



Test Monitoring Center

Carnegie Mellon University
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412-365-1000

MEMORANDUM: 09-061

DATE: November 23, 2009

TO: Don Bell, Chairman, OSCT Surveillance Panel

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

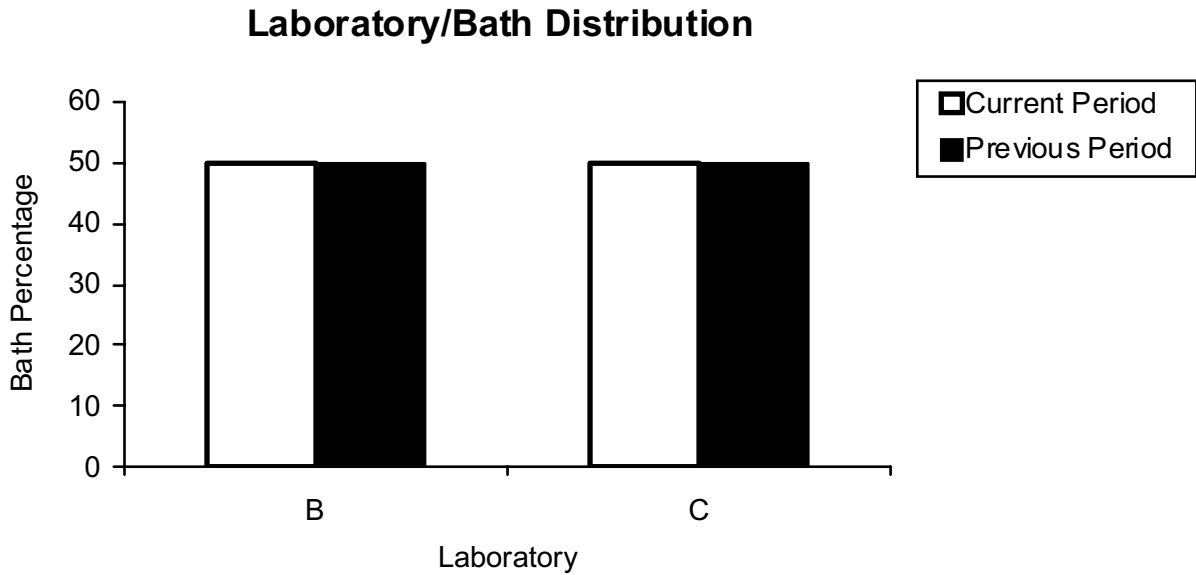
SUBJECT: OSCT Reference Test Status from April 1, 2009 through September 30, 2009

A total of 44 OSCT reference oil results from two laboratories were reported during the period April 1, 2009 through September 30, 2009.

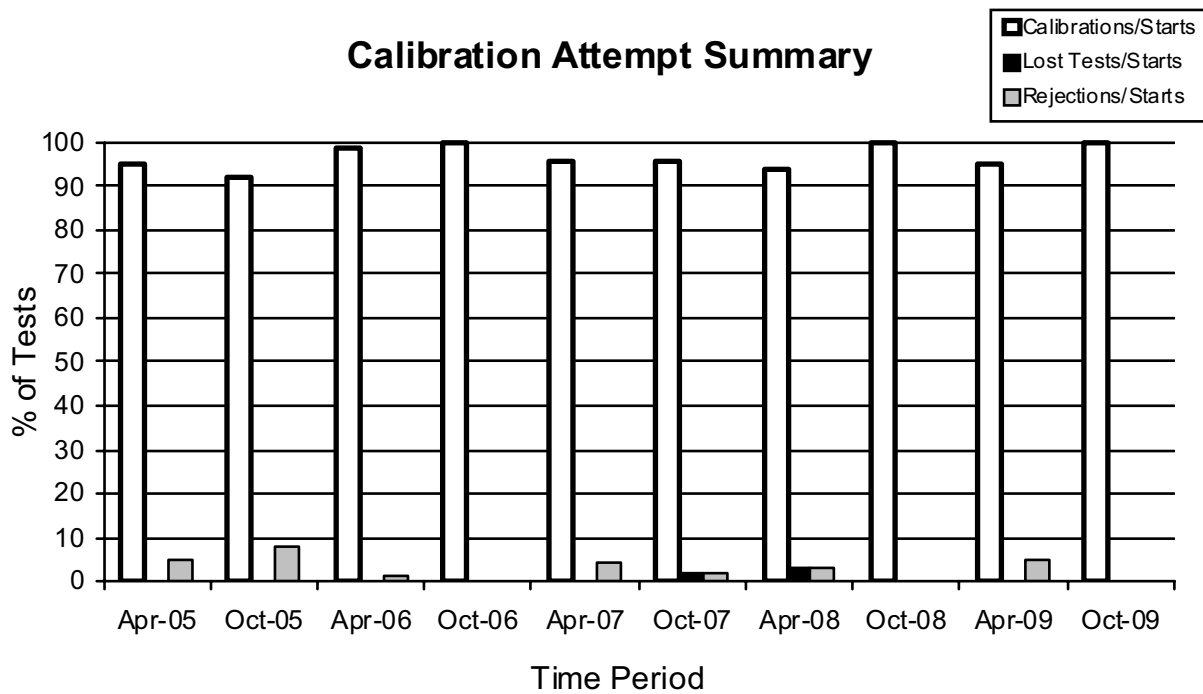
The following table summarizes the status of the reference oil test results reported to the TMC this report period:

| Elastomer Type | | TMC Validity | No. of Test Oil Results |
|-----------------|---|--------------|-------------------------|
| Fluoroelastomer | Operationally and Statistically Acceptable | AC | 9 |
| | Statistically Unacceptable | OC | 0 |
| | Operationally Invalid | LC | 0 |
| | Aborted | XC | 0 |
| | Information Only | NN | 0 |
| | Elastomer Batch Approval, Acceptable Test | NI | 8 |
| | Elastomer Batch Approval, Unacceptable Test | MI | 0 |
| Polyacrylate | Operationally and Statistically Acceptable | AC | 7 |
| | Statistically Unacceptable | OC | 0 |
| | Operationally Invalid | LC | 0 |
| | Aborted | XC | 0 |
| | Information Only | NN | 0 |
| | Elastomer Batch Approval, Acceptable Test | NI | 4 |
| | Elastomer Batch Approval, Unacceptable Test | MI | 0 |
| Nitrile | Operationally and Statistically Acceptable | AC | 12 |
| | Statistically Unacceptable | OC | 0 |
| | Operationally Invalid | LC | 0 |
| | Aborted | XC | 0 |
| | Elastomer Batch Approval, Aborted Test | XI | 0 |
| | Elastomer Batch Approval, Acceptable Test | NI | 4 |
| | Elastomer Batch Approval, Unacceptable Test | MI | 0 |
| | TOTAL | | 44 |

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



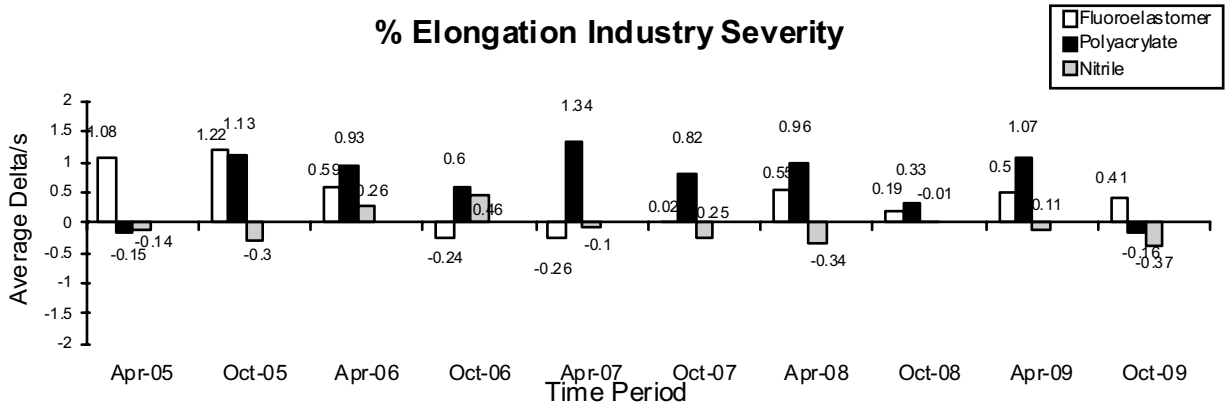
Attempted calibration tests are depicted graphically below by report period:



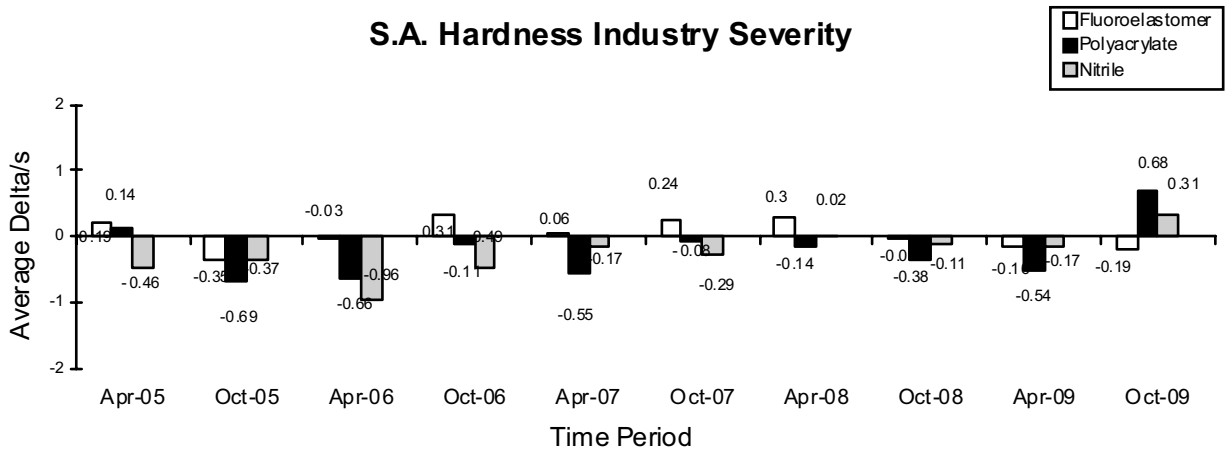
The calibration per start rate increased slightly when compared to the previous period. No tests were lost again this period. The rejected per start rates has decreased slightly when compared to the previous report period, but is still comparable to historical performance.

INDUSTRY TEST SEVERITY

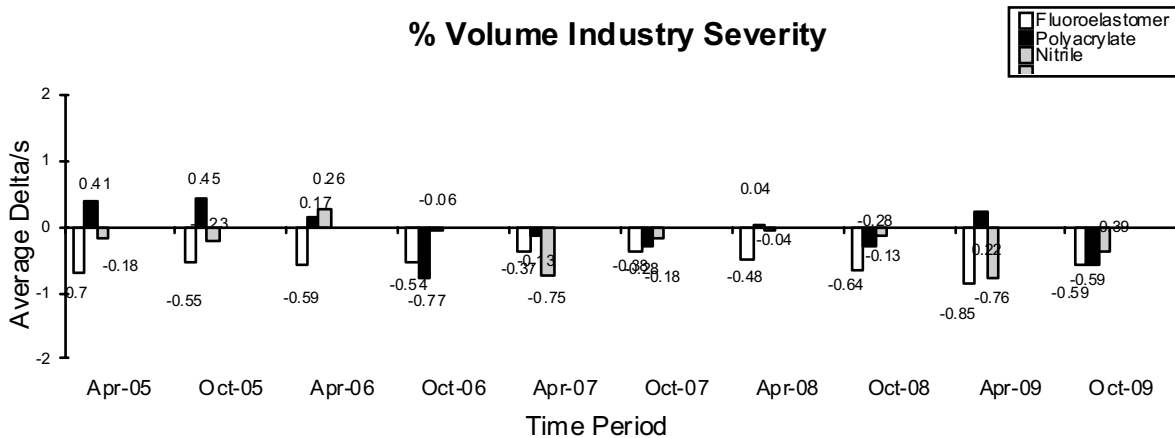
Percent elongation industry mean delta/s bar charts for the last ten report periods, for each elastomer material are shown below. Percent elongation for fluoroelastomer elastomer trended mild for this report period. Percent elongation for polyacrylate and nitrile elastomers was slightly severe for this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

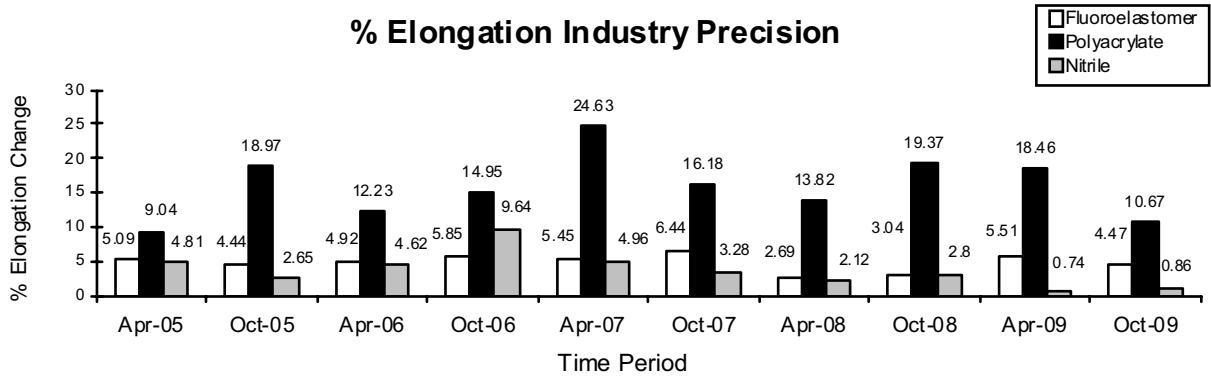


Percent volume industry mean delta/s bar charts for the last ten report periods, for each elastomer material are shown below. Percent volume for all three elastomer types trended severe for this report period.

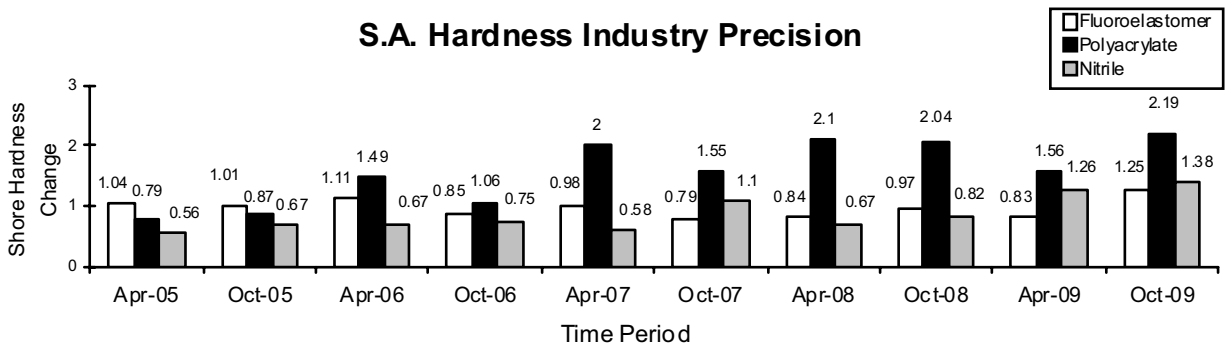


INDUSTRY TEST PRECISION

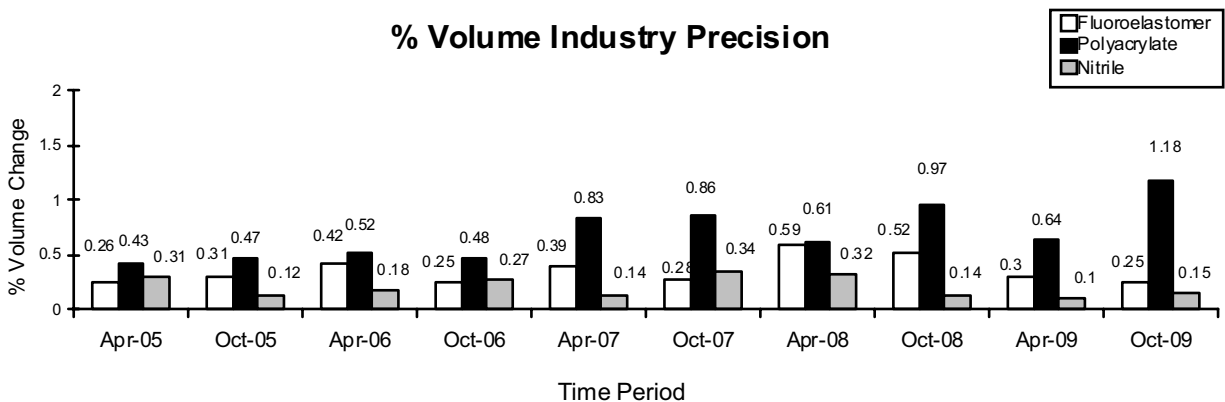
Percent elongation industry precision estimates for elastomer material, for the last ten report periods are shown below. Precision for the fluoroelastomer and polyacrylate elastomers have improved with respect to the previous period, while precision for the nitrile elastomer has degraded slightly. Precision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



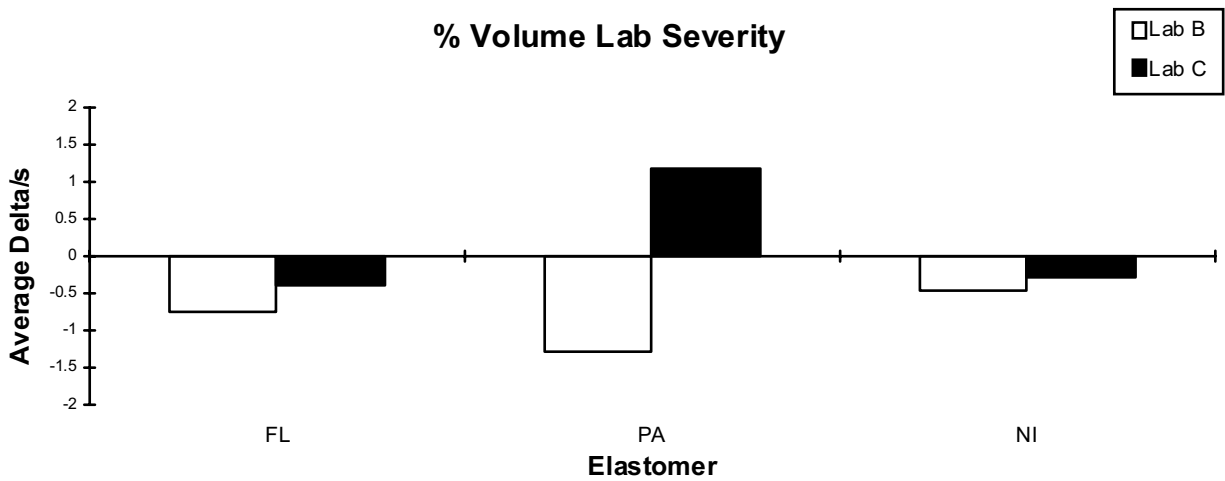
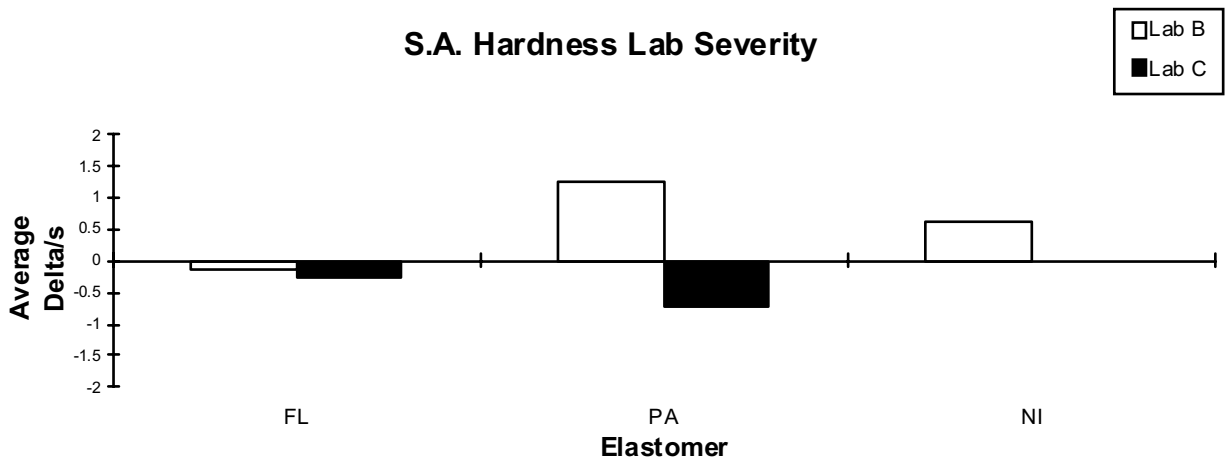
Shore hardness industry precision estimates for elastomer material, for the last ten report periods are shown below. Precision for the fluoroelastomer, polyacrylate, and nitrile elastomers have degraded with respect to the previous period. Precision for all three elastomers compares well with respect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



Percent volume industry precision estimates for elastomer materials, for the last ten report periods are shown below. Precision for the fluoroelastomer elastomer has improved slightly with respect to the previous period. Precision for the polyacrylate and nitrile elastomers has degraded 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 | 5 | 4 | 5 |
| C | 6 | 5 | 8 |
| TMC ^A | 105.6 | 16.5 | 34.7 |

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

INFORMATION LETTERS

OSCT Information Letter 09-1, Sequence No. 14, was issued on September 4, 2009, and covered the Revised Extensometer Calibration Procedure.

TMC LAB VISITS

No lab visits were conducted this report period.

MTK/mtk

Attachments

c: OSCT Surveillance Panel

F. M. Farber, TMC

J. A. Clark, TMC

<ftp://ftp.astmtmc.cmu.edu/docs/gear/osct/semiannualreports/osct-10-2009.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 |
| 20090904 | Revised Extensometer Calibration Procedure | 09-1 |

Figure 1

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE ELONGATION CHANGE AVERAGE

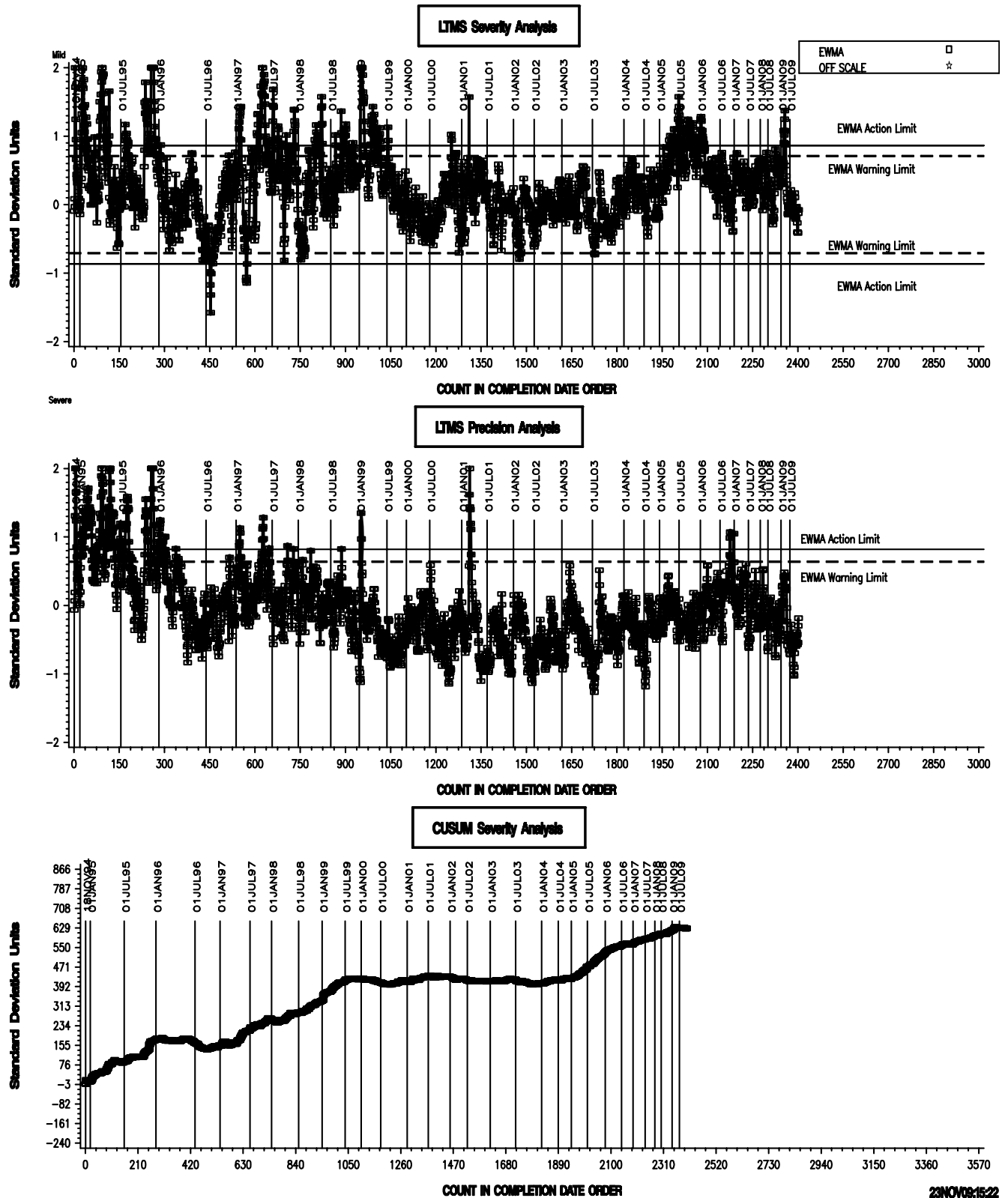


Figure 2

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE SHORE A HARDNESS CHANGE AVERAGE

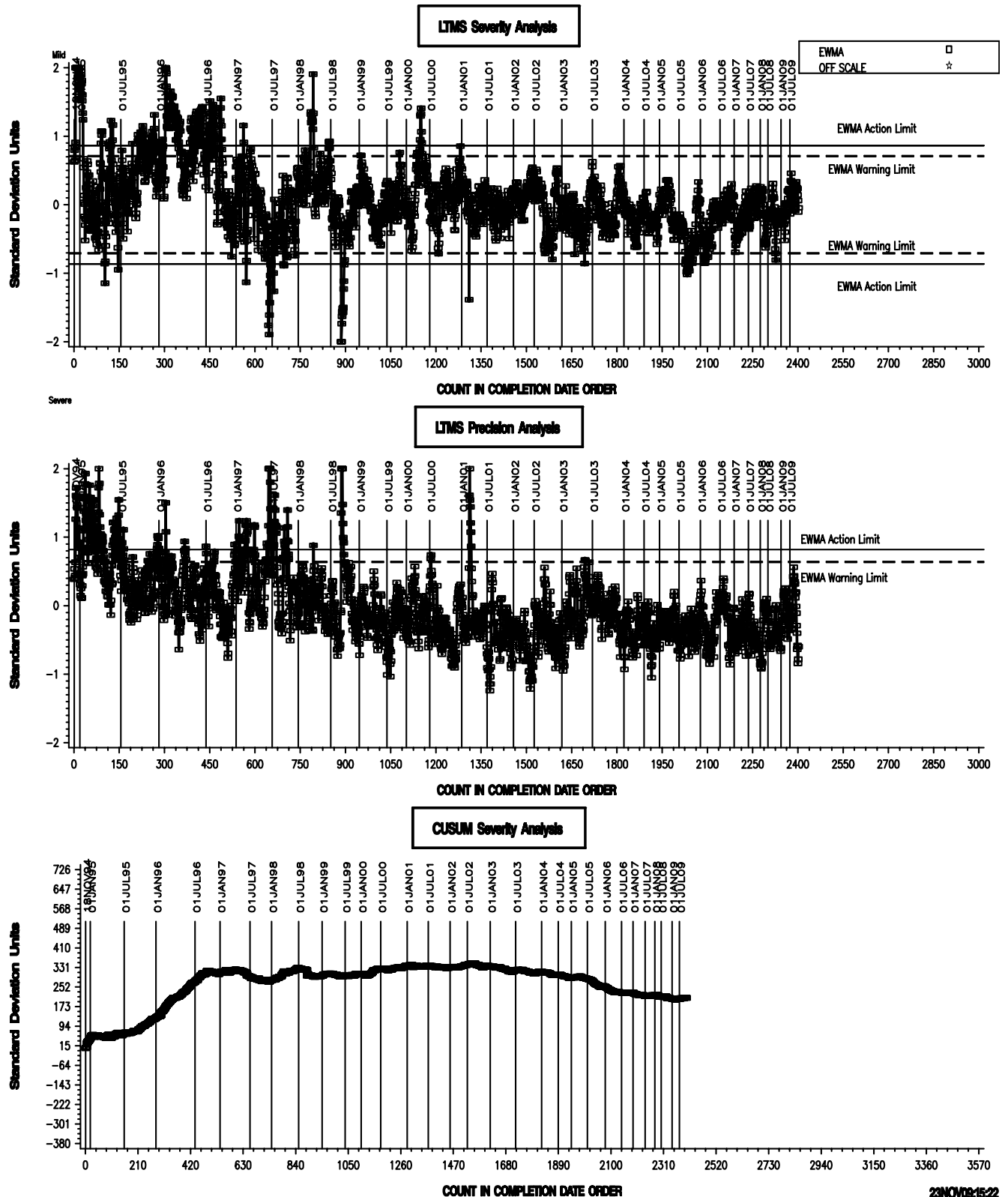


Figure 3

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE PERCENT VOLUME CHANGE AVERAGE

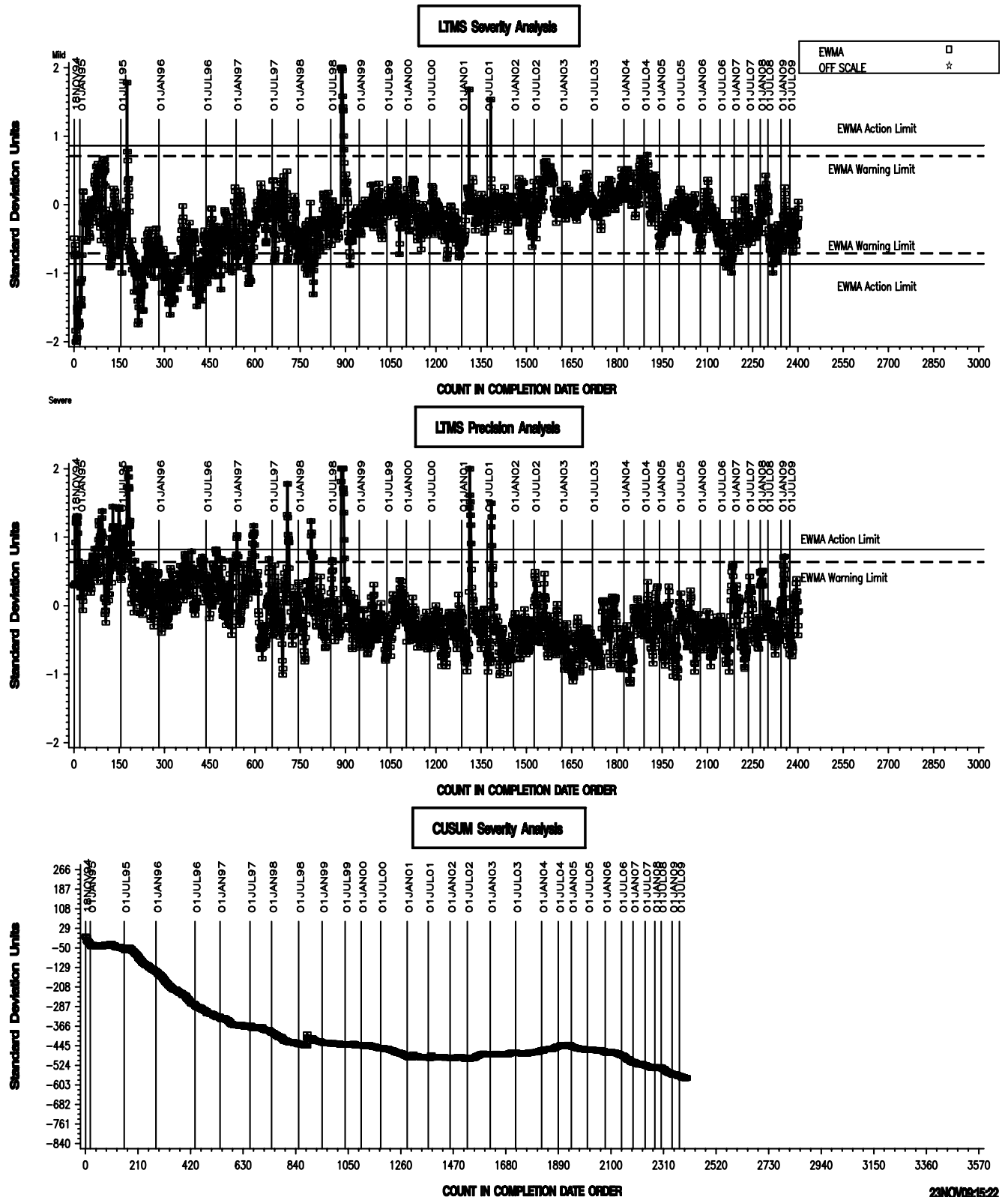


Figure 4

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE ELONGATION CHANGE AVERAGE

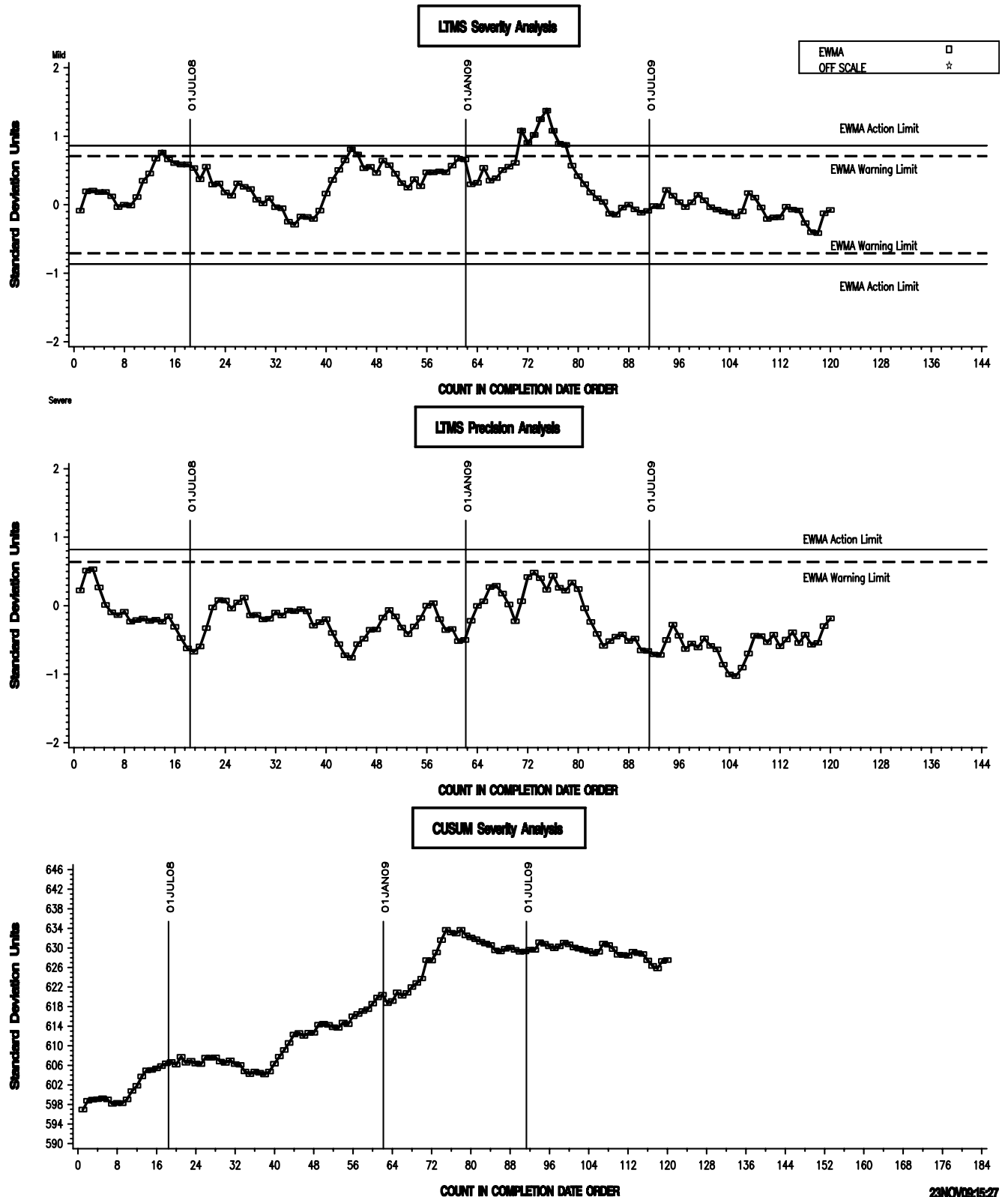


Figure 5

OSCT INDUSTRY OPERATIONALLY VALID DATA
REFERENCE SHORE A HARDNESS CHANGE AVERAGE

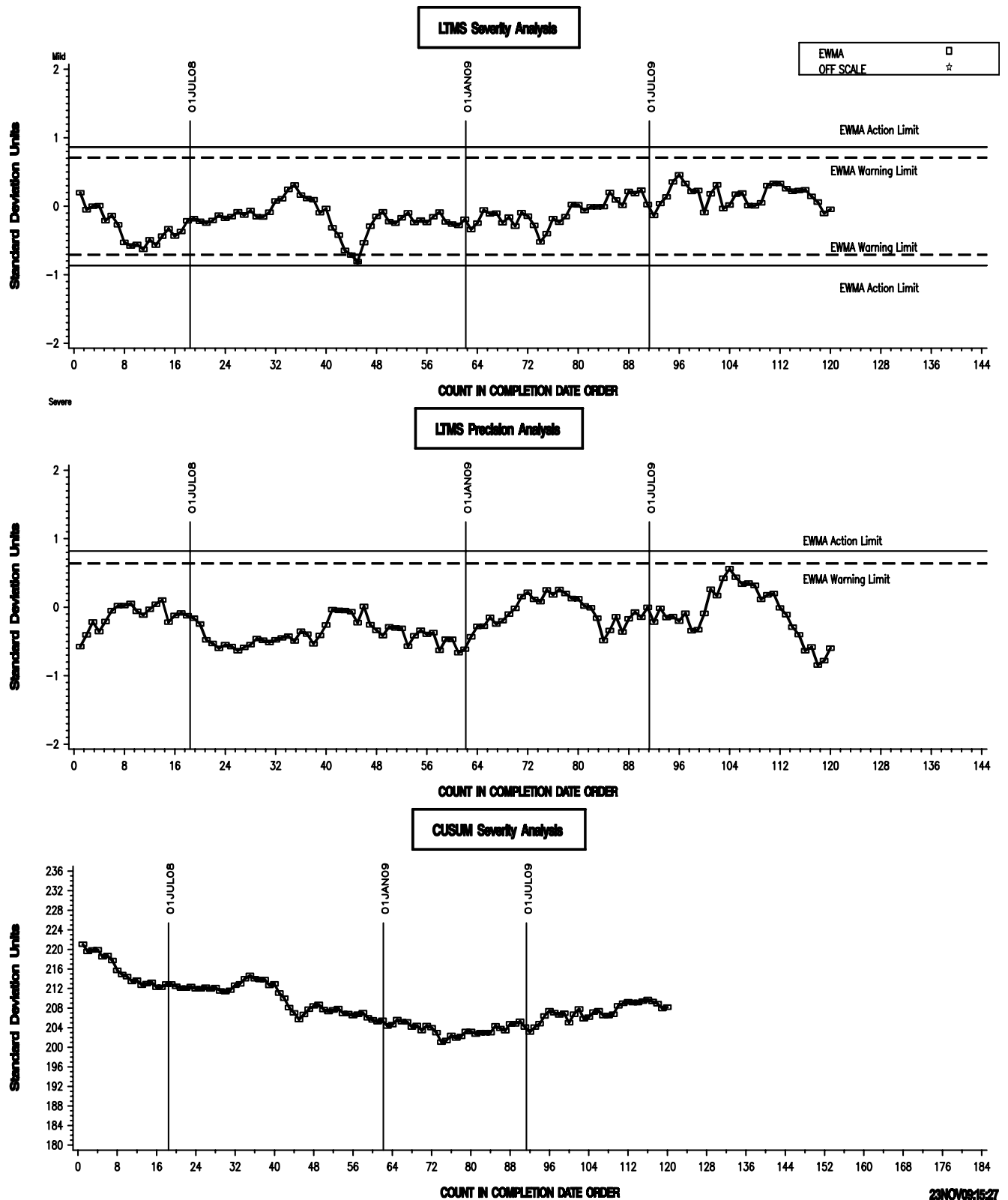


Figure 6

OSCT INDUSTRY OPERATIONALLY VALID DATA

REFERENCE PERCENT VOLUME CHANGE AVERAGE

