



Test Monitoring Center

@ Carnegie Mellon University
6555 Penn Avenue, Pittsburgh, PA 15206, USA

<http://astmtmc.cmu.edu>
412-365-1000

MEMORANDUM: 19-013
DATE: April 22, 2019
TO: Don Bell, Chairman, OSCT Surveillance Panel
FROM: Dylan Beck *Dylan Beck*
SUBJECT: OSCT Reference oil testing from October 1, 2018 through March 31, 2019

Attached is a summary of reference oil testing activity this period.

DJB/djb/mem19-013.djb.doc

cc: Frank Farber
Jeff Clark

OSCT Surveillance Panel

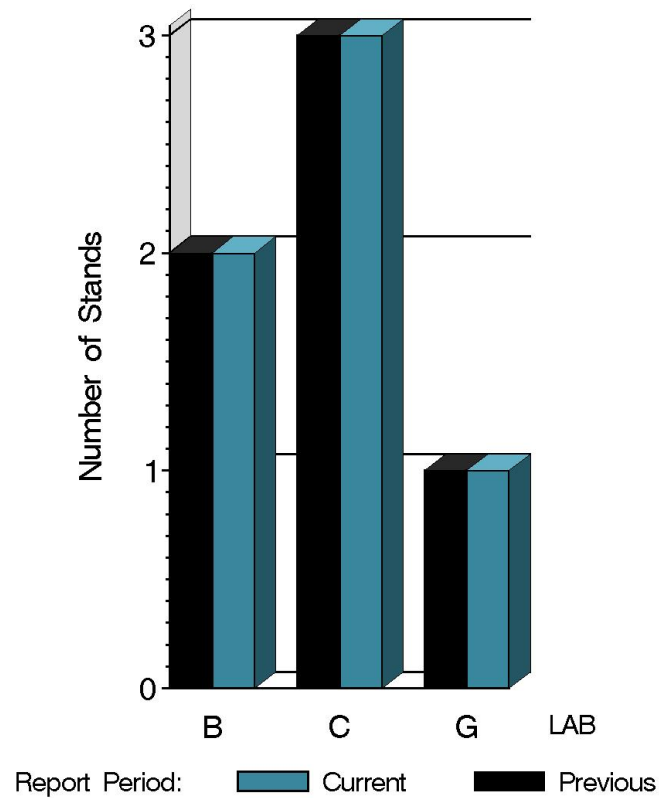
<http://www.astmtmc.cmu.edu/ftp/docs/gear/osct/semiannualreports/osct-04-2019.pdf>

Distribution: email

OSCT (D5662)

	Reporting Data	Calibrated on 3-31-2019
Number of Labs	3	2*
Number of Stands	6	6

BY-LAB STAND
DISTRIBUTION



10:30:10 16APR2019

*Number of labs changed to two after lab B voluntarily dropped out of LTMS calibration on February 13, 2019

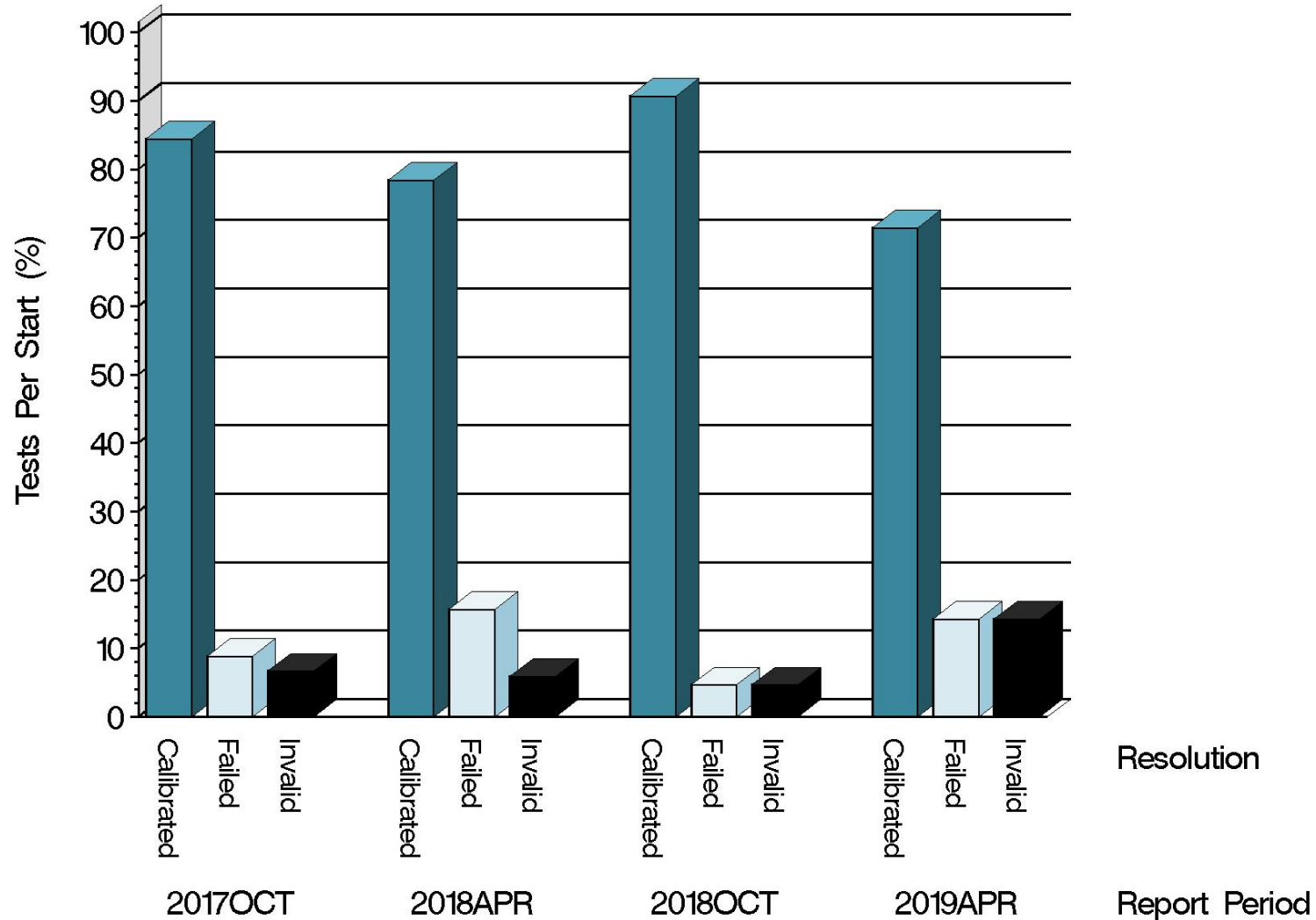
OSCT (D5662)

Test Distribution by Elastomer and Validity

					Totals	
					Last Period	This Period
		FL	NI	PA		
Accepted for calibration	AC	7	2	11	39	20
Rejected (low result)	OC	0	1	0	0	1
Rejected (high result)	OC	2	0	1	2	3
Invalidated by lab	LC	0	0	0	1	0
Invalidated	RC	1	2	0	0	3
Aborted	XC	1	0	0	1	1
Elastomer approval run	NI	4	0	5	28	9
Unacceptable approval run	MI	6	1	4	8	11
Op. invalid approval run	LI	0	0	0	2	0
Aborted approval run	XI	0	0	0	2	0
Total		21	6	21	83	48

OSCT (D5662)

CALIBRATION ATTEMPT SUMMARY



10:30:10 16APR2019

OSCT (D5662)

CAUSES FOR LOST TESTS

Lab	Cause	Elastomer			Loss Rate				Lost	Starts	%	
		FL	NI	PA	LI	XI	RC	XC				
B	Client Cancelled Run	●							●	1	11	9.1%
C	Expired Elastomer		●				●			2	21	9.5%
G	Expired Elastomer	●					●			1	16	6.3%
Lost		2	2	0	0	0	3	1				
Starts		21	6	21	48	48	48	48				
%		9.5%	33%	0%	0.0%	0.0%	6.3%	2.1%				

OSCT (D5662)

Average Δ /s by Lab

Elastomer	Lab	n	PELA	PVCA	SAHA
FL	B	2	1.924	-0.422	-0.846
	C	4	-1.260	-0.239	-0.712
	G	3	-0.305	2.168	-1.591
	Industry	9	-0.234	0.522	-1.034
	Shift*	9	-1.759	0.274	-1.460
NI	B	1	0.009	0.175	-0.183
	C	2	-0.060	0.604	0.898
	Industry	3	-0.037	0.461	0.537
	Shift*	3	-0.191	0.237	0.641
PA	B	2	-0.149	-0.315	0.353
	C	7	0.069	-0.282	-0.178
	G	3	-0.434	1.171	0.161
	Industry	12	-0.093	0.076	-0.005
	Shift*	12	-1.997	0.144	-0.012

*computed using historic pooled s

Test Monitoring Center

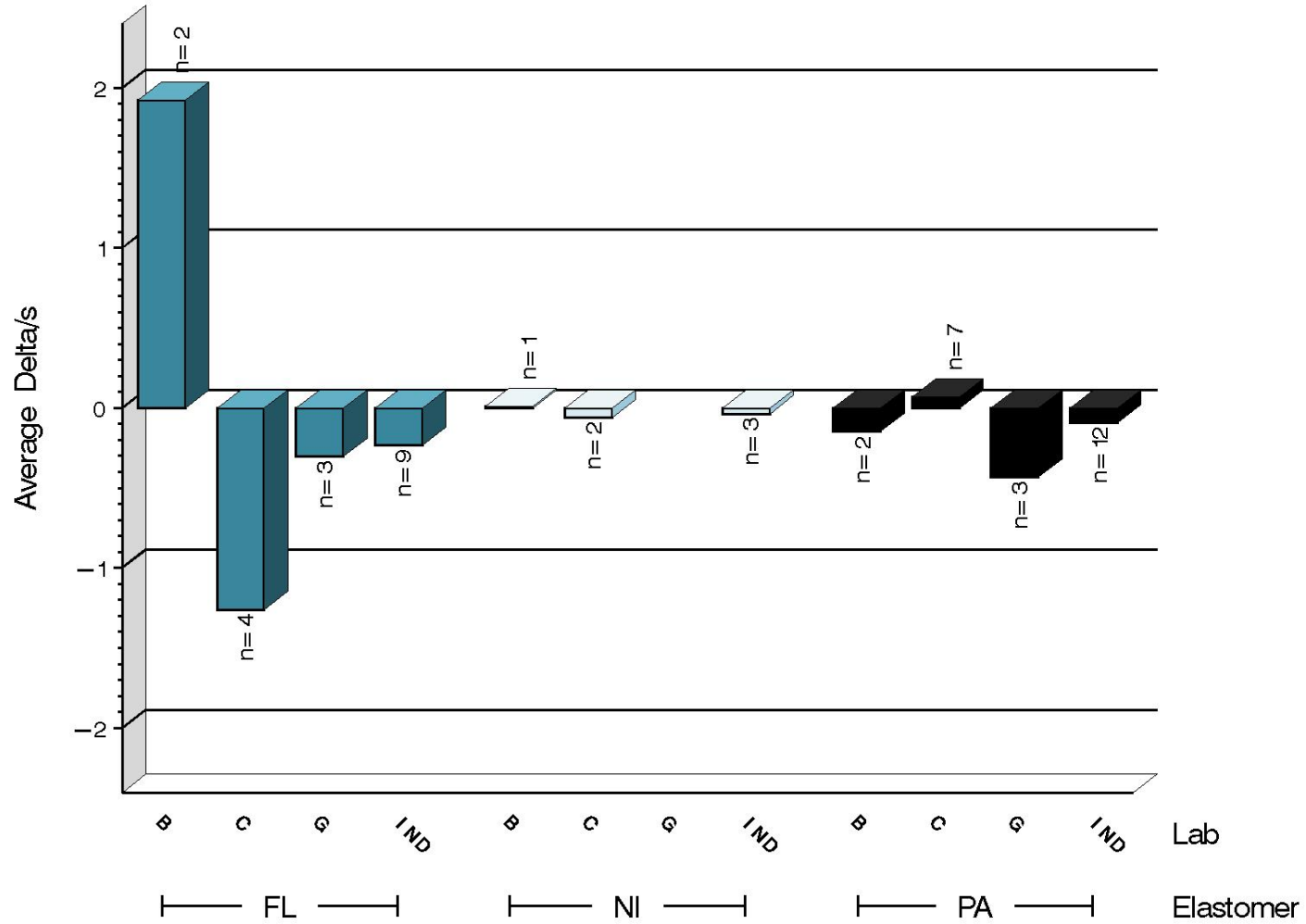
<http://astmtmc.cmu.edu>



A Program of ASTM International

OSCT (D5662)

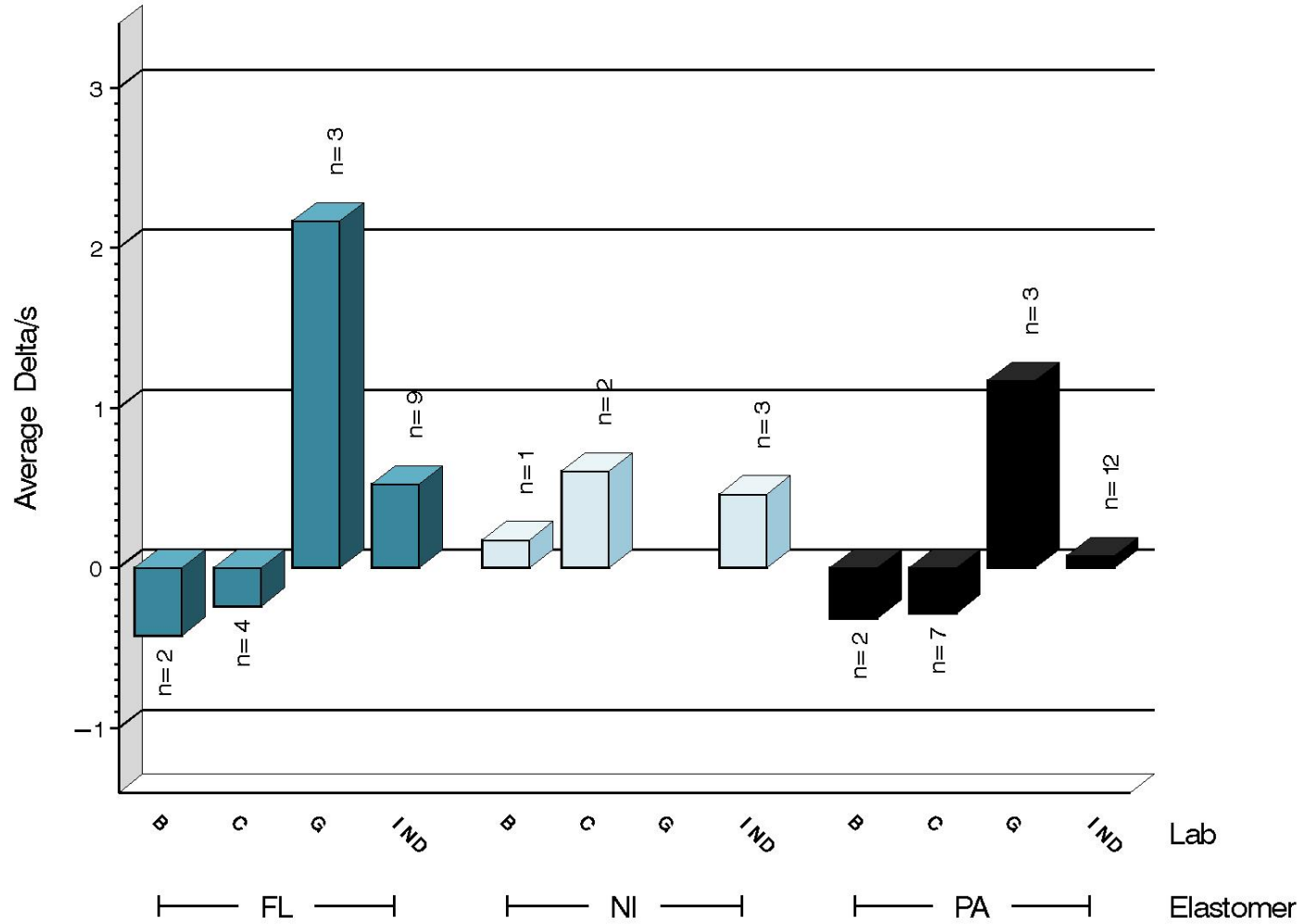
%ELONGATION SEVERITY
DELTA/S BY LAB



10:30:10 16APR2019

OSCT (D5662)

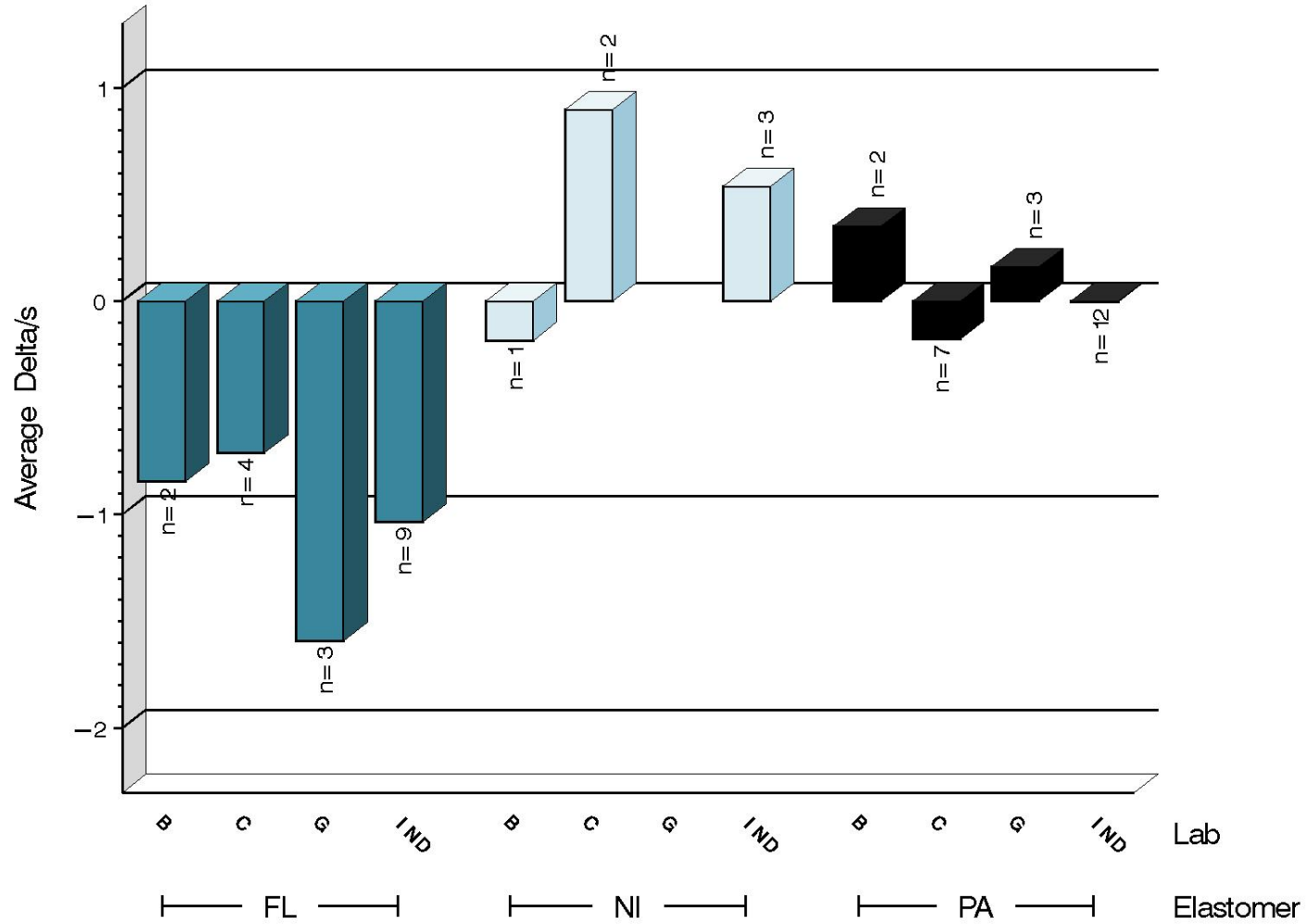
%VOLUME CHANGE SEVERITY
DELTA/S BY LAB



10:30:10 16APR2019

OSCT (D5662)

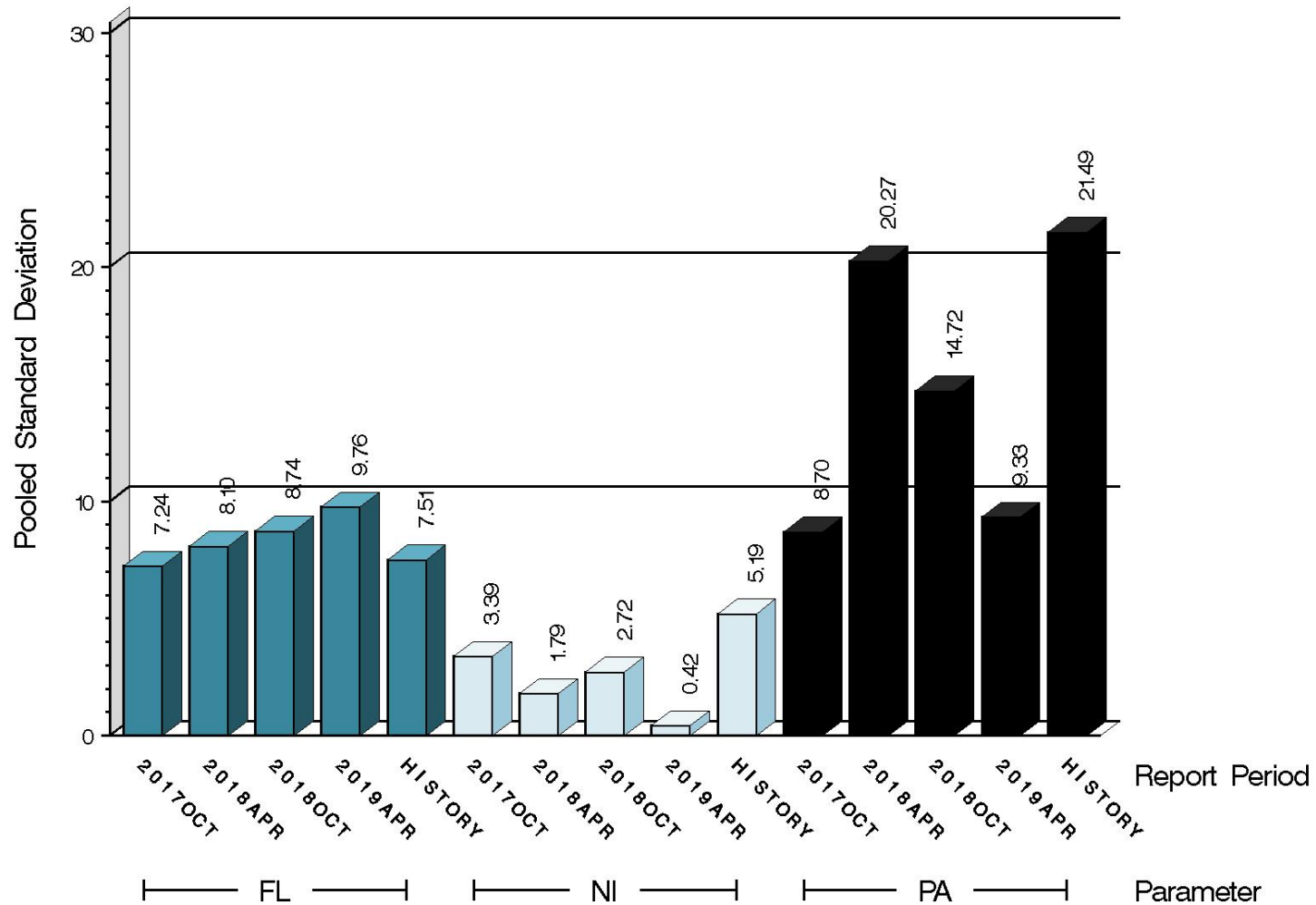
S.A. HARDNESS SEVERITY
DELTA/S BY LAB



10:30:10 16APR2019

OSCT (D5662)

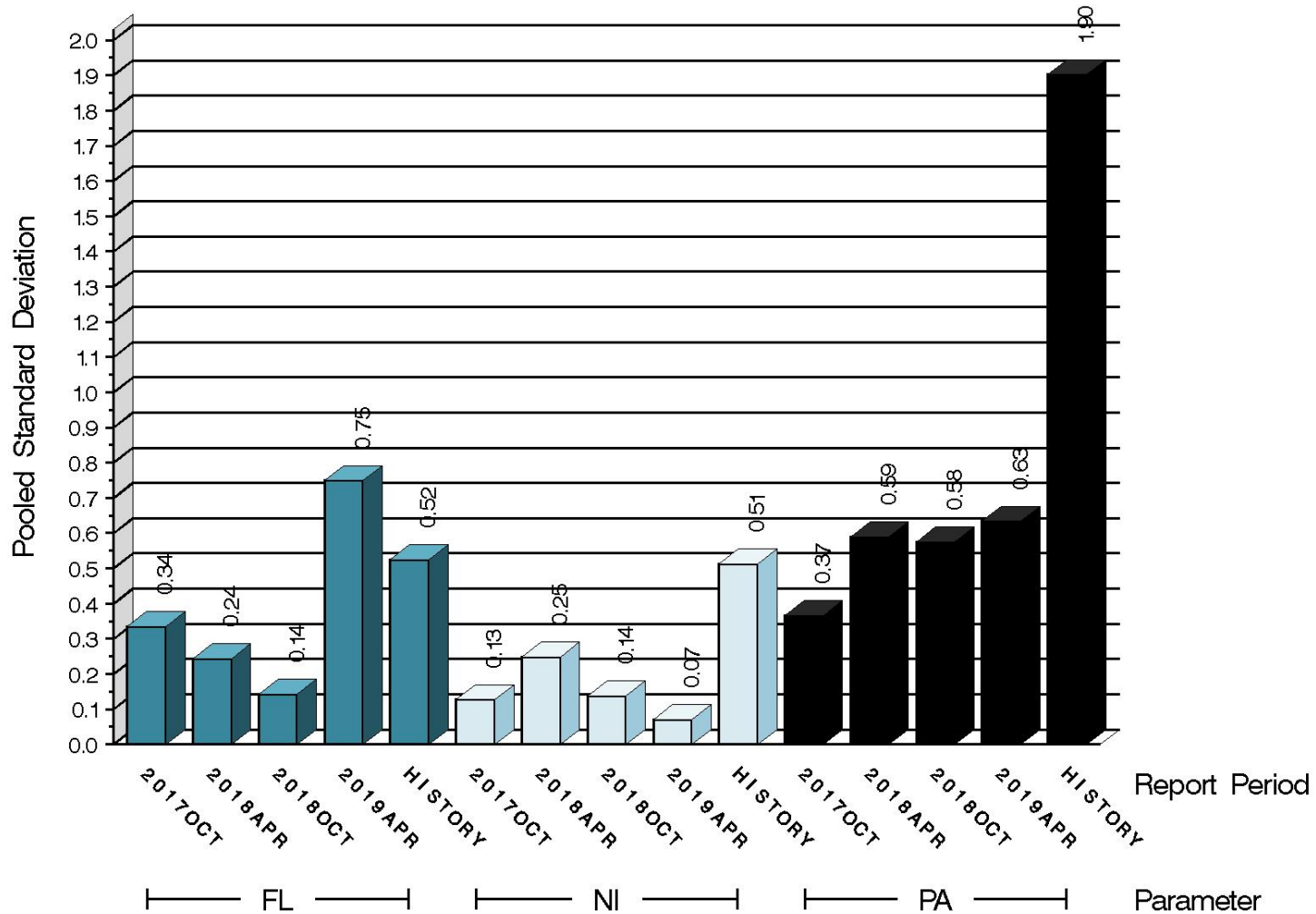
%ELONGATION PRECISION
POOLED STANDARD DEVIATION
BY SIX-MONTH ASTM REPORT PERIOD



10:30:10 16APR2019

OSCT (D5662)

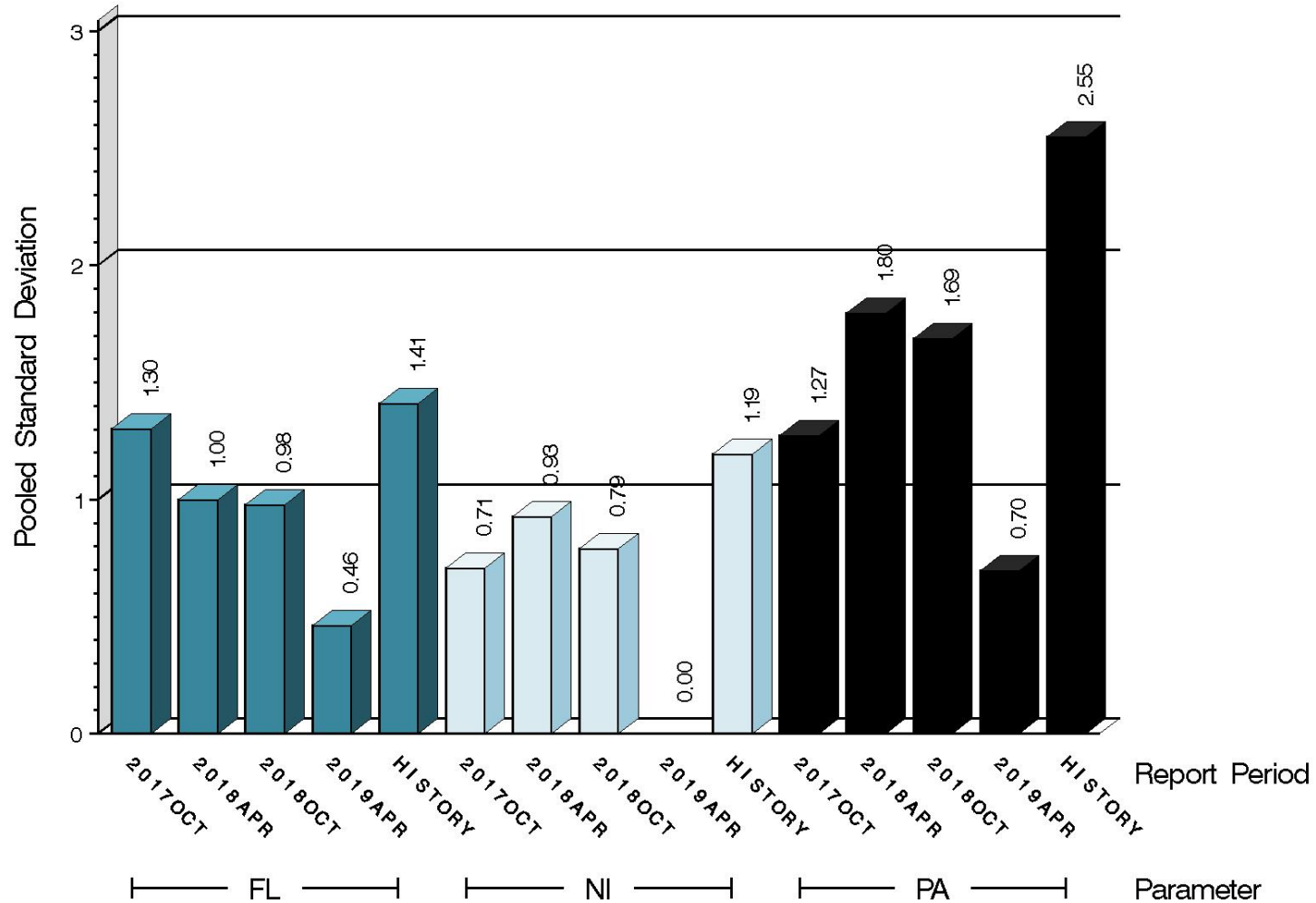
%VOLUME CHANGE PRECISION
 POOLED STANDARD DEVIATION
 BY SIX-MONTH ASTM REPORT PERIOD



10:30:10 16APR2019

OSCT (D5662)

S.A. HARDNESS PRECISION
POOLED STANDARD DEVIATION
BY SIX-MONTH ASTM REPORT PERIOD



10:30:10 16APR2019

OSCT (D5662)

SUMMARY OF SEVERITY & PRECISION

Severity

The combined-elastomer industry charts show that PELA and PVCA exceeded the severity limit during this period. PVCA has since returned within control, while PELA remains outside.

FL SAHA exceeded the limit during this period but has since returned within control. FL PELA ended the period exceeding the action limit.

Precision

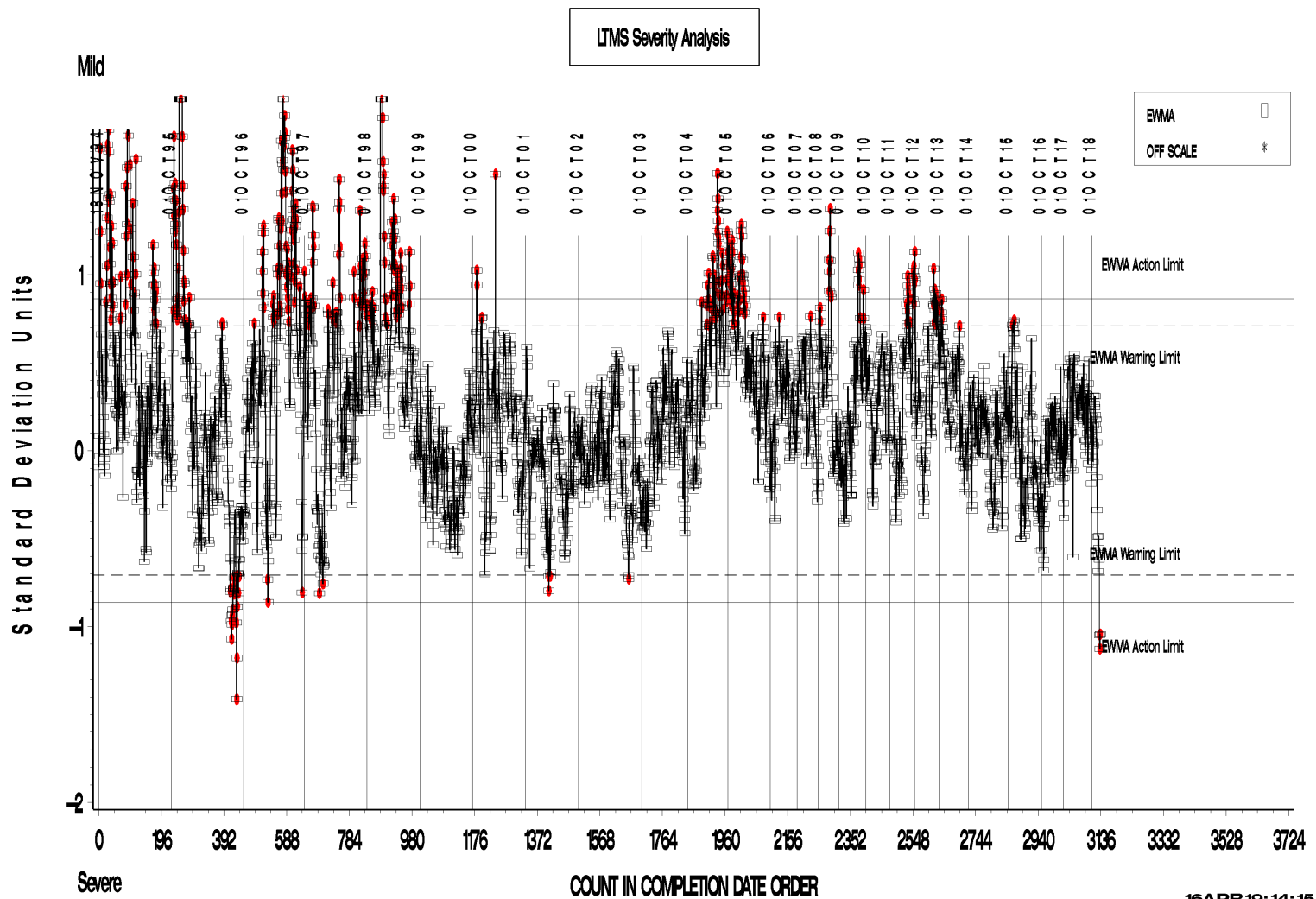
PELA exceeded the action limit this period, but is currently within limits.

Industry control charts follow.

OSCT (D5662)

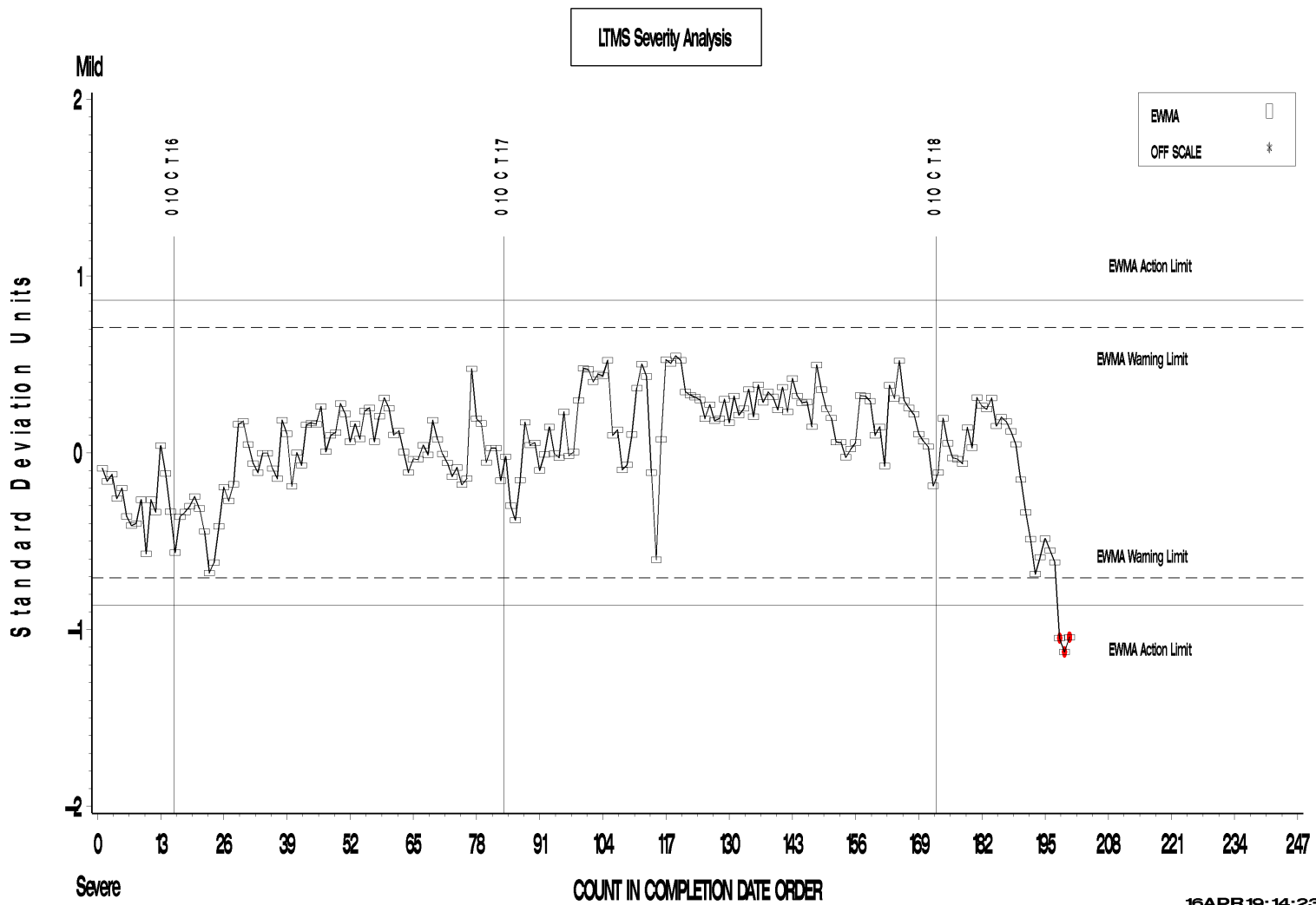
OSCT INDUSTRY OPERATIONALLY VALID DATA

REF. ELONGATION CHANGE AVG.



OSCT (D5662)

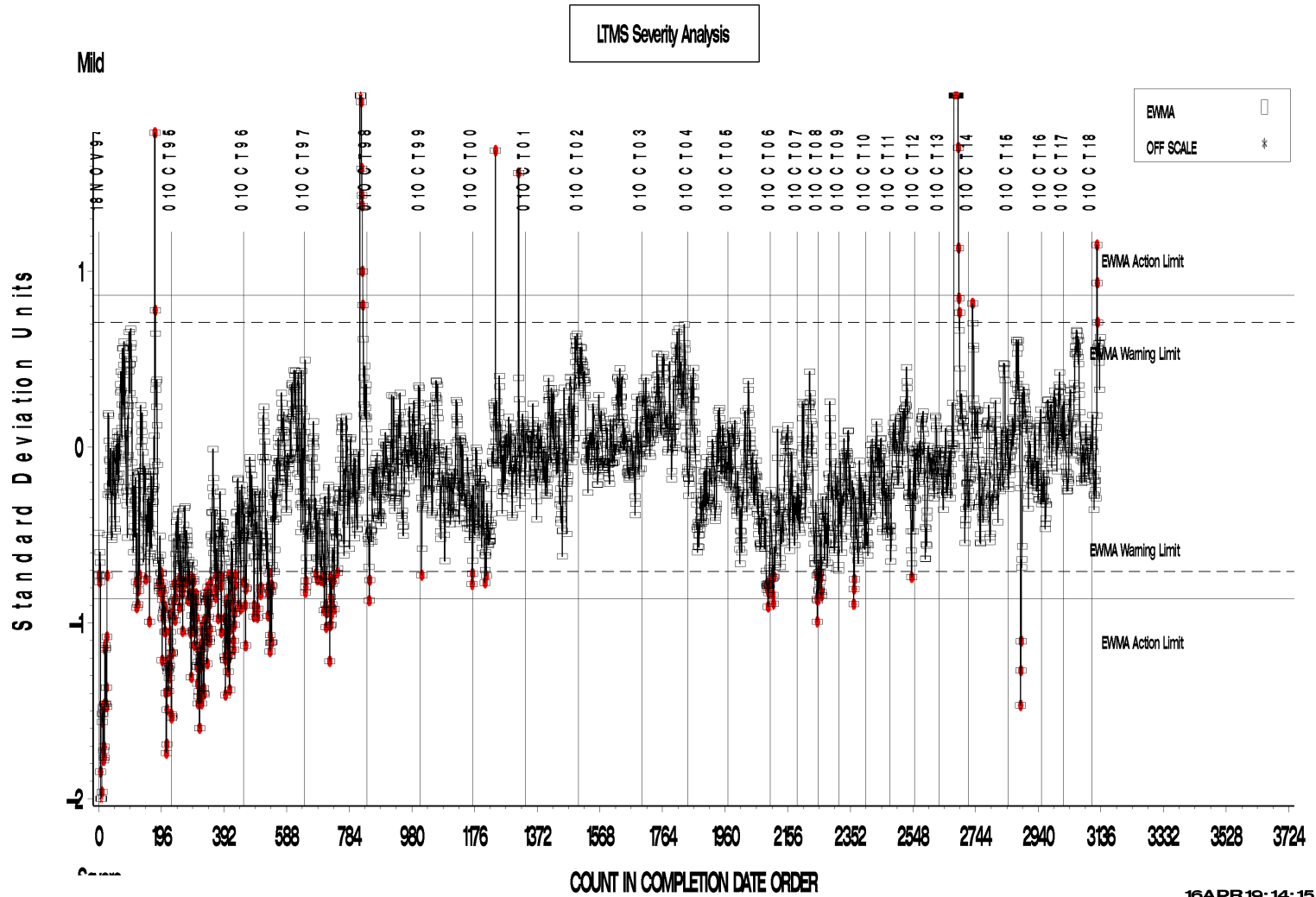
OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. ELONGATION CHANGE AVG.



OSCT (D5662)

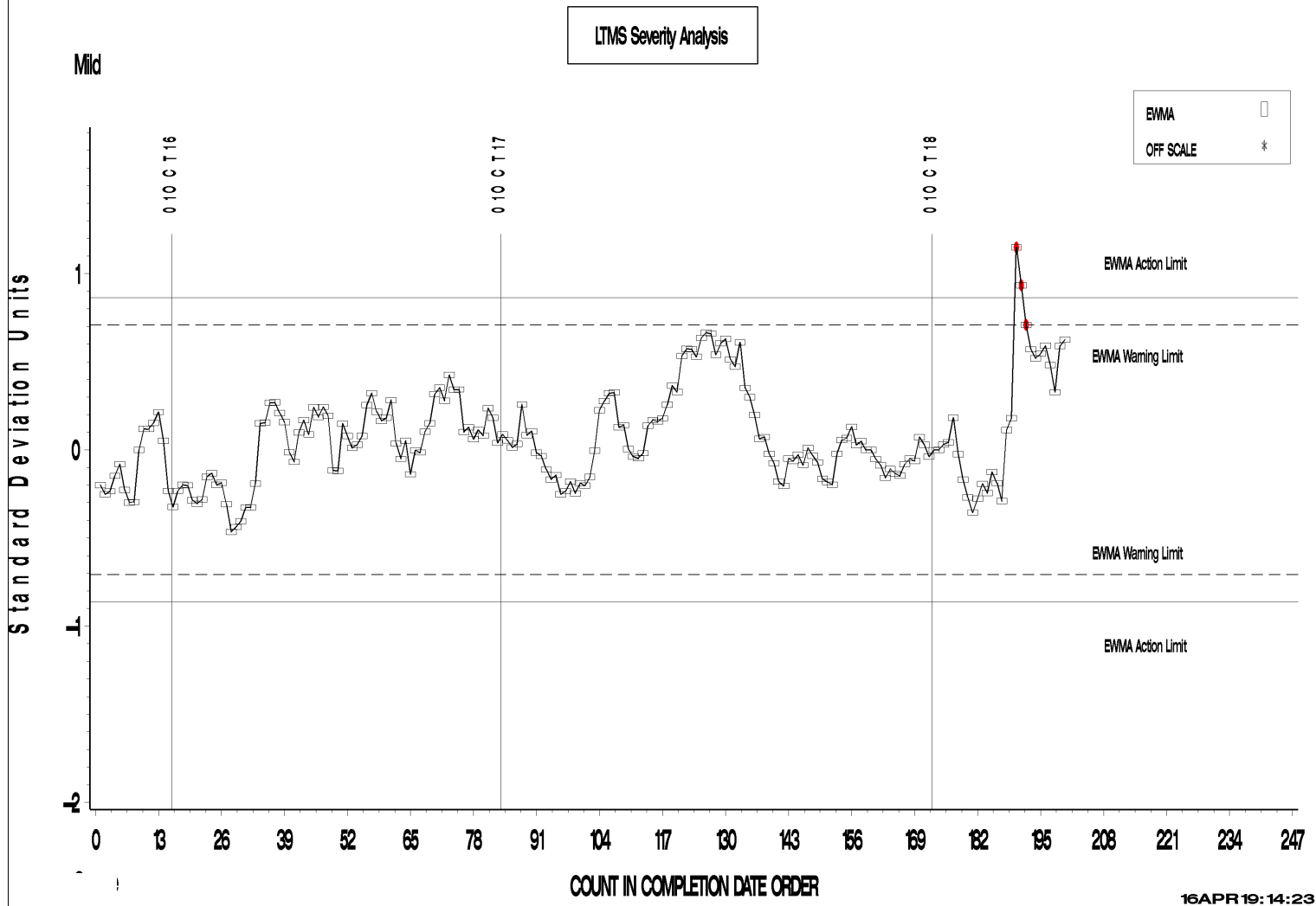
OSCT INDUSTRY OPERATIONALLY VALID DATA

REF. PERCENT VOLUME CHANGE AVG.



OSCT (D5662)

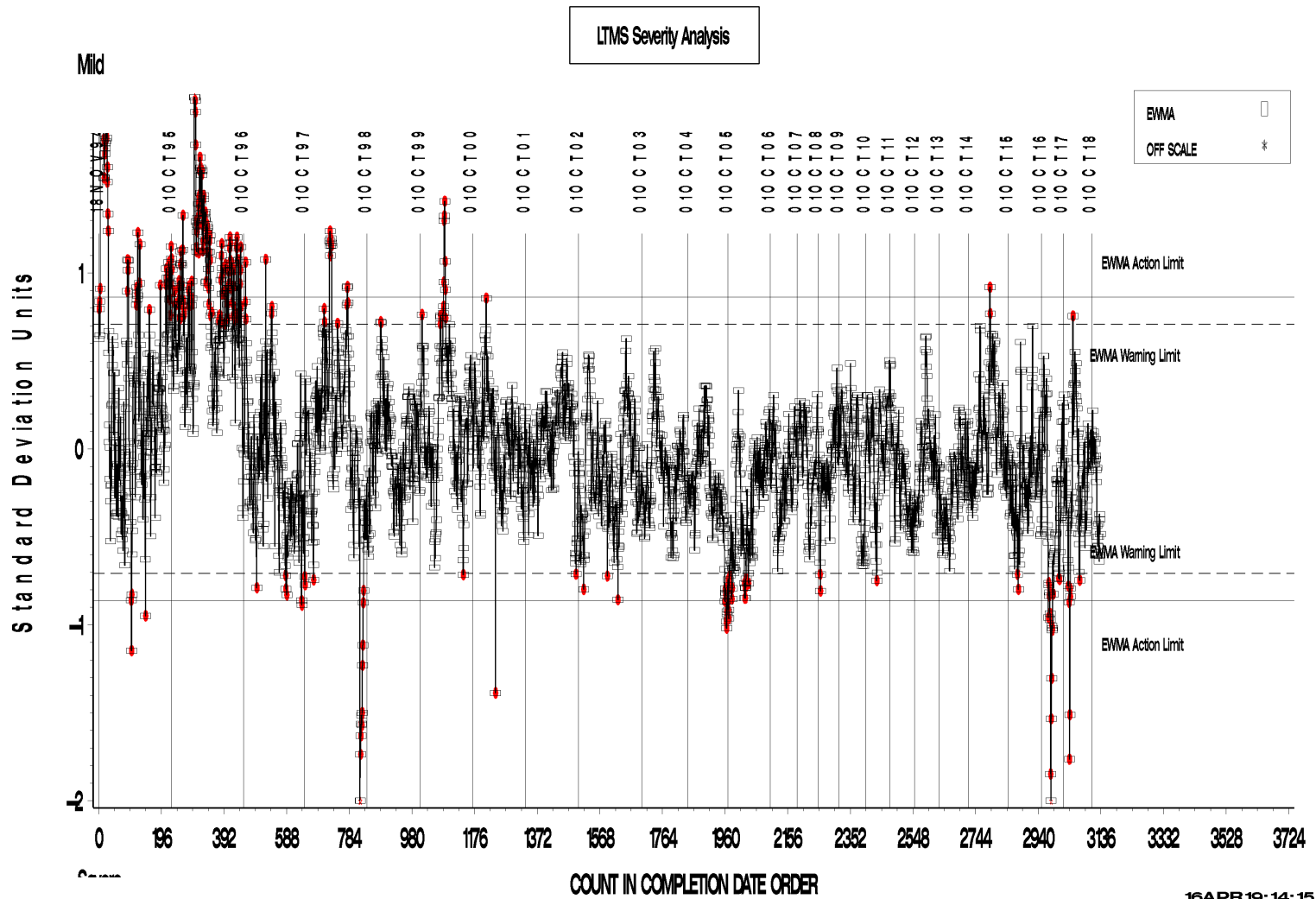
OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. PERCENT VOLUME CHANGE AVG.



OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA

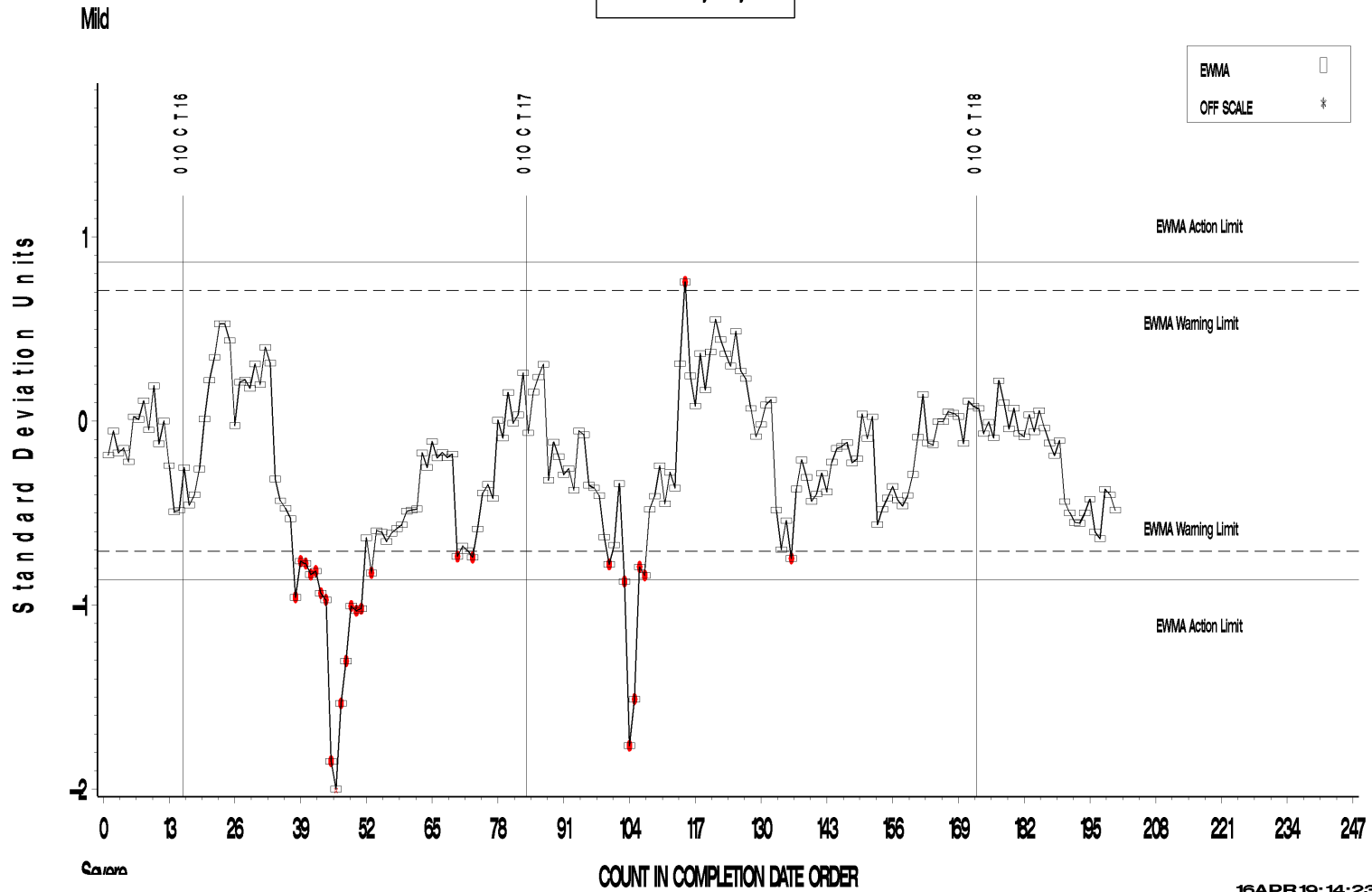
REF. SHORE A HARDNESS CHANGE AVG.



OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. SHORE A HARDNESS CHANGE AVG.

LTMS Severity Analysis



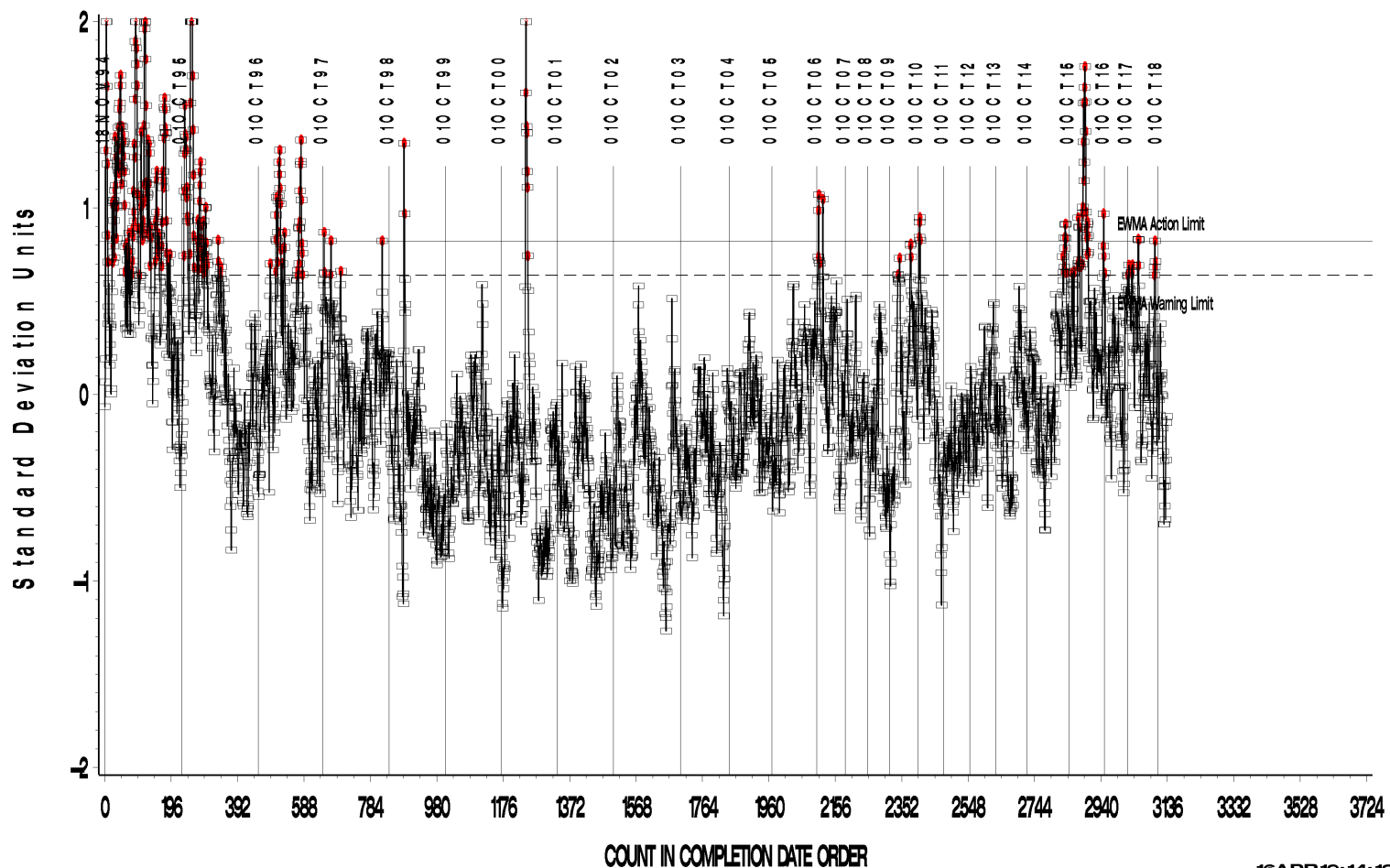
16APR19: 14:23

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA

REF. ELONGATION CHANGE AVG.

LTMS Precision Analysis



16APR19:14:19

Test Monitoring Center

<http://astmtmc.cmu.edu>

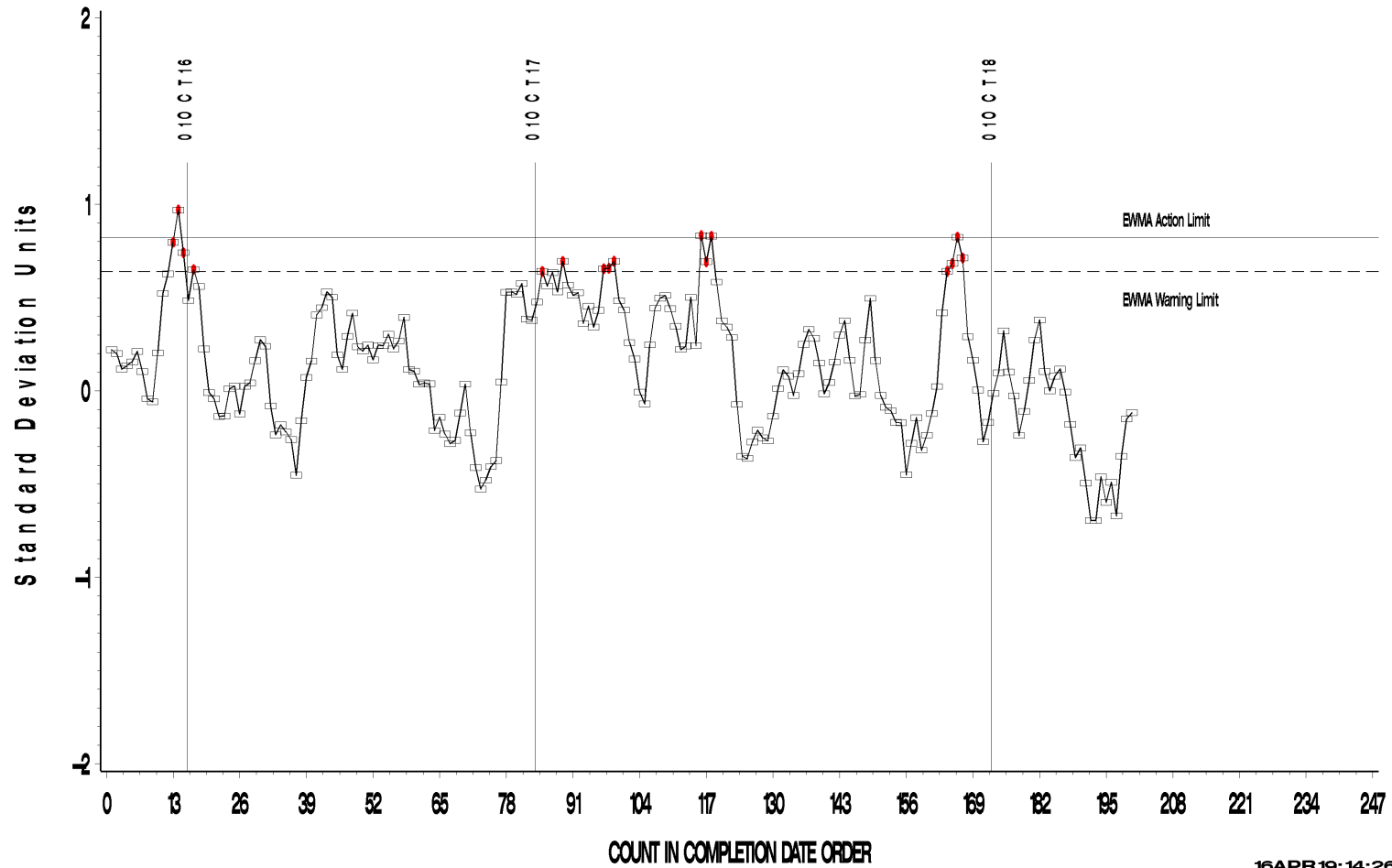


A Program of ASTM International

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. ELONGATION CHANGE AVG.

LTMS Precision Analysis



16APR19: 14:26

Test Monitoring Center
<http://astmtmc.cmu.edu>

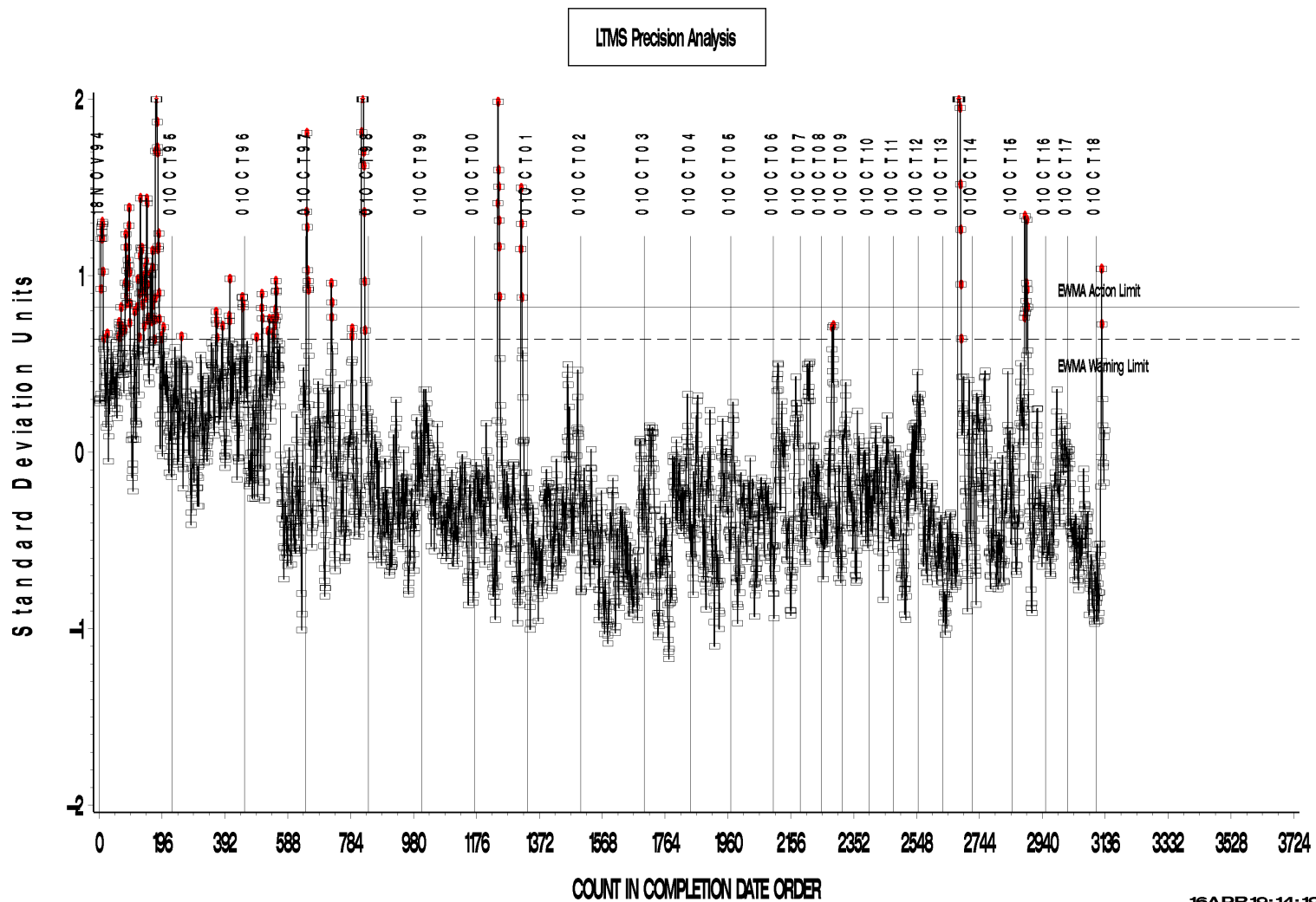


A Program of ASTM International

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA

REF. PERCENT VOLUME CHANGE AVG.



16 APR 19: 14: 19

Test Monitoring Center

<http://astmtmc.cmu.edu>

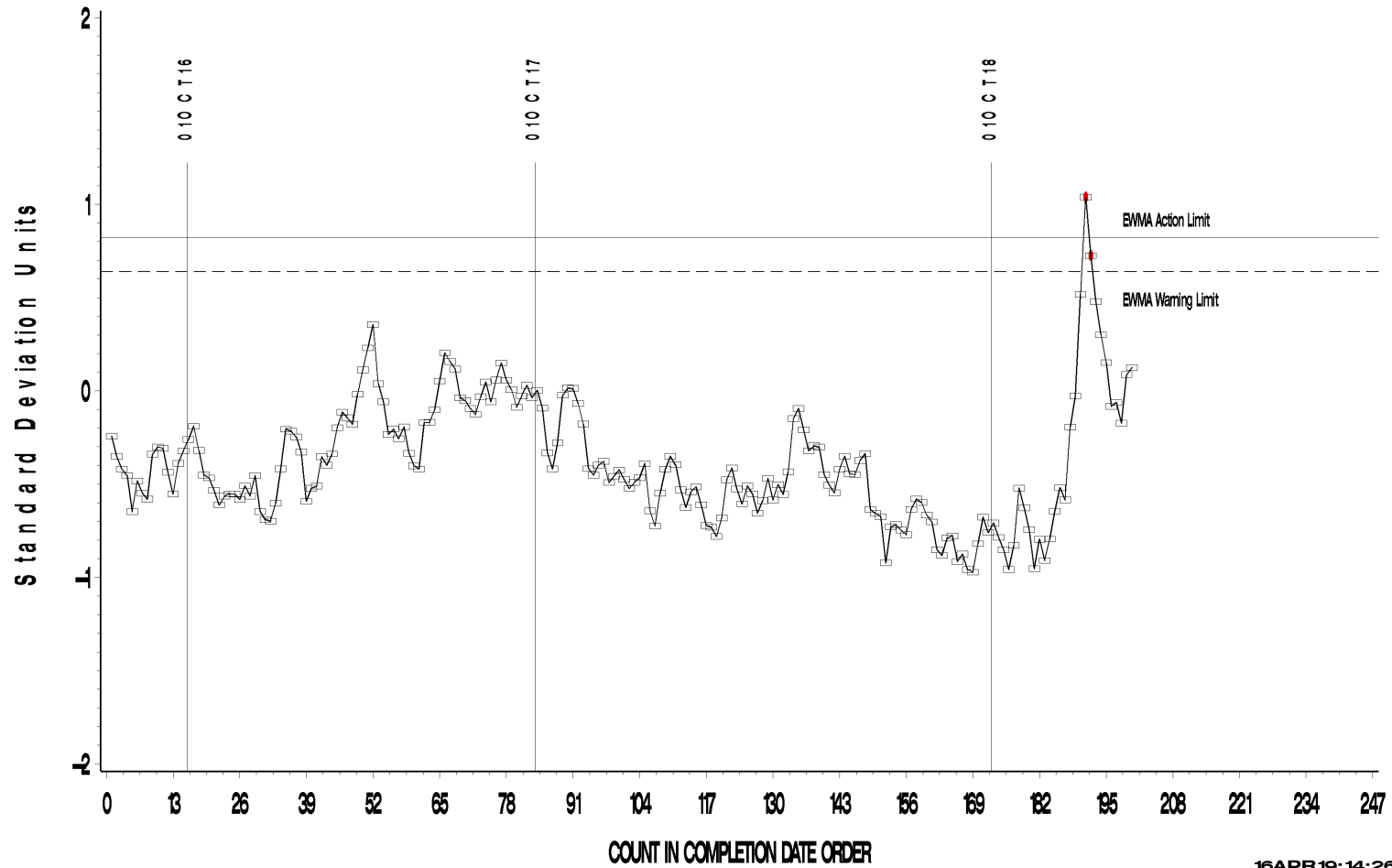


A Program of ASTM International

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. PERCENT VOLUME CHANGE AVG.

LTMS Precision Analysis



16APR19: 14:26

Test Monitoring Center
<http://astmtmc.cmu.edu>



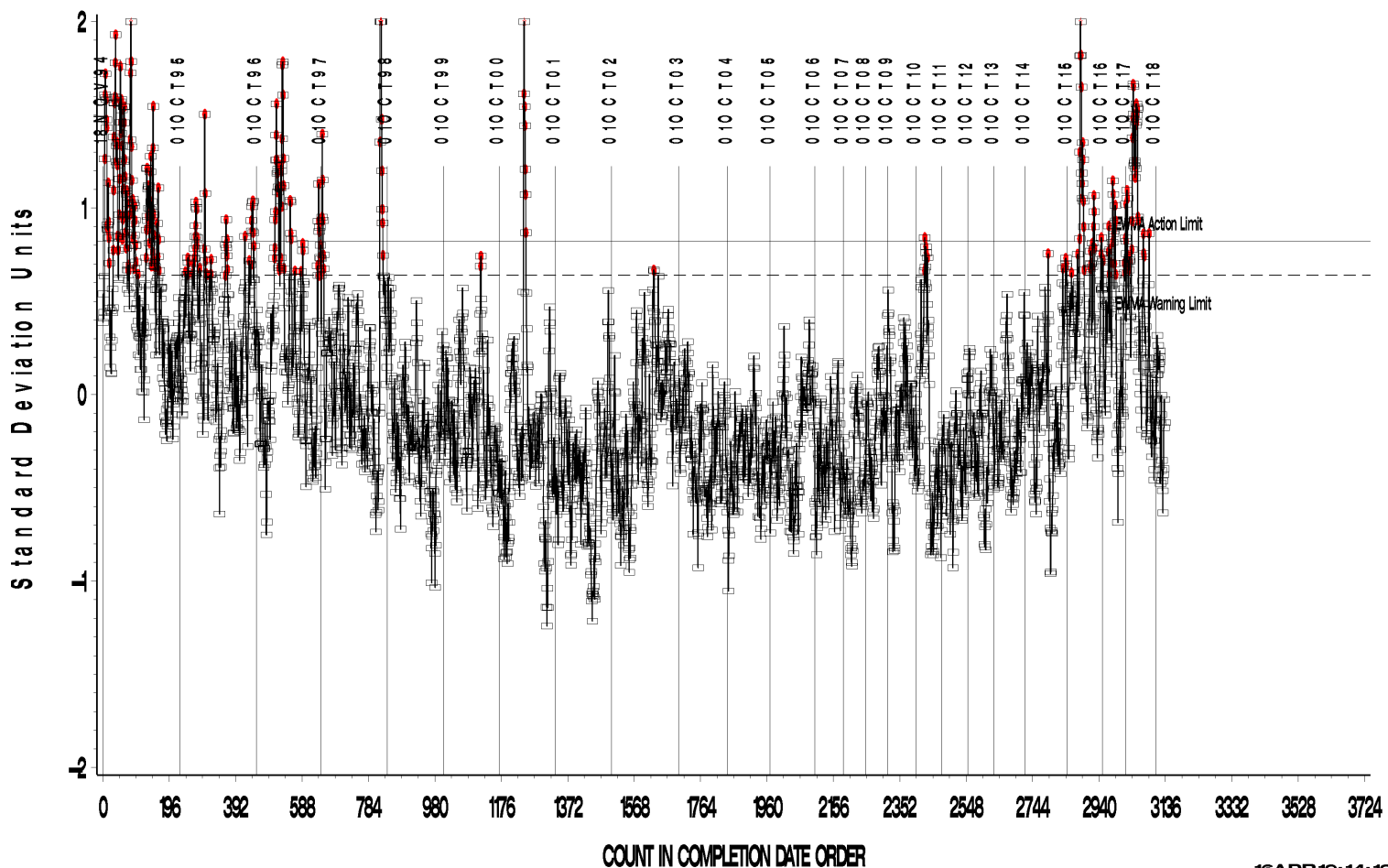
A Program of ASTM International

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA

REF. SHORE A HARDNESS CHANGE AVG.

LTMS Precision Analysis



16APR19:14:19

Test Monitoring Center

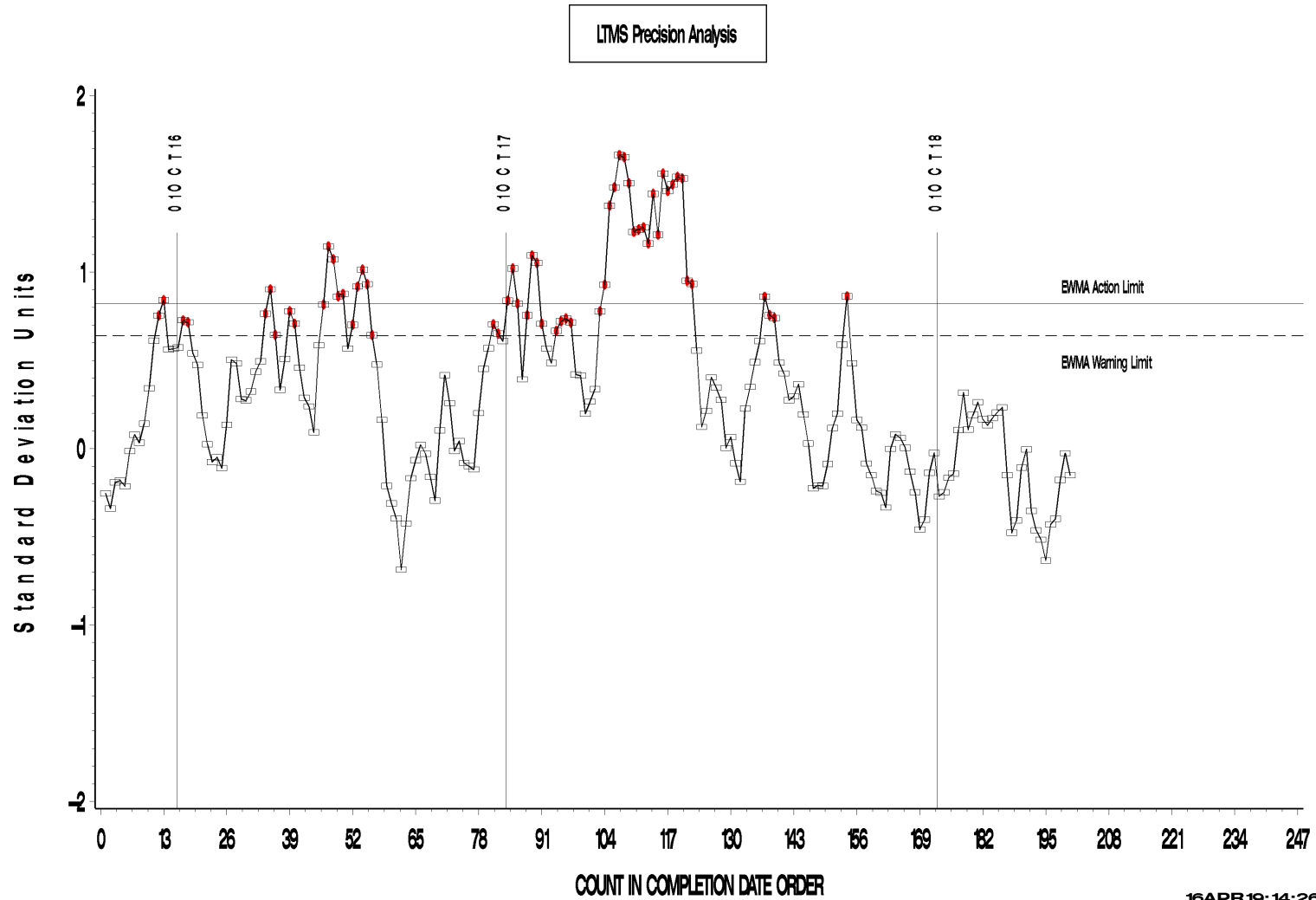
<http://astmtmc.cmu.edu>



A Program of ASTM International

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. SHORE A HARDNESS CHANGE AVG.

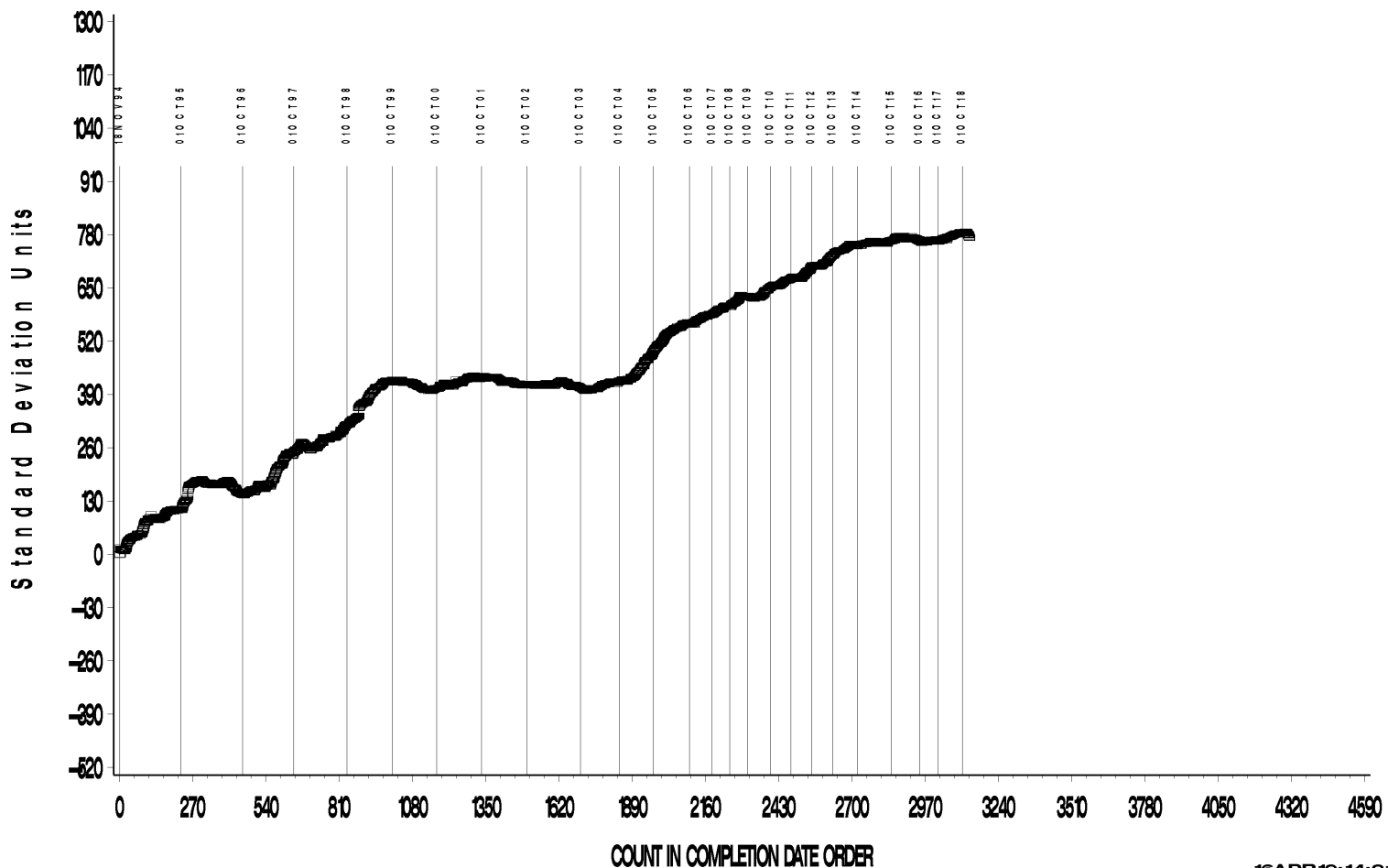


OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA

REF. ELONGATION CHANGE AVG.

CUSUM Severity Analysis



16APR19:14:21

Test Monitoring Center

<http://astmtmc.cmu.edu>

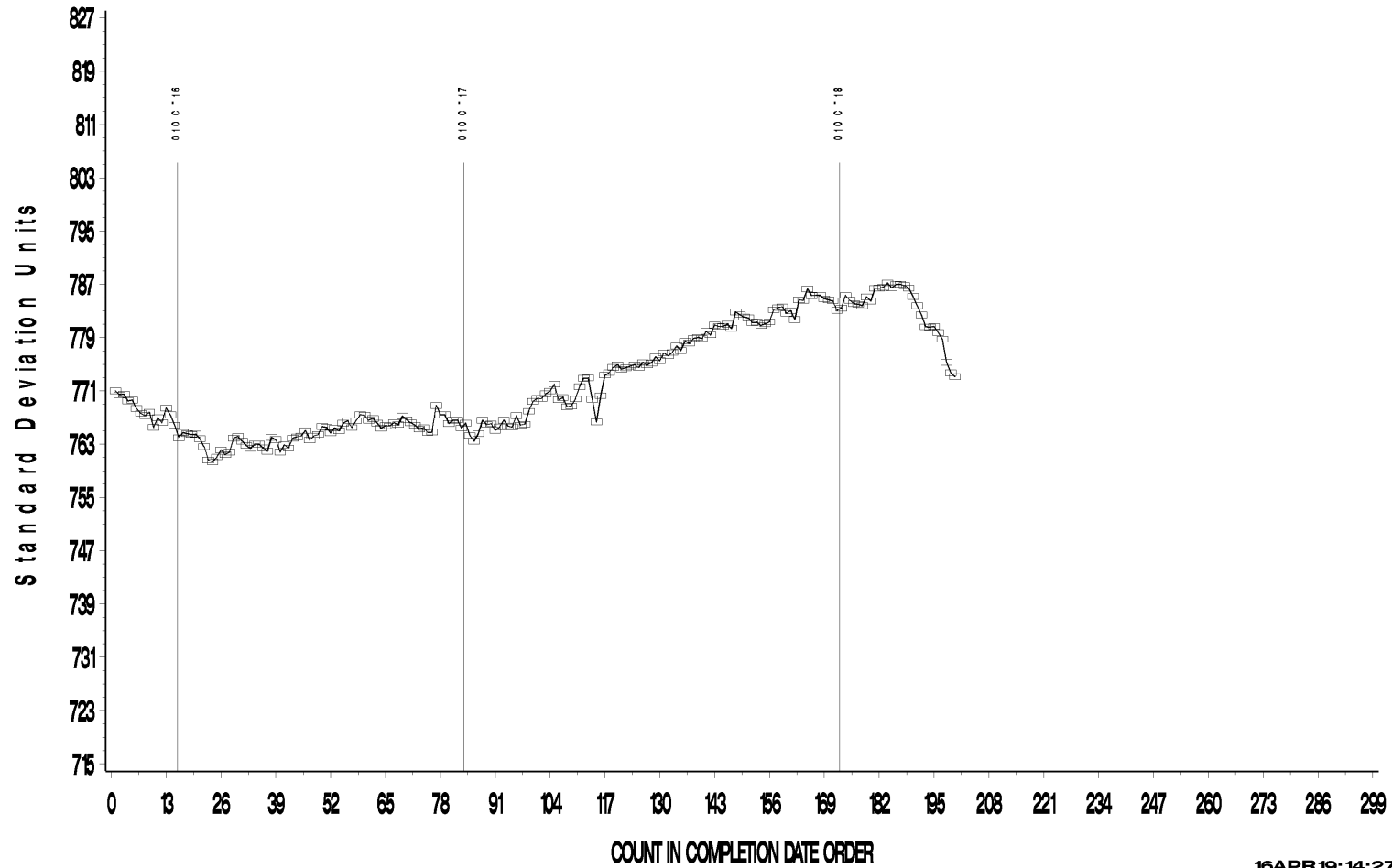


A Program of ASTM International

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. ELONGATION CHANGE AVG.

CUSUM Severity Analysis



16APR19: 14:27

Test Monitoring Center
<http://astmtmc.cmu.edu>



A Program of ASTM International

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA

REF. PERCENT VOLUME CHANGE AVG.

CUSUM Severity Analysis



16APR19:14:21

Test Monitoring Center

<http://astmtmc.cmu.edu>

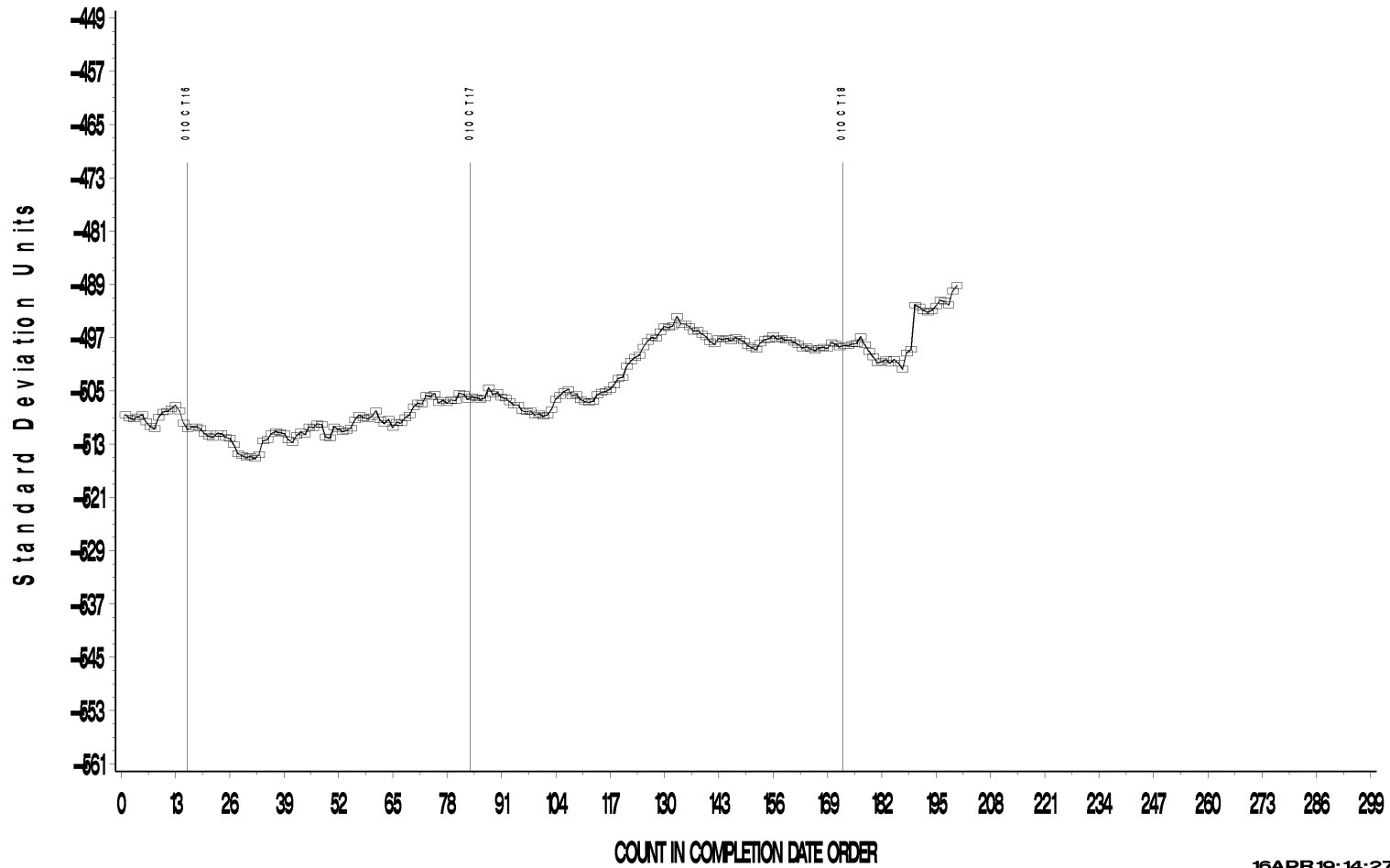


A Program of ASTM International

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. PERCENT VOLUME CHANGE AVG.

CUSUM Severity Analysis



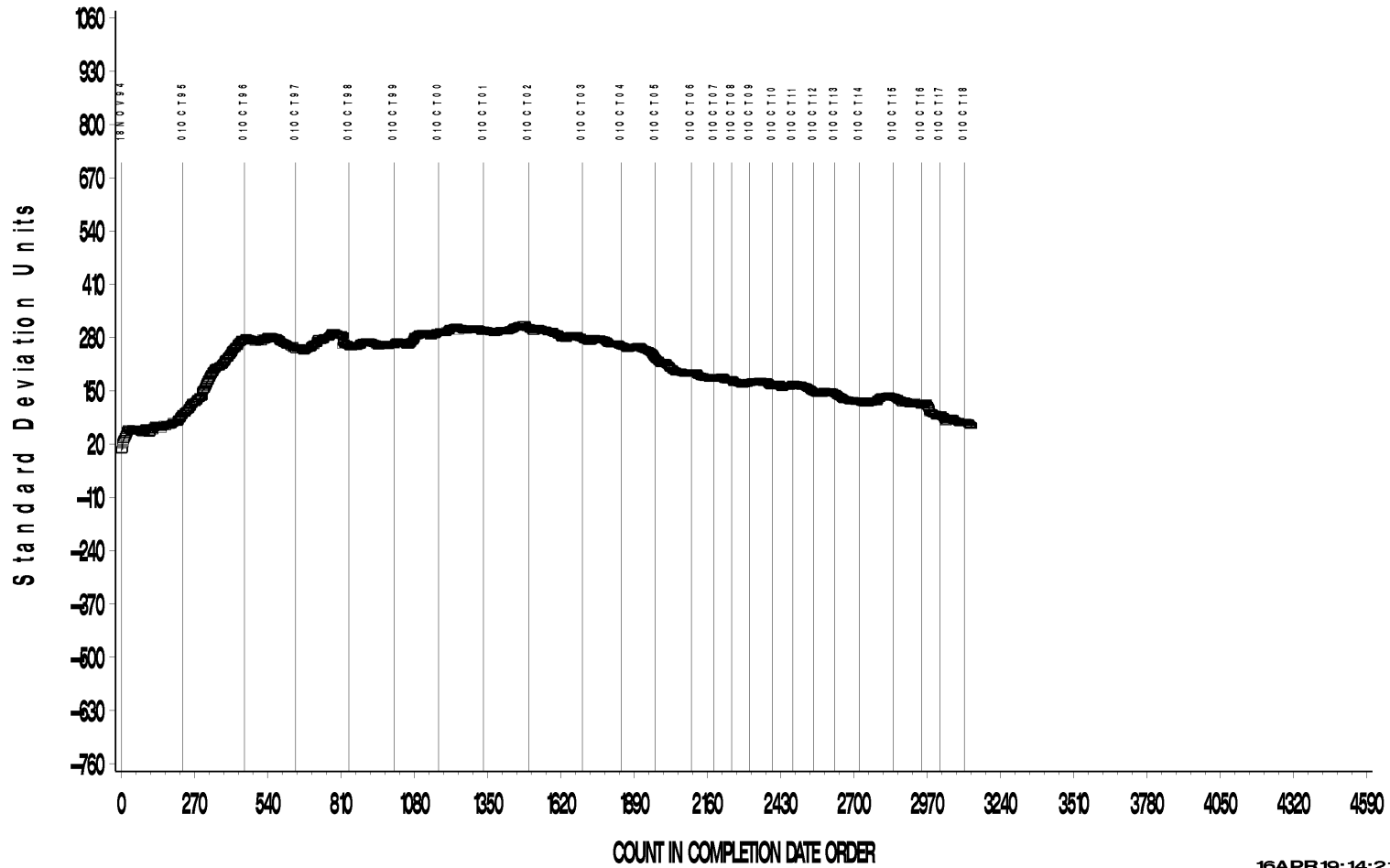
16APR19: 14:27

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA

REF. SHORE A HARDNESS CHANGE AVG.

CUSUM Severity Analysis

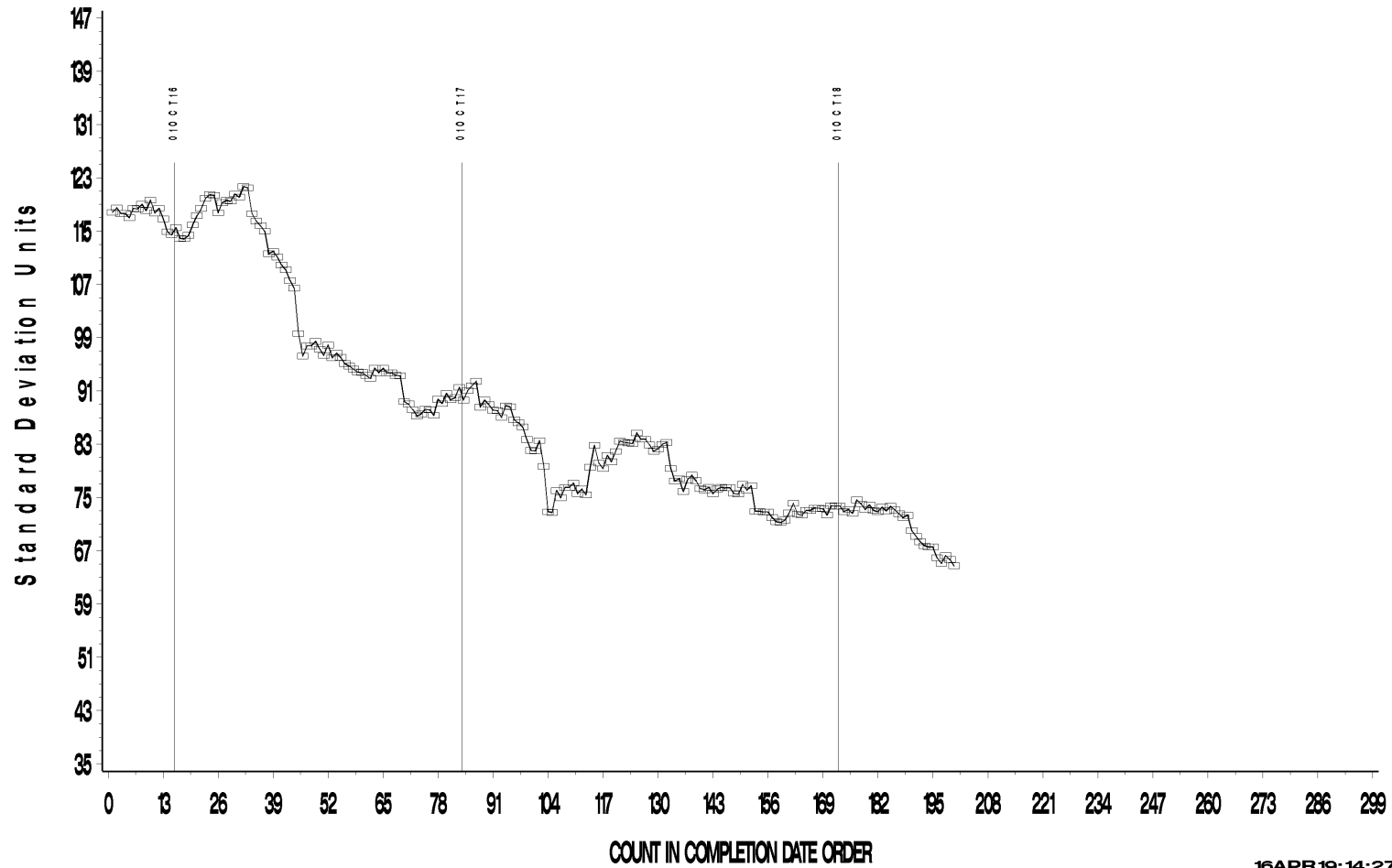


16APR19:14:21

OSCT (D5662)

OSCT INDUSTRY OPERATIONALLY VALID DATA
Zoomed to Show 200 Most Recent Datapoints
REF. SHORE A HARDNESS CHANGE AVG.

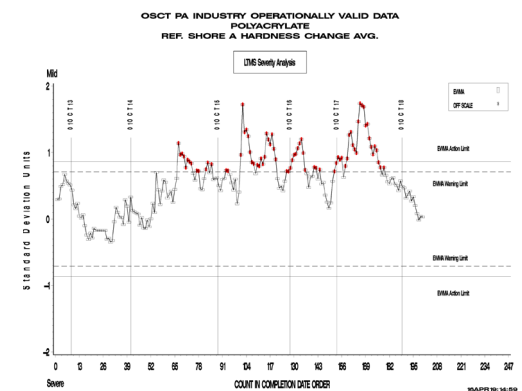
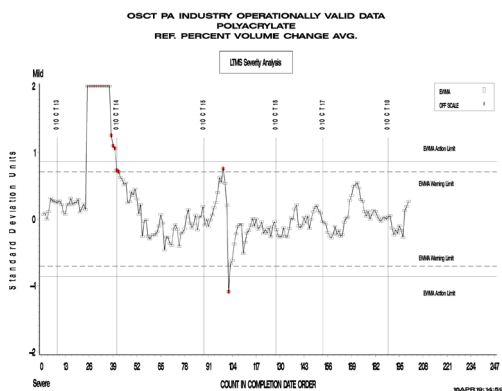
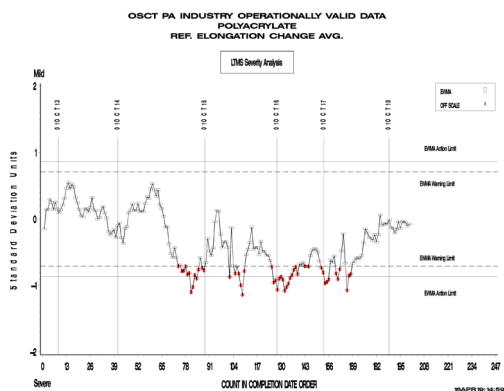
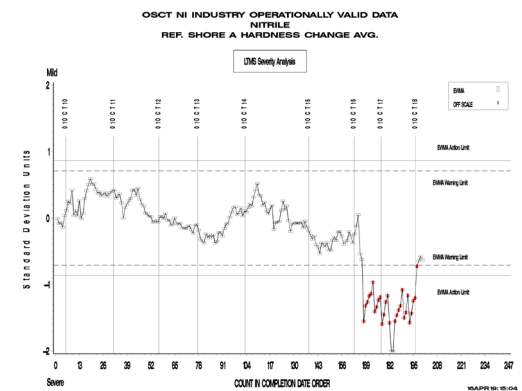
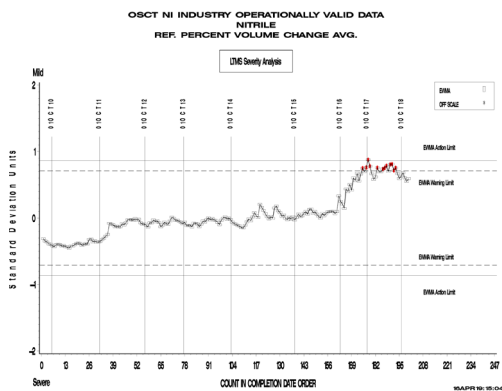
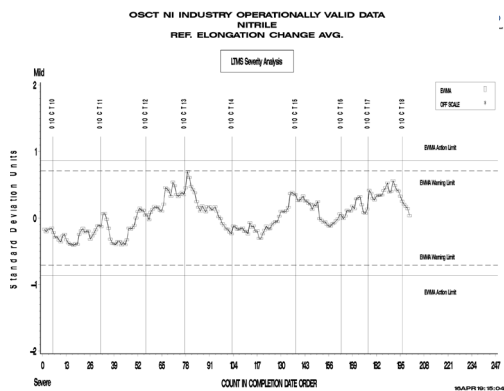
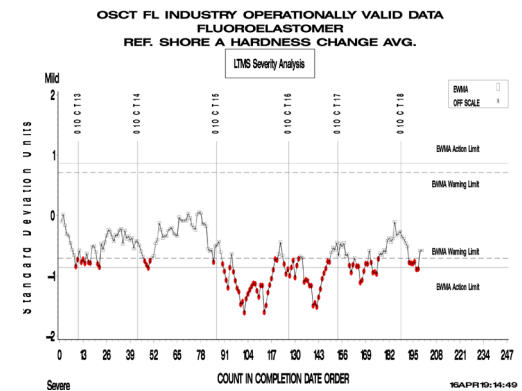
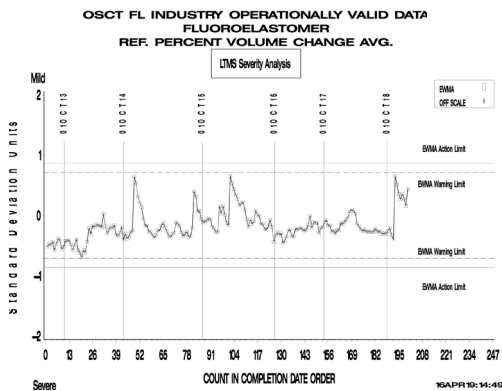
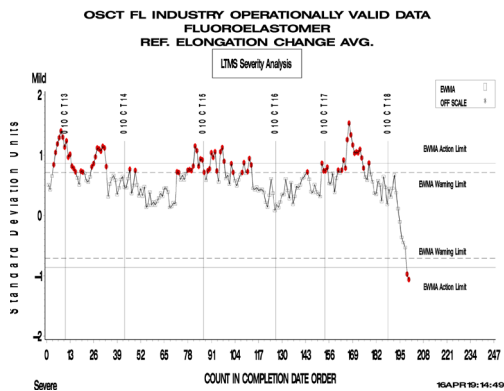
CUSUM Severity Analysis



16APR19: 14:27

OSCT (D5662)

BY-ELASTOMER SEVERITY



OSCT (D5662)

TIMELINE ADDITIONS

Effective Date	Information Letter	Event
		No information letters issued during this period

OSCT (D5662)

LAB VISITS

One OSCT lab visits was conducted during this period. All observed aspects of the test were found to be in accordance with the procedure.

INFORMATION LETTERS

No information letters were issued this period.

OSCT (D5662)

STATUS OF REFERENCE OIL SUPPLY

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
155-1	13	492	97.6
160-1	6	0	0.0
168	13	0	0.0
169	40	808	160.2
170	13	189	37.5
171	39	201	39.9
Total	111	1198	237.7

Oil 161-1 has been depleted from TMC inventory. A reblend is not available. Oil 169 has been introduced as a replacement. Oil 168 is nearing depletion. Oil 170 has been introduced as a replacement. Oil 171 is the same additive package as oil 160-1 in a different base oil and has been introduced as a replacement.