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Originally Issued: June 2, 2015

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Unapproved Minutes of the Seq. III Surveillance Panel held on June 2, 2015
Sequence III Surveillance Panel Meeting held in San Antonio, TX.

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Membership (Attachment #1)

-Eric Liu replaces Janet Buckingham of SRI. The SP thanks Janet for her contributions over the years and wishes her well in retirement.

David Tsui replaces Timothy Miranda as BP Castrol Lubricants USA voting member. The SP thanks Timothy for his years of participation in our activities.

Action Item #1: Dave Glaenzer to contact Tom Smith and notify him that Karin Haumann is the Seq. III SP contact relative to Sequence IIIH equivalency determinations.

Approval of Prior Minutes

January 09, 2015 draft minutes posted to TMC site on January 14, 2015. Charlie Leverett / Jason Bowden- Approved Unanimous

Jason Bowden will be secretary for today's meeting.

Previous Action Item Review

Resolution of IIIH oil temperature control issue due February 05, 2015. This action item has been completed. Email detailing TF recommendations distributed by SP Chair on January 30, 2015 asking for unanimous consent. There was no negative feedback.

Old Business

Review of ASTM reference oil data. Presented by Rich Grundza. **(Attachment #2)**.

The semi-annual report was presented by Rich Grundza. The 434 re-blend is now available and there have been three successful calibration tests on this oil. The historic severity trends are still present in both test types. There are no issues with regards to reference oil inventory levels.

CPD Report- Presented by Jason Bowden **(Attachment #3)**

The CPD report was presented by Jason Bowden. Jason reported that corrective action has been taken with regards to the ring paint issue that affected a small percentage of Batch Code 10 rings. He also reminded the Surveillance Panel of any hardware that should be preserved for the extension of the Seq. III test types. The balance of the inventory is in stock at OHT. The IIIF RUN 7, 8, 9, 10 and IIIG RUN 9, 10 rings are in process of being manufactured and current estimated delivery to OHT is the end of June.

Charlie L. and Ed Altman moved to accept the CPD report. Approved unanimously

Estimation of Sequence III critical parts test life was presented by Dave Glaenzer. (**Attachment #4**) along with the test activity chart (**Attachment #5**).

Dave Glaenzer presented the March 15th, 2015 lab survey results for the Seq. III hardware remaining at the labs. Based on this survey, Dave believes we have an estimated 16-17 months remaining inventory, not counting the RUN 9 & 10 pistons and rings. Most labs are currently running on run 7 and 8 blocks at this time. The quantity of blocks and other components a lab has in inventory will determine how long they can run Seq. III tests. Some labs have more inventory of blocks that have been previously stored for possible future use as run 7, 8, 9 and 10.

Statistician Review of Sequence IIIF RO 433-1 PVIS targets.

Joe Martinez reported that there are no changes to the targets, based on the four additional tests that have been received since the last report.

New Business

Sequence IIIH test will need to be used in lieu of Sequence IIIF & IIIG in the future. How do we establish equivalencies? What about IIIF/HD, IIIGA & IIIGB? I believe the ACC-PAPTG has initiated discussions on the subject.

There was a discussion with regards to how to handle the equivalency and if it necessary if the hardware lasts well into the future. Run 9 & 10 pistons will be introduced to the industry in the near future. The panel agreed that input from on industry members from both PCMO and HD is necessary in order to proceed.

Action Item #2: Dave Glaenzer to contact The PCEOCP Chair and also contact API Category Life Oversight Group for input on what is required to show equivalency of IIIH and IIIG. Also inquire IIIFHD will be required in the future HD category.

Motion #1: Charlie Leverett/Jason Bowden: Run 9 & 10 pistons and rings to be introduced in the Seq. IIIF/G tests on a successful oil calibration test. Motion Passes (11-0-1).

GM Performance Update: Scott Stap from GM performance provided an email to the secretary with their current inventory levels (**Attachment #6**)

Charlie Leverett mentioned that they have noticed that after two runs on the cylinder heads that have been modified with stellite valve seats, the seating pattern does change. The Surveillance Panel would like to determine if used heads can be remanufactured with new valve seats to increase the life of the heads.

Action Item #3: GM Performance will provide an update on the availability of non-modified heads in inventory. They will also determine if they will be able to install new seats in used heads supplied by the labs.

Sid Clark mentioned his only concern was that it would require an oversized valve seat and would reduce the valve bridge. This will be reviewed by the manufacturer as well.

Bob Campbell recommended that the labs should report on when they feel they will run out of hardware.

Action Item #4: Dave Glaenzer will report to the AOAP when each lab expects the hardware on hand will run out.

Motion and Action Item summary (**Attachment #7**)

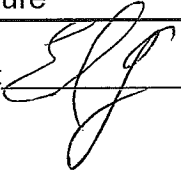
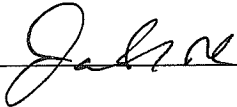
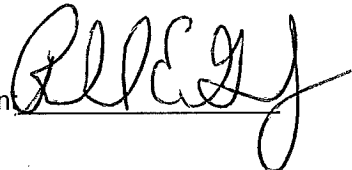
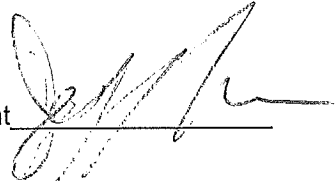
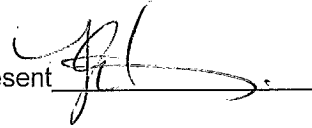
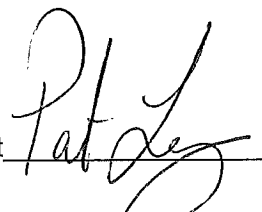
Reviewed Scope and Objectives (**Attachment #8**)

The next meeting is TBD

Meeting adjourned

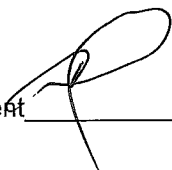


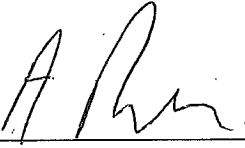
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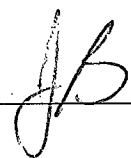
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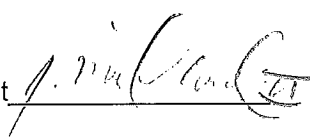
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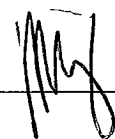
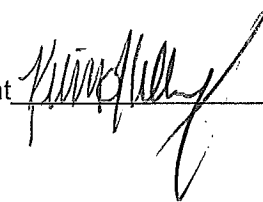
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Test Monitoring Center

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ASTM D02.B1 Semiannual Report Passenger Car Reference Oil Testing

April 2015

Table of Contents

Section	Topic
Executive Summary	
	<u>Summary Items</u>
	<u>Calibrated Labs and Stands</u>
Test Area Status Summaries	
	<u>Seq. IIIF</u>
	<u>Seq. IIIG</u>
	<u>Seq. IVA</u>
	<u>Seq. VG</u>
	<u>Seq. VID</u>
	<u>Seq. VIII</u>

Table of Contents

Section	Topic
Additional Information	
	<u>Information Letters</u>
	<u>Reference Oil Inventory</u>
	<u>LTMS Deviations</u>
	<u>Quality Index Deviations</u>
	<u>TMC Laboratory Visits</u>
	<u>Test Area Time Lines</u>
	<u>Rating Workshop Data</u>
	<u>Misc. Information</u>

Passenger Car Engine Oil Testing Executive Summary

▶ Seq. IIIG

- New re-blend of oil 434 is now available, two successful calibration tests completed on oil 434-2.

▶ Seq. IVA

- Three additional donated tests obtained on TMC reference oil 300.

Calibrated Labs and Stands*

Test	Labs	Stands
IIIF	4	4
IIIG/A/B	5	12
IVA	3	4
VG	3	5
VID	4	7
VIII	2	3

[Return to Table of Contents](#)

*As of 3/31/2015

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Sequence IIIF

»» April 2015

Test Monitoring Center

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Sequence IIF Activity

Test Status	Validity Code	#
Acceptable Calibration Test	AC	6
Failed Calibration Test	OC	1
Stand Abandoned	MC	1
Aborted Calibration Test	XC	1
Total		9

Sequence III F – Failed Tests

Test Status	Number of Tests
Hours to 275% Vis. Inc. – Severe	1
Total	1

Sequence IIIF – Lost Tests*

Test Status	Cause	#
Aborted	High Oil Consumption	1
Totals		1

*Invalid and aborted tests

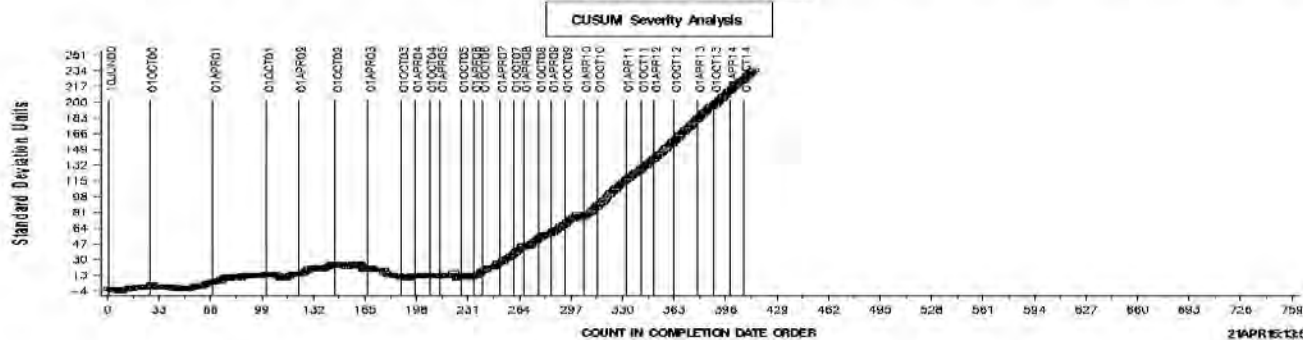
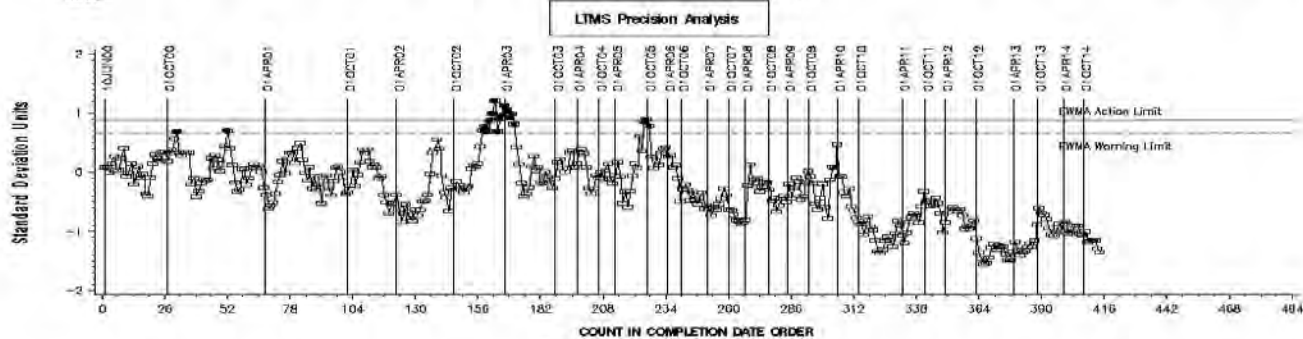
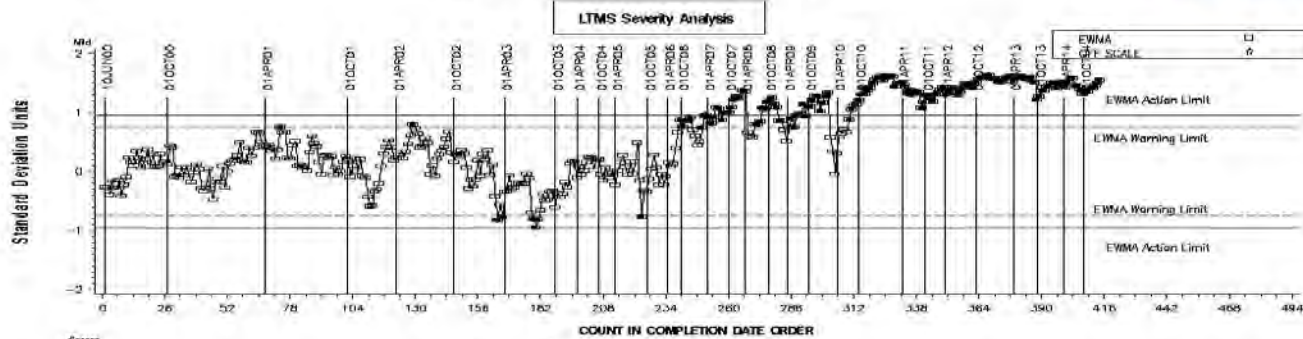
Sequence IIF Test Severity

- APV
 - In severity action alarm, mild
 - Long-term mild trend continuing (Since October 2006)
- Hours to 275% Vis Increase and WPD in control
- PV60
 - In precision action alarm

SEQUENCE IIIF INDUSTRY OPERATIONALLY VALID DATA



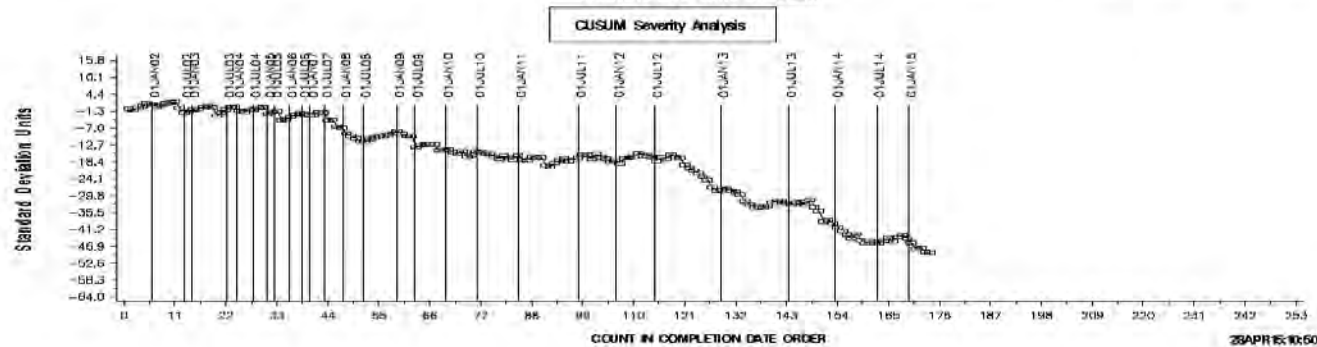
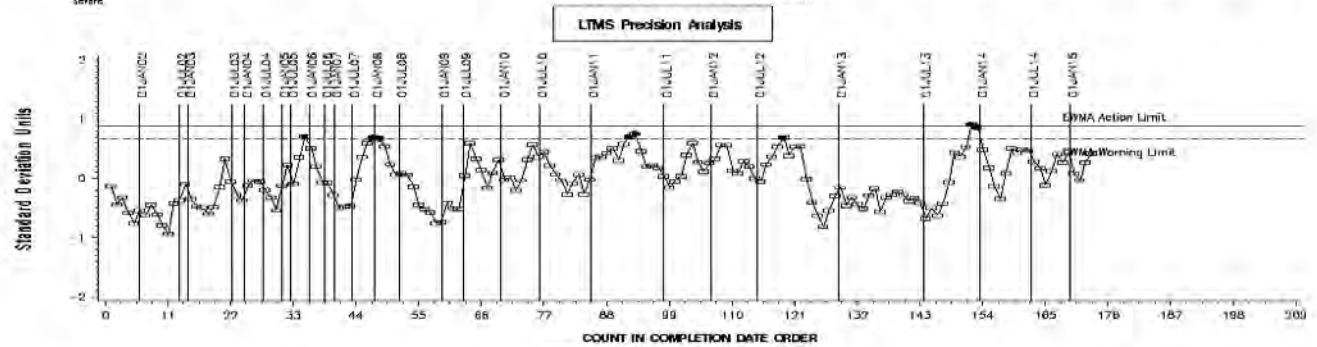
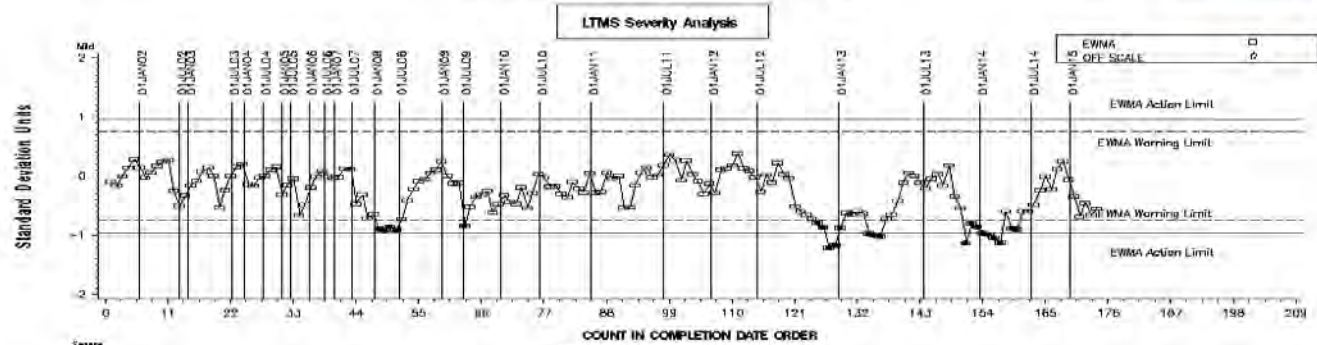
AVERAGE PISTON SKIRT VARNISH FINAL ORIG UNIT RES



SEQUENCE IIIIF INDUSTRY OPERATIONALLY VALID DATA



HOURS FINAL ORIG RES (REFERENCE TESTS ONLY)

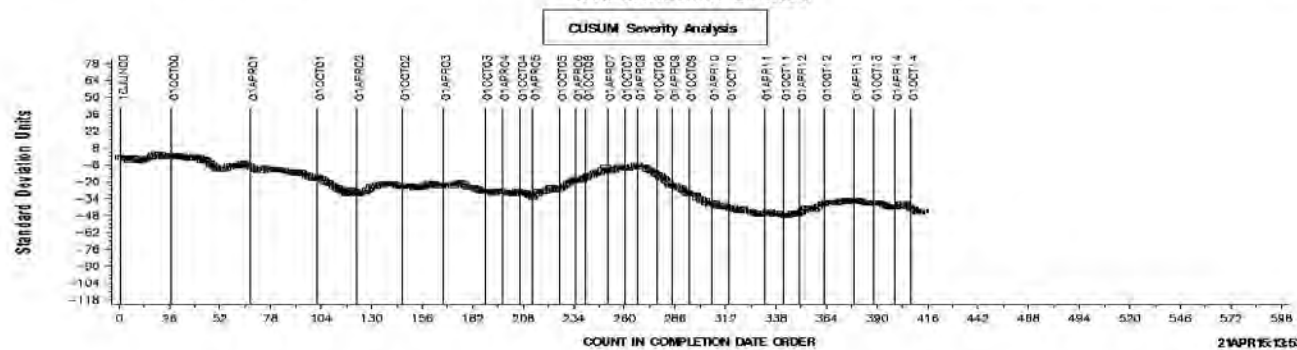
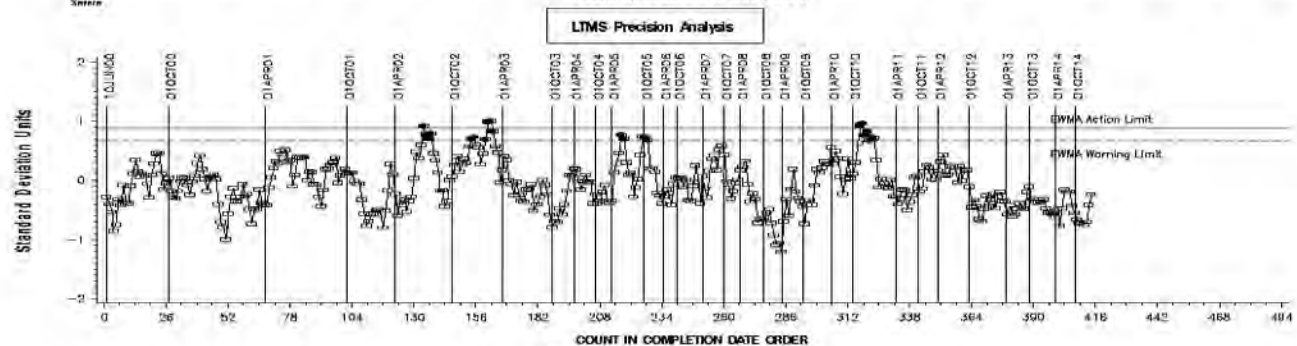
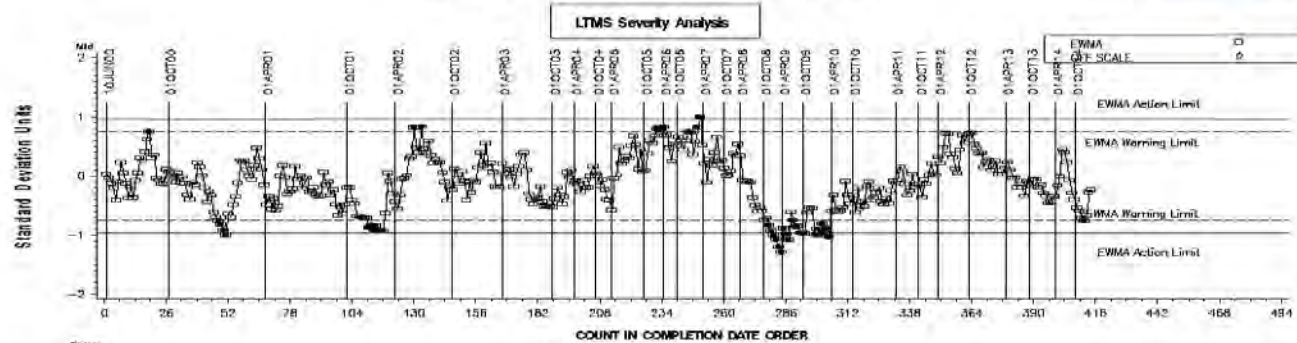


SEQUENCE IIIF INDUSTRY OPERATIONALLY VALID DATA



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AVERAGE WEIGHTED PISTON DEPOSITS FNL ORK3 UNIT RES



21 APR 13:53

Test Monitoring Center

<http://astmtmc.cmu.edu>

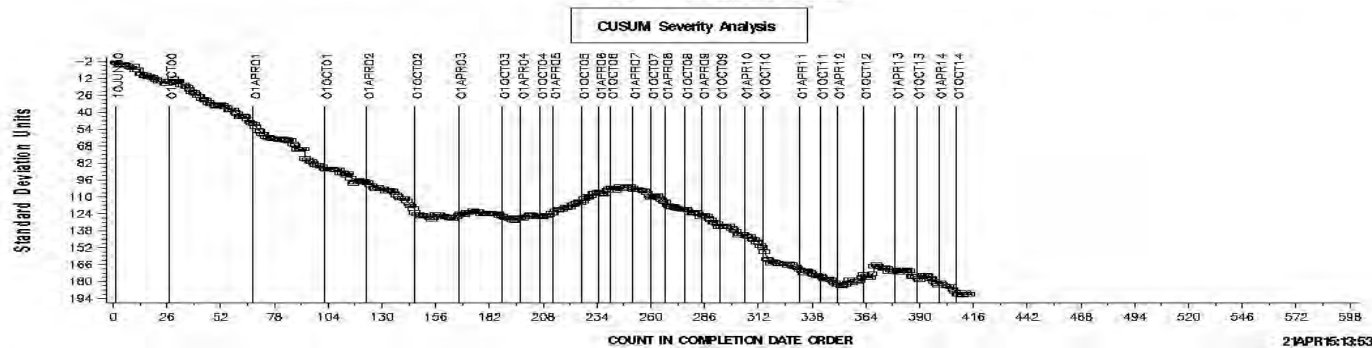
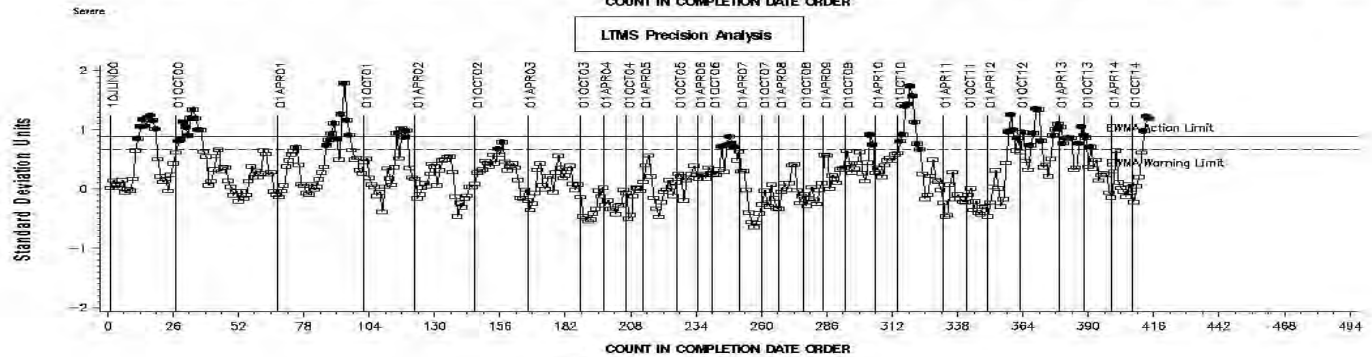
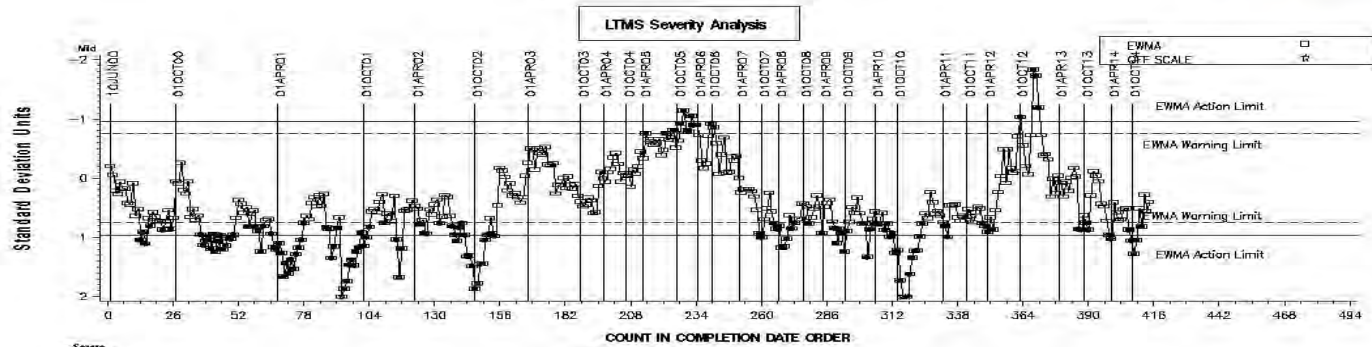


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SEQUENCE IIIF INDUSTRY OPERATIONALLY VALID DATA



% VISCOSITY INCREASE @ 060 HOURS

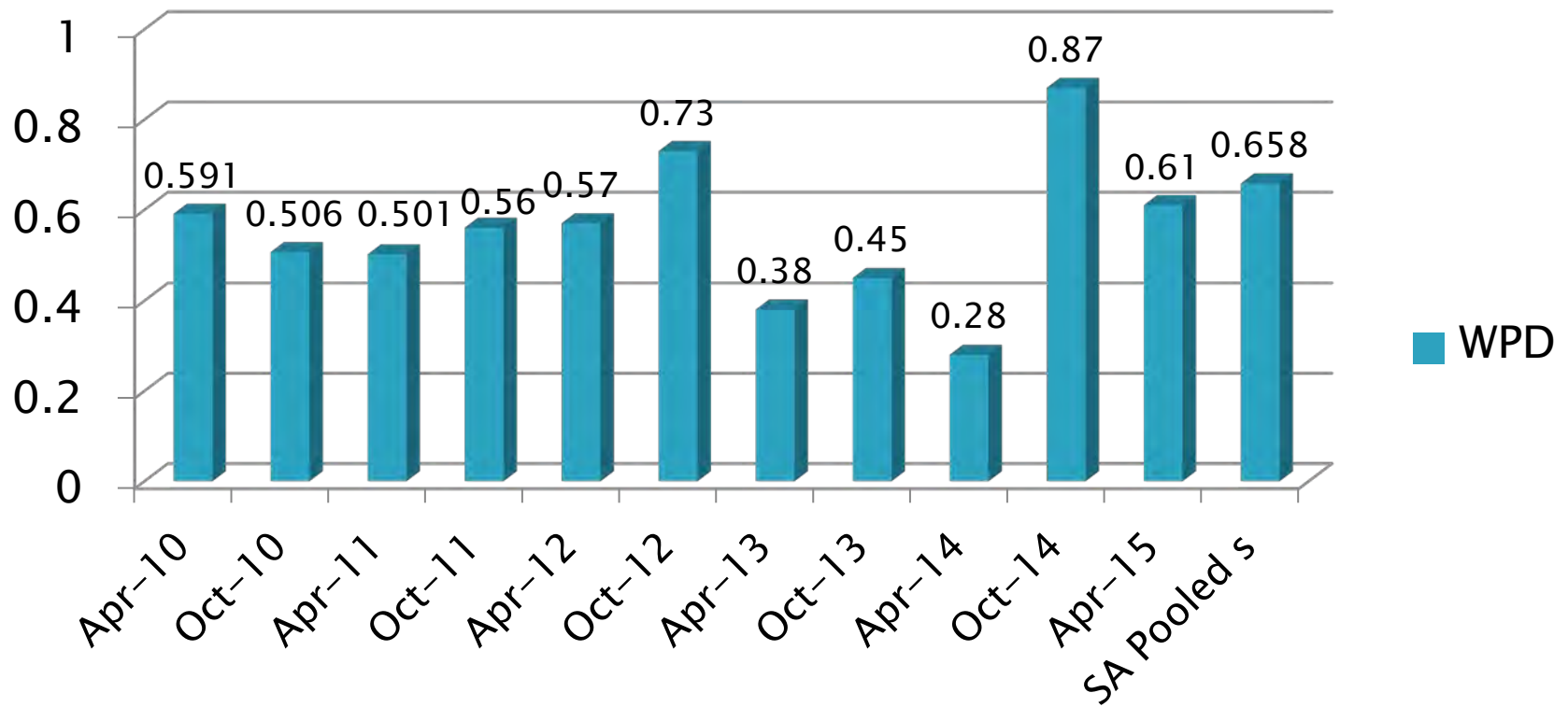


21 APR 15:13:53



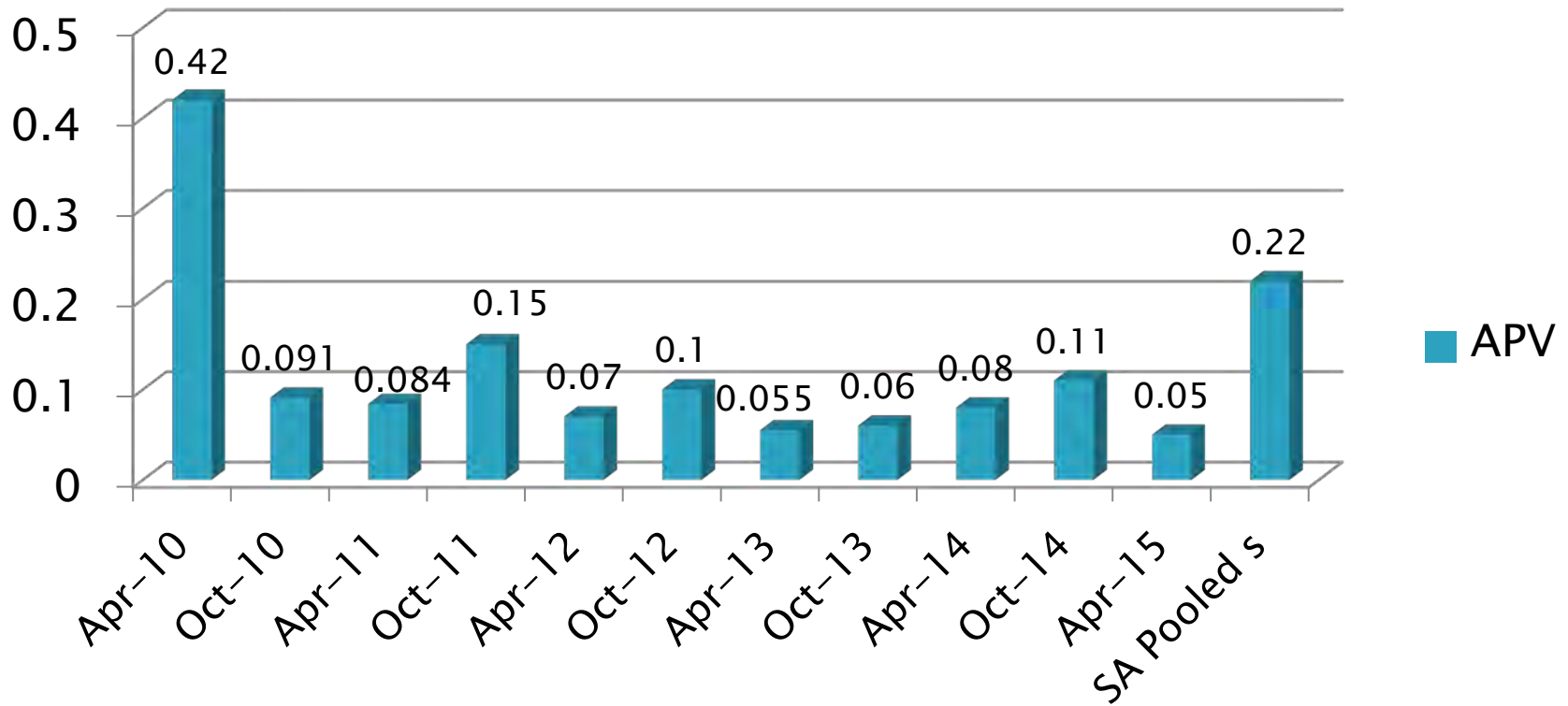
IIIF Precision Estimates

WPD



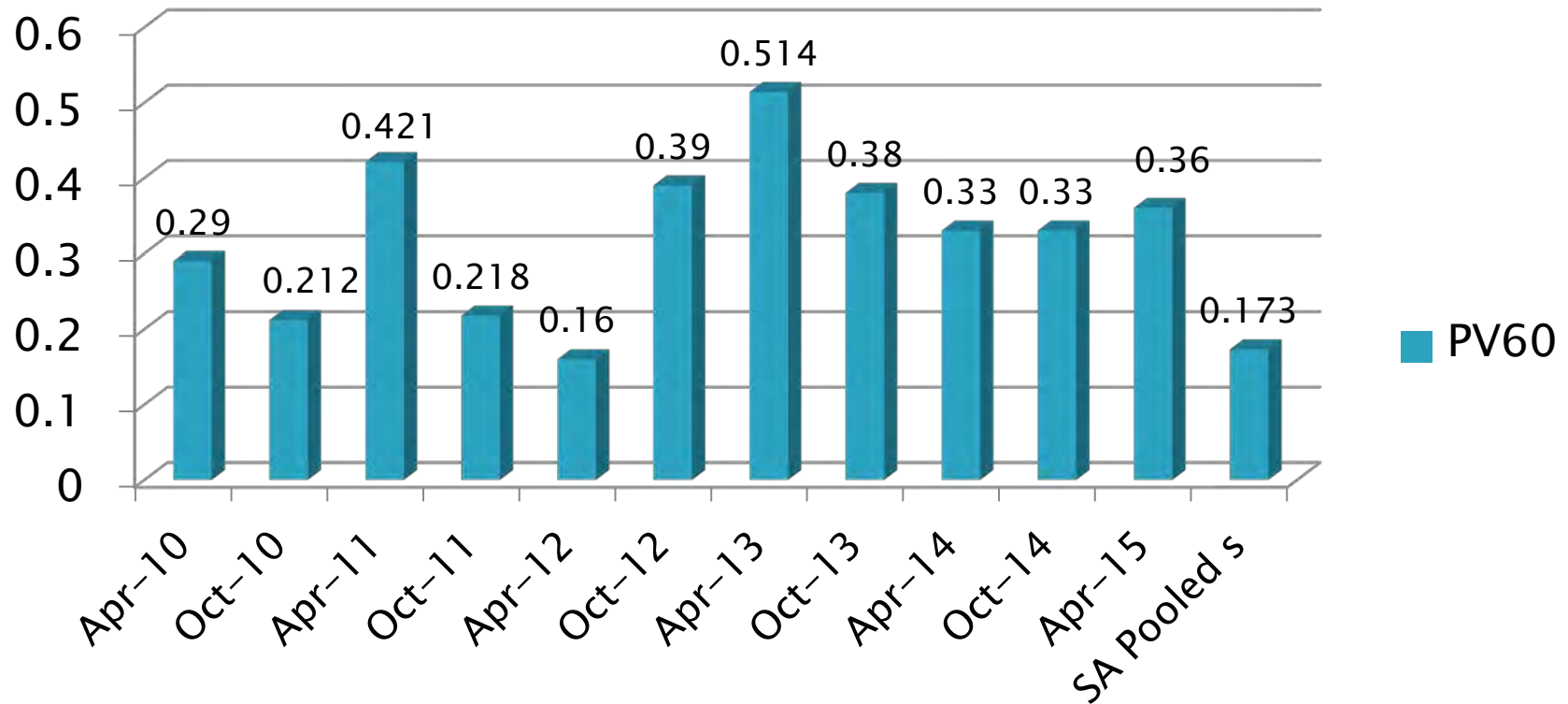
IIIF Precision Estimates

APV



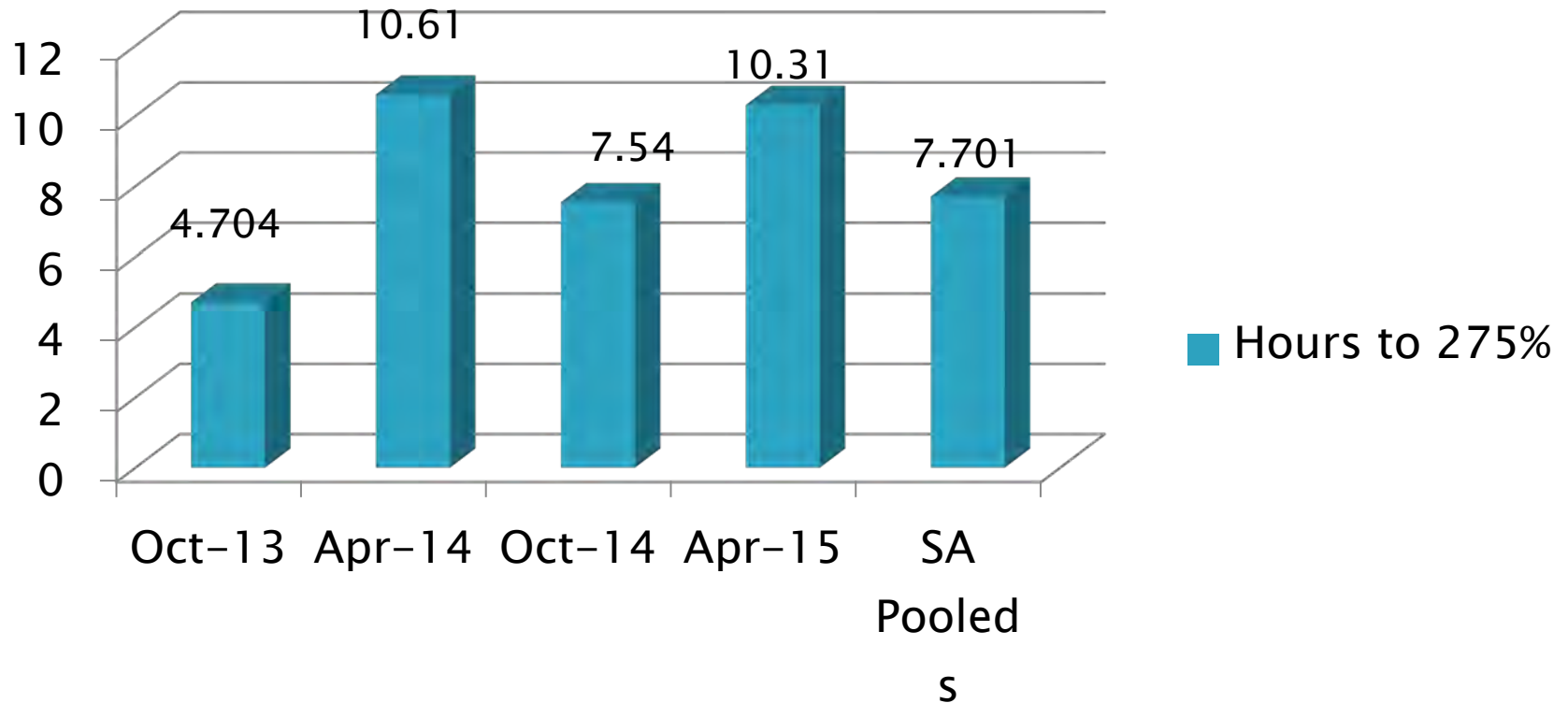
IIIF Precision Estimates

PV60



IIIF Precision Estimates

Hours to 275%



[Return to Table of Contents](#)

Sequence IIIG/A/B

»» April 2015

Test Monitoring Center

<http://astmtmc.cmu.edu>



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Sequence IIIG Activity

Test Status	Validity Code	#
Acceptable Calibration Test	AC	9
Failed Calibration Test	OC	3
Aborted	XC	2
Total		14

Sequence IIIG – Failed Tests

Test Status	Number of Tests
Severe PVIS	3
Total	3

Sequence IIIG – Lost Tests*

Test Status	Cause	#
Aborted	Bearing Failure	1
Aborted	Head Gasket Failure	1
Totals		2

*Invalid and aborted tests

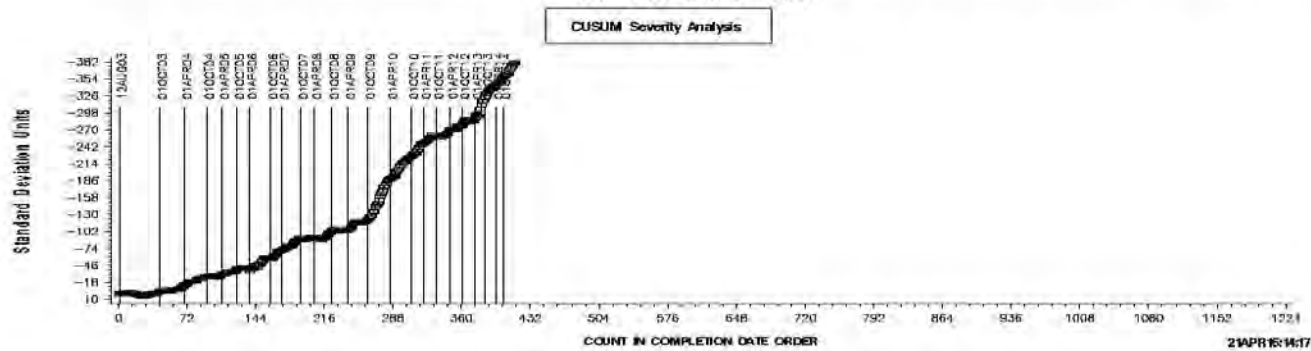
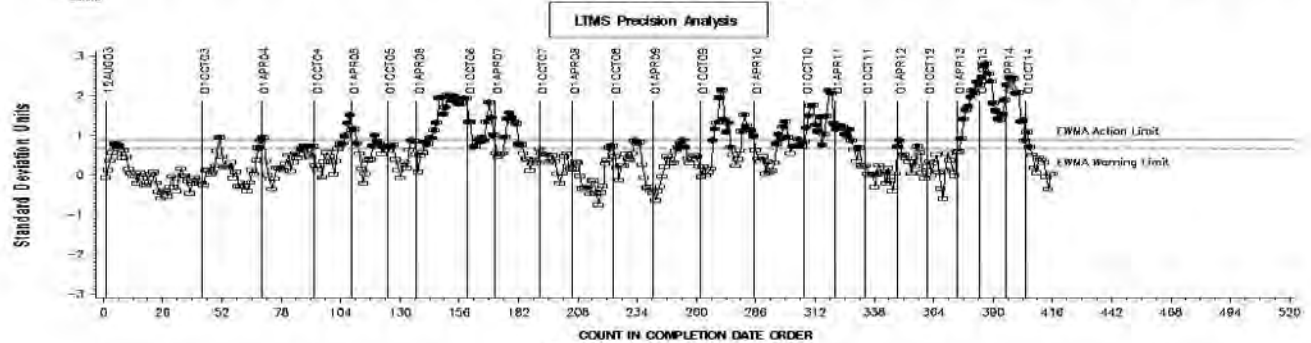
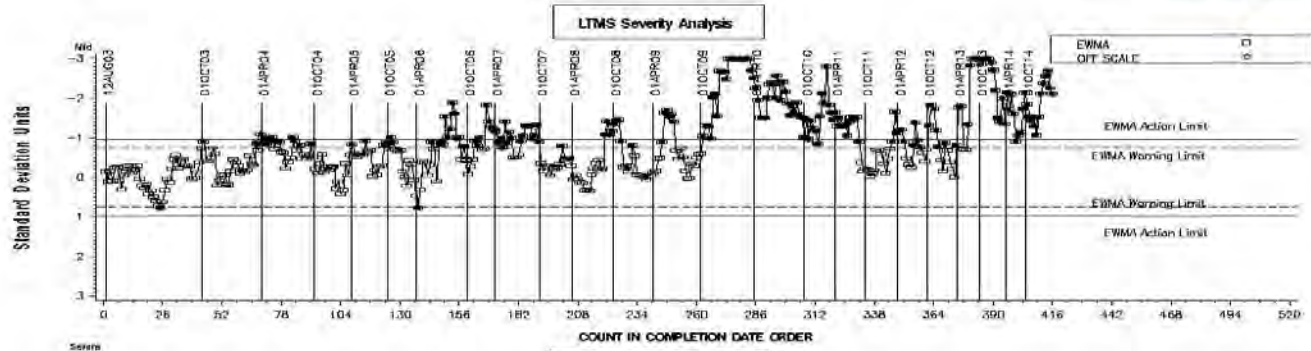
Sequence IIIG Test Severity

- ACLW in severity action alarm
 - Long-term mild trend
- PVIS in severity and precision warning alarm
- WPD is in control
 - Long-term severe trend continuing
- MRV is in severity action alarm (severe)
- PHOS in severity warning alarm (severe)

SEQUENCE IIIG INDUSTRY OPERATIONALLY VALID DATA

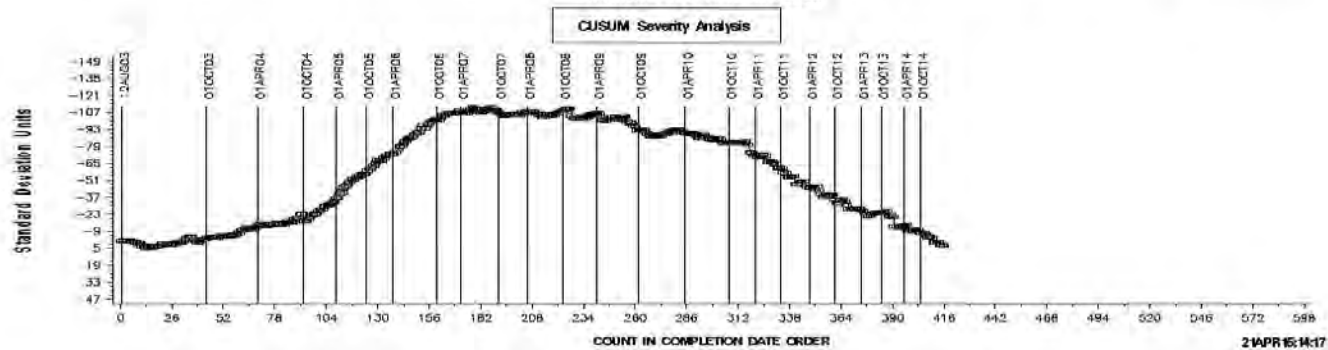
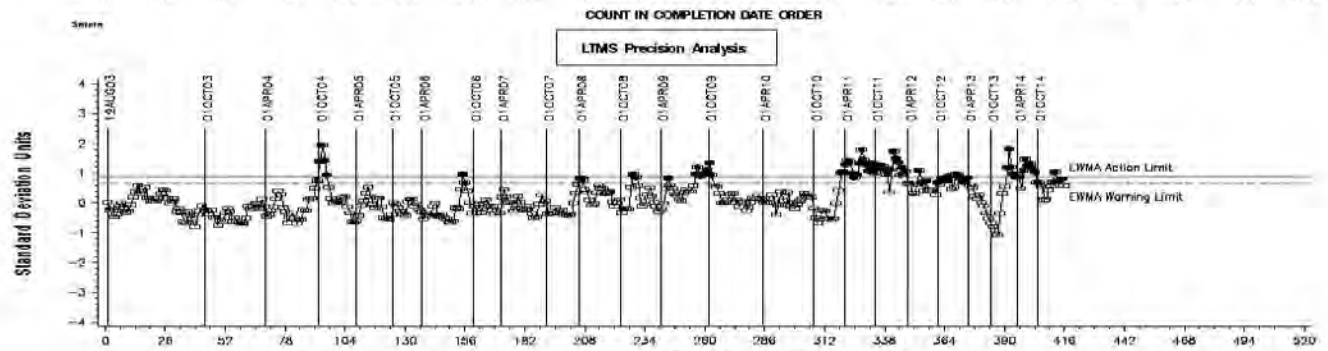
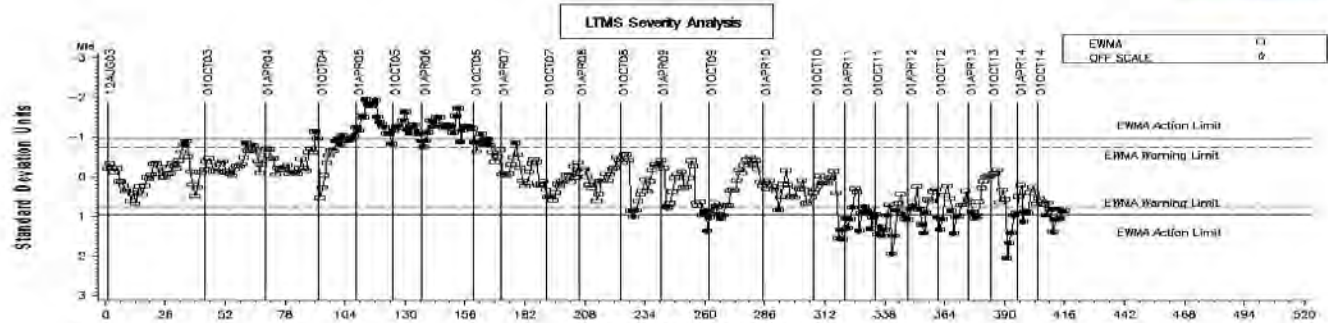


AVERAGE CAM + LIFTER WEAR





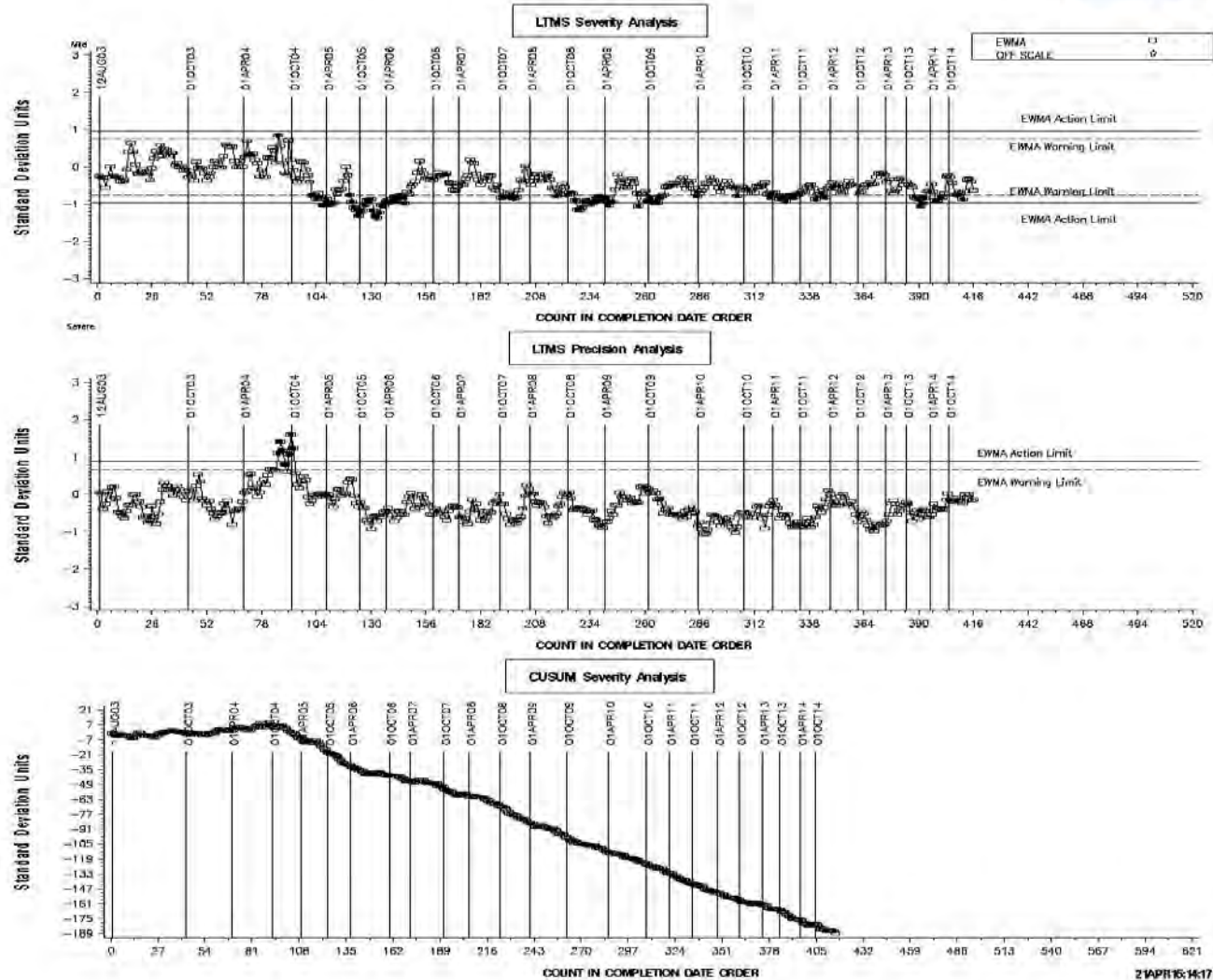
VISCOSITY INCREASE



SEQUENCE III G INDUSTRY OPERATIONALLY VALID DATA

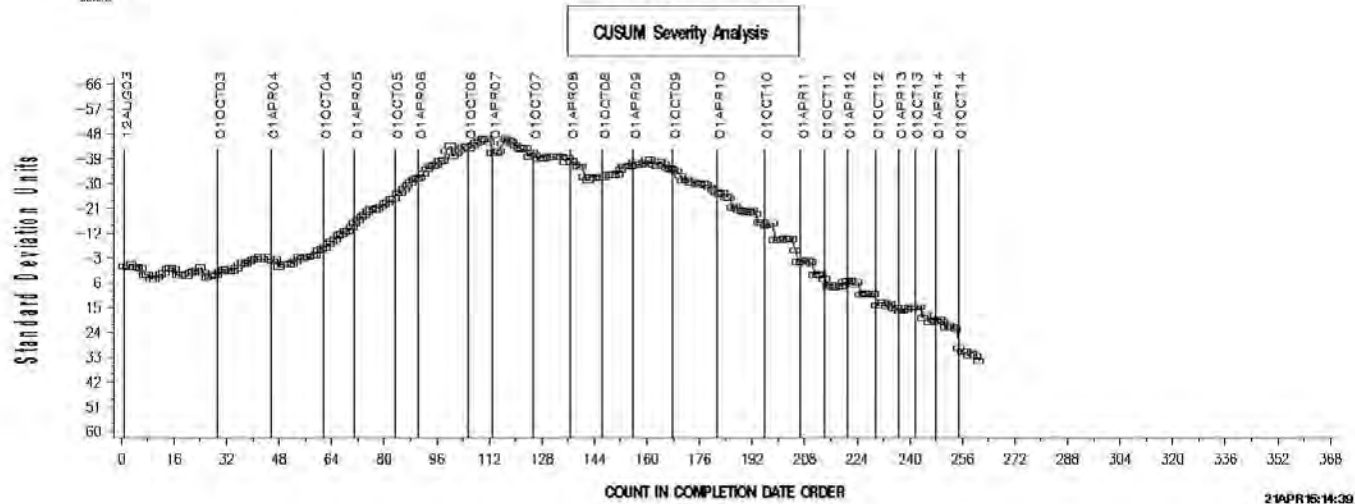
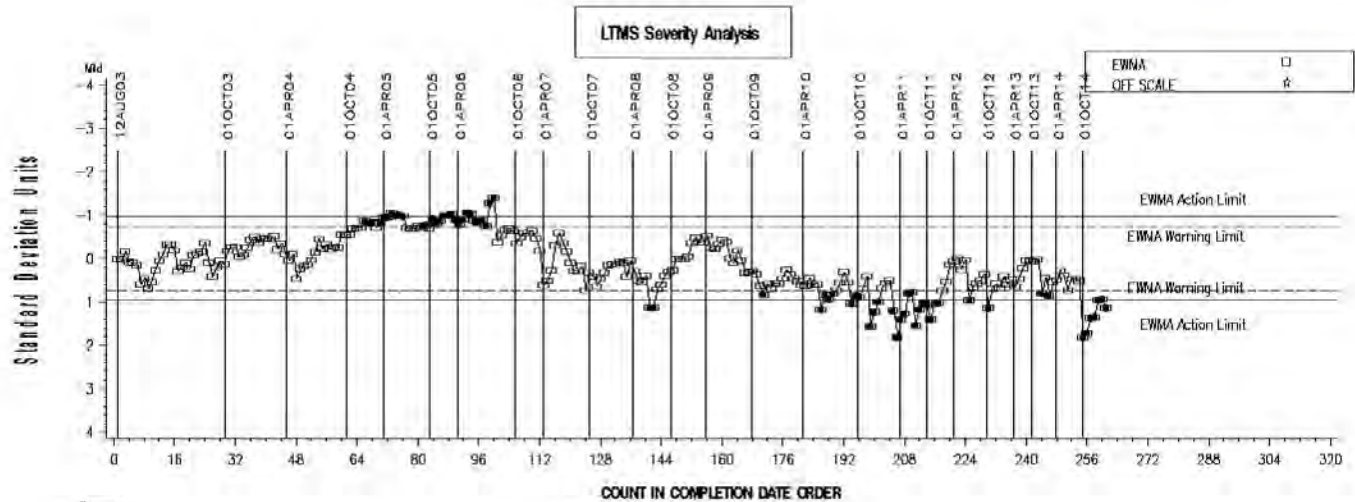


AVERAGE WEIGHTED PISTON DEPOSITS





MRV VISCOSITY RESULT



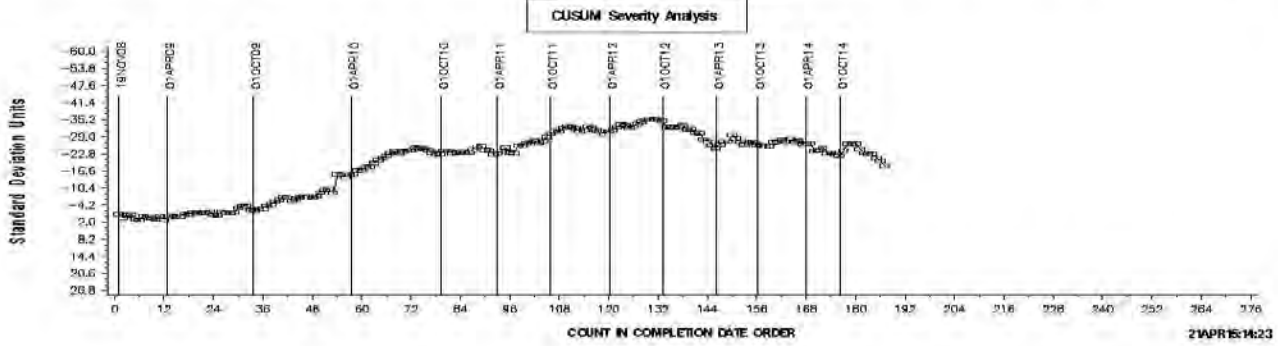
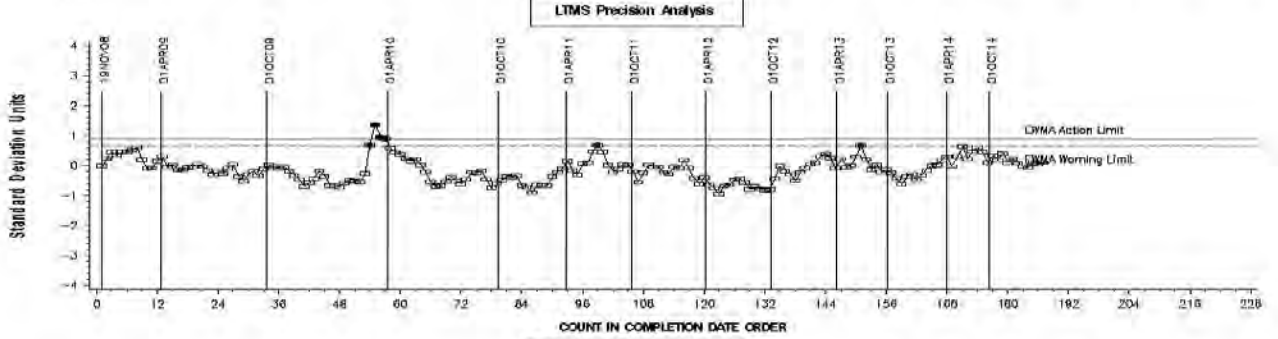
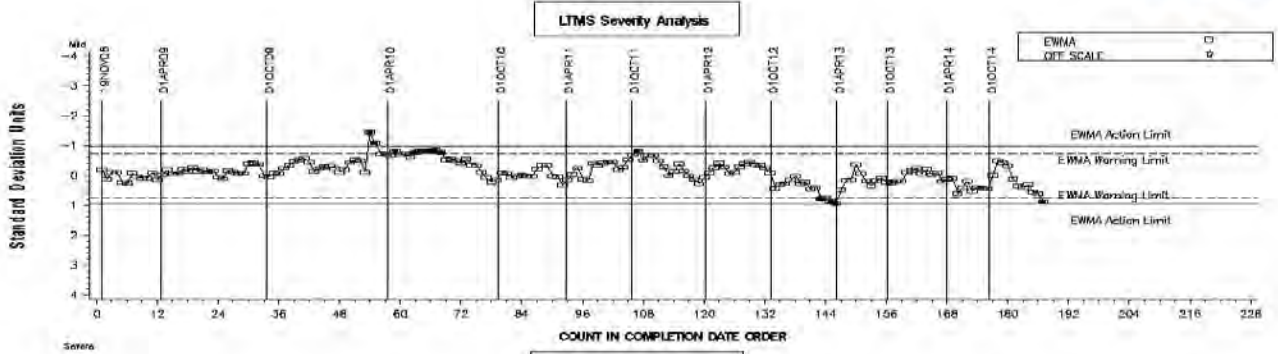
21 APR 16:14:39



SEQUENCE IIIGB INDUSTRY OPERATIONALLY VALID DATA



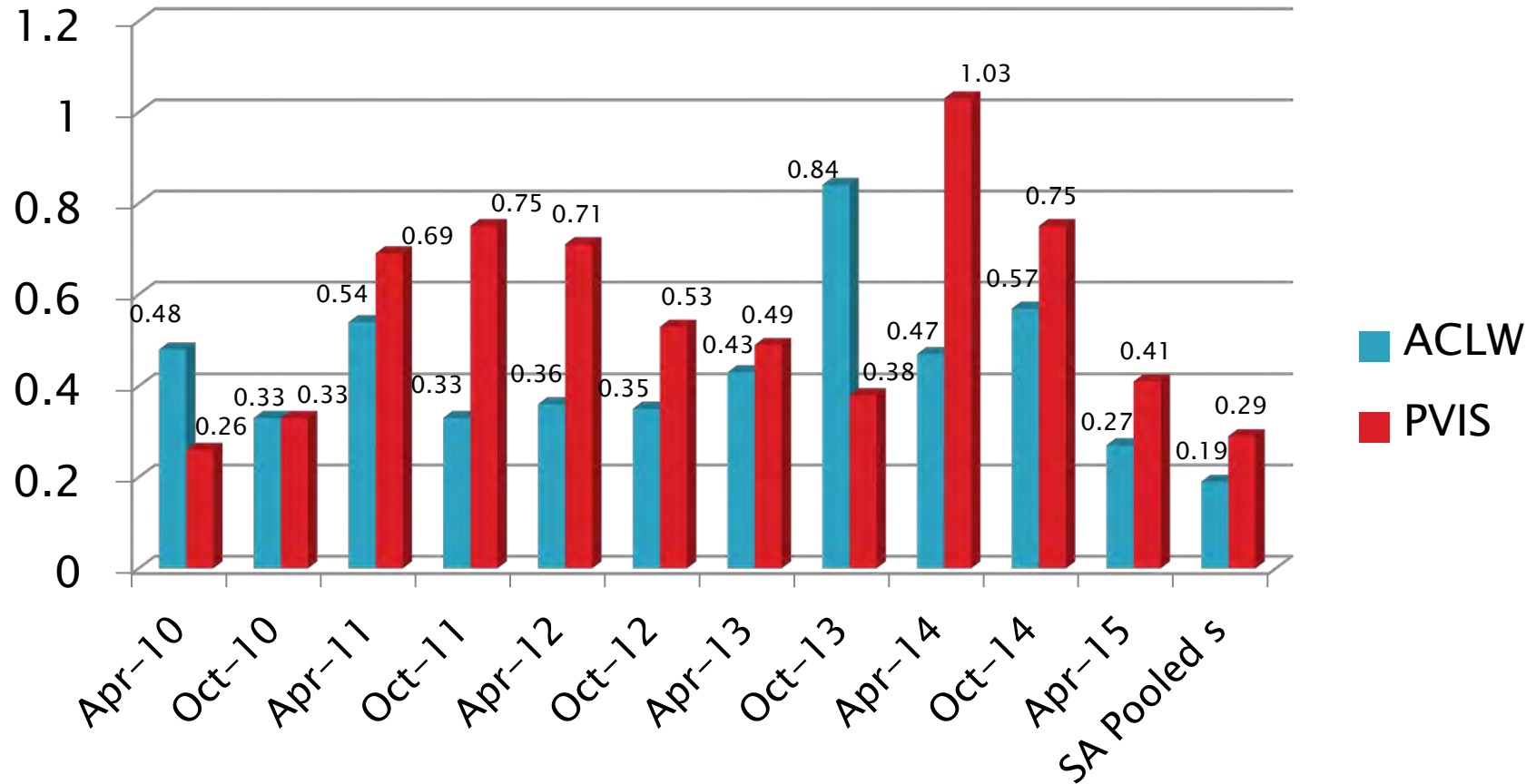
PHOS RETENTION



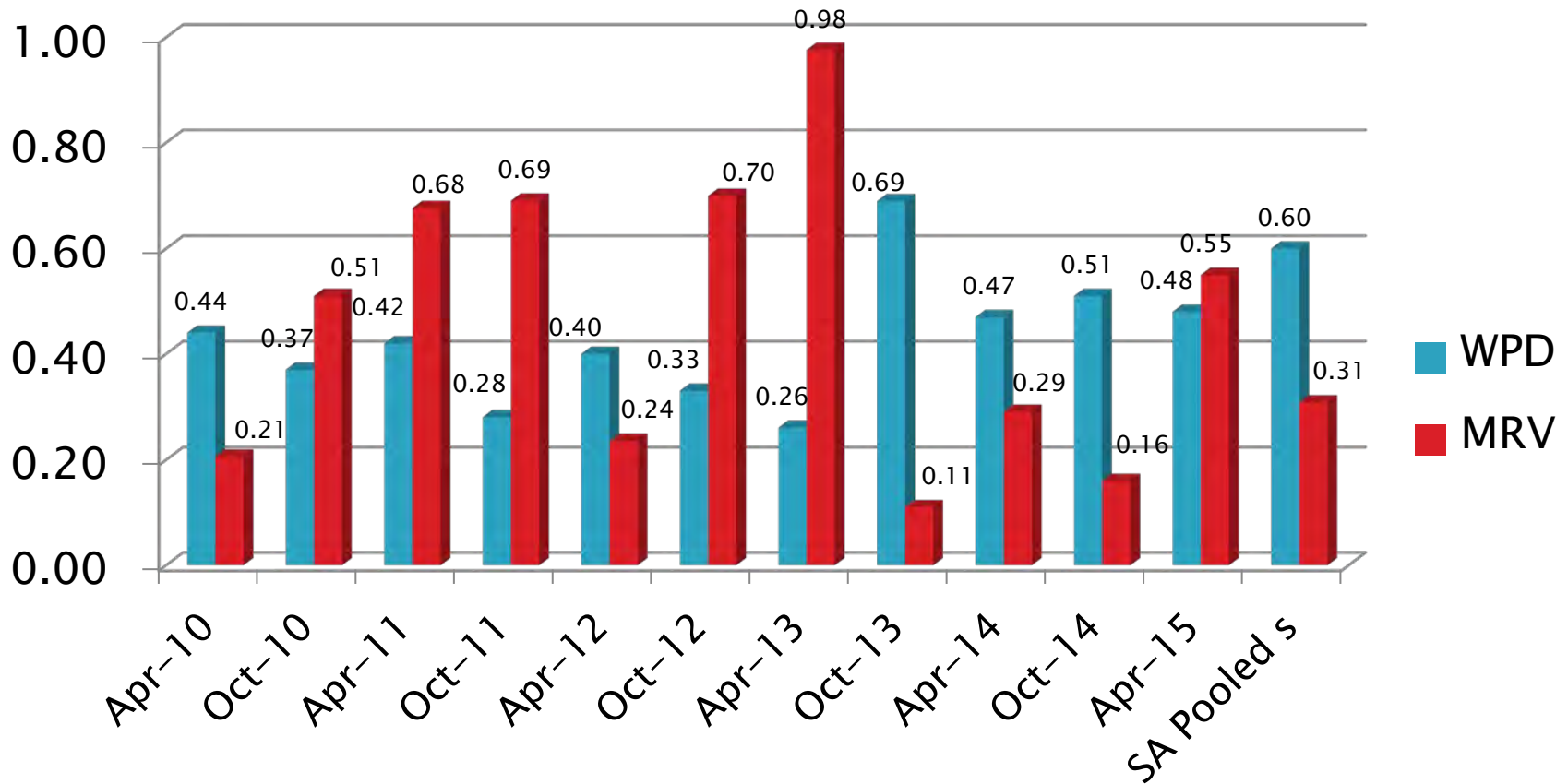
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IIIG Precision Estimates

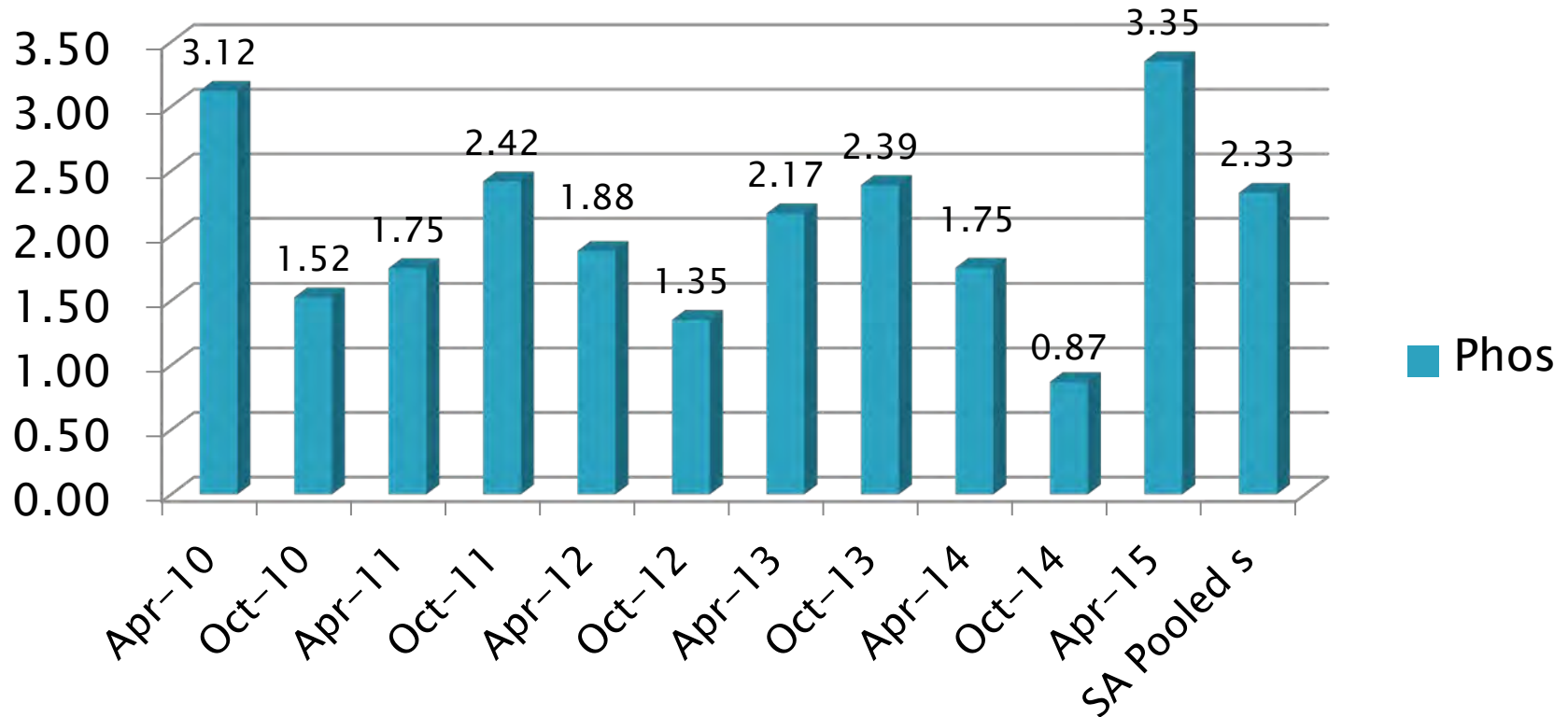


IIIG Precision Estimates



IIIG Precision Estimates

Phos



[Return to Table of Contents](#)

Test Monitoring Center

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Information Letters*

Test	Date	IL	Topic
IIIF	20141201	14-3	Included an updated description of the role of the Test Monitoring Center.
IIIF	20150122	15-1	Approved the use of hardened seat cylinder heads for multiple tests.
IIIG	20141114	14-4	Included an updated description of the role of the Test Monitoring Center.
IIIG	20150122	15-1	Approved the use of hardened seat cylinder heads for multiple tests.

*Available from TMC Website

Test Monitoring Center

<http://astmtmc.cmu.edu>



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Reference Oil Inventory

»» Actions, Re-blends, Inventories
and Estimated Life

Test Monitoring Center

<http://astmtmc.cmu.edu>



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Reference Oil Re-blends

➤ TMC 434

- Re-blend 434-2 distributed, two successful calibration attempts completed

➤ TMC438-1

- Re-blend available; will be used for IIIH.

➤ TMC 541-1, 542-1 and 1010

- Re-blends of 542 and 1010 Obtained
- 542-2 Introduced, targets being evaluated
- 1010-1 at TMC, some released for new category work, to be introduced during next report period

[Return to Table of Contents](#)

Test Monitoring Center

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Reference Oil Inventory Estimated Life

Oil	Tests	Original Blend Amount	Quantity Shipped in last 6 months	TMC Inventory	Lab Inventory	Estimated Life
300	IVA	330	15	296	0	5+ years
433-1	IIIF	1045	0	0	8	<1 year
433-2	IIIF	500	44	380	36	3+ years
434	IIIG	550	0	<1	12	<1 year
434-1	IIIG	660	43	56	32	1.5 years
434-2	IIIG	495	100	357	16	4+ years
435	IIIG	550	0	2	4	<1 year
435-2	IIIG	550	24	210	32	3+ years
438	IIIG	990	28	76	36	2 years
540	VID	1100	65	255	35	4+ years
541-1	VID	550	0	4	35	<1 year

[Return to Table of Contents](#)

Test Monitoring Center

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LTMS Deviations

»» October 1, 2014 –
March 31, 2015

Test Monitoring Center

<http://astmtmc.cmu.edu>



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LTMS Deviations

- No LTMS Deviations in Current Period

LTMS Deviations

Historical Count of PCEO LTMS Deviations

Test	LTMS Deviations
IIIF	6
IIIG	6
IVA	7
VG	8
VID	2
VIII	3

[Return to Table of Contents](#)

Test Monitoring Center

<http://astmtmc.cmu.edu>



A Program of ASTM International

Quality Index Deviations

»» October 1, 2014 –
March 31, 2015

Test Monitoring Center

<http://astmtmc.cmu.edu>



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Quality Index Deviations

- Two Quality Index Deviations this Report Period.
 - IIIF – Exhaust backpressure control.
 - IIIG – Intake air pressure control.

Historical Count of PCEO Quality Index Deviations

Test	Quality Index Deviations
IIIF	26
IIIG	14
IVA	28
VG	41

[Return to Table of Contents](#)

Test Monitoring Center

<http://astmtmc.cmu.edu>



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TMC Laboratory Visits

»» October 1, 2014 –
March 31, 2015

Test Monitoring Center

<http://astmtmc.cmu.edu>



A Program of ASTM International

TMC Lab Visits

Test	Number of Labs Visited
III	2
IVA	2
VG	2
VID	2
VIII	2

Test Area Timelines

»» October 1, 2014 –
March 31, 2015

Test Monitoring Center

<http://astmtmc.cmu.edu>



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Test Area Timeline Additions*

Test	Date	Topic	IL
IIIF	20141201	Included an updated description of the role of the Test Monitoring Center.	14-3
IIIF	20150122	Allowed the use of stellite seat heads for multiple tests.	15-1
IIIG	20141114	Included an updated description of the role of the Test Monitoring Center.	14-4
IIIG	20150122	Allowed the use of stellite seat heads for multiple tests.	15-1
VG	20141110	Included an updated description of the role of the Test Monitoring Center.	14-5
VID	20141104	Included an updated description of the role of the Test Monitoring Center.	14-2
VIII	20141110	Included an updated description of the role of the Test Monitoring Center.	14-3

*As of 03/31/2015

[Return to Table of Contents](#)

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Rating Workshop Data

»» 2014 Light Duty Workshop

Test Monitoring Center

<http://astmtmc.cmu.edu>



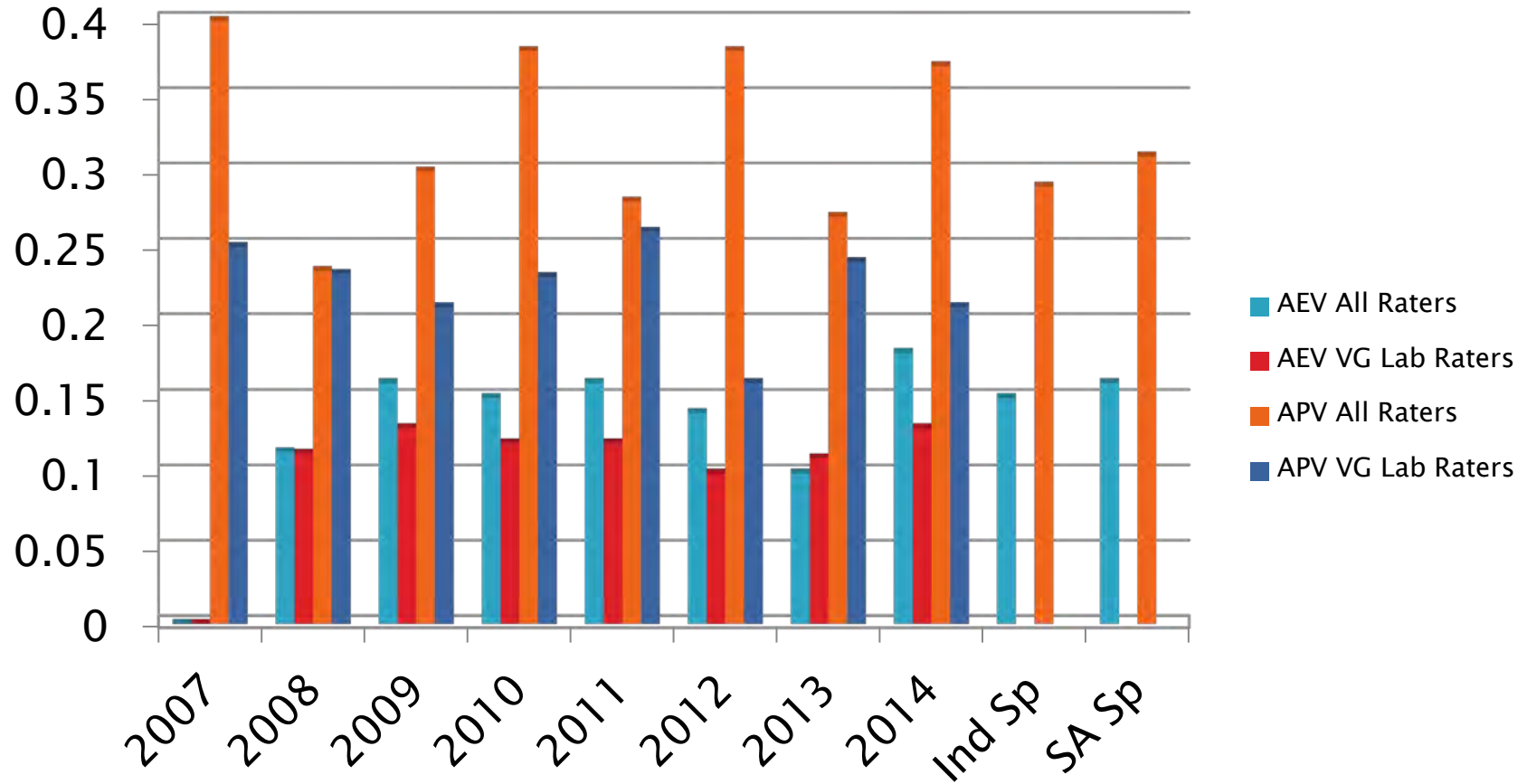
A Program of ASTM International

Rating Workshop Data

- ▶ Summary of Precision Data From Light Duty Rating workshops:
 - VG Average Piston and Average Engine Varnish.
 - IIIG WPD

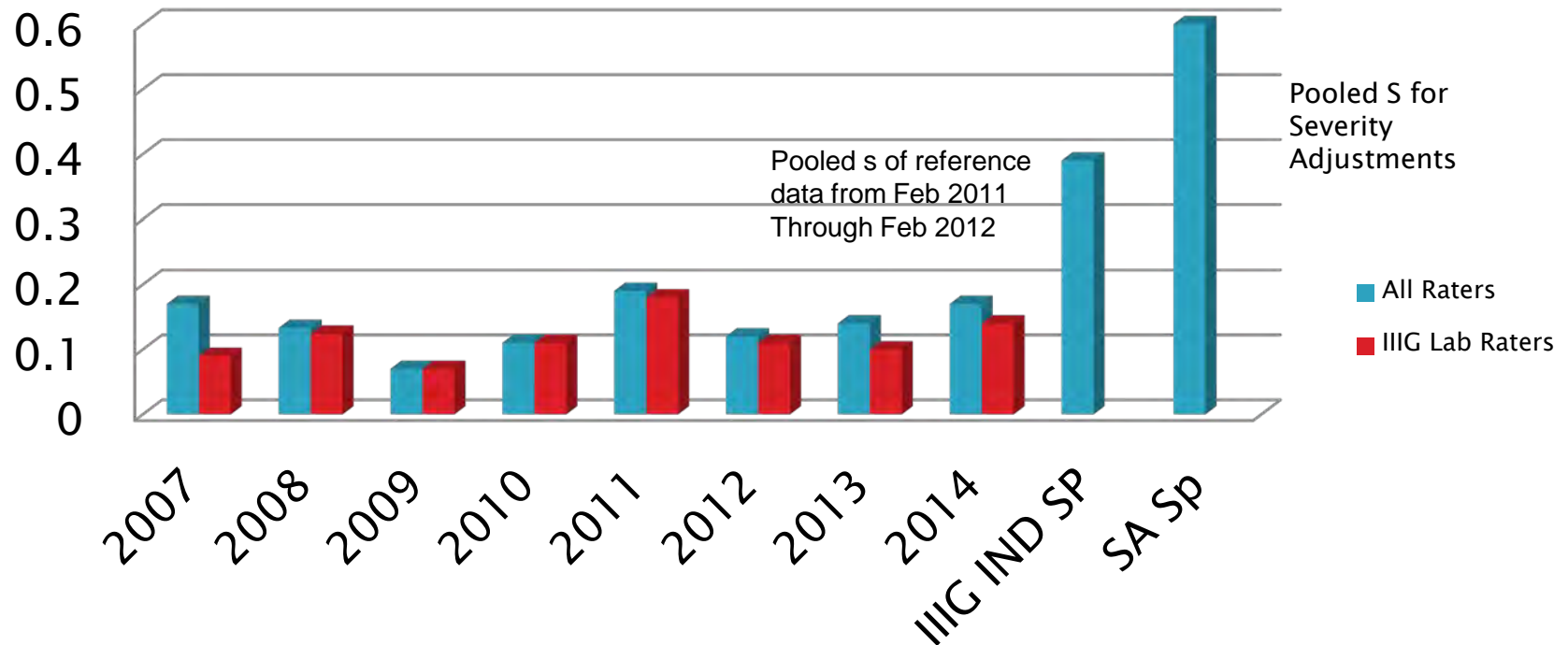
Sequence VG Precision-Rating Workshop Data

Workshop Data for VG Varnish



Sequence IIIG Precision – Rating Workshop Data

Comparison of Workshop Pooled Standard Deviations with Industry Pooled Standard Deviations



[Return to Table of Contents](#)

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Miscellaneous Information

- ▶ Available on TMC Website:
 - Live Reference Test Data Bases
 - Surveillance Panel Meeting Minutes
 - Test Area Alarm Logs
 - Complete Test Area Timelines
 - LTMS Manual

- ▶ www.astmtmc.cmu.edu

[Return to Table of Contents](#)

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CENTRAL PARTS DISTRIBUTOR REPORT

SEQUENCE III SURVEILLANCE PANEL MEETING

SAN ANTONIO, TX

JUNE 2, 2015

TECHNICAL MEMOS ISSUES

(8 MONTH PERIOD (10/26/14 – 5/27/15))

Technical Memo 27 (2/27/15) – Paint, Sequence IIIG Top and Second Rings

PARTS REJECTION REPORT

(8 MONTH PERIOD (10/26/14 – 5/27/15))

ITEM	DESCRIPTION	REASON REJECTED	QTY	REPLACED	DATE REPLACED
OHT3F-008-8	CAMSHAFT, IIIG	PHOSPHATE COATING SCUFF	1	YES	11/3/2014
3G051-TOP4	RING, IIIG	GAP INSPECTION	6	YES	11/21/2014
OHT3F-053-1	PISTON, GR 12	POROSITY	1	YES	11/21/2014
3F051-TOP3	RING, IIIF	GAP INSPECTION	1	YES	12/3/2014
OHT3F-054-1	PISTON, GR 34	POROSITY	1	YES	12/16/2014
3G053-TOP8	RING, IIIG	GAP INSPECTION	6	YES	12/23/2014
3G052-TOP5	RING, IIIG	GAP INSPECTION	2	YES	12/23/2014
OHT3F-008-8	CAMSHAFT, IIIG	PHOSPHATE COATING SCUFF	4	YES	1/26/2015
3G052-TOP5	RING, IIIG	GAP INSPECTION	12	YES	2/24/2015
3G052-TOP6	RING, IIIG	GAP INSPECTION	12	YES	2/27/2015
OHT3F-008-8	CAMSHAFT, IIIG	NOSE DIA. INSPECTION	1	YES	3/9/2015
OHT3F-011-2	PLATE, THRUST	CRACKED DURING INSTALLATION	6	YES	5/5/2015
OHT3H-008-8	CAMSHAFT, IIIG	KEY SLOT WIDTH INSPECTION	1	YES	5/27/2015
OHT3G-011-2	PLATE, THRUST	CRACKED DURING INSTALLATION	2	YES	5/27/2015

BATCH CODE CHANGE REPORT

(8 MONTH PERIOD (10/26/14 – 5/27/15))

IIIF	Batch Code	Date Introduced
CONN BEARING	23	3/20/15
ROCKER ARMS	22	12/12/14
IIIG	Batch Code	Date Introduced
CONN BEARING	23	3/10/15
PISTON GR 78	2	4/27/15
ROCKER ARMS	22	10/31/14
RINGS, PISTON RN4	11	3/17/14
RINGS, PISTON RN5	11	2/27/14
RINGS, PISTON RN6	11	2/24/14
RINGS, PISTON RN7	2	12/23/14
RINGS, PISTON RN8	2	12/23/14

ADDITIONAL ITEMS

Reminder:

OHT has previously notified the testing laboratories and the Surveillance Panel to retain the following material:

OHT3F-014-1 PIN, WRIST
OHT3G-080-1 BRACKET, OIL FILTER

If testing volumes were to increase significantly and the test life was extended beyond the projected Surveillance Panel estimate for RUN's 7 & 8, the following items would need to be retained as well:

OHT3F-058-1 ARM, ROCKER W/ BOLTS

All other items are in stock.

QUESTIONS

If you have any questions please do not hesitate to contact OHT.

Thank you.



Critical Parts for Sequence III Tests

David L. Glaenzer
Sequence III Surveillance Panel Chairman
San Antonio, Texas
June 2, 2015

Passion for Solutions™

Most recent survey conducted mid-March, 2015

As of March 15, 2015

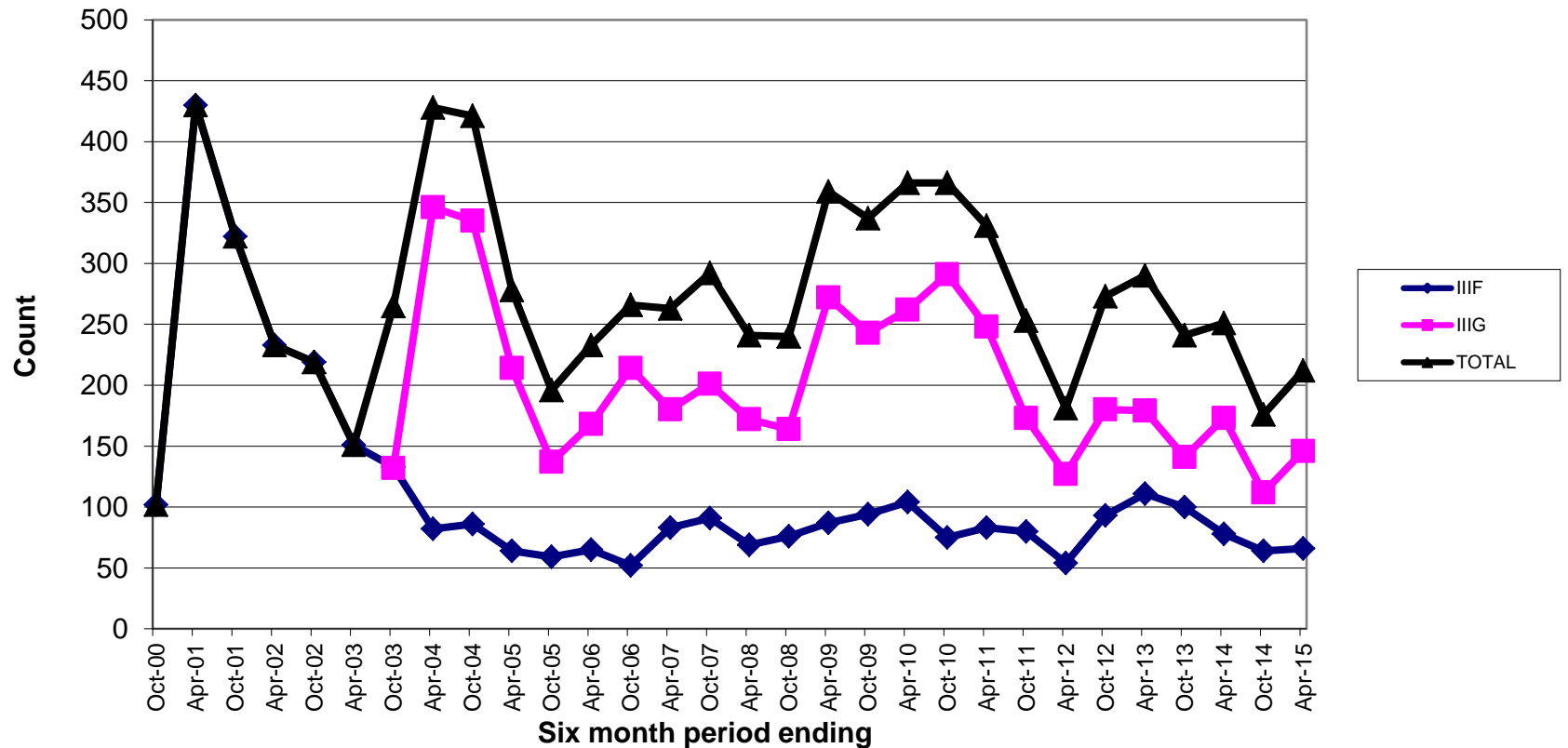
- ▶ Enough Connecting Rods for 599 tests
 - Available from GM SPO if needed
- ▶ Enough Crankshafts for 420 tests
 - Based on 6 uses per unit; Labs are getting more than six
 - Not a problem area
- ▶ Enough Cylinder Blocks for 637 tests
 - Includes use for runs 7&8, but not 9&10
- ▶ Enough Cylinder Heads for 653 tests
 - Heads that are unused or may be used for additional runs

When Will We Run Out of Parts? March 24 estimate

- ▲ At Current usage rate, 16 to 17 months (August, 2016)
- ▲ If usage continues to diminish, later
- ▲ Test labs are encouraged to retain run 8 blocks for potential use with size 9 & 10 pistons/rings
- ▲ Test labs are encouraged to retain rocker arms as there may be a finite supply and reuse may be required

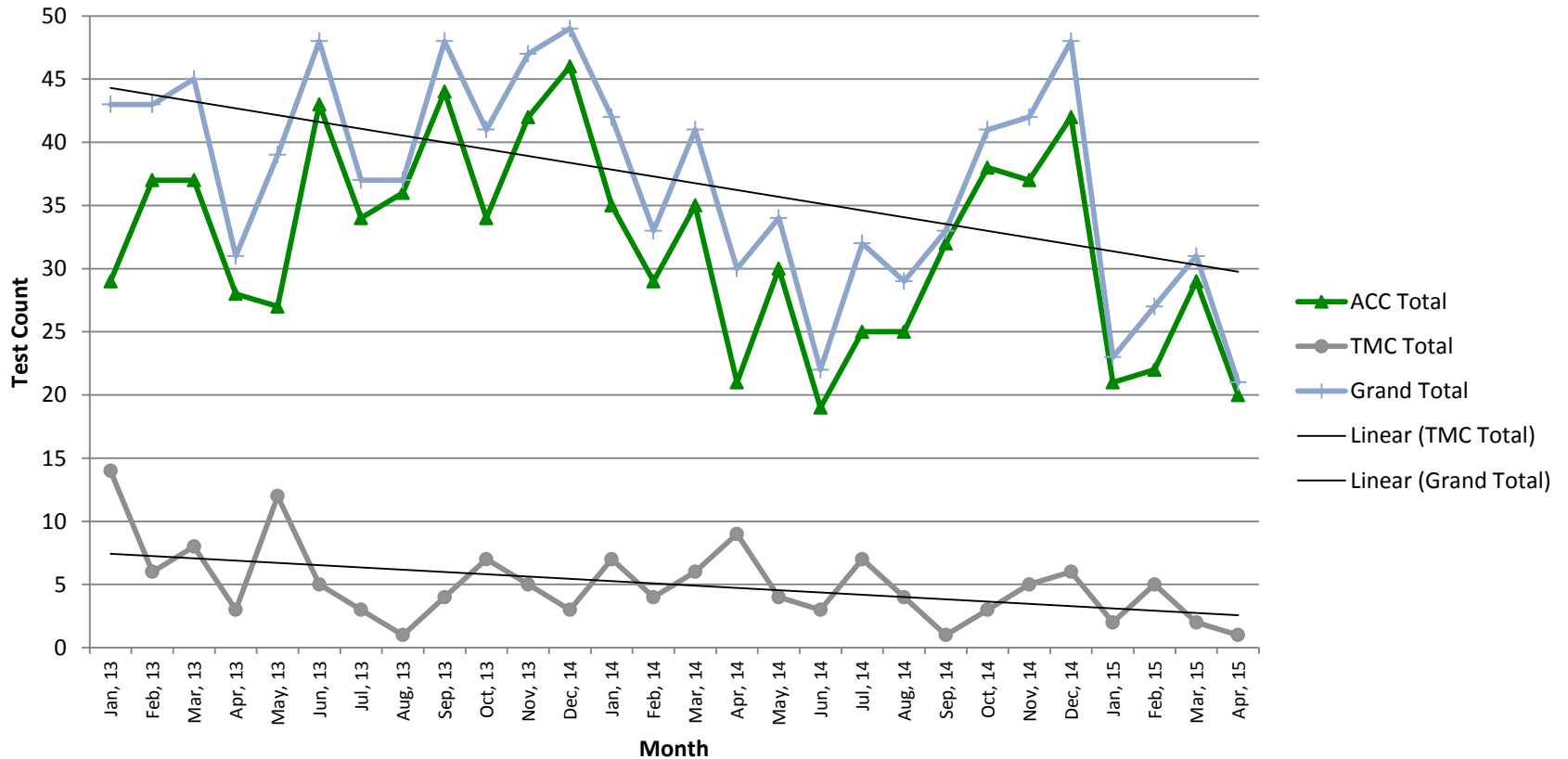
What Have We Learned Since March 15?

ASTM and ACC Sequence III Tests



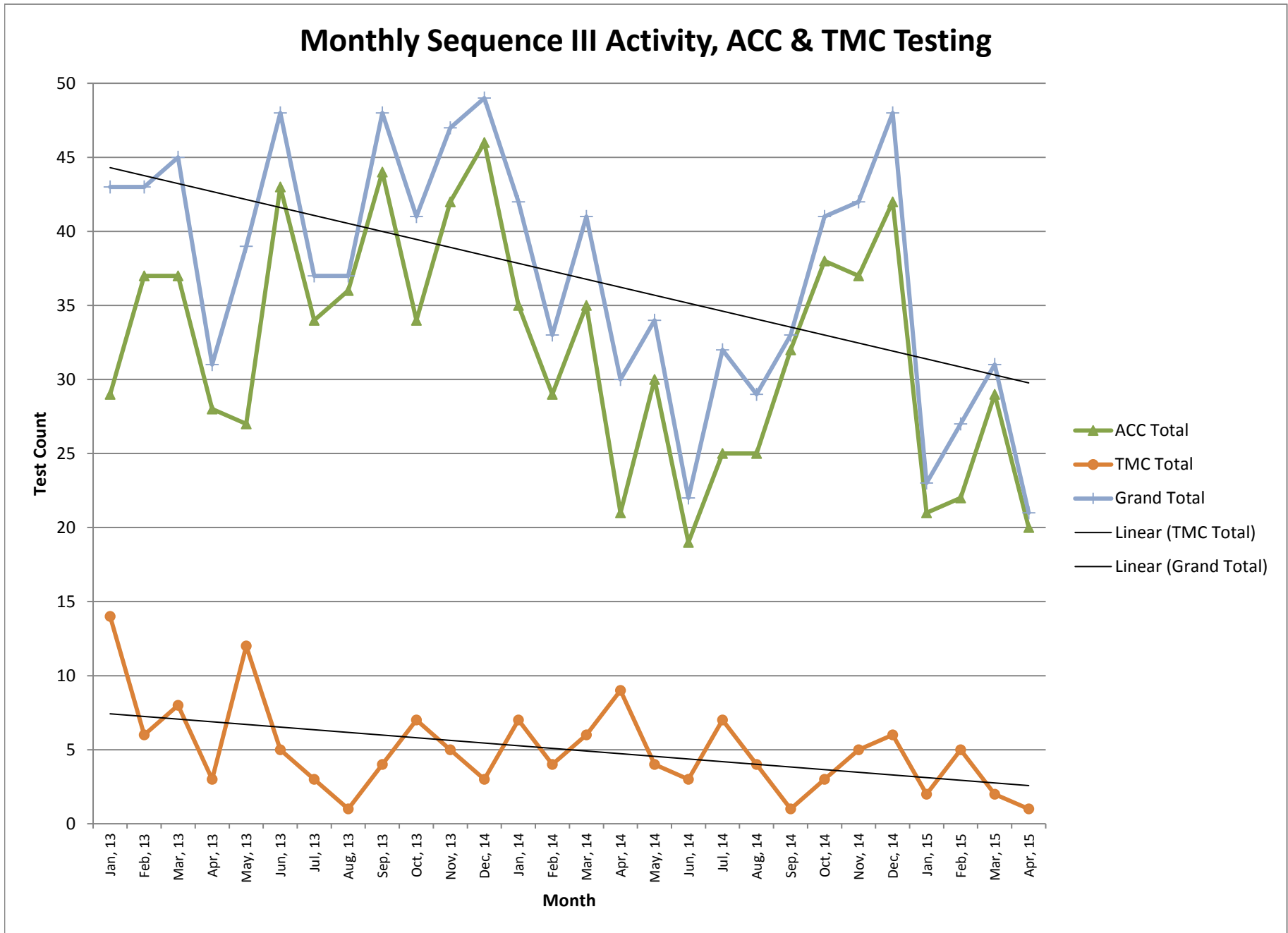
Monthly Activity Since January 1, 2013

Monthly Sequence III Activity, ACC & TMC Testing



Surveillance Panel Chairman's Conclusions

- Based on available data and historic usage, the Sequence III tests will remain viable through August, 2016.
- Prior to the end of Sequence IIIF & IIIG testing, equivalencies must be established using the Sequence IIIH test and other methods.



From: Scott Stap <scott.stap@tgidirect.com>
Sent: Tuesday, June 02, 2015 9:48 AM
To: Jason Bowden
Subject: Inventory at CPW

Follow Up Flag: Follow up
Due By: Tuesday, June 02, 2015 4:00 PM
Flag Status: Flagged

PART NUMBER	DESCRIPTION	Qty
25527831	BOLT, HEAD - LONG	596
25533811	BOLT, HEAD - SHORT	6041
12593374	CONNECTING ROD	719
24502168C	Crankshaft, chamfered oil holes	5
24502260S	CYLINDER HEAD, New with inserts	44

Scott Stap
TGI Direct
Performing Services for Chevrolet Performance Warehouse
5388 Hill 23 Drive
Flint MI 48507
810-691-0687 cell

Motions and Action Items

Sequence III Surveillance Panel

San Antonio, TX

June 3, 2015

Motions:

1. Run 9 & 10 pistons and rings to be introduced in the Seq. IIIF/G tests on a successful oil calibration test. Charlie Leverett/Jason Bowden: Motion Passes (11-0-1).

Action Items:

1. Dave Glaenzer to contact Tom Smith and notify him that Karin Haumann is the Seq. III SP contact relative to Sequence IIIH equivalency determinations.
2. Dave Glaenzer to contact The PCEOCP Chair and also contact API Category Life Oversight Group for input on what is required to show equivalency of IIIH and IIIG. Also inquire IIIFHD will be required in the future.
3. GM Performance will provide an update on the availability of non-modified heads in inventory. They will also determine if they will be able to install new seats in used heads supplied by the labs.
4. Dave Glaenzer will report to the AOAP when the hardware at each lab will run out.

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 tests documented in ASTM Standard D6984 as update by the Information Letter System. The Sequence III Surveillance Panel is also responsible for the surveillance and continual improvement of the Sequence IIIG, IIIGA and IIIGB tests documented in ASTM Standard D7320 as updated by the Information Letter System. Data on test precision 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, the Central Parts Distributor, Fuel Supplier, ASTM B0.01 Passenger Car Engine Oil Classification Panel, ASTM Committee B0.01, ACC Monitoring Agency and ASTM Deposit/Distress Workshop. 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. This process will provide the best possible Sequence III Type Test Procedure for evaluating engine oil performance with respect to its ability to prevent oil thickening, varnish formation, oil consumption and engine wear.

OBJECTIVES

Monitor industry hardware inventory
IIIF & IIIG equivalency???

TARGET DATE

Ongoing

David L. Glaenzer, Chairman
Sequence III Surveillance Panel

Updated 06/02/2015