4096	W. M. Nahumck
Passut, Charles Chairman, Mack SP	Ethyl Corporation 500 Spring Street Richmond, VA 23218-2158	Phone: (804) 788-6372 e-mail: charlie_passut@ethyl.com FAX: (804) 788-6388	
Riley, Mike OEM	Ford Motor Company 21500 Oakwood Blvd., EEE Bldg. Mail Drop #44 Dearborn, MI 48121	Phone: (313) 390-3059 e-mail: mriley2@ford.com FAX: (313) 845-3160	
Sarlo, Mark Chairman, EOAT SP	Southwest Research Institute 6220 Culebra Road San Antonio, TX 78228-5010	Phone: (210) 522-3754 e-mail: msarlo@swri.edu FAX: (210) 523-6919	Represented by J. Buckle

Members (continued)

NAME	COMPANY AND ADDRESS	PHONE NUMBER E-MAIL ADDRESS FAX NUMBER	PRESENT
Shank, Greg OEM	Mack Trucks 13302 Pennsylvania Avenue Hagerstown, MD 21742	Phone: (301) 790-5817 e-mail: greg.shank@macktrucks.com FAX: (301) 790-5815	
Shipinski, John OEM	Toyota Technical Center USA ✓ 1588 Woodridge Avenue ✓ Ann Arbor, MI 48105-9773 ✓	Phone: (734) 995-3754 ✓ e-mail: shipinski@ttc-usa.com ✓ FAX: (734) 995-5971 ✓	✓
Smith, Dale Chairman, L-33 SP	PARC Technical Service, Inc. 100 William Pitt Way Pittsburgh, PA 15238	Phone: (412) 826-5051 e-mail: dbs@usaor.net FAX: (412) 826-5443	✓
Stehouwer, Dave OEM	Cummins Engine Company, Inc. 1900 McKinley Avenue Mail Code 50183 Columbus, IN 47201-6414	Phone: (812) 377-9209 e-mail: david.m.stehouwer@cummins.com FAX: (812) 377-7808	
Stockwell, Robert Chairman, RFWT SP	GM Power Train Engineering Ctr. GM Corporation Mail Code 480-734-801 30003 Van Dyke Warren, MI 48105-9773	Phone: (810) 492-2268 e-mail: robert.stockwell@gm.com FAX: (810) 575-2732	
Sullivan, William Chairman, D02.B.3 <i>Change</i>	ExxonMobil Research and Engineering Chemical Products Division P. O. Box 3140 Edison, NJ 08818-3140	Phone: (732) 321-3354 <i>onvoicemail</i> e-mail: william.t.sullivan@email.mobil.com FAX: (732) 321-6064	WFS
Sutherland, Mark D02.B.2 Representative	Ethyl Corporation 9901 IH 10 West Suite 800 San Antonio, TX 78230	Phone: (210) 558-2818 e-mail: mark.sutherland@ethyl.com FAX: (210) 696-4029	
Totten, Warren Chairman, Cummins SP	Cummins Engine Company, Inc. 1900 McKinley Avenue Mail Code 50183 Columbus, IN 47201-6414	Phone: (812) 377-3429 e-mail: warren.a.totten@cummins.com FAX: (812) 377-7808	
Zatontz, Mike Chairman, Single Cyl. SP	PerkinElmer Automotive Research 5404 Bandera Road San Antonio, TX 78238-1993	Phone: (210) 647-9483 e-mail: mike.zatontz@perkinelmer.com FAX: (210) 523-4607	
Zalar, John TMC	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, PA 15206	Phone: (412) 365-1005 e-mail: jlz@tmc.astm.cmri.cmu.edu FAX: (412) 365-1047	JZF

Guests

NAME	COMPANY AND ADDRESS	PHONE NUMBER E-MAIL ADDRESS FAX NUMBER	PRESENT
Bond, Stacy	PerkinElmer Automotive Research 5404 Bandera Road San Antonio, TX 78238-1993	Phone: (210) 523-4604 e-mail: stacy.bond@perkinelmer.com FAX: (210) 523-4607	
Bowden, Dwight	OH Technologies Inc. 9300 Progress Parkway P. O. Box 5039 Mentor, OH 44061-5039	Phone: (440) 354-7007 e-mail: dhbowden@ohotech.com FAX: (440) 354-7080	<i>W.A.S.</i>
Buscher, Bill	Texaco Global Products P. O. Box 112 Hopewell Jct, NY 12533	Phone: (914) 897-8069 e-mail: bushwa@aol.com FAX: (914) 897-8069	
Clark, Dick	American Petroleum Institute 1220 L Street NW Washington, DC 20005	Phone: (202) 682-8182 e-mail: clarkd@api.org FAX: (202) 682-8051	<i>KCC</i>
Farber, Frank	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, PA 15206	Phone: (412) 365-1030 e-mail: fmf@tmc.asim.cmri.cmu.edu FAX: (412) 365-1047	<i>Frank F</i>
Goldblatt, Irwin	Castrol North America Division Technical Center 240 Centennial Avenue Piscataway, NJ 08854-3910	Phone: (732) 980-3606 e-mail: irwin.goldblatt@castrolna.com FAX: (973) 686-4224	
Groff, Walter	Southwest Research Institute 6220 Culebra Road San Antonio, TX 78228-0510	Phone: (210) 522-2823 e-mail: wgroff@swri.edu FAX: (210) 684-7523	<i>WPG</i>
Knight, John	Test Engineering Inc. 12718 Cimarron Path San Antonio, TX 78249-3417	Phone: (210) 690-1958 e-mail: jknight@testeng.com FAX: (210) 690-1959	<i>John Bucher for Jack rbucher@testeng.com</i>
Oliver, Rick	Registration Systems Inc. 8002 West Ave., Suite 4 San Antonio, TX 78213	Phone: (972) 724-2136 e-mail: rickoliver@home.com FAX: (210) 341-4038	
Weber, Ben	Southwest Research Institute 6220 Culebra Road San Antonio, TX 78228-0510	Phone: (210) 522-5911 e-mail: wgroff@swri.edu FAX: (210) 684-7523	<i>Ben</i>

Guests (continued)

NAME	COMPANY AND ADDRESS	PHONE NUMBER E-MAIL ADDRESS FAX NUMBER	PRESENT
Don Lind	ASTM/TMC	412-365-1034	DML
Michael T. Ransza	LTS/	210-680-5454 Hs@woldnet.att.net	CRC
Rich Gardner	ASTM/TMC 6555 Penn Ave Pgh PA 15206	412-365-1031 #1202@tmc.astm.com cmu.edu 412-365-1047	RCG

TGC Action Items and Recommendations
April 18, 2001

- API after-market testing: What standard deviation should the API use?
 - Use the standard deviation that is associated with the LTMS severity adjustment system for that specific test.
 - API should only test/schedule during periods when the specific test is in control as indicated by the Industry and Laboratory LTMS precision charts.Recommendation passed unanimously (9-0-0)

- Rater Calibration Proposals:
 - TGC agreed to the following changes to Zack Bishop's proposal:
 - Update page 3 concerning committee members
 - Add the word distress to pages 4 and 5
 - Change the words petroleum products on page 4
 - Add the words consensus value to the end of the paragraph on page 6
 - Replace the words generally ASTM or CRC with Industry [generally ASTM or CRC] on page 6
 - Add the words "or make-up session" to page 11
 - Add the word distress after deposit to page 11
 - Add the words reference and non-reference after the word results on page 10 to the category 1 definition
 - Add a list of the minimum fields to be collected by the Industry database
 - Add the words that we recommend that the TMC...to page 15, item 3
 - Add the words minimum requirement to the front cover of the report
 - Request surveillance panels write into their respective procedures that category 1 raters must accomplish all subjective ratings. Surveillance panels to determine the effective date
 - Recommend that the TMC establish a central database that will be available to our Industry
 - Specifics of the database to be defined by each surveillance panel using the minimum fields listing in Zack Bishop's proposal for starters
 - Implementation date for Rater Calibration will be determined by the surveillance panels
 - Each surveillance panel look at the details specific to their test type needs in adopting these minimum rater calibration proposals
 - Individual surveillance panels to look at utilizing further improvements/changes such as:
 - Use of statistics, similar to the LTMS, for category 1 rater calibration approval
 - Use of fixed parts as a constant standard for Industry calibration verifications
 - Adopting some of the parts of the L-37 Rater Calibration presentation made by Frank Farber such as:
 - Highly recommend the use of control chart points based on the average of 4 ratings, not just 1

- Develop a minimum number of rater participation to assure a proper mean and standard deviation if statistics are used
- Trial period such as 1 year
- Frequency of calibration such as every month

Passed unanimously

- Consensus Ratings:
 - The TGC recommends the following consistent definition to be added to each Test Method:
 - If multiple ratings are deemed necessary of a given part or parts, consensus rating may be used according to the following: The raters shall be from the laboratory in question or an outside rater if required (no other category 1 rater available in the lab). No averaging of ratings is permitted. Only one rating value is to be reported and is to be agreed to by the original rater involved. Any consensus rating shall be documented in the comment section of the test report.

Passed unanimously

GF-3 Reference Oil:

- TGC does feel this is worth pursuing at this time
- Oils for consideration:
 - 1008 (need Sequence VIII, BRT and TEOST data to complete Gordon's Table)
 - 5W20 or 5W30 viscosity grades
- Would like data on potential oils submitted to the TMC by June 1, 2001

TMC web site data:

- Recommend that all reference oil test data, valid or invalid, be part of the TMC Industry database with appropriate labels
- Recommend that the TMC develop an Excel file for each test type with the following worksheets (where applicable) as a minimum:
 - Operational Data (includes the Qis, averages, standard deviations, etc.)
 - Rating Data
 - Chemical Analysis
 - Shutdown and Downtime Information
 - Metrology Data
 - Test Comments
 - Hardware Parts ID Data
 - Each Surveillance Panel could decide what report Form Numbers would make up each worksheet in the Excel file
 - This file would be an additional file listed on the TMC web site. It would not replace any of the existing CSV files currently in place.

Passed unanimously

- Each Surveillance Panel needs to confirm their definition for non-interpretable tests and document them if they don't exist in their Test Methods

- Secretaries for the Surveillance Panels
 - Item remain open for more discussion in the future

- LTMS
 - Formed a TGC LTMS Task Force to include the Industry statisticians, headed by Ben Weber, to review the LTMS for such items as:
 - Cost benefit analysis?
 - What has the system done or not done for us?
 - Look at decreasing the false alarm error rate
 - Should the lab alarm warning consequences be eliminated or changed?
 - Should the lab alarm action consequences be changed?
 - Review the verbiage in the LTMS document concerning the meeting requirement for each lab/industry alarm?
 - Gears wants to be part of the Task Force
 - Is Monday of the Passenger Car Surveillance Panel week in May available for our first face-to-face meeting?

January 2, 2001

Gordon Farnsworth
Chairman ASTM Technical Guidance Committee
Infineum USA L.P.
P.O. Box 735
Linden, NJ 07036

Dear Gordon:

Request for ASTM input on Standard Deviation Data

The Situation:

As part of the Engine Oil Licensing and Certification System (EOLCS), Aftermarket Audit Program (AMAP), API routinely samples product from the field and runs engine tests on between 6 and 20 samples a year. If the results of the engine test are less than the ASTM D4485 stated limits for the test, API uses Appendix M of API 1509 to determine if the oil is conforming to AMAP requirements.

Appendix M of API 1509 API Mark Conformance Audit: Engine Tests, states:

M.2 Confidence Level

“When engine sequence tests are conducted as part of the Aftermarket Audit Program, conformance will be determined at the 95 percent confidence level using industry published standard deviation. ...”

The Concern:

API requests engine tests at any time during the year, and if an oil is not conforming, acts as quickly as possible. API 1509 Appendix M does not define the timing of the “industry published data” relative to the test date of sample. The Test Monitoring Center (TMC) posts the standard deviation for engine tests semi annually for the periods Nov through April and May through October. These periods have no known technical basis; they coincide with other reporting done by the TMC.

Several extreme conditions could occur by using only the “published” data intervals. It is possible to evaluate an engine test where the most current statistical data ends up to 6 months before the test. This could occur by using the currently “published” data available at the time of test. Alternatively, if an engine test is evaluated using the “published” period that includes the test, an oil could be evaluated with only statistical data that occurred after the test. In that situation, there could be up to 6 months between end of test and the publishing of the SD data. Two engine tests coming down 1 day apart, (April 30 & May 1 or October 31 and November 1) would have completely separate data sets used to determine standard deviation.

API sees two major issues that need to be resolved.

The length of time used to establish standard deviation.

The timing of the standard deviation data relative to the testing of the oil.

API Suggestions:

Here are API Staff's suggestions for these two issues.

Length of Time:

Since TMC publishes SD data for 6-month intervals, six months is a reasonable period to use for developing the standard deviation data.

Data relative to Test

The six-month time interval includes the month of the test. ASTM-TMC is willing and able to provide that data. This would use the most current standard deviation data available and would allow for prompt notification to a licensee of a non-conforming product.

ASTM Input:

API would like ASTM input on two items noted above with particular interest in their opinion about:

- What risks, if any, are associated with using a moving 6-month average vs. a fixed period?
- Is there a strong technical reason to set the six-month period any differently around the test sample than the time proposed? If so what is the recommended interval?

We would like a prompt response to these issues since we will begin testing a new API Category within the year.

Thank you for your input.

Sincerely,



c: Jim Williams
Kevin Ferrick
Doug Morris

Rater Calibration

April 18, 2001

Pittsburgh, PA

Range of Possibilities

Current System —————▶ Future System

Attendance Based —————▶ Statistics Based

Improved Confidence

—————▶

Where Do We Want To Be ?

Should we as an Industry do more?

- ② Category I raters, to achieve calibration, must attend and contribute to a minimum of one (1) ASTM or CRC industry rating workshop each year

Rater Calibration & Training

- Desired System Attributes
 - Central data base & analysis organization
 - Rater calibration is to be performed in a blind manner
 - Documented statistical calibration criteria
 - Training via face to face collaboration and discussion
 - Rater calibration can be conducted whenever needed

Rater Calibration & Training

- Desired Attributes (continued)
 - Assess severity and precision of rater
 - Track calibration part changes over time

L-37

Rater Calibration

4/18/2001

L-37 Rater Calibration

- Features
 - Augments Workshop Activities
 - Can use workshop generated data
 - Blind System
 - Raters can be calibrated whenever necessary

L-37 Rater Calibration

- Calibration frequency determined by Surveillance Panel

L -37 Rater Calibration

- Control Charting Technique
 - Means developed from consensus Group I Raters (Group I = L-37 test raters)
 - Standard Deviation determined from Group I Raters
 - Each control chart point is based on average of 4 pinions

Control Charting

- Raters results are then control charted to determine severity and precision compared to developed targets

L-37 Rater Calibration Flow

- Rater rates 4 pinions
- Data is submitted to TMC
- TMC control charts data
- TMC faxes back control chart results w/ targets
- Rater reviews analysis
- If necessary, Rater makes adjustments and rates second set of parts

Engineering Judgement

- Similar to LTMS
- False Alarms and Real Problems
- TMC can apply a deviation from normal action if technical information justifies

L-37 Rater Calibration

- Implementation
 - Implement on a trial basis with increased frequency and no loss of a rater's ability to rate
 - Trial period length equals 1 year
 - Frequency is every month

ASTM Rater Calibration Task Force

**Report to the ASTM
Technical Guidance
Committee**

April 18, 2001

ASTM Rater Calibration Task Force Background

- Established by the ASTM Technical Guidance Committee at the request of the Test Monitoring Board
- Tasked to develop and recommend a process which would allow “calibration” of those individuals responsible for the subjective evaluation of engine deposits using currently available resources
(Scope)

ASTM Rater Calibration Task Force

Task Group Members

- **Chairman - Zack Bishop**

- **Committee Members**

- **The Chair has received invaluable input from industry including the past Chair, past members and interested ASTM, CRC, and SAE members.**

ASTM Rater Calibration Task Force

Definition - Rating

- The subjective quantification of surface distress and deposits found in internal combustion engines and drive mechanisms generally produced by lubrication products including:
 - Rust
 - Varnish
 - Sludge
 - Carbon
 - Distress

ASTM Rater Calibration Task Force

Definition - Rater

- The Individual tasked with the responsibility to subjectively determine the deterioration of engine parts and drive train mechanisms subjected to petroleum products using industry recognized techniques
- Generally
 - Rust, Varnish, Sludge, Carbon and Distress

ASTM Rater Calibration Task Force Definition - Workshops

- **Workshops are Industry (generally ASTM or CRC) coordinated gatherings in a central location where industry raters can interact and, using industry accepted rating techniques, subjectively evaluate specific engine and drive train parts with the goal of normalizing individual approaches and viewpoints to a consensus value.**

ASTM Rater Calibration Task Force

Activity to Date

- Some formal meetings
- Innumerable telcons and electronic transmissions.
- Support and guidance from all stakeholders
 - Producers, Users, General Interest (Labs)
- Details upon request only

ASTM Rater Calibration Task Force

RECOMMENDATIONS

ASTM Rater Calibration Task Force Recommendations - Calibration Process

① Internal or company training

- Participating organizations or companies must have an established and documented process for training raters internally and each rater must have completed this process.
- Each rater must be categorized as either a Category I or Category II by their parent organization or company.
- Records must be kept documenting internal training completion and classification.

ASTM Rater Calibration Task Force

Rater Categories

■ Category I

- An individual whose rating results (reference and non-reference) are used in final test reports that support the quality level of experimental fluids and/or whose ratings are used to support the quality level of marketable products.

■ Category II

- All other individuals who do not fit into Category I.

ASTM Rater Calibration Task Force Recommendations - Calibration Process

- ② Category I raters, to achieve calibration, must attend and contribute to a minimum of one (1) ASTM or CRC industry rating workshop or make-up session each year
 - Ratings must be in the deposit or distress area where calibration is sought.
 - Ratings must be used in the generated statistical data at that workshop

ASTM Rater Calibration Task Force Recommendations - Calibration Process

- ③ Records will be kept in a central location identifying those individuals who have achieved Category I status along with proof of qualifications.
- Name of individual
 - Proof of internal training (Company supplied)
 - Date for attendance and contributions to an industry workshop
 - Rating areas

ASTM Rater Calibration Task Force

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HOW TO GET STARTED

ASTM Rater Calibration Task Force Recommendations - How to get Started

- ① Agree with the recommendations of the ASTM Rater Calibration Task Force and the qualifications required for a Category I Rater**
- ② Request surveillance panels identify in their respective procedures that all subjective ratings must be accomplished by Category I raters. (Effective date to be set by S.P.)**

ASTM Rater Calibration Task Force Recommendations - How to get Started

- ③ Recommend that TMC be assigned the responsibility of maintaining a central data base where Category I raters are identified along with documentation of their qualifications. This data base will be available to Industry**
- ④ Initially require only documentation of internal training in the establishment of Category I Status**

ASTM Rater Calibration Task Force Recommendations - How to get Started

- ⑤ Once an ASTM or CRC industry rating workshop is held, then all category I raters must have attended along with contributions to maintain status.**
- ⑥ New raters will only require internal training until an ASTM or CRC industry rating workshop is conducted**

ASTM Rater Calibration Task Force Recommendations - How to get Started

- ⑦ Category I raters not able to attend workshops must, **within 30 days of the workshop**, coordinate a makeup session with a qualified Category I rater that attended the workshop. Parts will be rated by each rater providing comparison numbers. This data will be then submitted to the Central Data Base. **Documenting** this action in this time frame will allow continued Category I status for the rater in question

ASTM Rater Calibration Task Force Recommendations - How to get Started

- ⑧ The organization charged with maintaining the data base for category I raters will, from time to time, review the effectiveness of the category I process and, if necessary, make recommendations to the Technical Guidance Committee for improvements**

ASTM Technical Guidance Committee Meeting
September 17, 1992

Courtyard Marriott - Pittsburgh Airport

4. Determine if multiple ratings of a single test should be allowed. If so, how should they be handled in a test report.

Mr. Romano made a motion that for tests which are in the LTMS, consensus ratings are allowed within a lab and, where implemented, will be noted on the rating sheet with reason why. The reported rating will be the original rating or the consensus rating only. Any independent re-rating will be included in the supplemental section of the test report for informational purposes only. The motion was seconded by Mr. Bergin.

Voting results were: Approved 9 - Against 2 - Waives 0

Consensus Rating

Seq. VE: 13.1.1 – “When a rater seeks advice from another rater, report the rating as a consensus rating in the final report. Do not use raters from outside sources (other laboratories) for consensus ratings and do not average these ratings. Include independent ratings in the supplemental pages as information only.”

Seq. IIIE: 13.4.4 – “ If multiple ratings are deemed necessary of a given part or parts, consensus rating may be used according to the following: The raters shall be from the laboratory in question, no outside raters can be used. No averaging of ratings is permitted. Only one rating value is to be reported and is to be agreed to by the raters involved. The consensus rating shall be noted in Fig. A6.5.

Seq. IIIF: 13.4.4 – “ If multiple ratings are deemed necessary of a given part or parts, consensus rating may be used according to the following: The raters shall be from the laboratory in question, no outside raters can be used unless requested and directed through the Sequence IIIF Surveillance Panel. No averaging of ratings is permitted. Only one rating value is to be reported and is to be agreed to by the raters involved.”

Seq. VG: No mention of consensus rating.

HD Tests: I have not reviewed any diesel test procedures.

GF-3 Sequence Test Reference oils

<u>IIIF</u>	1006	1008	433			
<u>IVA</u>	1006					
<u>VG</u>	1006			1007	925	
<u>VIB</u>	1006	1008		1007		
<u>VIII</u>	1006					704

1006: 5W30 'SJ' introduced in 1997

1008: 5W30 'SJ' introduced in 1999

433: 5W30 'SL' introduced in 2000

1007: 5W30 [na] introduced in 1999

925: 5W30 'SF' introduced in 1987

704: 10W30 'SF' introduced in 1990

Reference Oil Performance

Oil	1006	1008	433	1007	925	704	Pass limit
IIIF							
% Vis Inc	4057	131	39				275 max
WPD	3.29	4.66	4.96				4.0 min
PSV	9.14	9.73	9.41				9.0 min
ACW							20 max
IVA							
ACW	121.38	40.16		95.58			120 max
VG							
AES	8.43	9.00		8.93	6.44		7.8 min
RACS	9.35	8.94		8.99	7.60		8.0 min
AEV	9.27	9.16		9.24	8.52		8.9 min
PSV	8.49	8.97		8.57	7.39		7.5 min
OSC	2.99	0.93		1.63	53.16		20 max
VIB							
FEI1	1.40	1.88		0.69			1.6 min
FEI2	0.50	1.27		0.31			1.3 min
VIII							
BWL	17.1					8.0	26.4 max
10 Hr vis	9.00					10.25	9.3 min

TMC Website

- Data Posted on the TMC Website:
 - Can the TMC maintain one Excel file for each of the test type that would contain everything currently in the test report?
 - For example, each Excel file would have the following Worksheet names if applicable:
 - Operational data (includes the QIs, averages, standard deviations, etc.)
 - Rating data
 - Chemical analysis data
 - Shutdown and Downtime information
 - Measurement data
 - Test comments
 - Hardware parts ID information
 - Each SP could decide what report form numbers would make up each Worksheet in the Excel file
- Very useful in any investigations of severity/precision

Farnsworth, Gordon

From: Rick Oliver [crickoliver@home.com]

Sent: April 17, 2001 10:49 AM

To: John Zalar; William Nahumck; Gordon Farnsworth; Zack R. Bishop; Larry Bendele; Daryl Baumgartner

Cc: Dan Ludwig; John Beck; Kim Herald

Subject: "Non-Interpretable Tests" Definition

Chairmen of ASTM PCMO Surveillance Panels,

I would like to suggest an agenda item for discussion at the May SP meetings related to test operational validity. In particular, I think that the concept of declaring a test operationally valid but non-interpretable should be re-examined, including the inclusion of a "Special Case" for certain tests. These "Special Cases" and "Non-Interpretable" categories seem to be poorly understood within the industry, and I believe they need to be clarified and perhaps simplified. It does not make sense to me to declare a test to be "operationally valid" but "non-interpretable", meaning it should not be included in MTAC calculations.

I have listed below the tests which I believe have been identified by the ASTM as having special cases, although I'm not certain how the ASTM has identified all of them (i.e. Through Information Letters or by stating them in the procedures).

Seq. IID
Seq. IIIE
Seq. VIB
T8
T8E
T9
M11

I believe the reason for using the "Special Case" category was to identify tests that had deviations from the procedure that were beyond the control of the testing laboratory. Tests in this situation were identified in the American Chemistry Council Code of Practice Test Laboratory Conformance Statement in Declaration No. 2 which states:

Declaration No. 2:

"The laboratory ran this test for the full duration following all procedural requirements and all operational validity requirements of the latest version of the applicable test procedure (ASTM or other), including all updates issued by the organization responsible for the test, were met."

If the response to this Declaration is "No", does the test engineer consider the deviations from operational validity requirements that occurred to be beyond the control of the laboratory?"

The same ACC Code of Practice Test Laboratory Conformance Statement also addressed the "Special Case" issue in Declaration No. 3 which reads:

Declaration No. 3

"A deviation occurred for one of the test parameters identified by the organization responsible for the test as being a special case. (This currently applies only to specific deviations identified in the ASTM

Information Letter System)."

The recent actions taken with the Seq. IIIF with regard to the "Interpretability" of the test demonstrate the present confusion. The Seq. IIIF now has different oil consumption limits for oils with different NOACK volatilities for determining the "Interpretability" of the test. This has not been identified as a "Special Case" by the ASTM. RSI's interpretation has been that tests are either operationally valid or not operationally valid based on the oil consumption limits, but I'm not sure everyone agrees with our interpretation. Per Declaration No. 2 above, the test lab can still identify tests exceeding the oil consumption limit as not being operationally valid due to deviations that were beyond the control of the lab.

In summary, the questions are:

1. Is there a need for "Special Cases"? If so, where are they identified?
2. Do we need a "Non-Interpretable" category as opposed to calling tests in this category "Not Operationally Valid for reasons beyond the control of the lab"?

I'm not sure it is productive to hold this discussion in each of the SP meetings, but perhaps the issue could be addressed in the first of the meetings, which would be the Seq. VIII meeting, and re-affirmed in each of the other SP meetings.

Please advise if you have any questions or comments on this.

Rick

Panel	Permanent Secretary	Rotational Secretary
IIIF		X (TMC)
IVA		X (TMC)
VG	X	
VIB		X (TMC)
VIII		X (TMC)
Single Cylinder Diesel	X	
Mack	X	
Cummins	X	
L-33	Chairman	
L-37	Chairman	
L-42	Chairman	
L-60-1	Chairman	
HTCT	Chairman	
OSCT	Chairman	
TMB	TMC	
TGC	TMC	
DCC	TMC	

Some Opinions from John Zalar Regarding the Lack of Permanent Surveillance Panel Secretaries and the Resulting Impact on the Writing of Meeting Minutes

- Continue to solicit for a volunteer to be permanent secretary (this person could be the TMC representative - one panel max)
- When there is no volunteer to be permanent secretary, use the rotational system (TMC will participate)
- There should always be a motion/action item recorder (Frank Farber is willing to do this for SP week meetings)
- Lack of volunteers to be secretary is not unique to Section B1

Technical Guidance Committee

Exceeding LTMS Precision Action and Warning Limits

Time for a change?

Presented by
Ben Weber

April 2001

Current Situation

1. Exceed EWMA laboratory chart warning limit:
 - a) Immediately begin two calibration tests on calibrated test stands different from the test stand which exceeded the warning limit.
 - b) Notify the TMC for a potential visit.
 - c) Candidate testing may continue on other calibrated test stands

2. Exceed EWMA laboratory chart action limit:
 - a) The laboratory must not start any new candidate tests
 - b) Develop a plan, coordinated with the TMC, to correct the laboratory precision problem

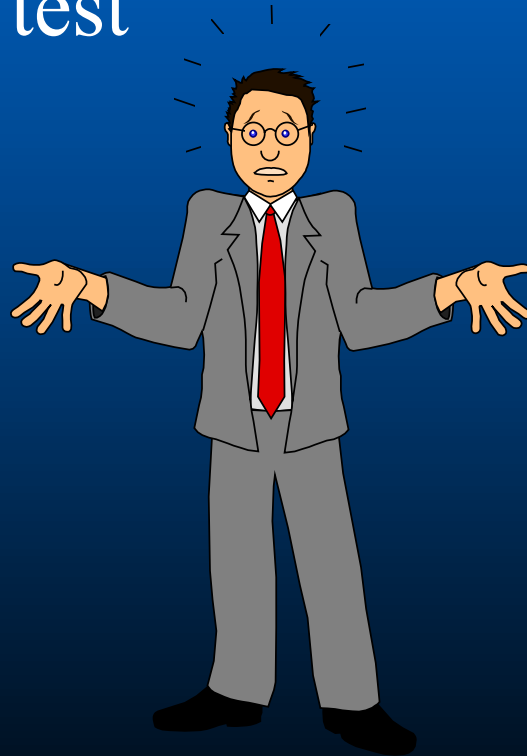
The Problem?

- The laboratory doesn't completely control all testing variables
 - One of the biggest uncontrolled variables are the test parts
- Many of our test procedures prohibit the labs from pre-test measurements or screening of the parts, and most procedures require the test parts to be consumed on a FIFO basis
- “At the top of the list of what makes tests imprecise is hardware consistency. We see it over and over again in just about every diesel and gas engine test that we run, and we may be asking more of the parts we use than can be delivered in terms of precision we want and need.”

F. Fernandez, Chairman PCEOCP, *Lubes-n-Greases* April 2000

In a Perfect World?

- In our current application of the LTMS, the labs can't measure the parts beyond basic procedural requirements, but are being held accountable for the precision of the test



The End Result

- We've been using LTMS since 1992 and albeit debatable, engine testing precision has seen little or no real measurable improvement
- The real improvement has not come from LTMS, but rather from fundamental changes made to the hardware, stand setups, build practices, etc.
- “Although parameters in some test have shown improvement, overall the LTMS requirements have not resulted in the improvement of engine tests.”

– CMA letter to Industry, October 14, 1994

What has LTMS Done?

- Allowed labs with different acceptable severity to conduct candidate tests using the severity adjustment system
- Provided a method of tracking test precision
- It certainly has increased the number of calibration tests conducted
- There have been a lot of test stands “pulled”, renumbered, and re-inserted back into the LTMS system
 - One result: Much data missing from TMC DB
- Consequences have increased test prices

Where's the Value Added?

- The severity adjustment system seems to be working and reasonable
- Tracking of test precision is most definitely a good thing and should continue
- Running additional references when little or no changes are made in the lab's stands or practices offer no added value except to increase test cost

What to Do? Page 1

- Continue with the severity adjustment system
- Monitor test precision for the Industry and labs semi-annually in the Surveillance Panels and B at ASTM

What to do? Page 2

- No precision consequences for the following until after at least 15 tests per oil have been reached to achieve a firm and proper σ
 - Hardware changes (SP determines the specific hardware)
 - Fuel re-blends or new batches
 - Calibration oil re-blends
- No precision consequences for a new test until at least 15 calibration tests have been completed on each calibration oil
 - Again this provides more confidence in the σ
 - Allows for any “bugs” to appear following a release of a new test method

Additional Thoughts

- What about engineering judgement? Can't that take care of precision problems associated with the test parts, fuel, or any other issue?
 - The biggest problem here, is at the onset of a potential problem, we don't usually know it. We don't have the benefit of *hindsight* when a potential problem begins, and by the time we do it's usually several weeks later in the best of cases. With some of the HD test lengths, we might not know it for several months.

Summary

- Without question we all want precise engine tests, *and more precise than we have seen in the past*
- No one wants needless calibration re-runs
- How do we get there?
 - I believe the answer lies within the labs
 - If you hold them accountable, you must also give them the power to control their own destiny
 - You can't have one without the other
- How do you make this consistent in the Industry?
 - The proof is in the pudding. If we believe in the LTMS severity and precision methodology, then the answer lies in the lab results

Summary Page 2

- How did some of the gear test type areas reach the decision not to implement the precision alarms?

EWMA False Alarm Error Rates

- Typical Industry Level
 - Warning Alarm: 7 %
 - Action Alarm: 1%
- Typical Laboratory Level
 - Warning Alarm(Precision): 7 %
 - Action Alarm (Precision): 1 %
 - Action Alarm (SA-Severity) 7-10 %

False Alarm Error Rates

Test	Number of Critical Parameters	Laboratory EWMA Severity	Laboratory EWMA Precision		Shewhart	
			Warning	Action	Stand Severity	Lab Precision
		Action		Action	Action	Action
IVA	1	7%	7%	1%	7%	7%
VIII	1	7%	7%	1%	5%	5%
VG	5	10%	7%	1%	Historic	7%
VIB	2	Continuous	7%	1%	10%	7%
IIIF	3	10%	7%	1%	Historic	7%

Sequence VIB values are based on stand level

For test areas with more than 2 parameters the False Alarm Error Rates are perceived to be as stated.