



Test Monitoring Center

Carnegie Mellon University
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412-365-1000

MEMORANDUM: 09-023

DATE: April 24, 2009

TO: Don Bell, Chairman, OSCT Surveillance Panel

FROM: Michael T. Kasimirsky *Michael T. Kasimirsky*

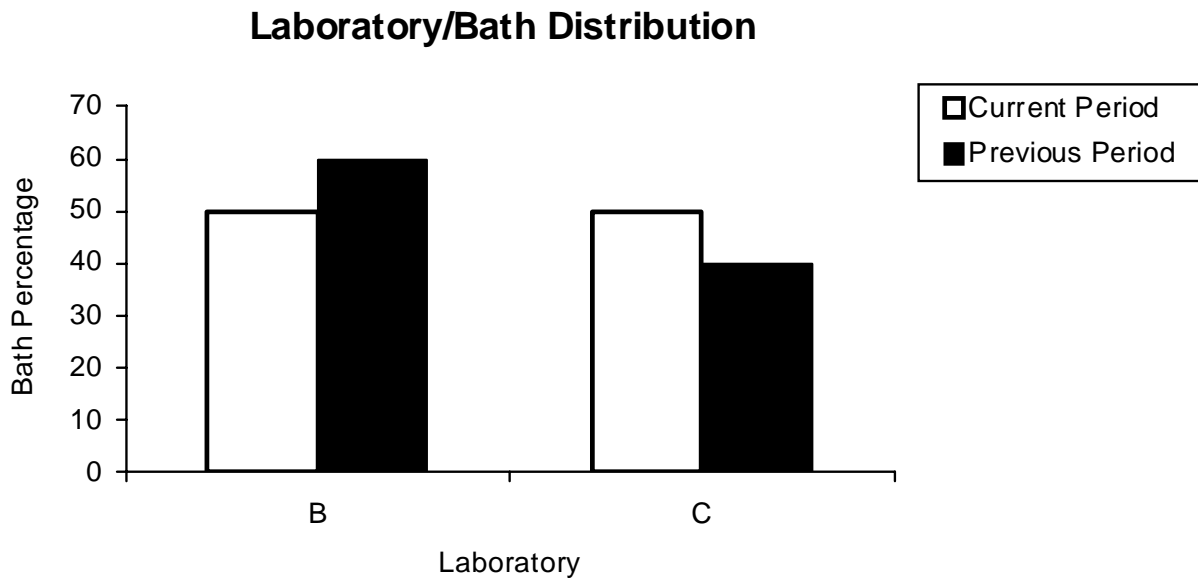
SUBJECT: OSCT Reference Test Status from October 1, 2008 through March 31, 2009

A total of 38 OSCT reference oil results from two laboratories were reported during the period October 1, 2008 through March 31, 2009.

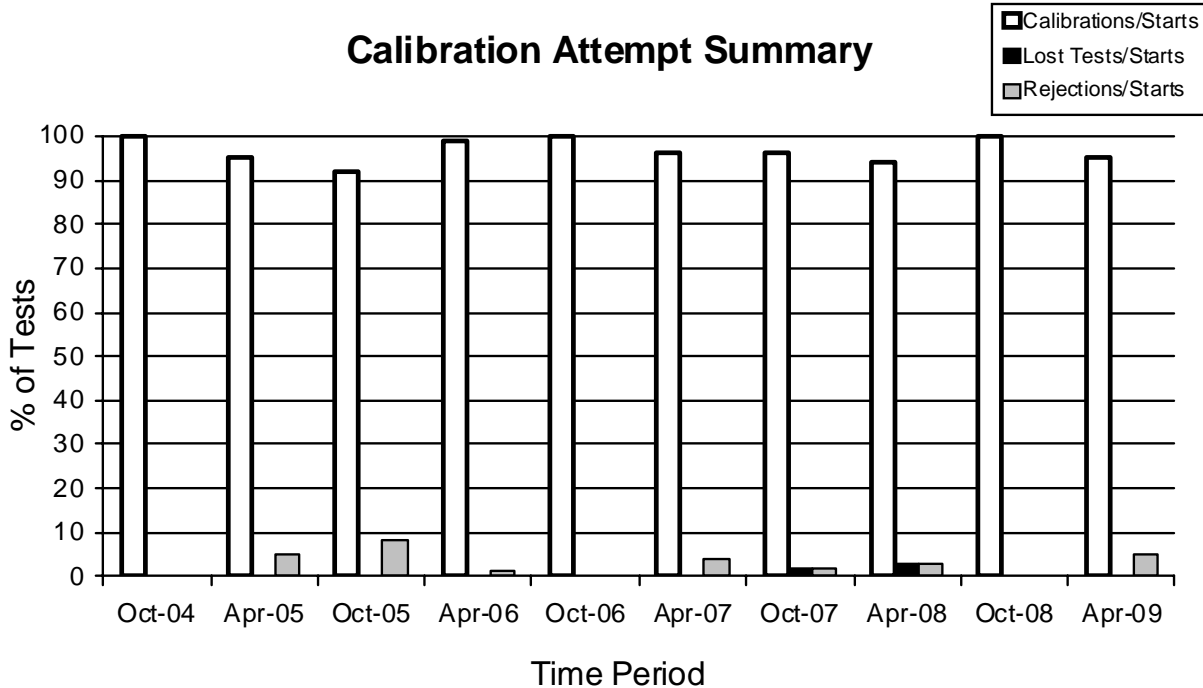
The following table summarizes the status of the reference oil test results reported to the TMC this report period:

Elastomer Type		TMC Validity	No. of Test Oil Results
Fluoroelastomer	Operationally and Statistically Acceptable	AC	16
	Statistically Unacceptable	OC	0
	Operationally Invalid	LC	0
	Aborted	XC	0
	Information Only	NN	0
	Elastomer Batch Approval, Acceptable Test	NI	11
	Elastomer Batch Approval, Unacceptable Test	MI	0
Polyacrylate	Operationally and Statistically Acceptable	AC	16
	Statistically Unacceptable	OC	2
	Operationally Invalid	LC	0
	Aborted	XC	0
	Information Only	NN	0
	Elastomer Batch Approval, Acceptable Test	NI	2
	Elastomer Batch Approval, Unacceptable Test	MI	2
Nitrile	Operationally and Statistically Acceptable	AC	4
	Statistically Unacceptable	OC	0
	Operationally Invalid	LC	0
	Aborted	XC	0
	Elastomer Batch Approval, Aborted Test	XI	1
	Elastomer Batch Approval, Acceptable Test	NI	8
	Elastomer Batch Approval, Unacceptable Test	MI	6
	TOTAL		68

The following chart shows the laboratory bath distribution for data reported during this report period:



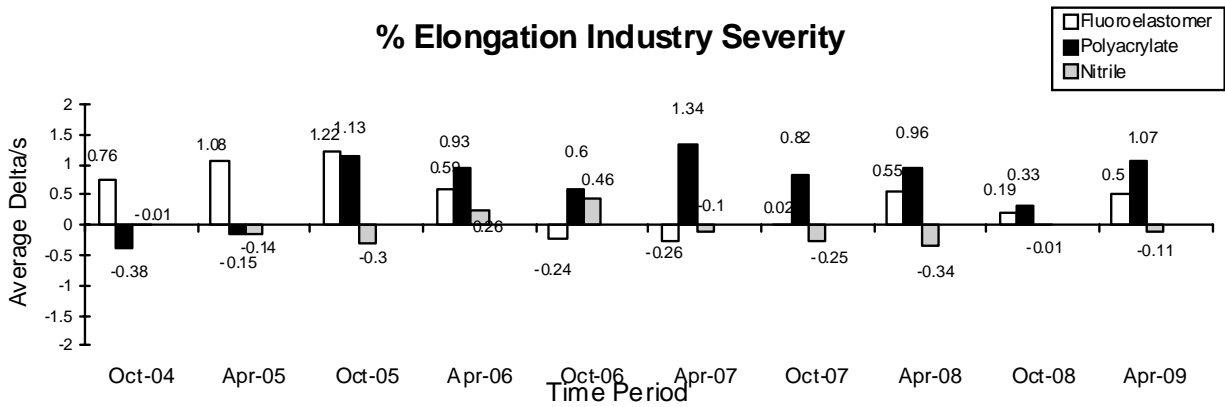
Attempted calibration tests are depicted graphically below by report period:



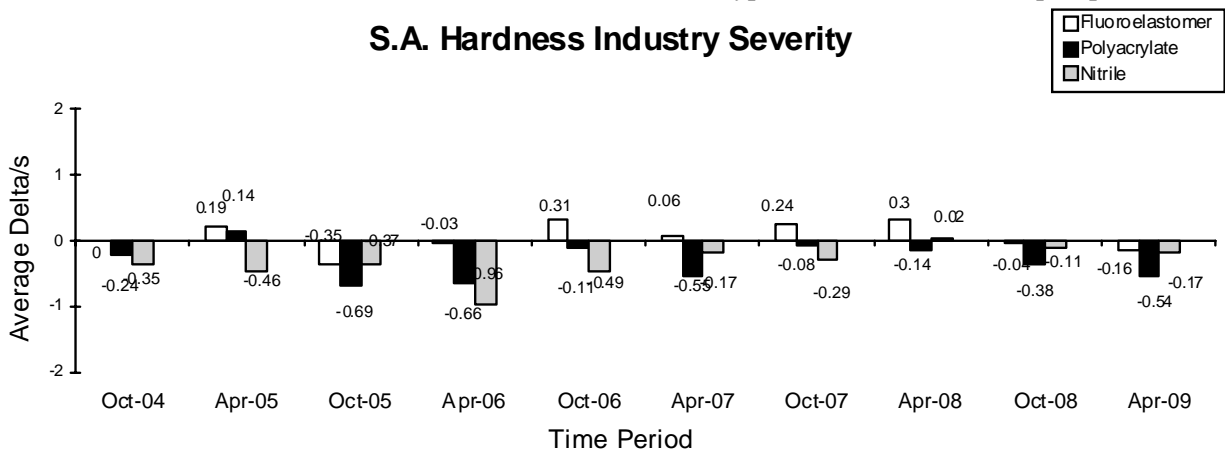
The calibration per start rate decreased slightly when compared to the previous period. No tests were lost again this period. The rejected per start rates has increased slightly when compared to the previous report period, but is still comparable to historical performance.

INDUSTRY TEST SEVERITY

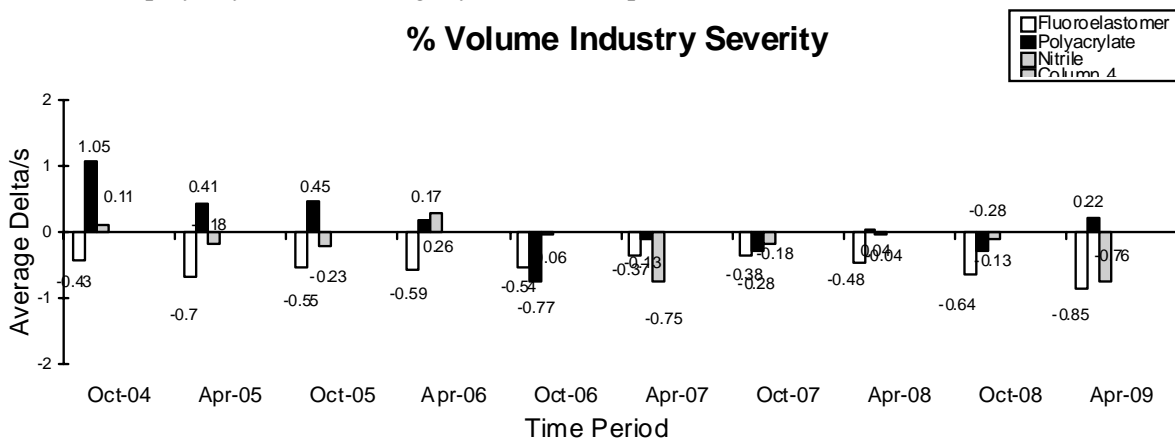
Percent elongation industry mean delta/s bar charts for the last ten report periods, for each elastomer material are shown below. Percent elongation for fluoroelastomer and polyacrylate elastomers trended mild for this report period. Percent elongation for nitrile elastomer was slightly severe for this report period



S.A. hardness industry mean delta/s bar charts for the last ten report periods, for each elastomer material are shown below. S.A. hardness for all three elastomer types trended severe this report period

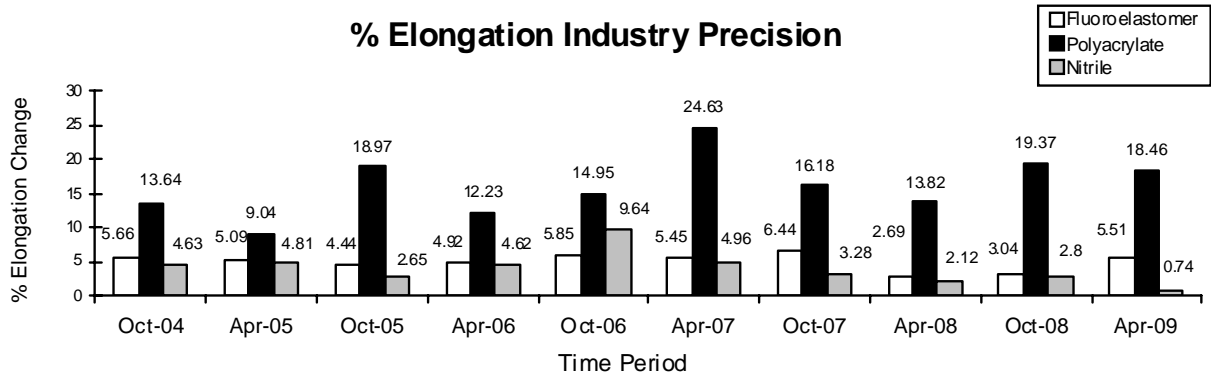


Percent volume industry mean delta/s bar charts for the last ten report periods, for each elastomer material are shown below. Percent volume for fluoroelastomer and nitrile trended severe for this report period, while polyacrylate trended slightly mild for this period.

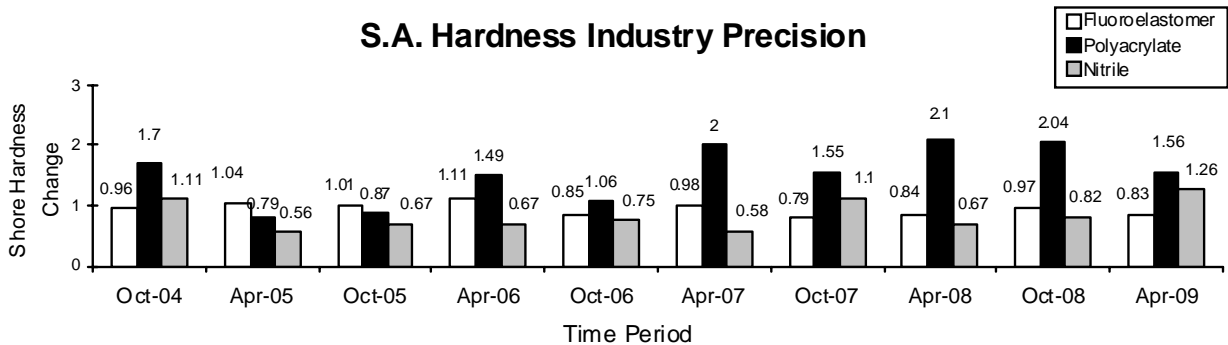


INDUSTRY TEST PRECISION

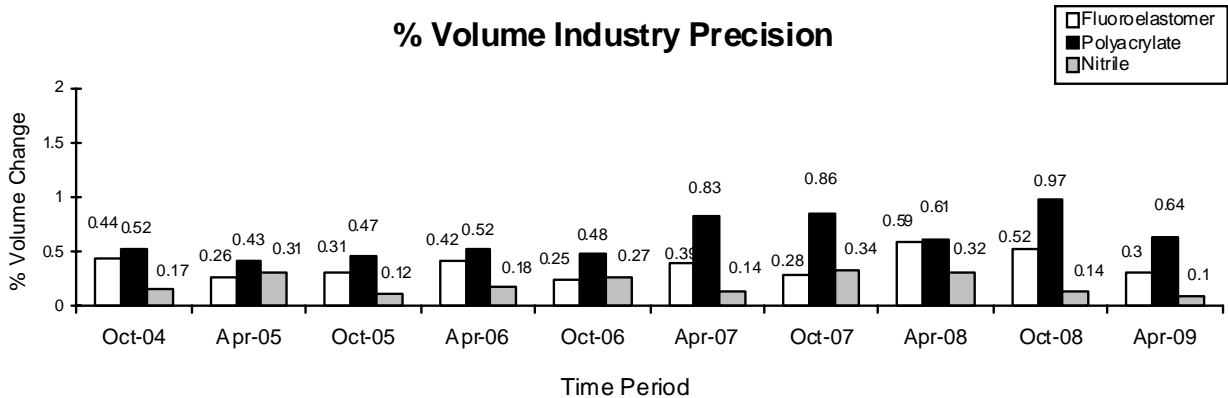
Percent elongation industry precision estimates for elastomer material, for the last ten report periods are shown below. Precision for the fluoroelastomer has degraded slightly, while polyacrylate and nitrile have improved slightly, with respect to the previous period. Precision for all three elastomers compares well with historical levels.



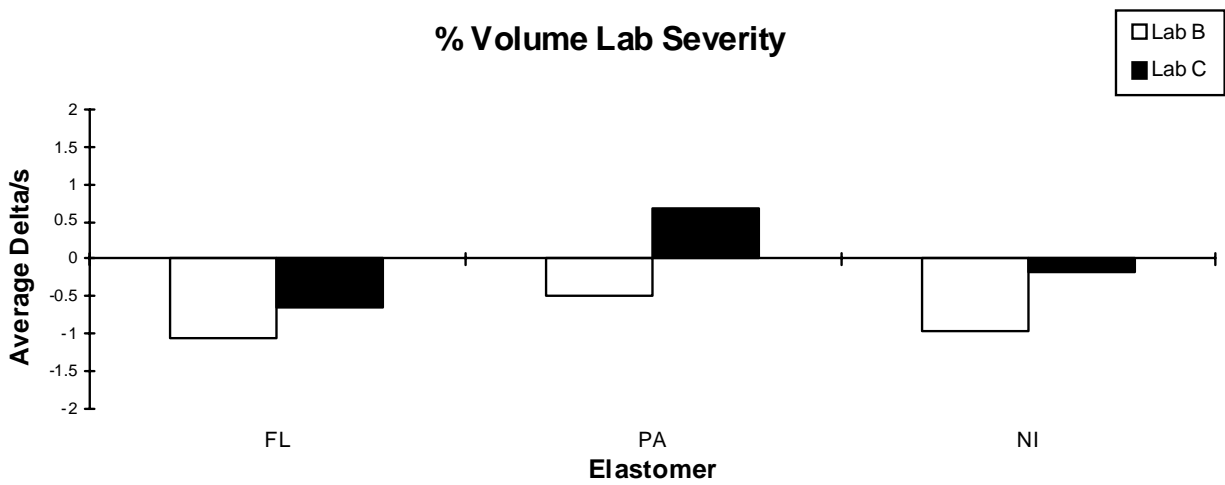
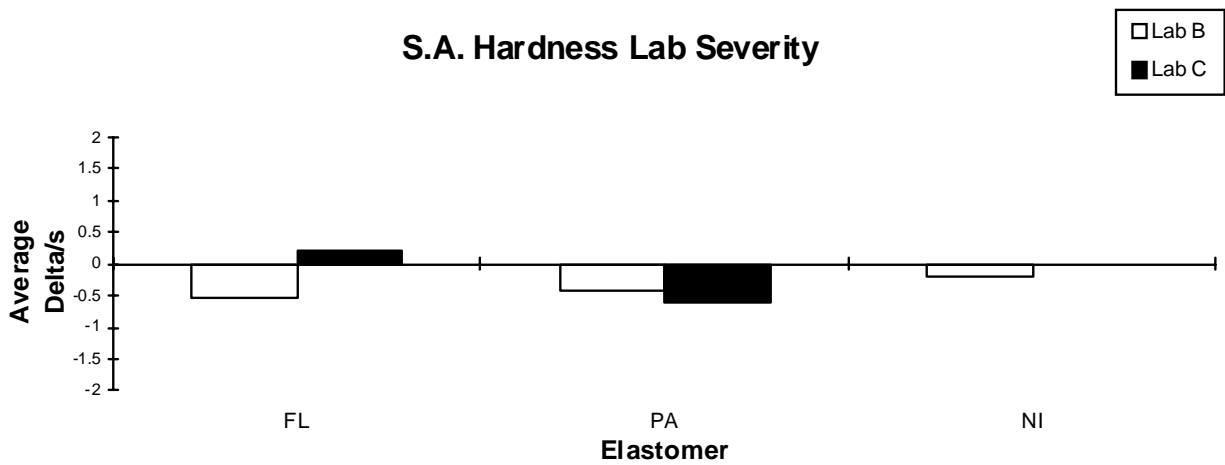
Shore hardness industry precision estimates for elastomer material, for the last ten report periods are shown below. Precision for the nitrile has degraded with respect to the previous period. Precision for the polyacrylate and fluoroelastomer elastomers have improved slightly with respect to the previous period. Precision for all three elastomers compares well with respect to historical levels.



Percent volume industry precision estimates for elastomer materials, for the last ten report periods are shown below. Precision for all three elastomers has improved slightly with respect to the previous period. Precision for all three elastomers compares well with respect to historical levels.



Shown below are a summary of the average Percent Elongation, S.A. Hardness, and Percent Volume Δ 's by elastomer for all laboratories reporting data this report period.



INDUSTRY CONTROL CHARTS

Figures 1 through 3 are industry control charts for elongation change, shore hardness change, and percent volume change, respectively. Figures 4 through 6 are industry control charts of the last 120 test results for elongation change, shore hardness change, and percent volume change, respectively. Severity and precision EWMA charts for elongation change, shore hardness change, and percent volume change were all in control this period.

REFERENCE OILS

The following table quantifies remaining reference oil inventories for use in OSCT testing. The table shows the number of oil samples, of each reference oil type, currently in laboratory inventories. Each reference oil sample has 750 ml (0.2 gallons) of oil.

LAB	Samples of Oil Remaining		
	160-1	161-1	168
B	6	4	11
C	1	2	4
TMC ^A	110.0	21.1	36.3

^ATotal TMC inventory shown in gallons (each sample is 0.2 gal)

At the February 11, 2009, meeting of the OSCT Surveillance Panel, the panel approved a motion to update the test targets for reference oil 168, based on the 38 available data points on oil 168. The updated test targets are shown in the table below:

Reference Oil 168 Test Targets (N=38)		
Parameter	Target Mean	Standard Deviation
Percent Elongation	-74.52	1.599
Shore Hardness	3.0	0.79
Percent Volume Change	1.326	0.1388

These updated targets were effective on March 1, 2009. The full details of the generation of these new targets are available in TMC Memo 09-002.

At the March 11, 2009 teleconference of the OSCT Surveillance Panel, the panel approved a motion to again update the test targets for reference oil 168, but this time using standard deviations calculated from reference oil 162 data. All tests on reference oil 162 completed since 2000 were selected for this calculation by the panel (138 total). The updated test targets are shown in the table below:

Reference Oil 168 Test Targets (N=38); Reference Oil 162 standard deviation used (N=138)		
Parameter	Target Mean	Standard Deviation*
Percent Elongation	-74.52	6.965
Shore Hardness	3.0	1.89
Percent Volume Change	1.326	1.4730

These updated targets were effective on March 11, 2009. The full details of the generation of these new targets are available in TMC Memo 09-003.

INFORMATION LETTERS

OSCT Information Letter 08-1, Sequence No. 12, was issued on October 7, 2008 and contained a Clarification of Allowable Oil Temperature Variation.

OSCT Information Letter 08-2, Sequence No. 13, was issued on October 13, 2008 and covered the extension of the allowable shelf life of elastomer materials beyond the normal two year shelf life, when authorized by the Surveillance Panel.

TMC LAB VISITS

No lab visits were conducted this report period.

MTK/mtk

Attachments

c: OSCT Surveillance Panel
 J. L. Zalar, TMC
 F. M. Farber, TMC
<ftp://ftp.astmtmc.cmu.edu/docs/gear/osct/semiannualreports/osct-04-2009.pdf>

Distribution: Email

Table 1

Effective Date	OSCT Timeline	
	Topic	IL#
19961001	Test Report Forms and Data Dictionary	96-1
19970324	Elastomer Requirements For Testing a Non-reference Oil	97-1
19970701	Specimen Cleaning Procedure	97-2
19971201	Revised Test Report Forms and Data Dictionary	97-3
19980504	Seal Elastomer Shelf Life	98-1
19980504	Revised Reference Oil and Non-reference Oil Requirements	98-1
19980504	Addition of Calibration Requirements for Hardness Durometer, Balance, and Tension Testing Machine	98-1
19980817	Revised Test Report Forms and Data Dictionary	98-1
20050815	Updated Test Precision	05-1
20050815	Rounding Test Results Using ASTM E 29	05-1
20051102	Initial and Final Volume Measurements	05-2
20060327	Addition of a Calibration Procedure for the Tension Testing Machine	06-1
20060327	New Reference Oil Testing Section	06-1
20060327	Editorial Changes	06-1
20060331	Specimen Spacer Width Revision	06-2
20071001	Test Oil Temperature Data Logging and Tolerance	07-1
20080114	Percent Deviation Calculation for Test Oil Temperature Data Logging	07-2
20081007	Clarification of Allowable Temperature Variation	08-1
20081007	Allow Elastomer Shelf Life to Extend Beyond Two Years	08-2

Figure 1

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE ELONGATION CHANGE AVERAGE

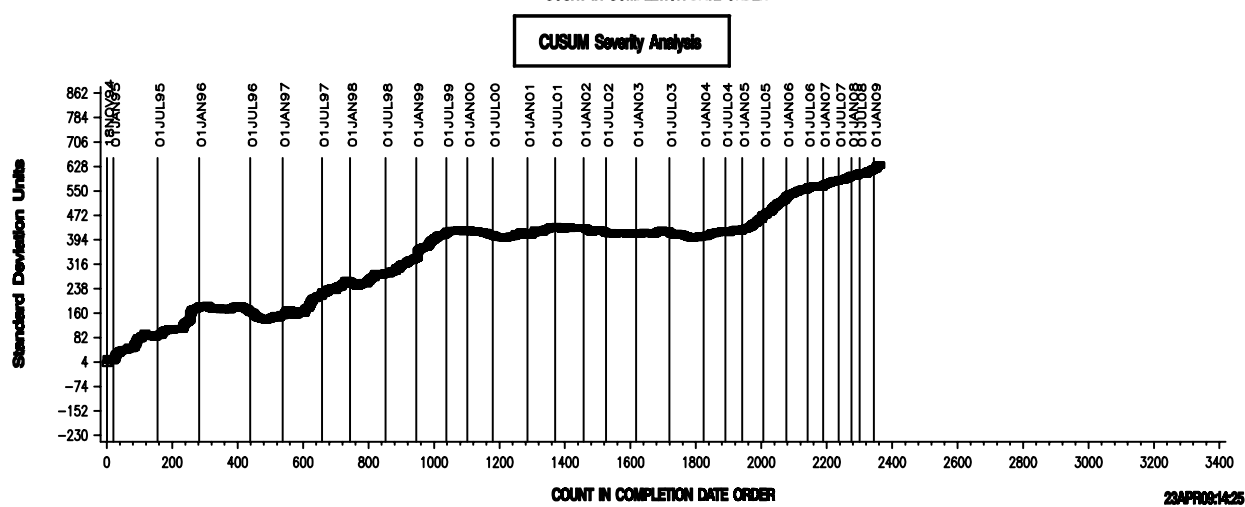
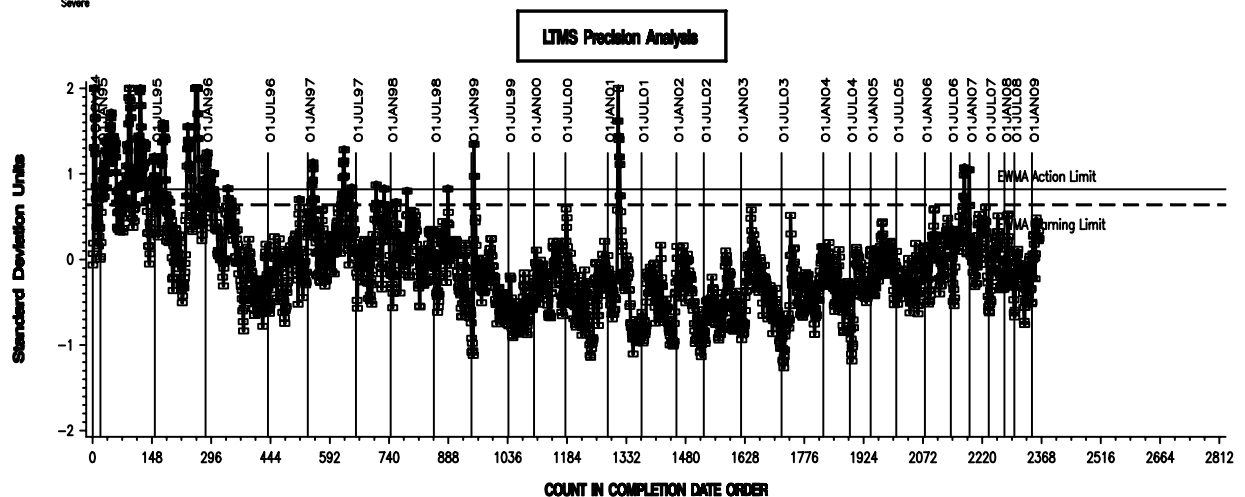
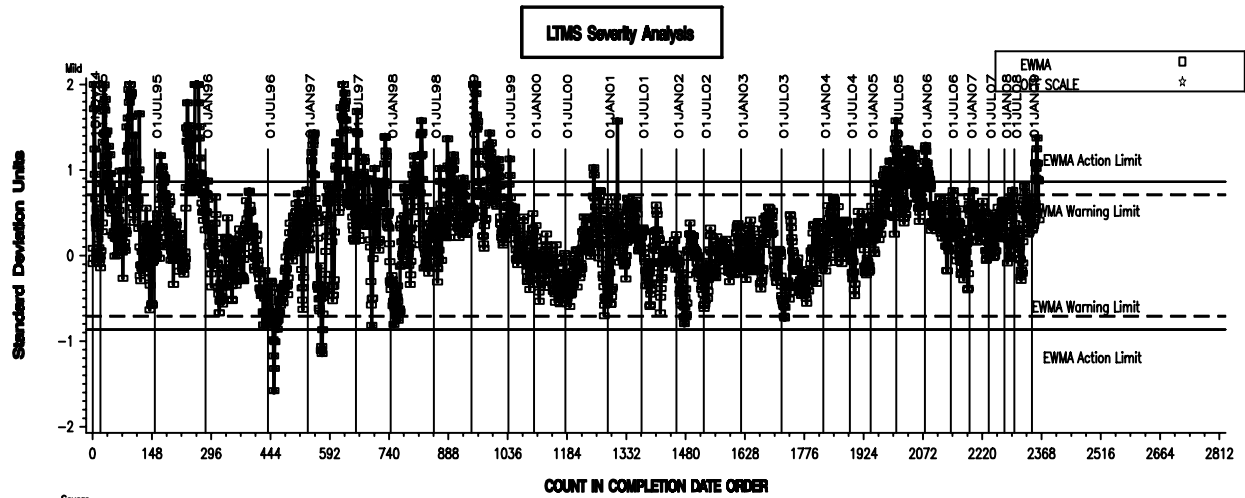


Figure 2

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE SHORE A HARDNESS CHANGE AVERAGE

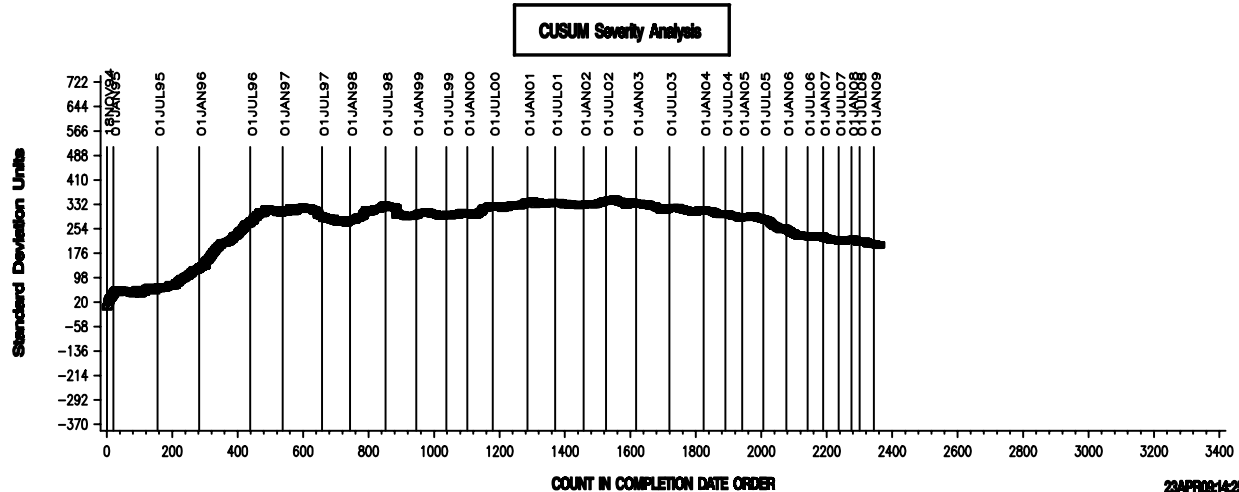
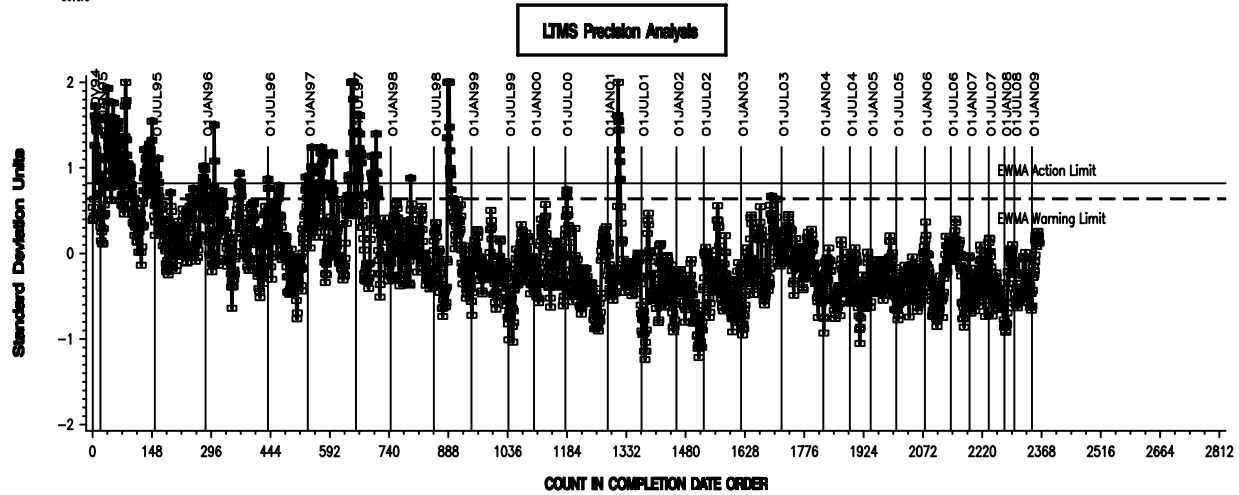
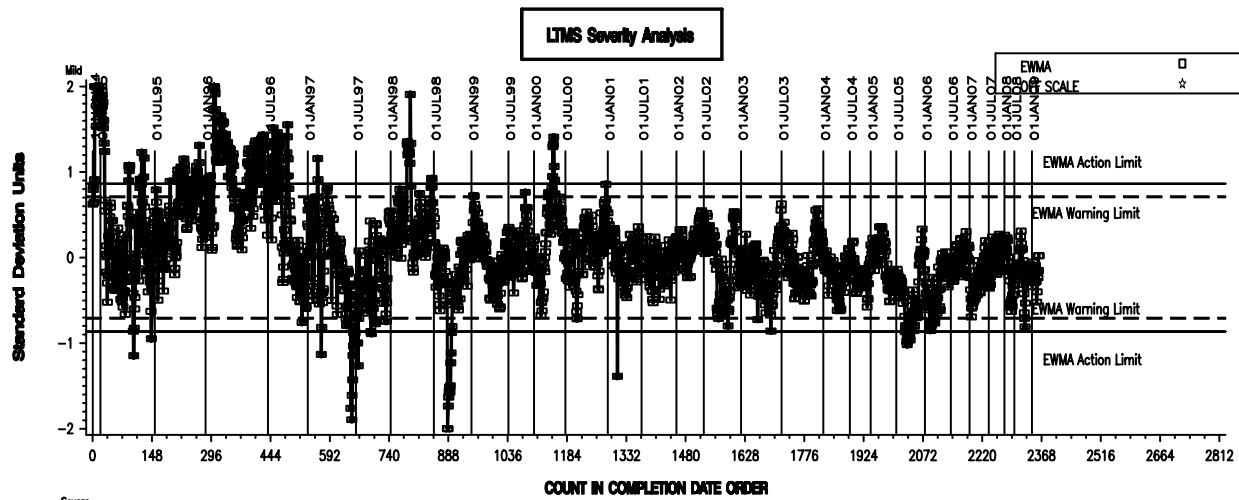


Figure 3

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE PERCENT VOLUME CHANGE AVERAGE

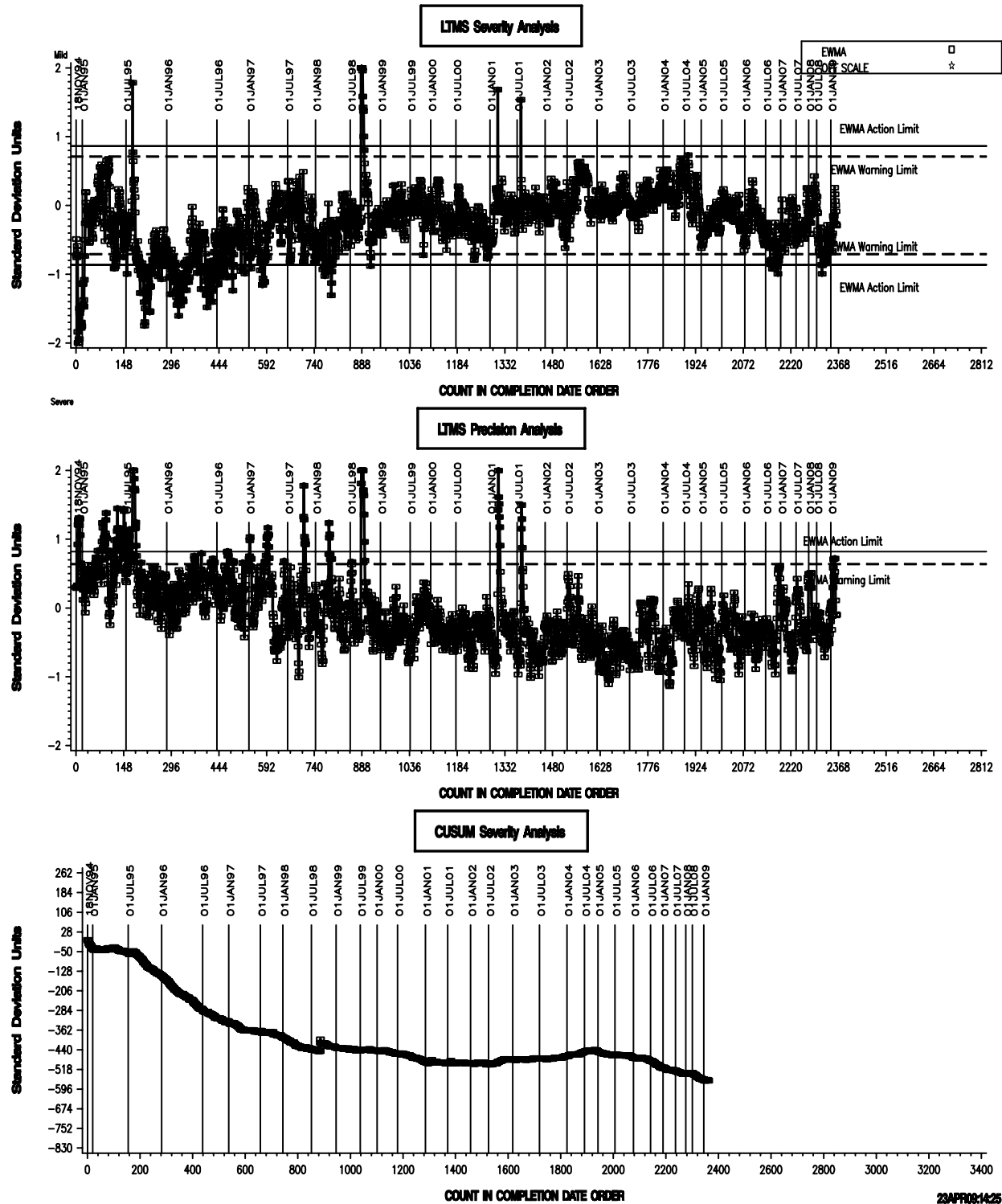


Figure 4

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE ELONGATION CHANGE AVERAGE

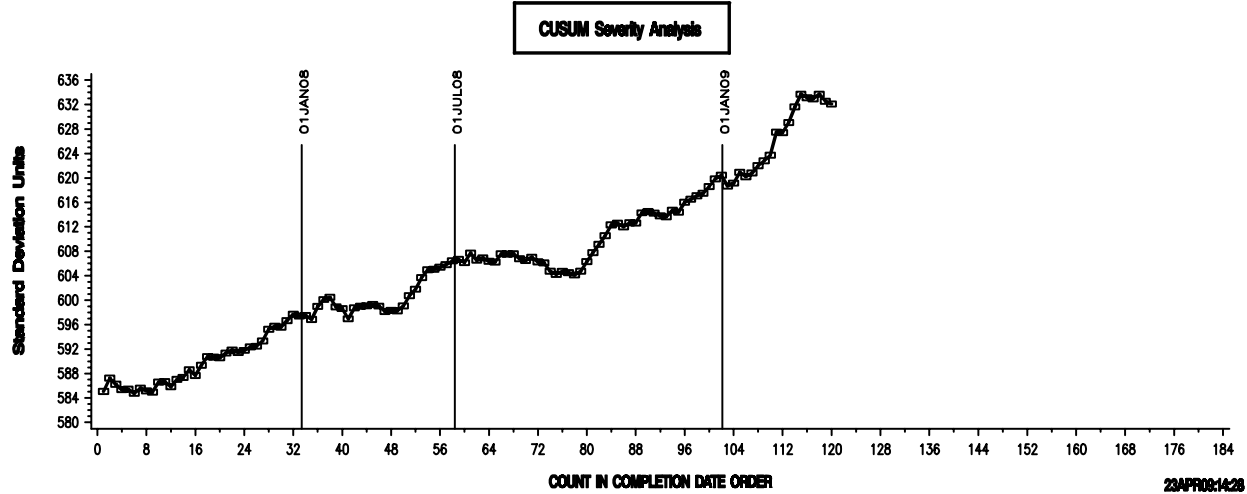
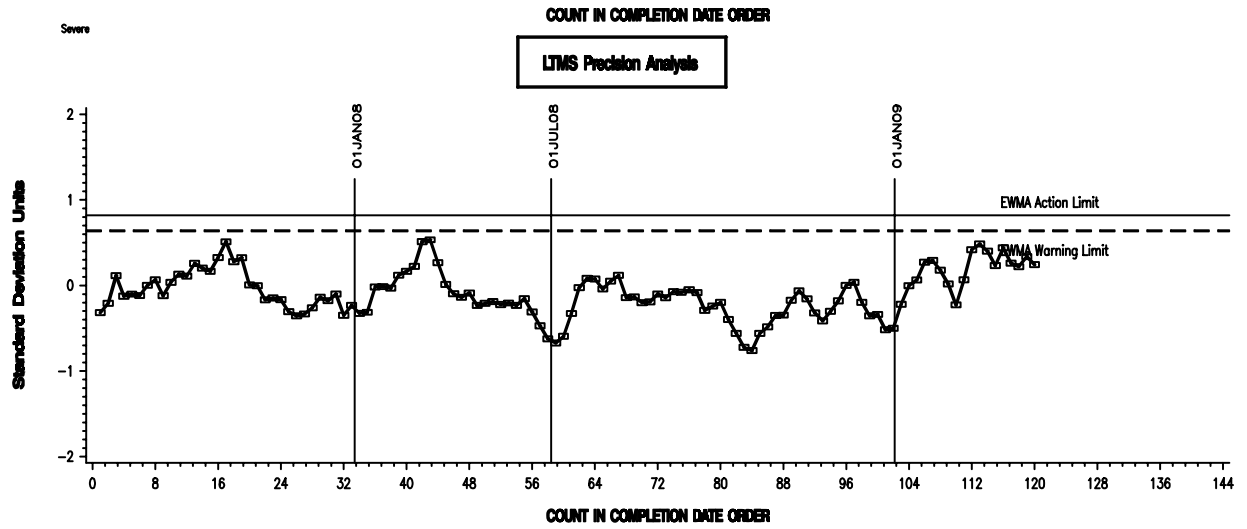
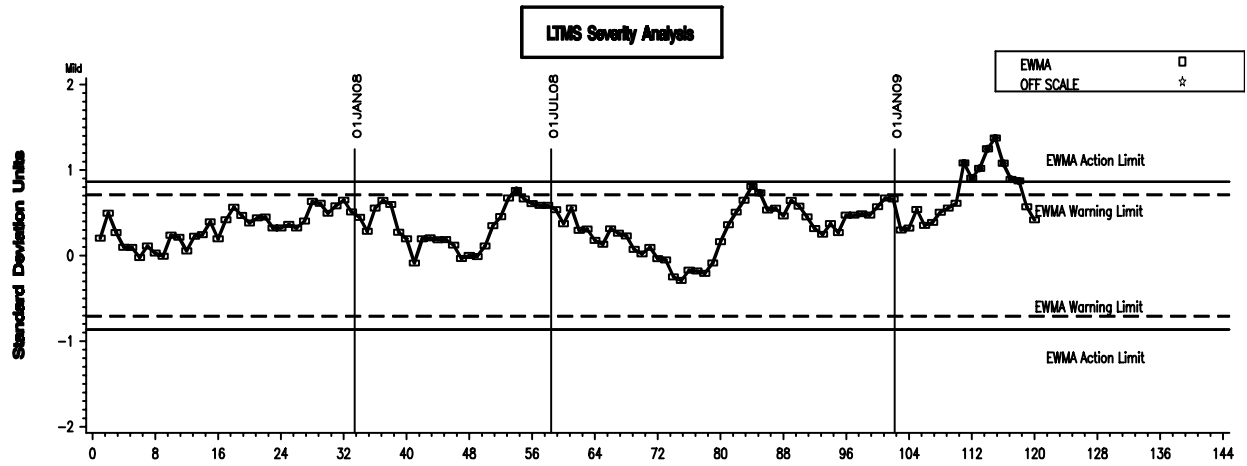


Figure 5

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE SHORE A HARDNESS CHANGE AVERAGE

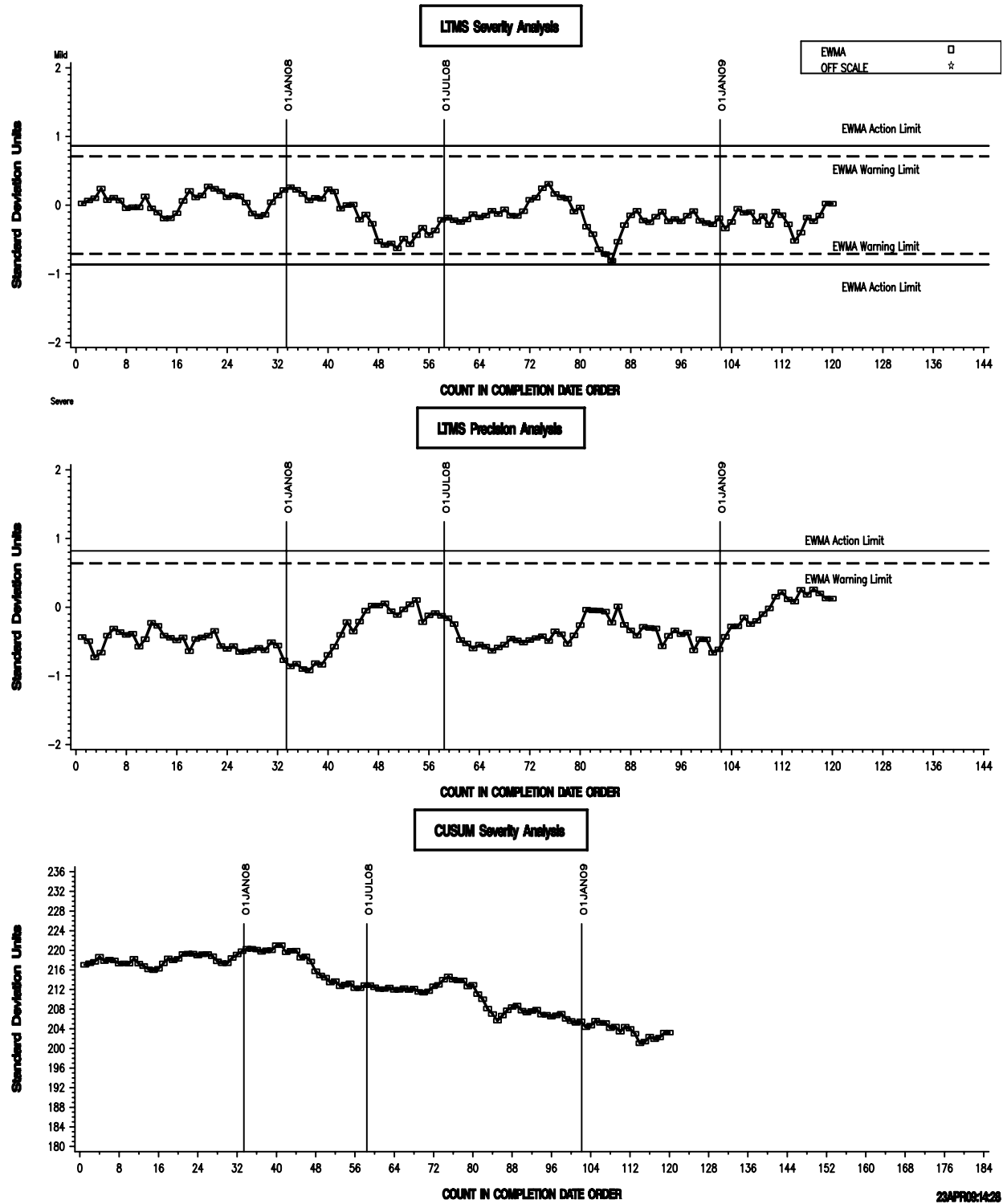


Figure 6

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE PERCENT VOLUME CHANGE AVERAGE

