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Unapproved Minutes of the November 12, 2008  
Sequence VG Surveillance Panel Meeting  
held in Warren, MI

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The meeting was called to order at 1:00 pm by Chairman Andy Ritchie.

Agenda Review

Bill Buscher is Action & Motion recorder.

The Agenda was accepted as shown on Attachment 1.

Sequence VG Meeting Minutes  
November 12, 2008  
Warren, MI

### Membership Changes

No membership changes were noted.

### Meeting Minute Status

The May 7, 2008 meeting minutes were approved by the surveillance panel.

### Review of Action Items from Last Meeting

Motions and Action Items

#### As Recorded at the Meeting by Bill Buscher

1. Action Item – Surveillance panel chairman to request that the chairman of LTMS, Ben Weber, schedule a meeting to conduct a comprehensive review of the different LTMS systems utilized by the PCMO test types and their pros and cons.  
**Open. Is this still needed? Yes. Will change the LTMS task force chair from Ben Weber to Dan Worcester.**
2. Action Item – Ed Altman will contact AER and instruct them to include 3 sets of the correct valve springs with each cylinder head for all labs participating in the current AER cylinder head purchase.  
**Done. Second batch will included all additional springs.**
3. Action Item – Haltermann will start blending the first small fuel batch for the new fuel batch approval process.  
**Done.**
4. Motion – Testing for the first small fuel batch will be conducted on 2002/2003 pistons and rings and used camshafts.

Rich Grundza / Dan Worcester / Passed Unanimously

**Done.**

5. Action Item – A task force conference call will be scheduled once the small fuel batch has been blended and prior to testing.  
**Done.**
6. Motion – Resume roller follower pin wear (Cylinder # 8 intake and exhaust) and top ring gap increase (Cylinder # 1 and 8) measurements. Sequence VG test report forms and data dictionary will be modified accordingly.

Dan Worcester / Ron Romano / Passed Unanimously

**Done. TMC issued information letter.**

7. Motion – Remove “Last Reference Oil Test Calibrating Stand Information” table from Form 4 of the Sequence VG test report and associated data from the Sequence VG data dictionary. Note that this data is still available from other data sources.

Dwight Bowden / Dan Worcester / Passed Unanimously

**Done.**

Sequence VG Meeting Minutes  
November 12, 2008  
Warren, MI

### Test Sponsor Report

Ron Romano did not have a formal report, but was unaware of any issues outstanding. Parts orders have been placed and the first of those orders have been received. Minimum order quantities have been addressed and there appears to be enough hardware in anticipation of GF-5.

### Test Monitoring Center Report

A copy of the TMC report can be obtained from the TMC website. There were no questions or comments regarding the TMC report. Rich presented updated test data through November 11, 2008. A copy of the TMC presentation is included as Attachment 2.

### ACC Monitoring Agency Report

No formal report was given. A copy of the report is available on the ACC Monitoring Agency website.

### Fuel Supplier Report

Jim Carter gave a quick summary of fuel consumption and adjustments to maintain RVP in the stored fuel. Analysis of fuel in storage is included as attachment 3. The status of the new fuel batch was discussed. Both of the tests on the initial blend have been started, one is scheduled to complete November 16, 2008 and the second is scheduled to complete November 22, 2008. A conference call is planned after each of these results is completed, the first on November 18 and the second on November 23, 2008. The number of tests on the initial blend was discussed. A total of 4 tests on reference oil 1006-2 would be required. If the results on the hand blend are clearly unacceptable, testing maybe stopped until another blend is available. The final blend will be placed in a floating roof tank in Texas, which will also allow adjustments for RVP. The tank will be available in March of 2009. The panel was informed that the availability of this tank will determine when the final blend can be tested. This may mean that the existing fuel batch may be exhausted before the next is available. Discussion on allocation of the remaining fuel was addressed. Two labs felt they would not need any additional fuel, but the remaining three had orders for more than was available. The labs involved agreed to work offline to resolve the allocation issue and advise Haltermann of their revised quantities.

### Scope and Objectives

A review of the scope and objectives was conducted. The revised scope and objectives are included as attachment 4. Andy Ritchie also gave a brief presentation of his report to subcommittee D0.02.B0.

### New and Old Business

Items of New business and old business were addressed. As new business, the panel agreed to solicit ILSAC Oil support in obtaining GF-5 oils as reference oils for the VG test. The panel also agreed that all data be reported on tests which have been run to completion, but were not valid. The panel also agreed to move VG fuel issues to the TGC for potential guidelines

Sequence VG Meeting Minutes

November 12, 2008

Warren, MI

A listing of Motions and Action items recorded during the meeting is included as attachment 5.

The meeting was adjourned at 3:10 pm.

**Agenda**  
**Sequence VG Surveillance Panel**  
**November 12<sup>th</sup> 2008 1.00–5:00 p.m.**  
*GM Technical Center in Warren, MI*

<b>1. Chairman comments.</b>	
<b>2. Attendance sign-in distribution.</b>	
<b>3. Membership changes.</b>	
<b>4. Motion and Action recorders.</b>	
<b>5. Approval of minutes for May 7<sup>th</sup> 2008</b>	<b>All</b>
<b>6. Review action items from last meeting.</b>	<b>Andy Ritchie</b>
<b>7. Test Sponsor report.</b>	<b>Ron Romano</b>
<b>8. TMC Report.</b> - Questions on semi-annual report.	<b>Rich Grundza</b>
<b>9. Current Fuel Supply Report.</b>	<b>James Carter</b>
<b>10. New Fuel Batch Update</b>	<b>James Carter</b>
<b>11. Operational and Hardware Items.</b>	<b>All</b>
<b>12. VG parts supply update</b>	<b>Ford Component Sales</b>
<b>13. Review Scope and Objectives.</b>	<b>All</b>
<b>14. Old business</b>	<b>All</b>
<b>15. New business</b>	<b>All</b>
<b>16. Adjourn</b>	

# Sequence VG Update

November 12, 2008

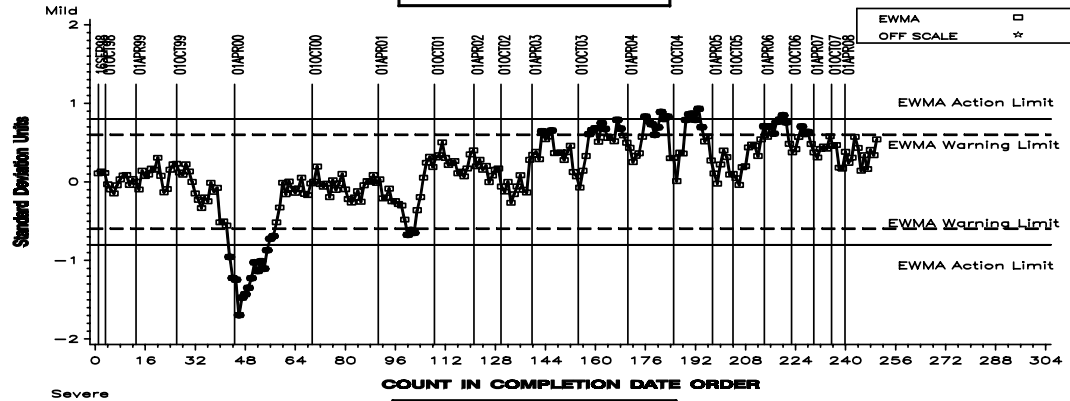
# Current Trends

- One tests reported since 10/1/2008
- Test Invalid due to RAC flow control calibration error
- AES in control, trending mild.
- RAC is in mild action.
- AEV in mild warning alarm.
- APV is in mild action alarm
- OSCR in control, on or near target.

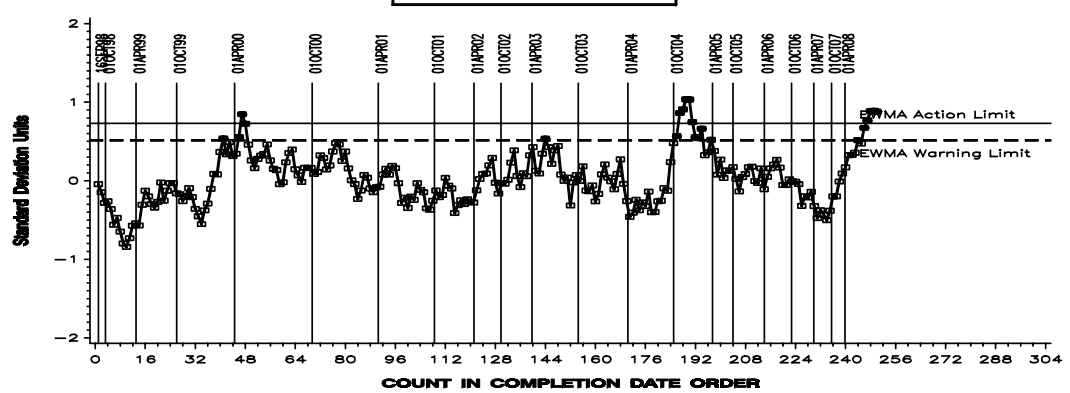
# SEQUENCE VG INDUSTRY OPERATIONALLY VALID DATA

## AVERAGE ENGINE SLUDGE

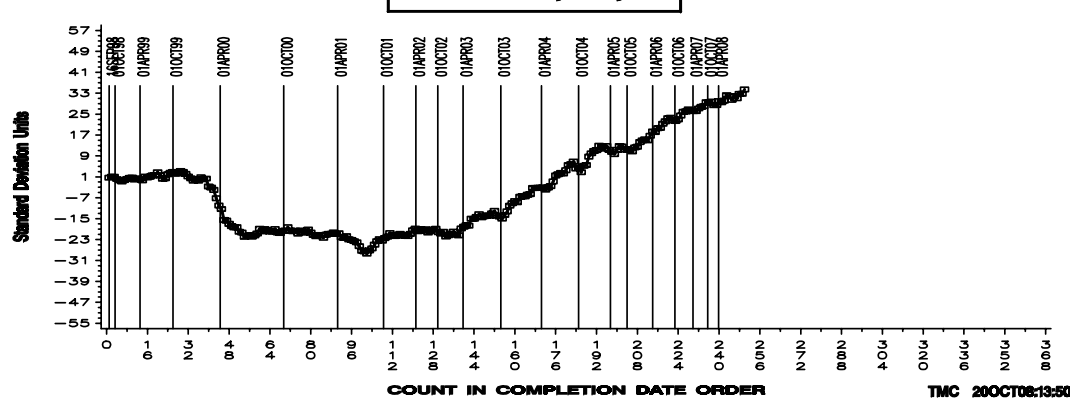
**LTMS Severity Analysis**



**LTMS Precision Analysis**



**CUSUM Severity Analysis**



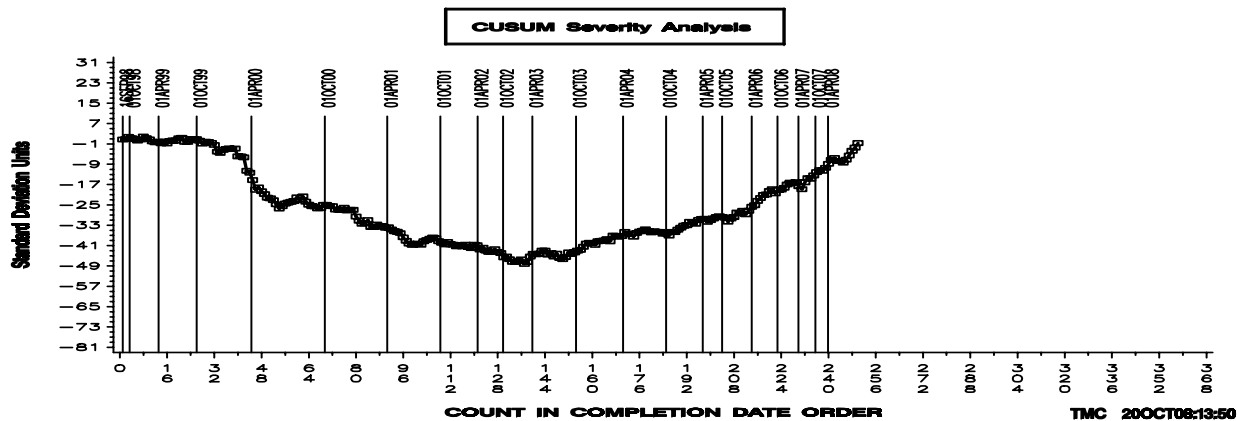
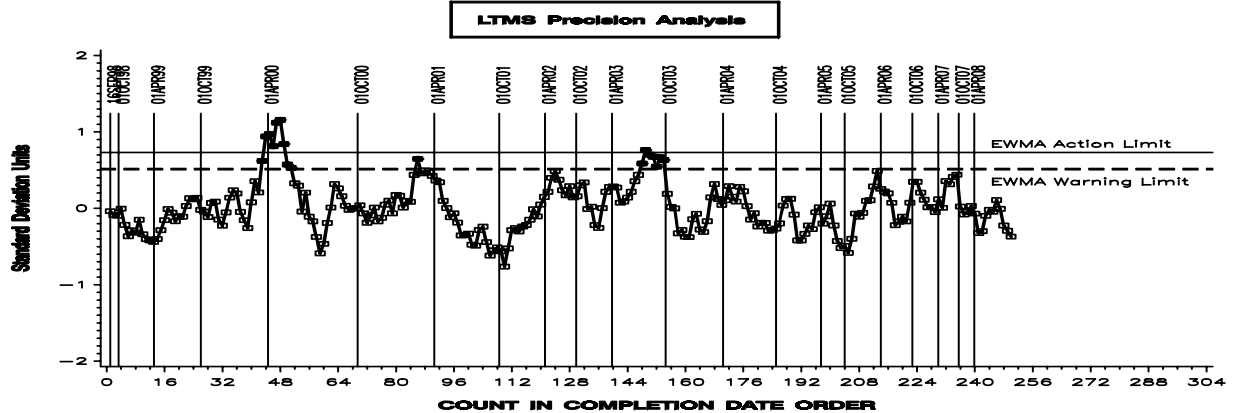
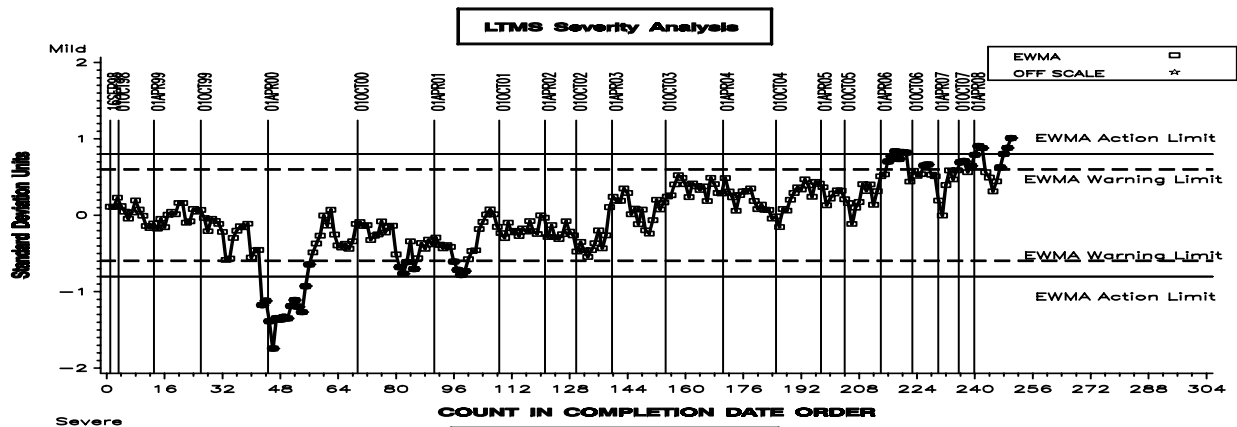
TMC 20OCT08:13:50





# SEQUENCE VG INDUSTRY OPERATIONALLY VALID DATA

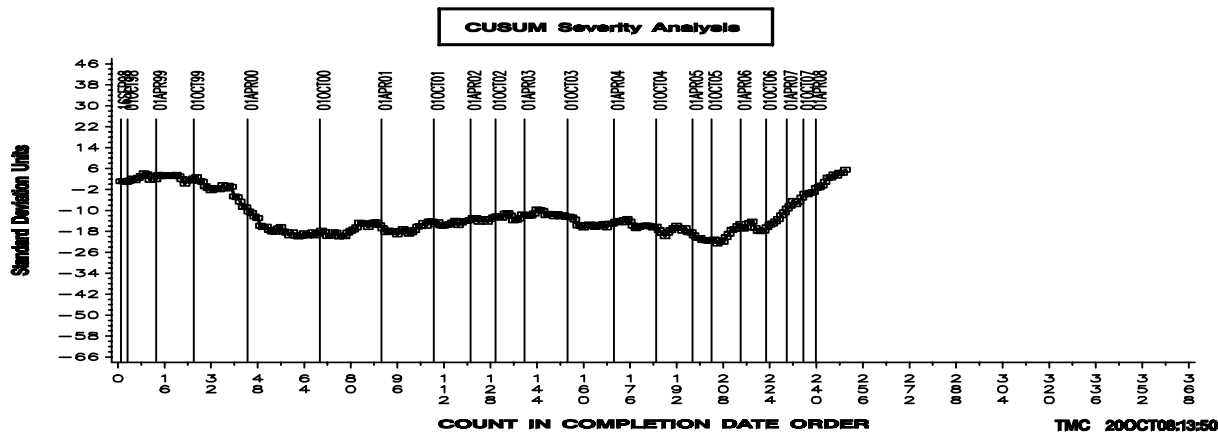
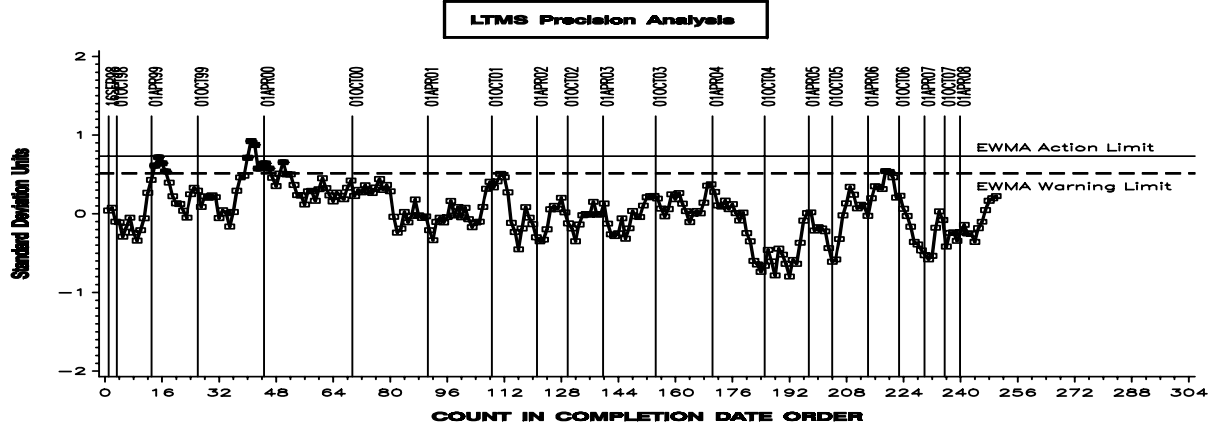
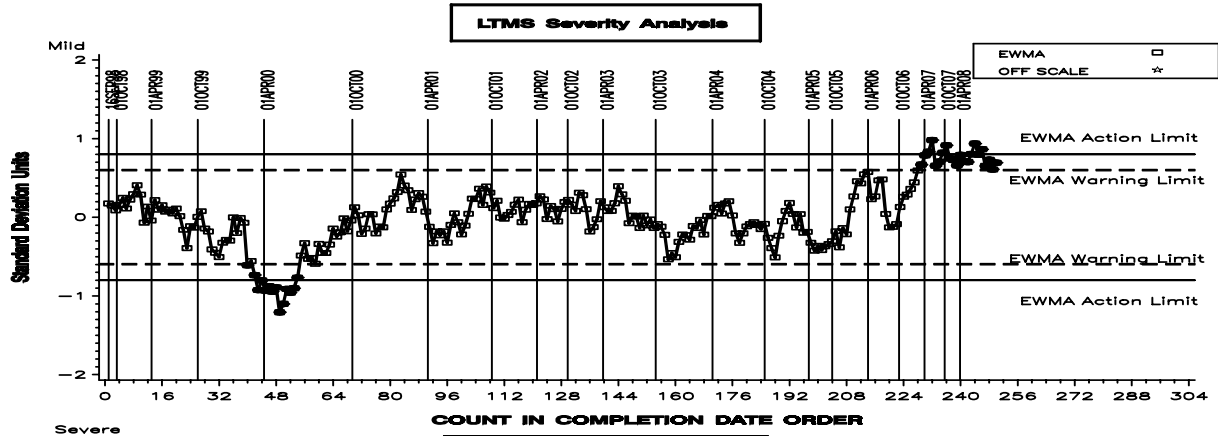
## AVERAGE ROCKER COVER SLUDGE



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# SEQUENCE VG INDUSTRY OPERATIONALLY VALID DATA

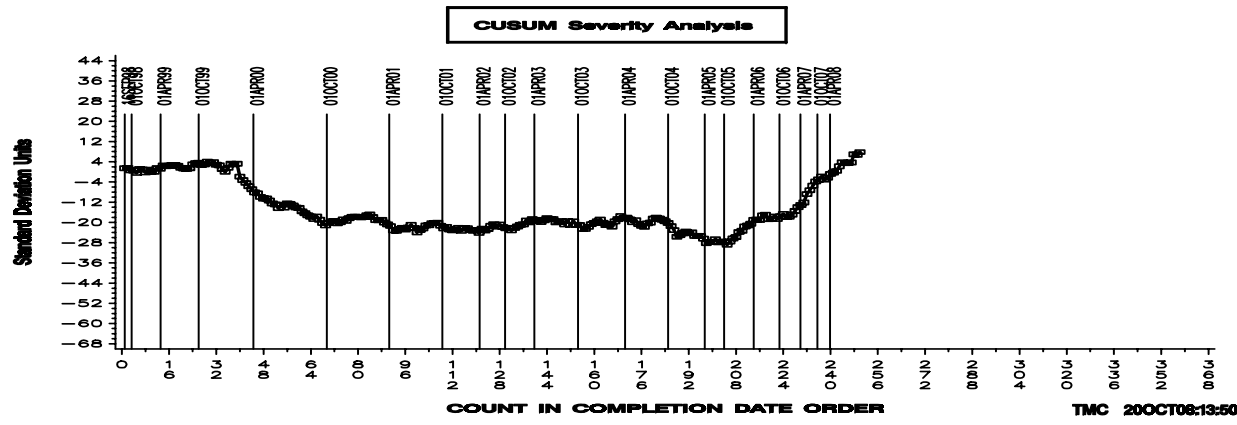
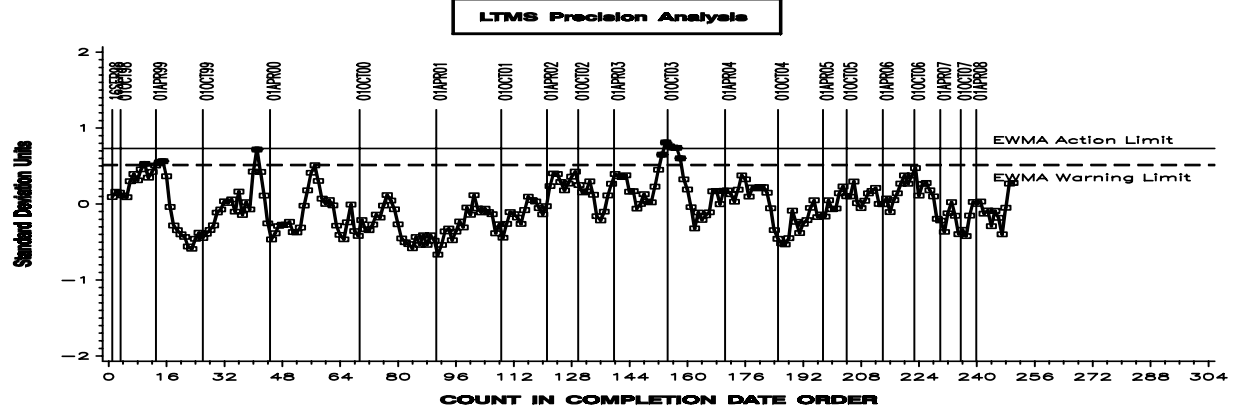
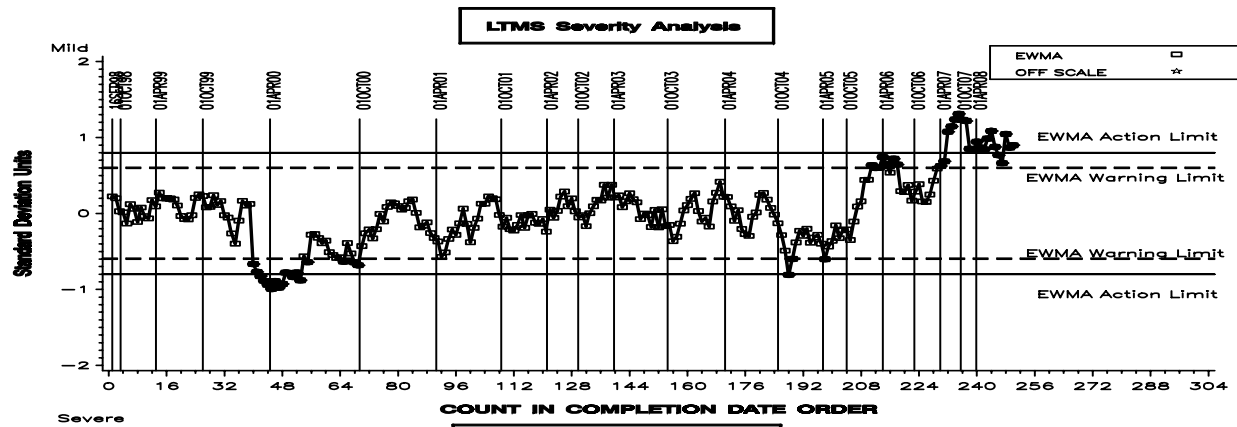
## AVG. ENG. VARN. 3-PART FINAL RESULT APV + BAFFLES



TMC 20OCT08:13:50

# SEQUENCE VG INDUSTRY OPERATIONALLY VALID DATA

## AVG PISTON SKIRT RATING



TMC 20OCT08:13:50

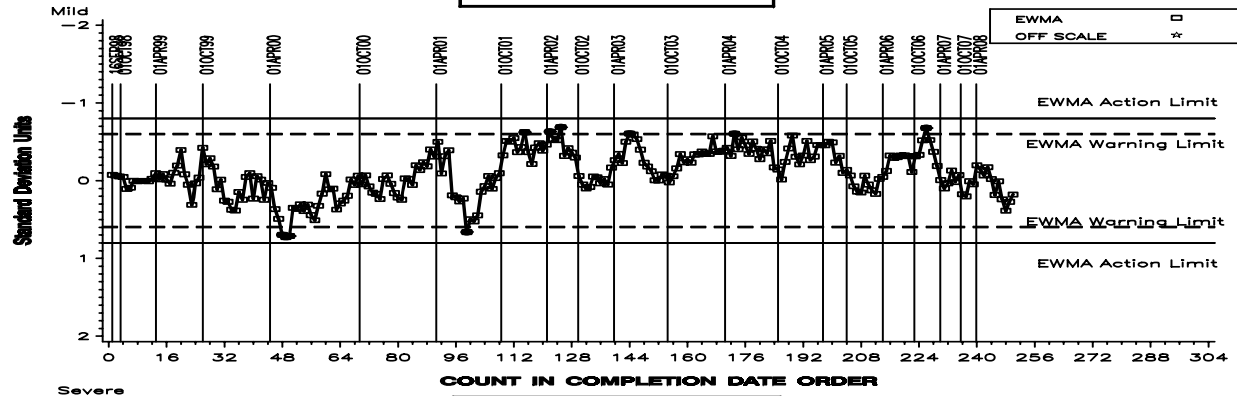


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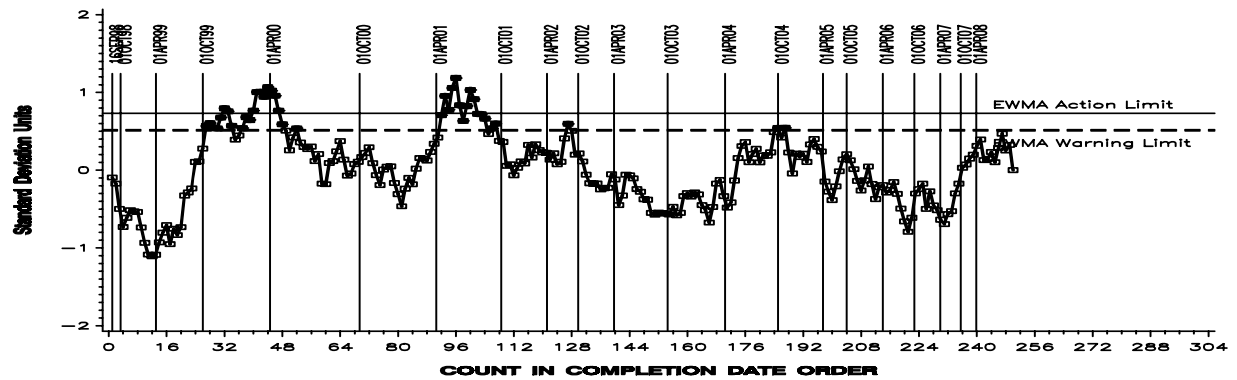
# SEQUENCE VG INDUSTRY OPERATIONALLY VALID DATA

## OIL SCREEN SLUDGE

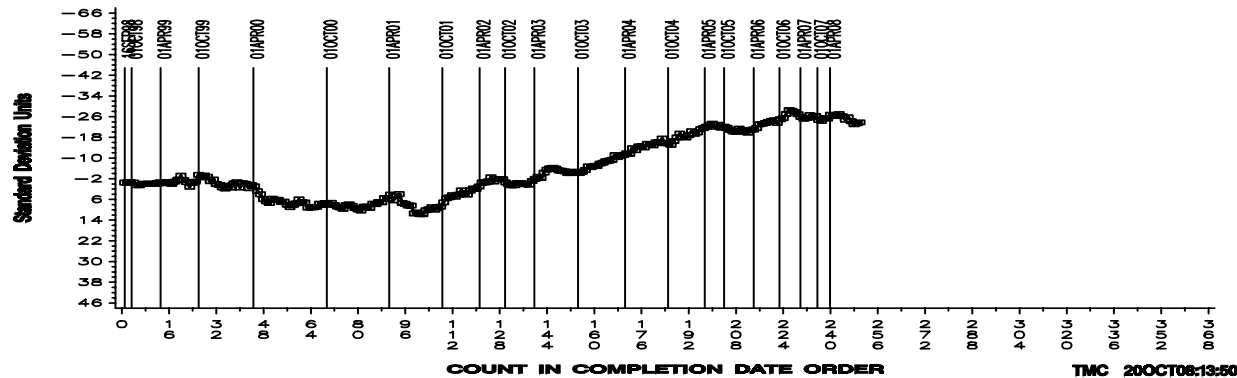
### LTMS Severity Analysis



### LTMS Precision Analysis



### CUSUM Severity Analysis



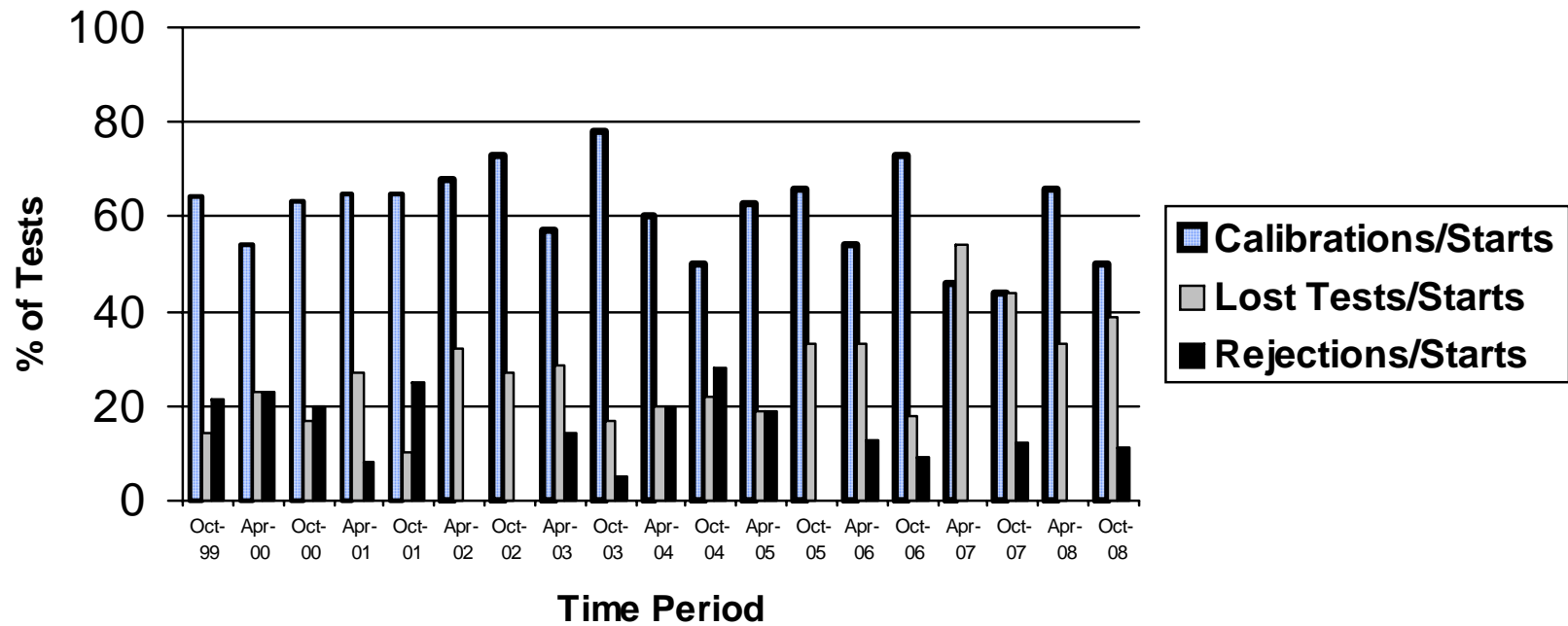
TMC 200208:13:50

# Sequence VG Update

- Four stands at three labs calibrated
- Three additional tests running
- Calibration per start has decreased, lost test and rejected test rates increased when compared to previous period.
- Pooled precision for AES, APV and RAC degraded, OSCAR improved and AEV unchanged. All rates compare well with historical rates.
- One info letter issued (see timeline)

	Reporting Data	Calibrated as of 9/30/08
Number of Laboratories	4	3
Number of Stands	8	6

### Calibration Attempt Summary



**HALTERMANN**  
**PRODUCT CODE:**  
**PRODUCT:**  
**Seq. III & VI**

**HF003**  
**EEE Unleaded Gasoline**

<b>Batch No.:</b>	WI0921LT10	WE1921LT10	WE1921LT10	WC3121LT10
<b>TMO No.:</b>	MTS		MTS	MTS
<b>Tank No.:</b>	110	110	110	110
	10/1/2008	6/27/2008	5/29/2008	4/16/2008

TEST	METHOD	UNITS	HALTERMANN Specs			RESULTS	RESULTS	RESULTS	RESULTS
			MIN	TARGET	MAX				
Distillation - IBP	ASTM D86	°C	23.9		35.0	28.8	29.6	30.3	30.8
5%		°C				41.1	42.6	44.7	41.7
10%		°C	48.9		57.2	49.1	51.4	52.6	49.9
20%		°C				61.6	65.0	65.0	61.8
30%		°C				75.2	79.3	78.8	74.4
40%		°C				91.9	95.1	94.5	90.1
50%		°C	93.3		110.0	104.3	105.2	105.0	103.5
60%		°C				111.4	111.1	110.9	110.6
70%		°C				117.7	116.8	116.8	117.4
80%		°C				130.3	128.2	128.3	129.3
90%		°C	151.7		162.8	159.0	159.5	158.7	159.2
95%		°C				168.1	168.7	168.3	166.9
Distillation - EP		°C			212.8	198.4	199.0	196.8	195.2
Recovery		vol %		Report		97.0	97.0	97.6	97.4
Residue		vol %		Report		1.1	1.1	1.1	0.8
Loss		vol %		Report		1.9	1.9	1.3	1.8
Gravity @ 60°F/60°F	ASTM D4052	°API	58.7		61.2	59.08	59.0	59.0	59.1
Density @ 15° C	ASTM D4052	kg/l	0.734		0.744	0.742	0.742	0.742	0.742
Reid Vapor Pressure	ASTM D5191	kPa	60.6		63.4	63.0	63.4	63.3	62.9
Carbon	ASTM D3343	wt fraction		Report		0.8649	0.8649	0.8649	0.8650
Carbon	ASTM E191	wt fraction		Report		0.8626	0.8604	0.8604	0.8655
Hydrogen	ASTM E191	wt fraction		Report		0.1322	0.1353	0.1353	0.1328
Hydrogen/Carbon ratio	ASTM E191	mole/mole		Report		1.826	1.873	1.873	1.828
Oxygen	ASTM D4815	wt %			0.05	<0.01	<0.05	<0.05	<0.05
Sulfur	ASTM D5453	mg/kg	3		15	6	8	4	5
Lead	ASTM D3237	mg/l			2.6	<2.6	<2.6	<2.6	<2.6
Phosphorous	ASTM D3231	mg/l			1.3	<0.02	<0.2	<0.2	<0.2
Composition, aromatics	ASTM D1319	vol %	26.0		32.5	27.8	27.6	28.0	28.2
Composition, olefins	ASTM D1319	vol %			10.0	0.7	0.6	0.5	0.4
Composition, saturates	ASTM D1319	vol %		Report		71.5	71.8	71.4	71.5

Particulate matter	ASTM D5452	mg/l		1	0.6	0.5	0.5	0.3
Oxidation Stability	ASTM D525	minutes	1000		>1000	>1000	>1000	>1000
Copper Corrosion	ASTM D130			1	1a	1a	1	1
Gum content, washed	ASTM D381	mg/100mls		5.0	<0.5	<0.5	<0.5	<0.5
Fuel Economy Numerator/C Density	ASTM E191		2401	2441	2432	2422	2425	2432
C Factor	ASTM E191			Report	1.0016	1.0002	1.0002	1.0051
Research Octane Number	ASTM D2699		96.0		96.9	97.7	97.7	97.0
Motor Octane Number	ASTM D2700			Report	88.4	89.0	89.0	88.7
Sensitivity			7.5		8.5	8.7	8.7	8.3
Net Heating Value, btu/lb	ASTM D3338	btu/lb		Report	18484	18491	18486	18465
Net Heating Value, btu/lb	ASTM D240	btu/lb		Report	18395	18364	18364	18389
Color	VISUAL	1.75 ptb		Red	Red	Red	Red	RED



**Haltermann Products**  
**SVGM2, HF-0295 Sales Volume Summary 3-1-08 thru 11-7-08**  
 JEC/Update 11-12-08

<b>Company</b>	<b>3-1-08 to 11-7-08</b>	<b>2005 Allotment</b>
Afton	10%	22%
GM	4%	0%
Intertek	29%	27%
Lubrizol	6%	17%
SWRI	52%	30%
ExxonMobi	0%	2%
Ashland	0%	2%

<b>Open/ Pending Orders</b>
4,400
0
21,000
0
21,000
0
0

Current volume: 47,200  
 SWRI committed: 14,000  
**Remaining saleable volume: 33,200**

**46,400 Total Open/Pending**

# Sequence VG S.P. Report

## Sequence VG S.P. Scope

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

# Sequence VG S.P. Report

## Sequence VG S.P. Objectives

### Objectives

1. Ensure a secure supply of Ford 4.6L hardware is available to accommodate testing through GF-5.
2. Ensure a secure supply of SVGGM2 fuel is available to accommodate testing through GF-5, anticipating the need for one or more additional batch of SVGGM2 fuel to be blended.

### Target Date

November 2008

On-going

Sequence VG Surveillance Panel  
November 12, 2008  
1:00PM – 5:00PM  
GM Technical Center  
Warren, MI

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

1. Action Item – Chairman to request that the LTMS task force chairman, Dan Worcester, schedule a meeting in January 2009 to conduct a comprehensive review of the different LTMS systems utilized by the PCMO test types and their pros and cons.
2. Action Item – Haltermann to supply the raw data for the individually adjusted shipments of SVGGM2 fuel as an addendum to the Fuel Supplier Report.
3. Action Item – For the current batch of SVGGM2 fuel, the three labs with open orders will determine final fuel allotments, to result in a simultaneous fuel batch switch over. Also estimate when the current batch of SVGGM2 fuel will be depleted.
4. Action Item – Haltermann to determine what their Michigan facility's capacity is for fuel adjustments. The intent would be to perform a single adjustment on the remaining 33,200 gallons of SVGGM2 fuel.
5. Action Item – SwRI test results to be distributed to the Surveillance Panel when available to get a preliminary feeling for the success of the pilot batch of SVGGM2 fuel. If necessary, an earlier conference call will be scheduled to discuss the SwRI results and potential actions.
6. Action Item – When the Surveillance Panel meets by conference call at the completion of the first two tests on the pilot batch of SVGGM2 fuel, determine the best “move-forward” plan, based upon the test results and the estimate on depletion of the current batch of SVGGM2 fuel. Conference call scheduled for Tuesday, 11/25/08, at 2:00pm Eastern.
7. Action Item – Haltermann to investigate options to expedite the availability of the new batch of SVGGM2 fuel prior to the Surveillance Panel conference call.
8. Action Item – Chairman to schedule bi-weekly conference calls during the prove-out of the new batch of SVGGM2 fuel.
9. Action Item – Will look for some assistance from ILSAC chair to acquire additional reference oils meeting the Surveillance Panel's objectives (GF-5 capable oil).

10.Motion – All Sequence VG tests run to completion should report all data, no matter what the reported validity is. Descriptive comments to be included for all reported invalid tests.

Ed Altman / Rich Grundza / Passed with 1 Waive

11.Action Item – Under guidance of the TGC, create a test fuel task force to include TMC, fuel supplier, and SP chairmen. This group will investigate best practices/methods for determining if the test fuel is changing.