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# ***Test Monitoring Center***

<http://astmtmc.cmu.edu>

## **ASTM Reference Testing Semi-Annual Report D7216 EOEC**

**Spring 2020**

# EOEC Test Activity\*

Test Status		Fluoroelast.	Nitrile	Polyacrylate	Silicone	VAMAC	Total
Acceptable Calibration Test	AC	61	62	59	59	62	303
Failed Calibration Test	OC	1	2	0	1	0	4
Operationally Invalid, by lab	LC	0	0	0	1	0	1
Operationally Invalid, by TMC	RC	0	0	1	0	0	1
Aborted	XC	1	1	2	2	2	8
Industry RR - ACM-28	AG, OG	0	0	44	0	0	44
<b>Total</b>		<b>63</b>	<b>65</b>	<b>106</b>	<b>63</b>	<b>64</b>	<b>361</b>

\*October 1, 2019 – March 31, 2020

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# EOEC Lost Tests\*

Validity	Cause	#
XC	Data corrupted, could not be retrieved	7
XC	Test cancelled mid-test	1
RC	Volume Change not reported, could not retrieve	1
LC	Measurement instrument malfunction	1
	<b>Total</b>	<b>10</b>

\*Invalid and aborted calibration tests

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# EOEC Test Severity

## ▶ Fluoroelastomer (FKM)

Parameter	Period Mean $\Delta$ /s	Status
Volume Change	-0.01	On-target
Points Hardness Change	0.05	On-target
Tensile Strength Change	0.27	Severe
Elongation Change	-0.62	Mild

# EOEC Test Severity

## ▶ Nitrile (NBR)

Parameter	Period Mean $\Delta/s$	Status
Volume Change	2.13	Severe
Points Hardness Change	0.53	Severe
Tensile Strength Change	-0.64	Mild
Elongation Change	0.35	Severe

# EOEC Test Severity

## ▶ Polyacrylate (ACM)

Parameter	Period Mean $\Delta/s$	Status
Volume Change	2.26	Severe
Points Hardness Change	-0.28	Mild
Tensile Strength Change	-0.33	Mild
Elongation Change	0.80	Severe

# EOEC Test Severity

## ▶ Silicone (VMQ)

Parameter	Period Mean $\Delta$ /s	Status
Volume Change	0.78	Severe
Points Hardness Change	-0.90	Mild
Tensile Strength Change	0.17	Severe
Elongation Change	-0.27	Mild

# EOEC Test Severity

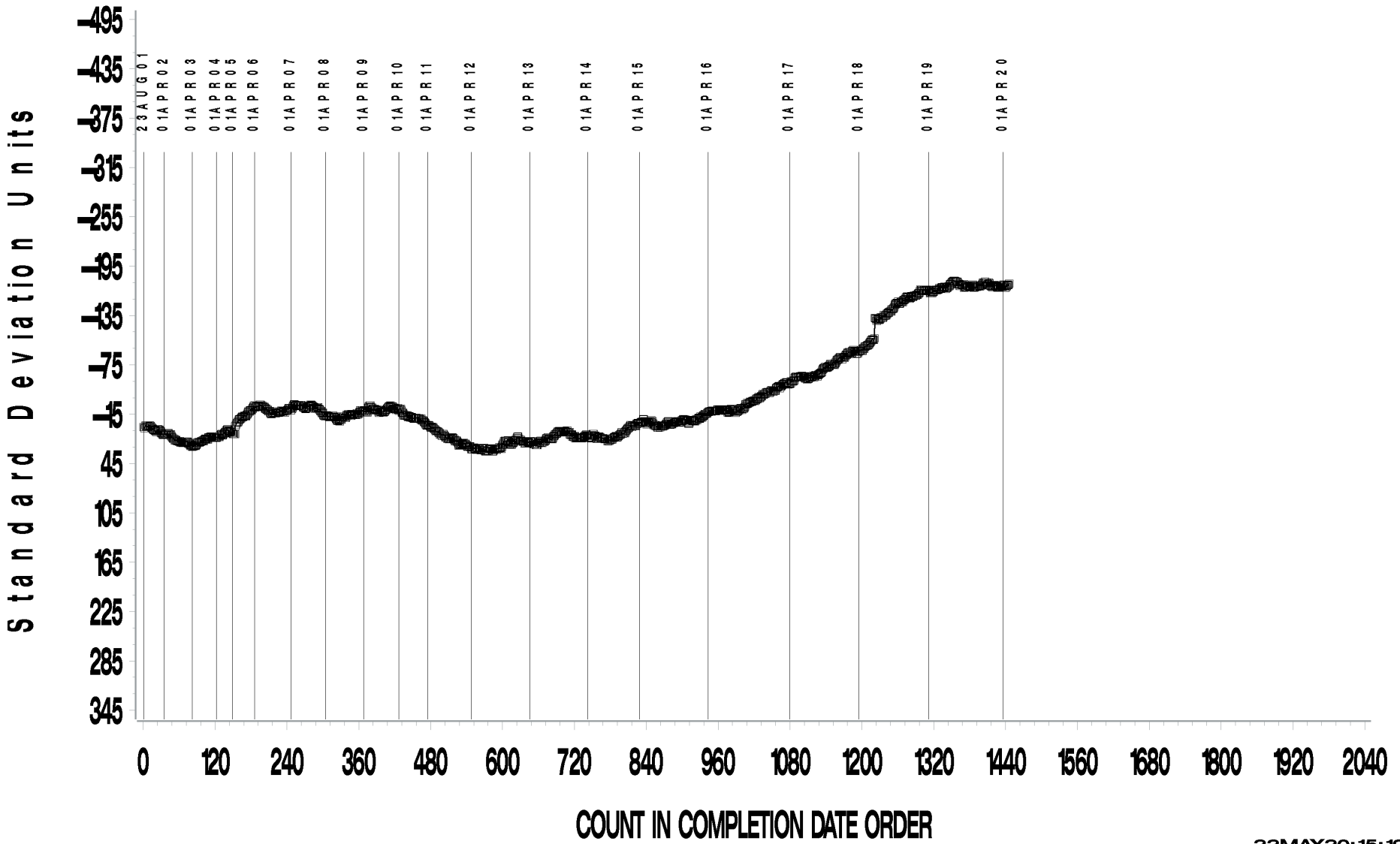
## ▶ VAMAC (MAC)

Parameter	Period Mean $\Delta/s$	Status
Volume Change	0.65	Severe
Points Hardness Change	-1.56	Mild
Tensile Strength Change	-0.15	Mild
Elongation Change	-0.31	Mild



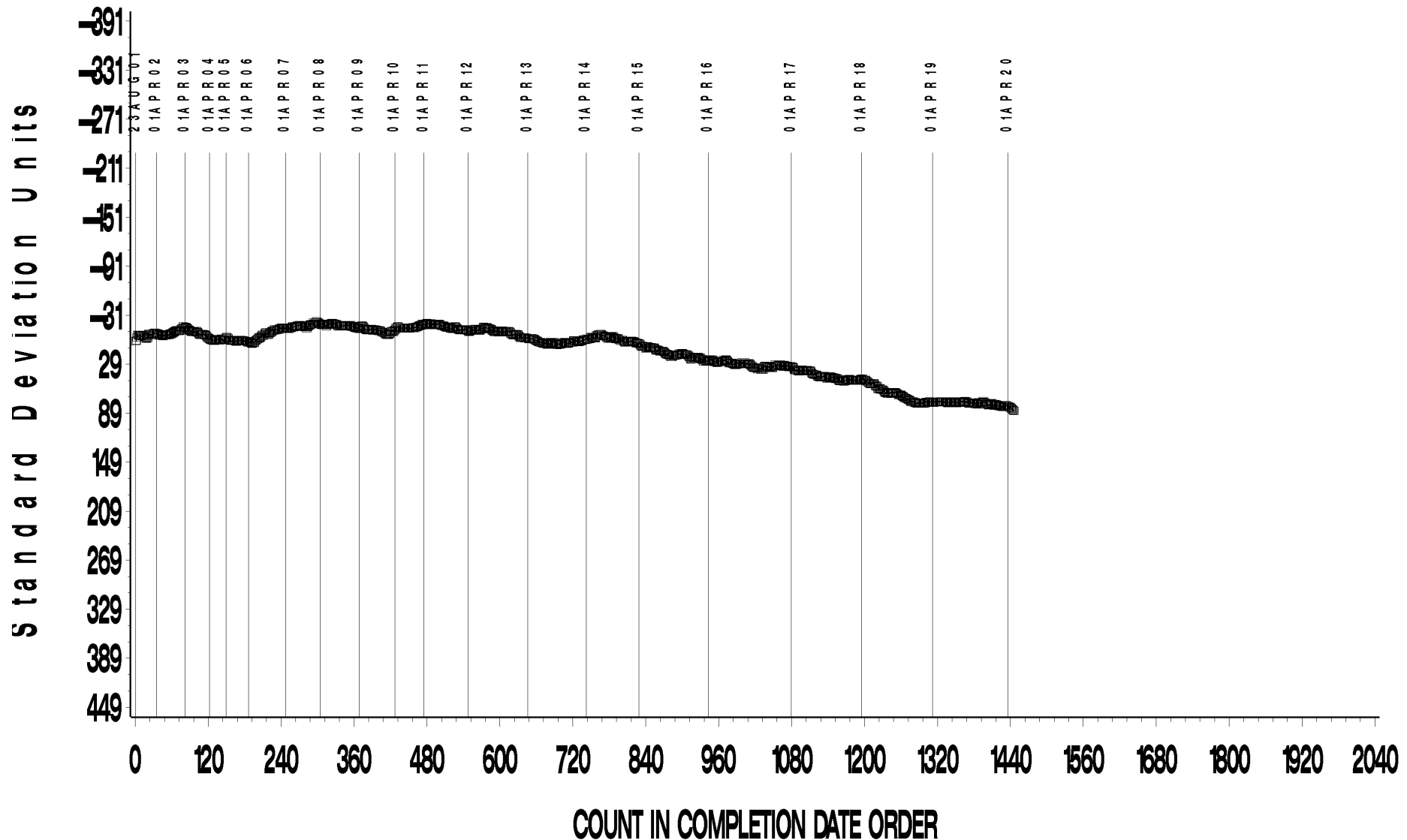
FLUROELASTOMER VOLUME CHANGE CORRECTED AVERAGE

CUSUM Severity Analysis



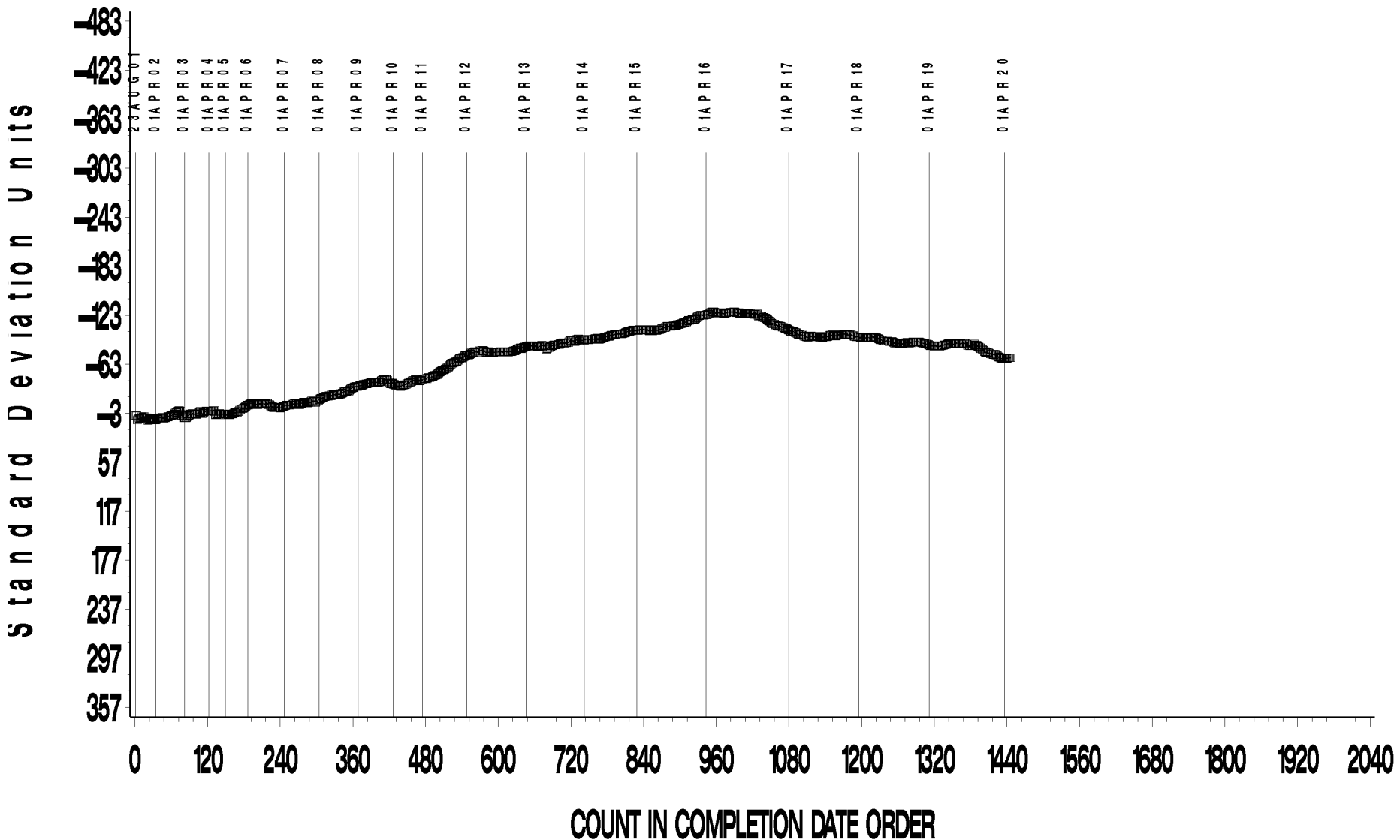
FLUOROELASTOMER PTS HARDNESS CHANGE CORRECTED AVG

CUSUM Severity Analysis



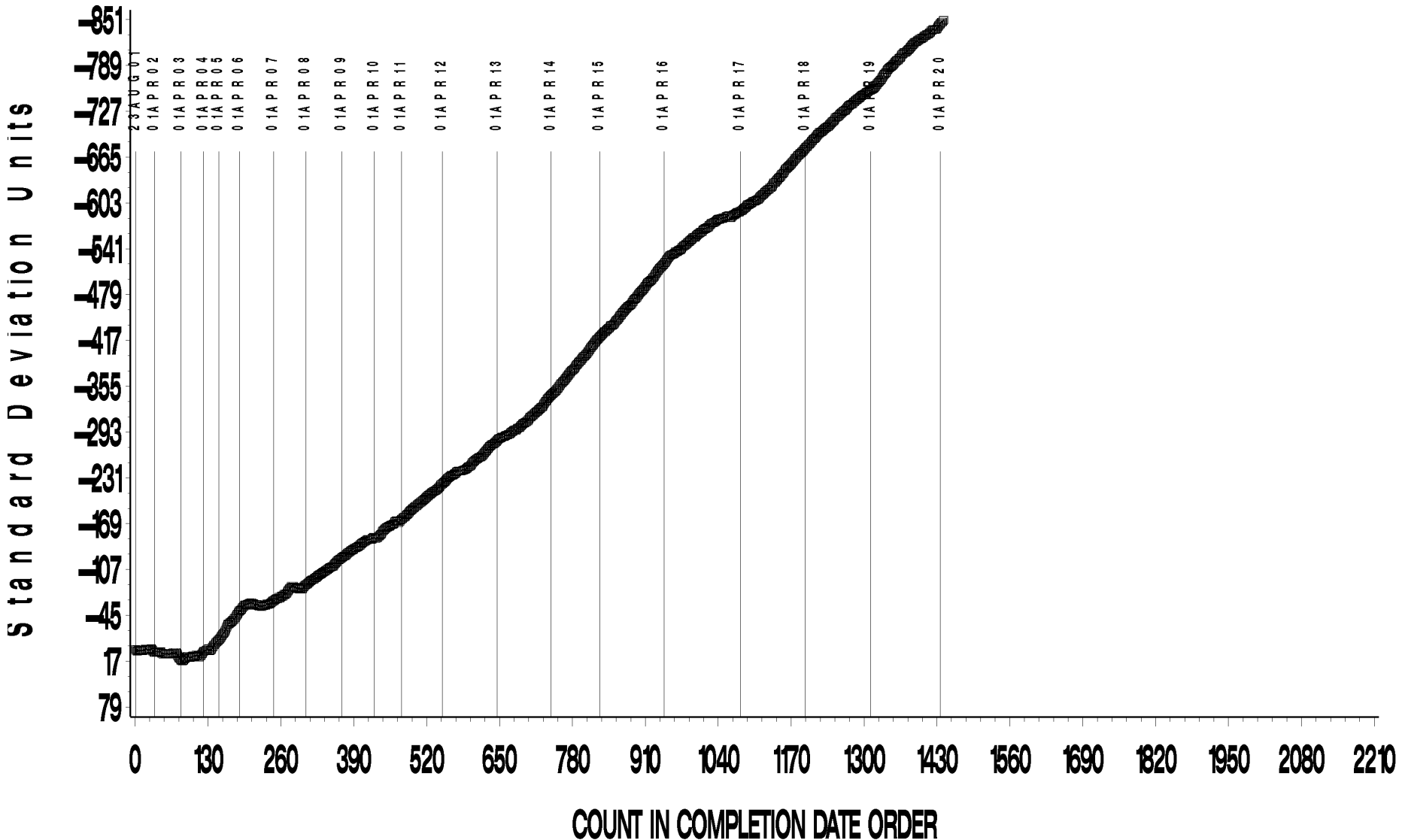
FLUROELASTOMER TENS STRENGTH CHANGE CORRECTED AVG

CUSUM Severity Analysis



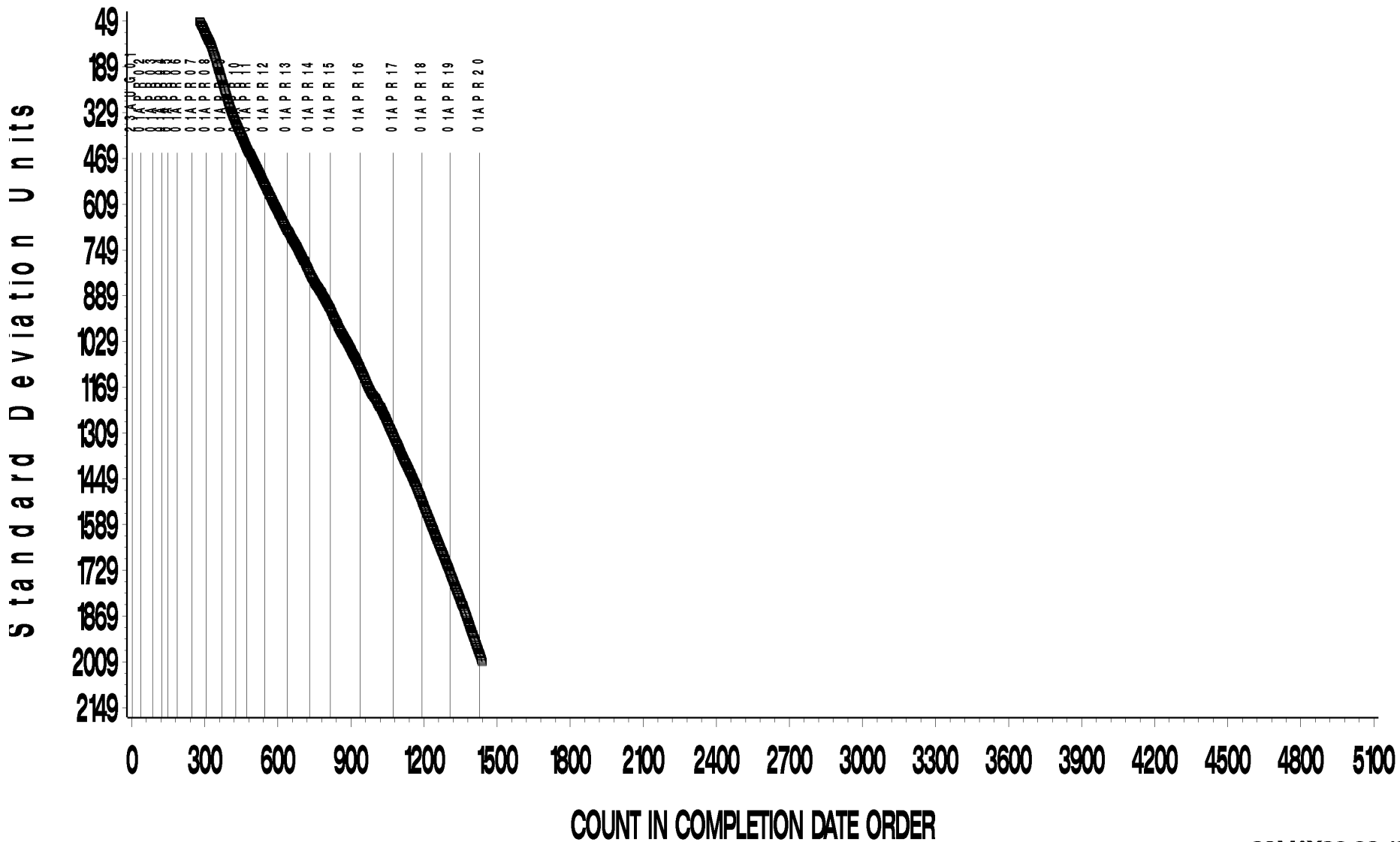
FLUROELASTOMER ELONGATION CHANGE CORRECTED AVG

CUSUM Severity Analysis



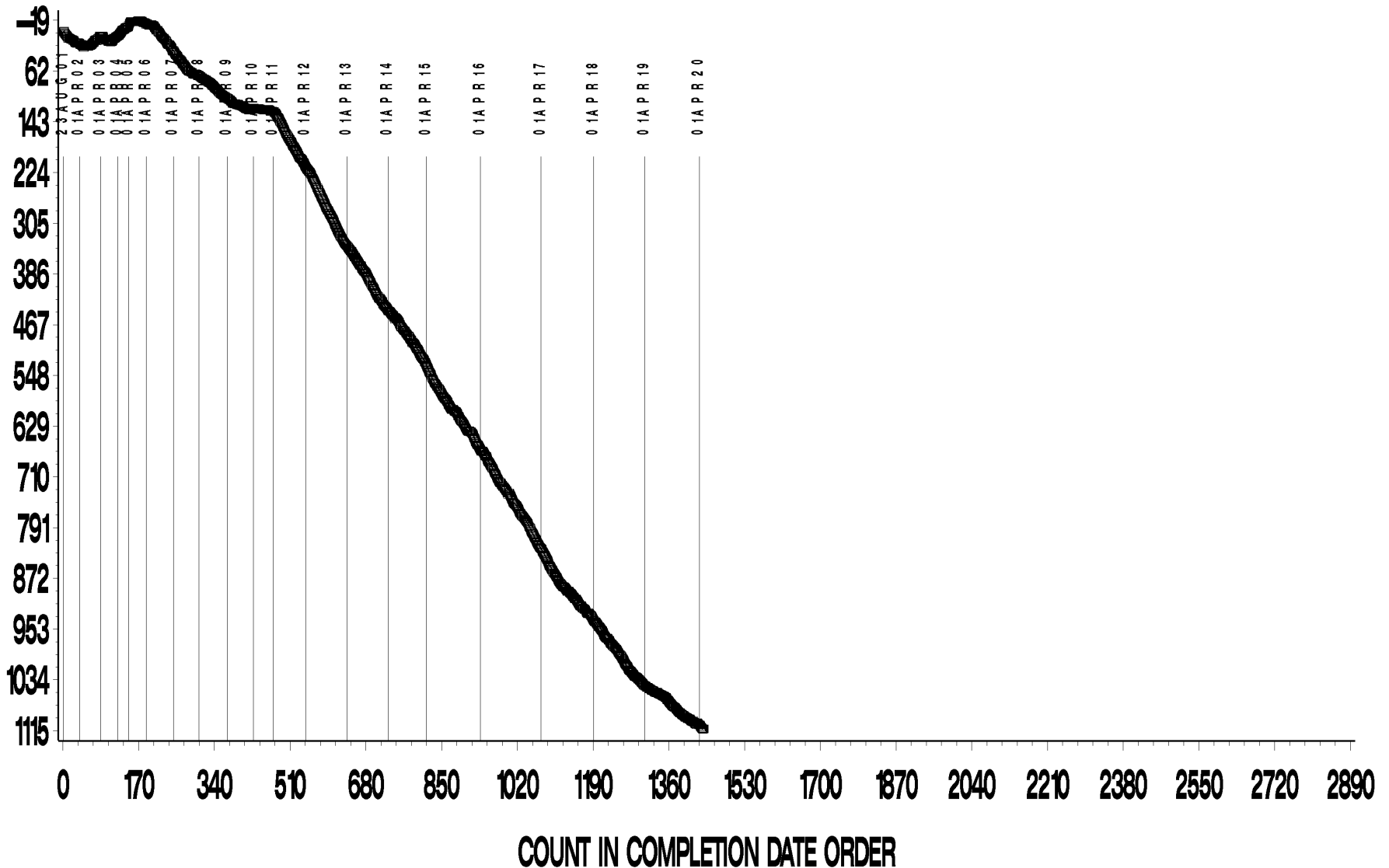
REFERENCE NITRILE VOLUME CHANGE CORRECTED AVERAGE

CUSUM Severity Analysis



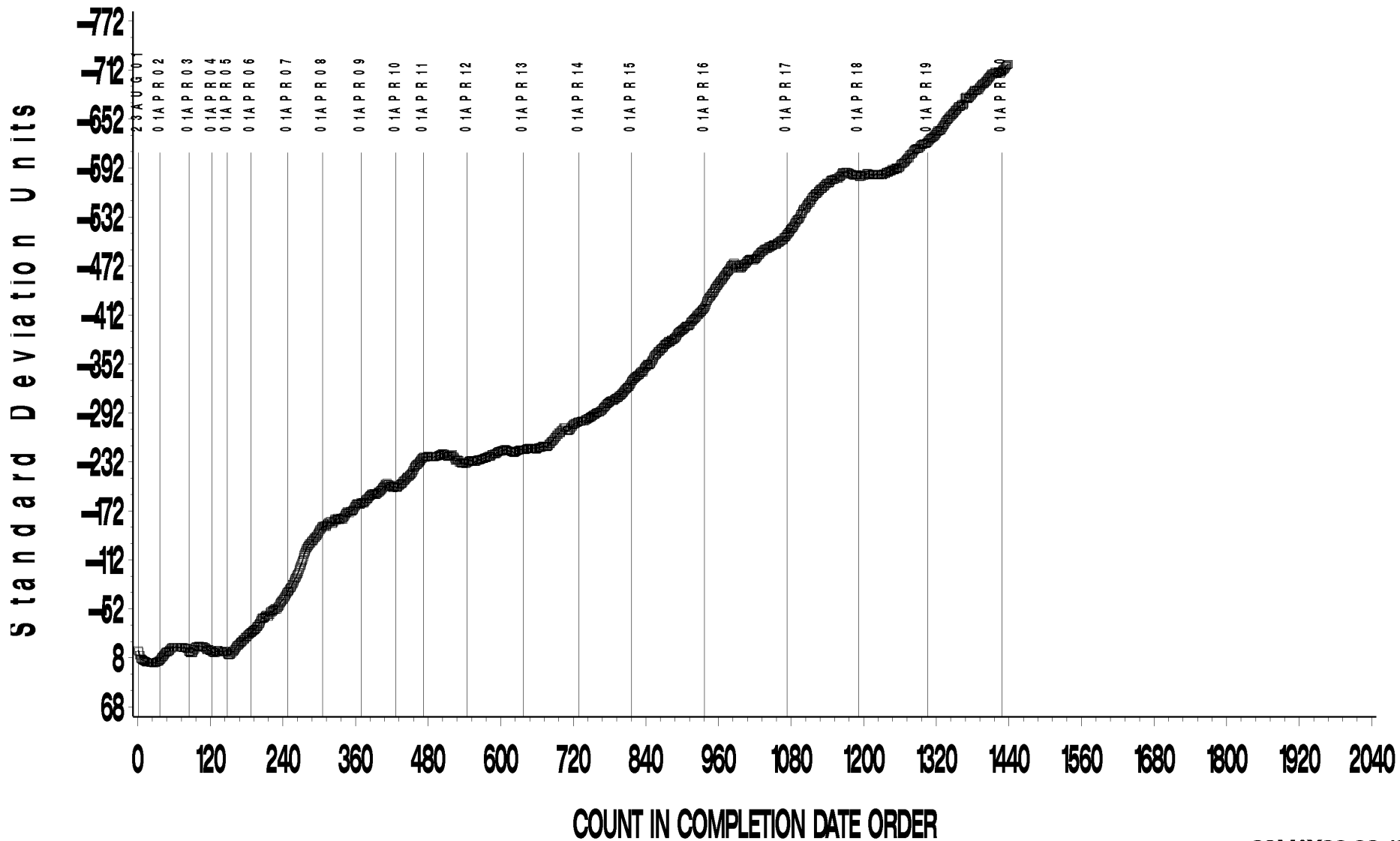
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CUSUM Severity Analysis



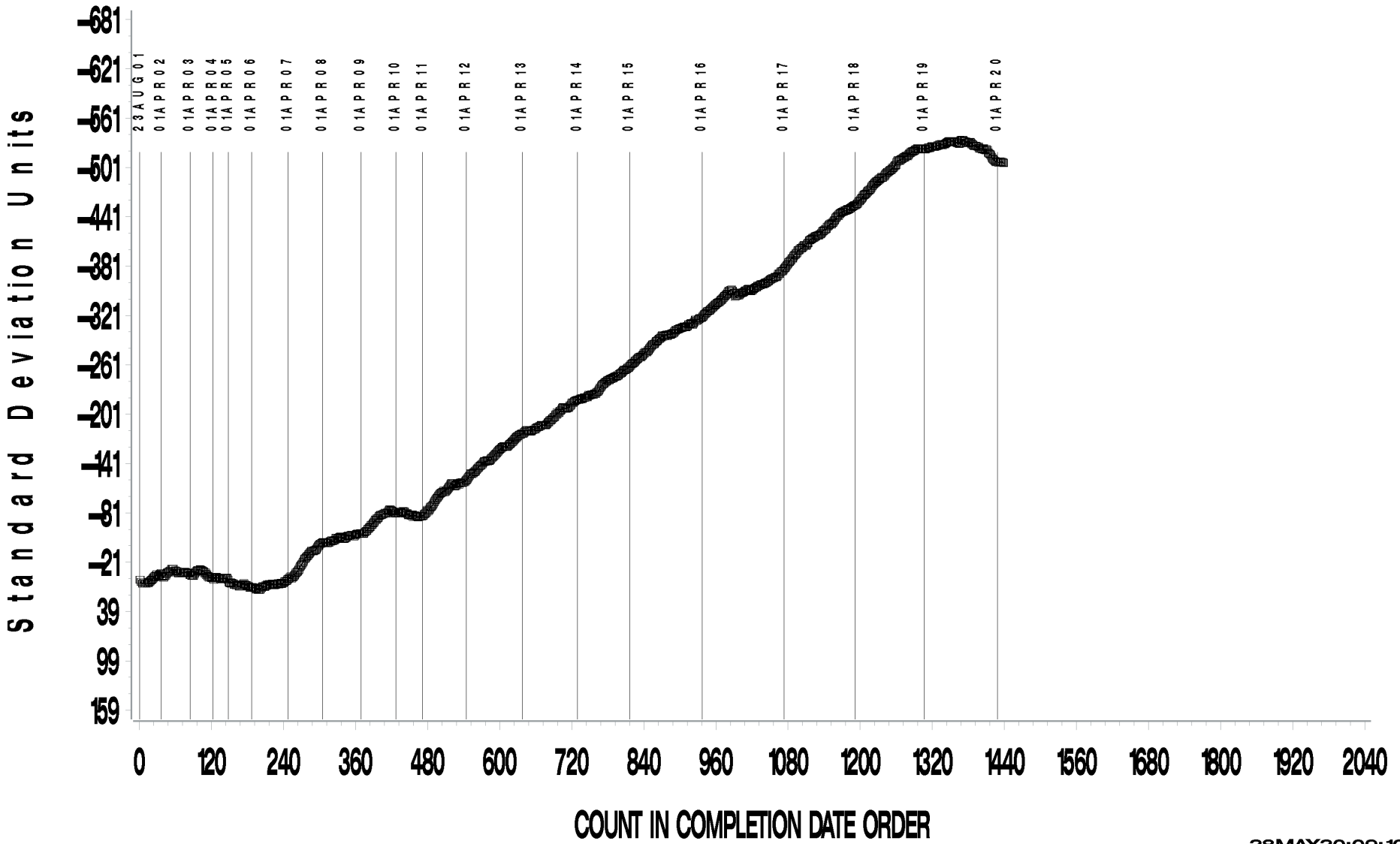
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CUSUM Severity Analysis



REF NITRILE ELONGATION CHANGE CORRECTED AVERAGE

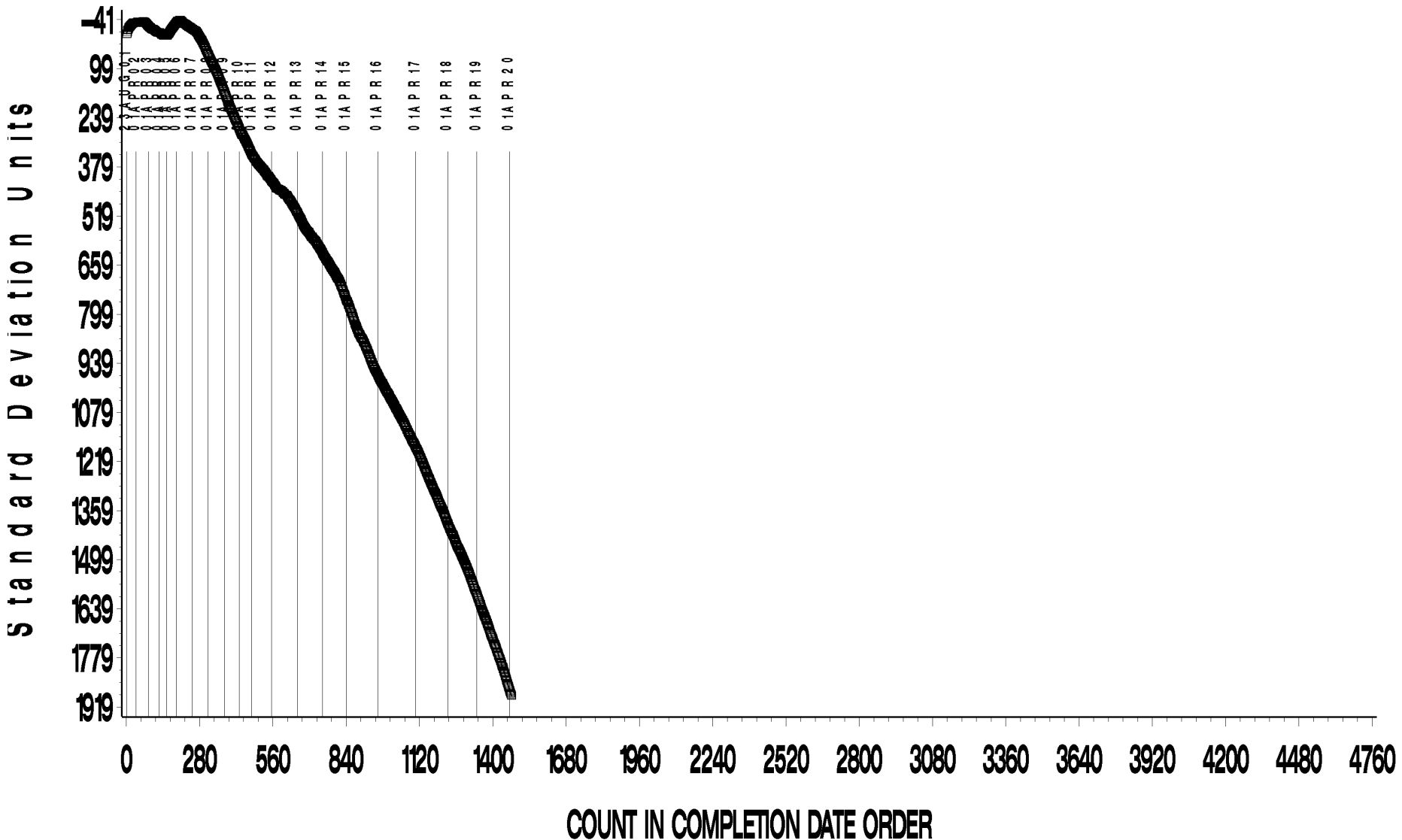
CUSUM Severity Analysis





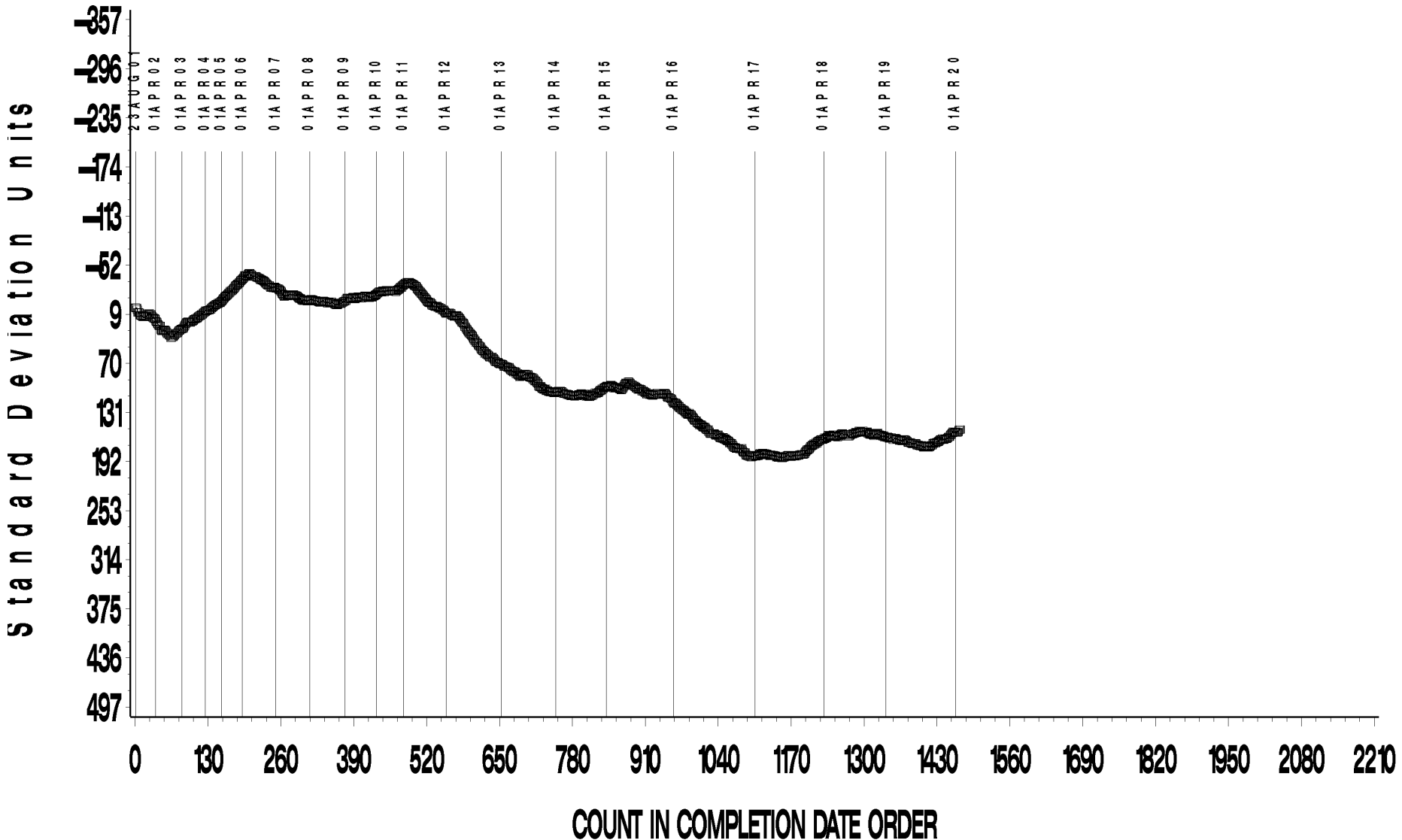
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CUSUM Severity Analysis



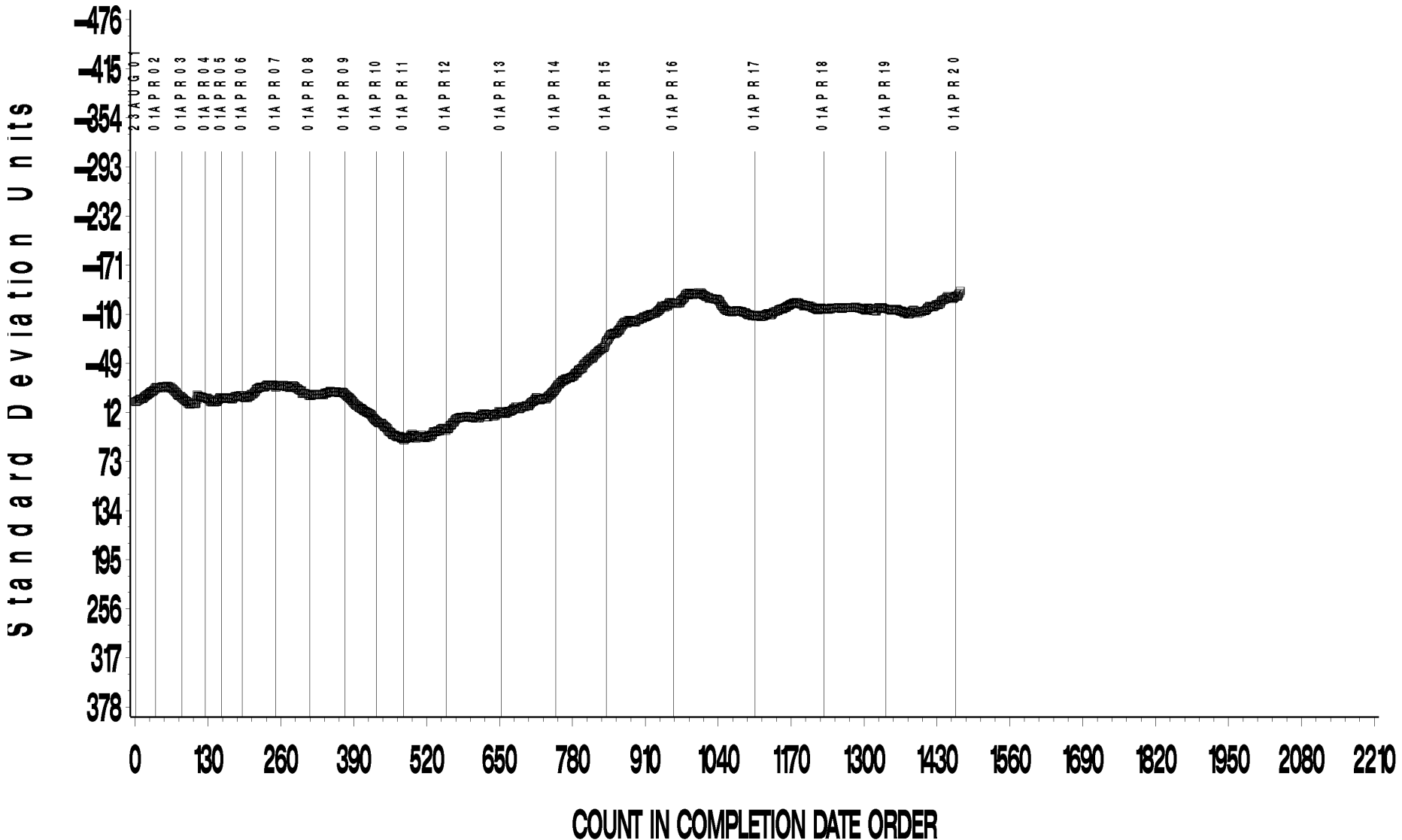
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CUSUM Severity Analysis



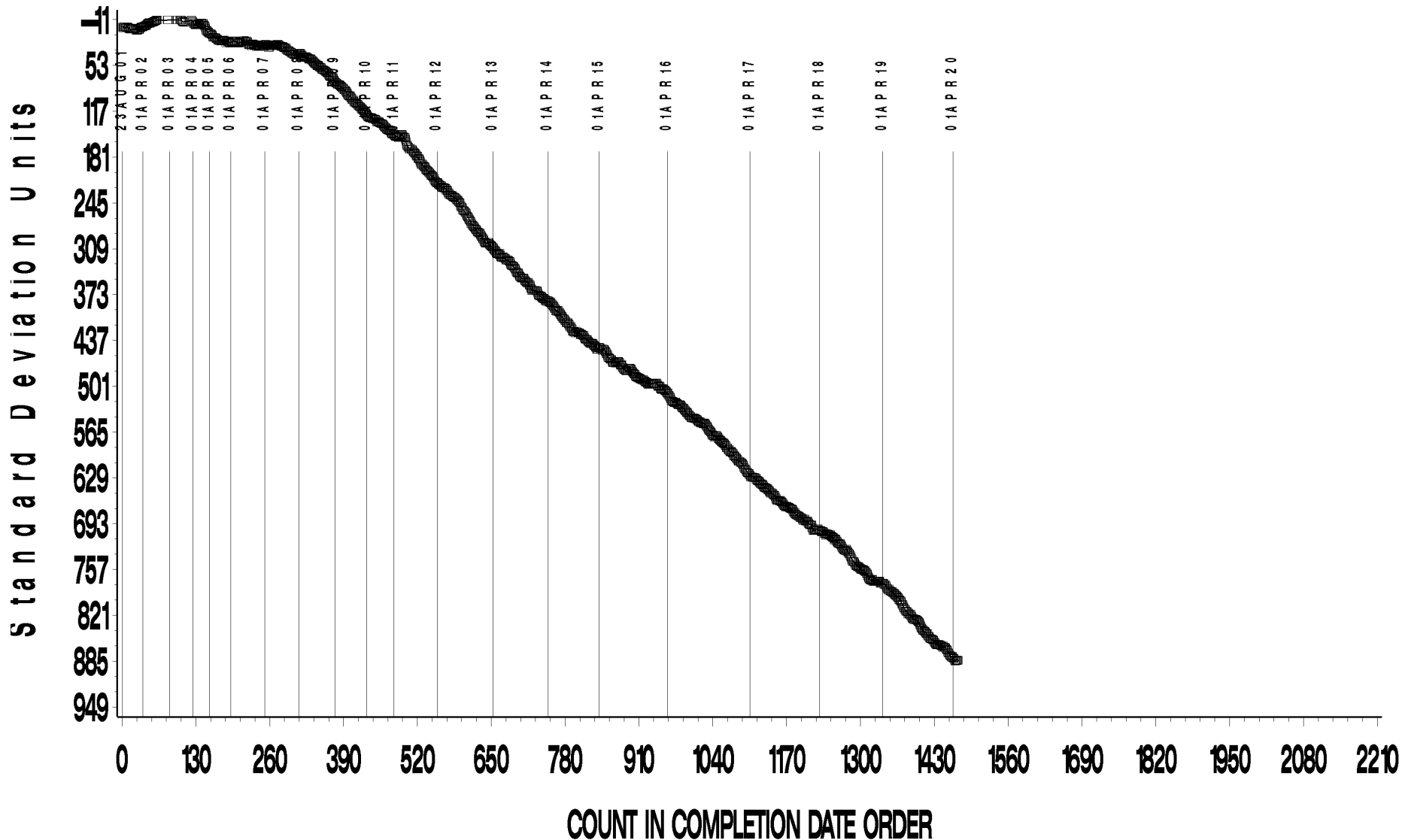
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CUSUM Severity Analysis



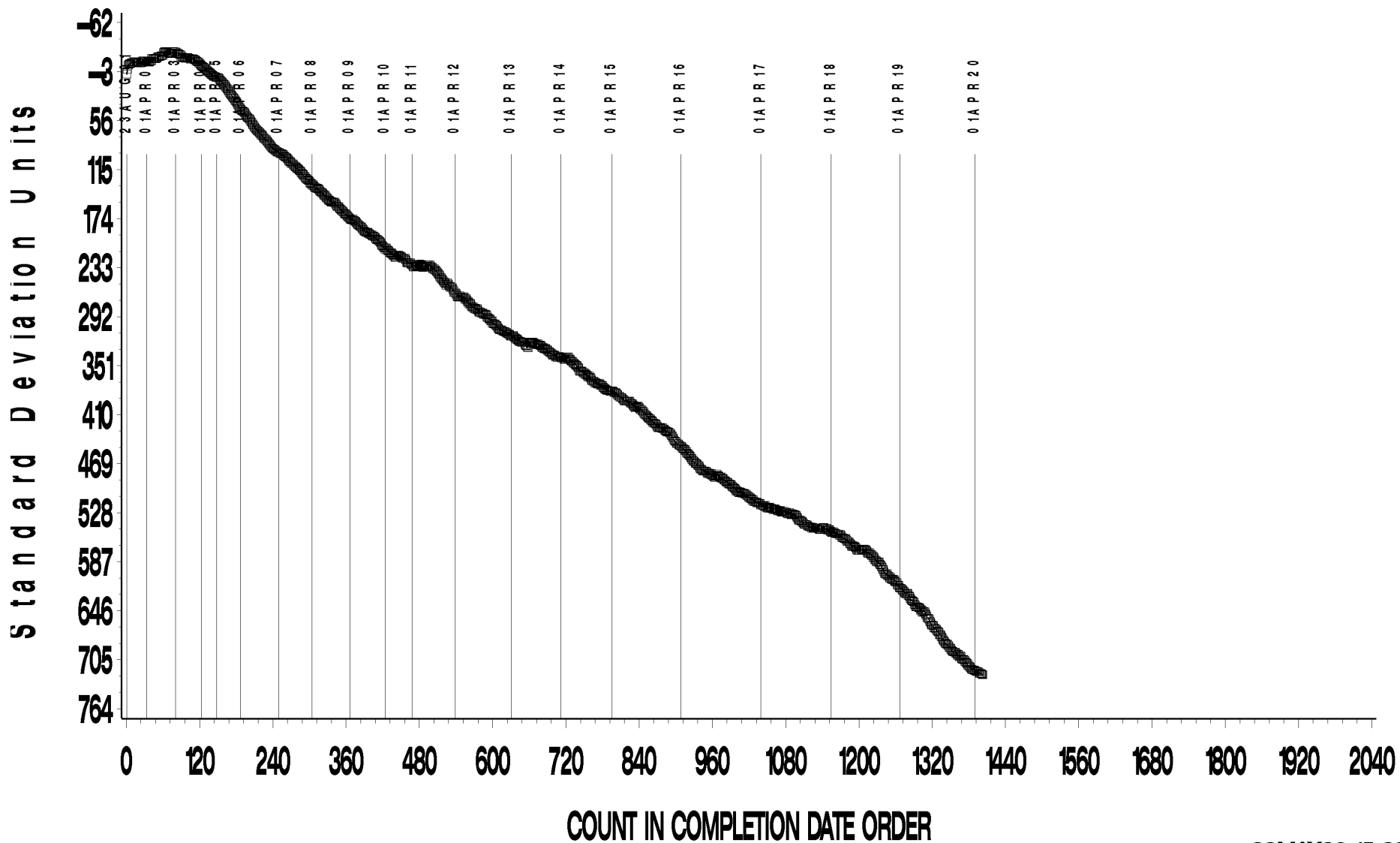
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CUSUM Severity Analysis



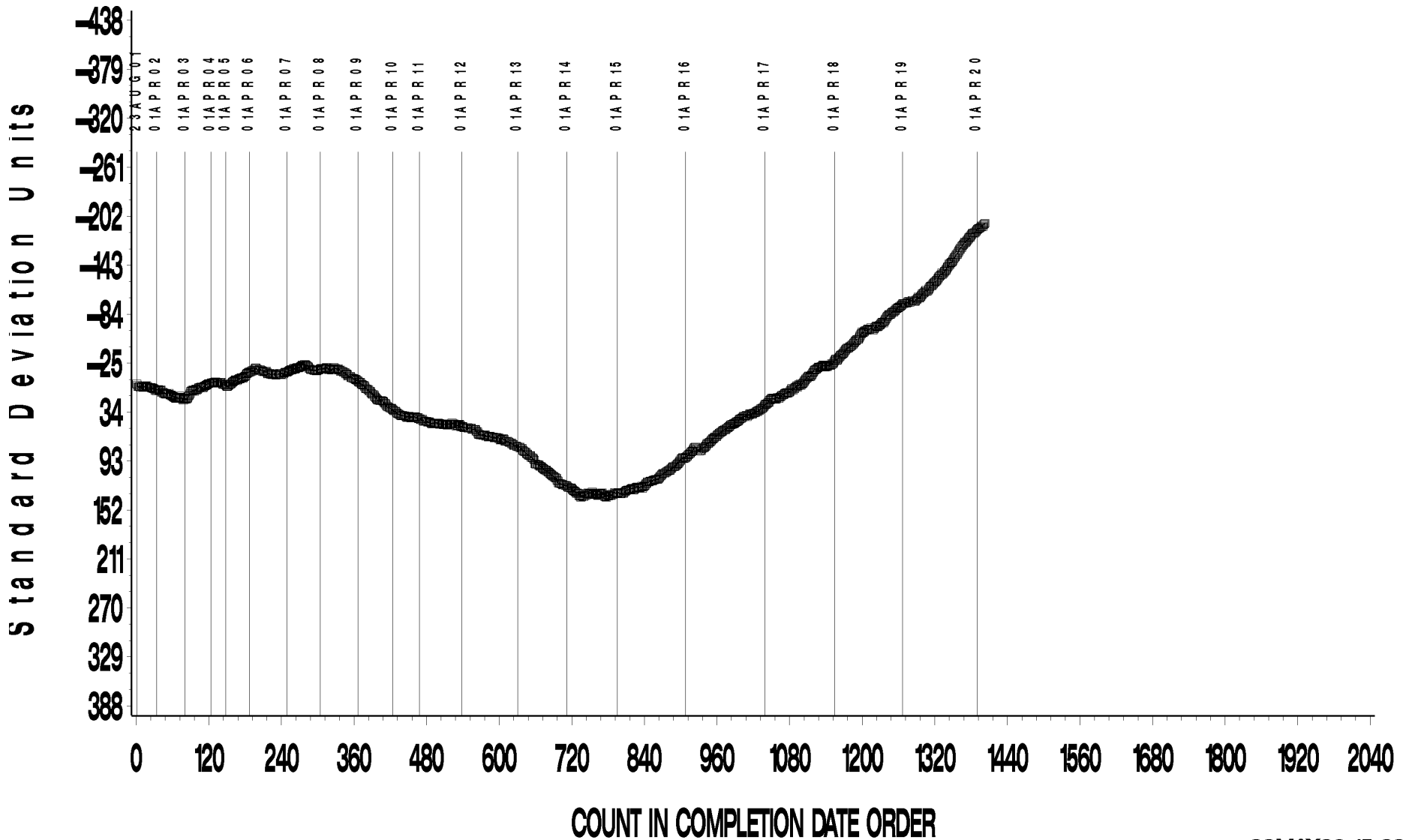
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CUSUM Severity Analysis



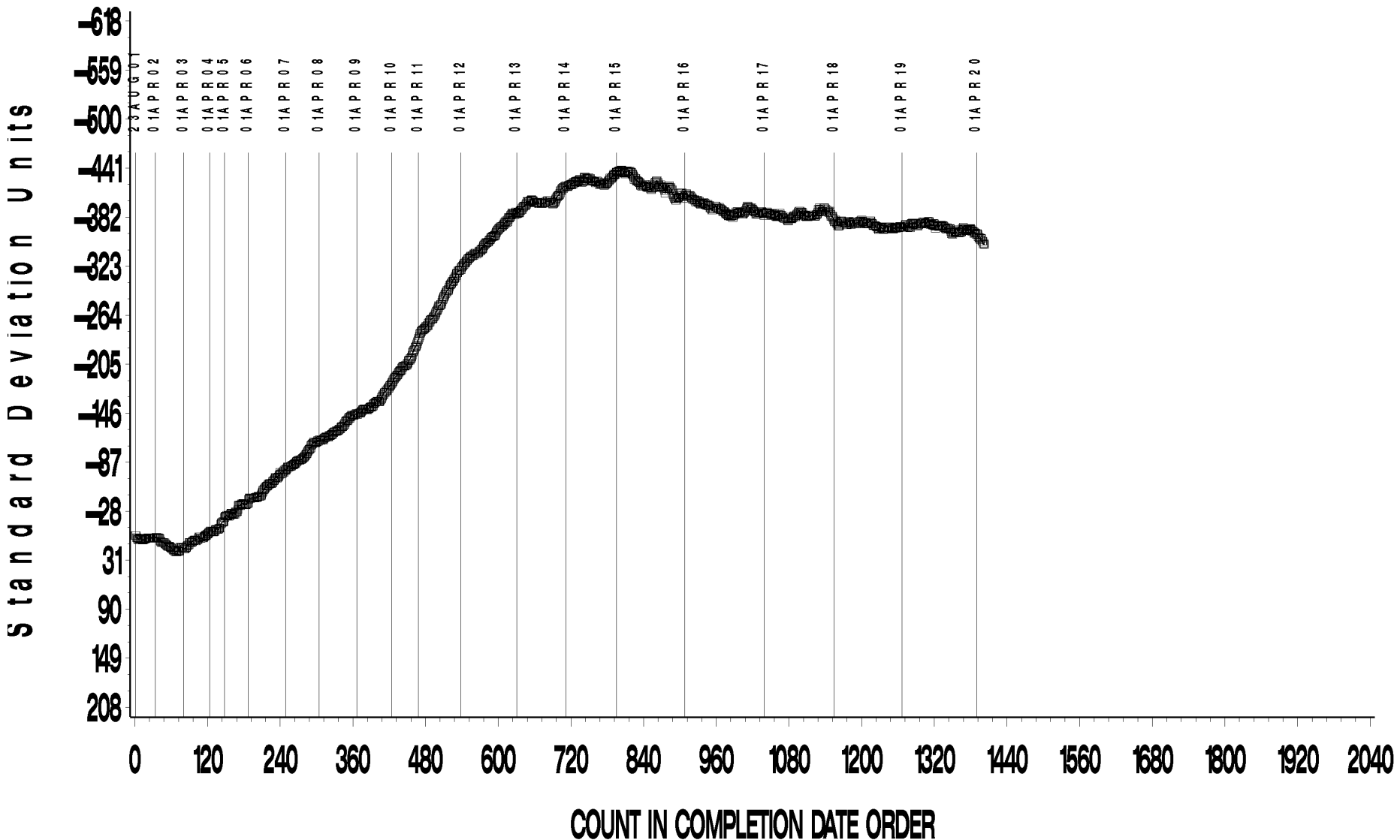
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CUSUM Severity Analysis



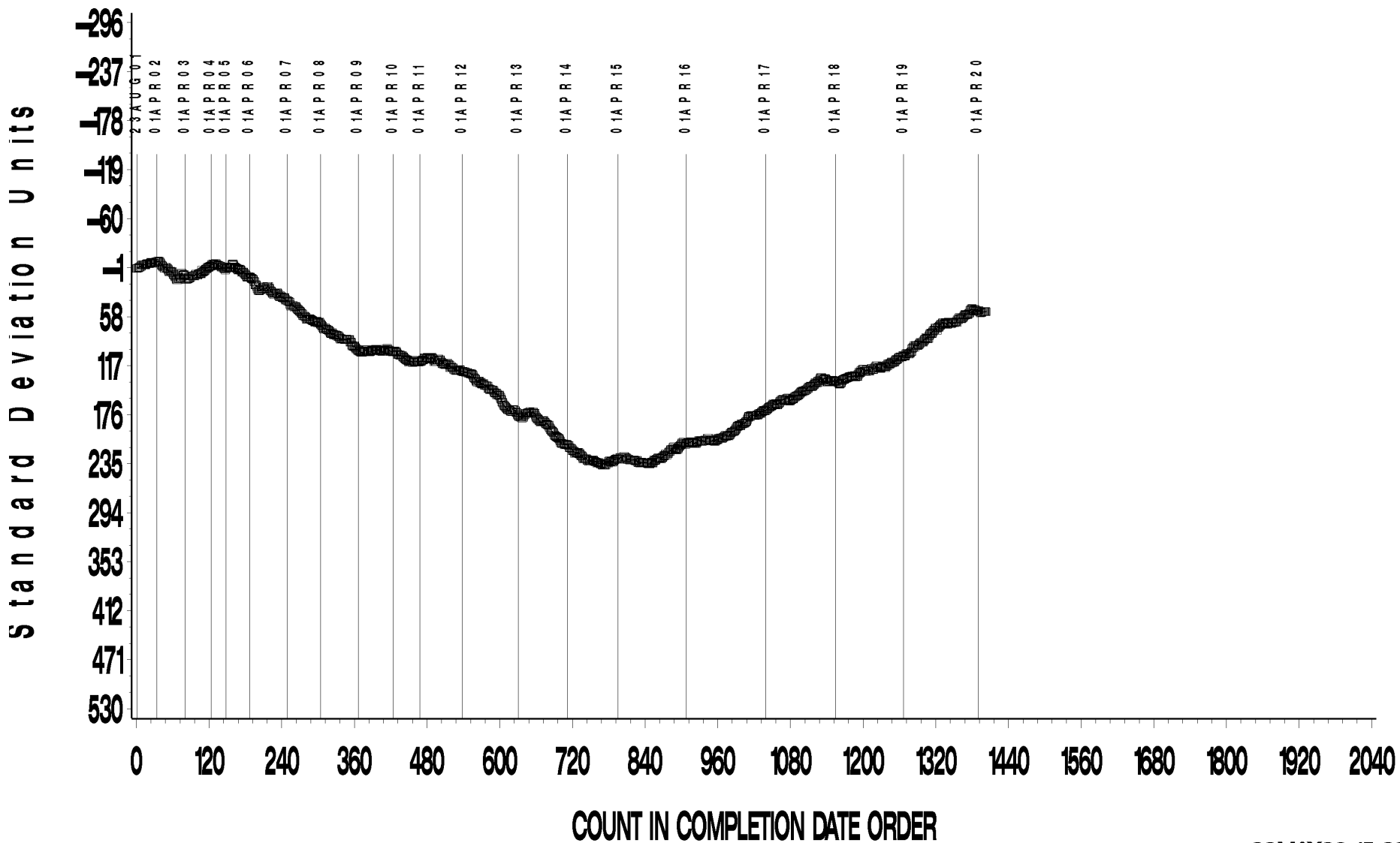
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CUSUM Severity Analysis



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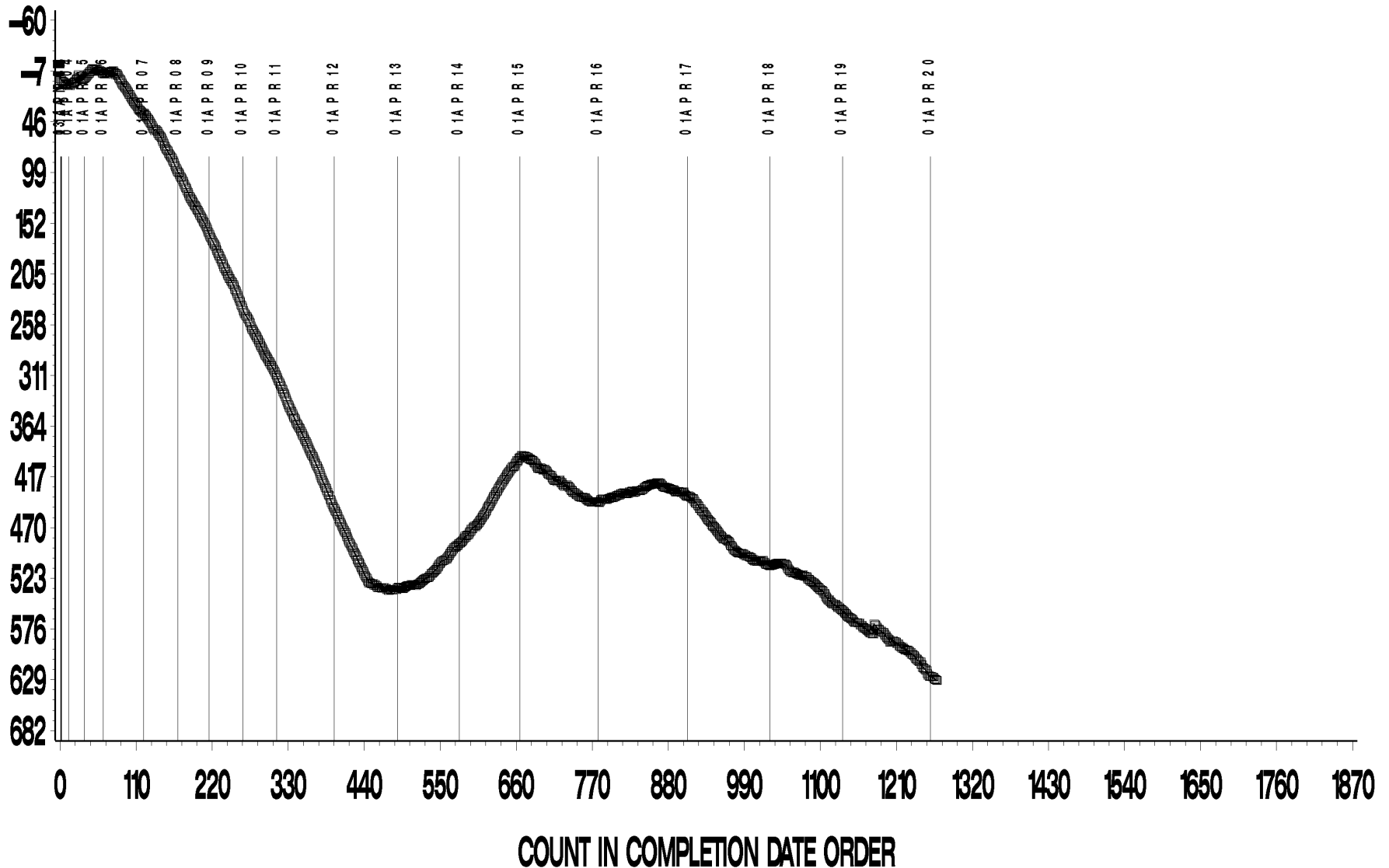
CUSUM Severity Analysis





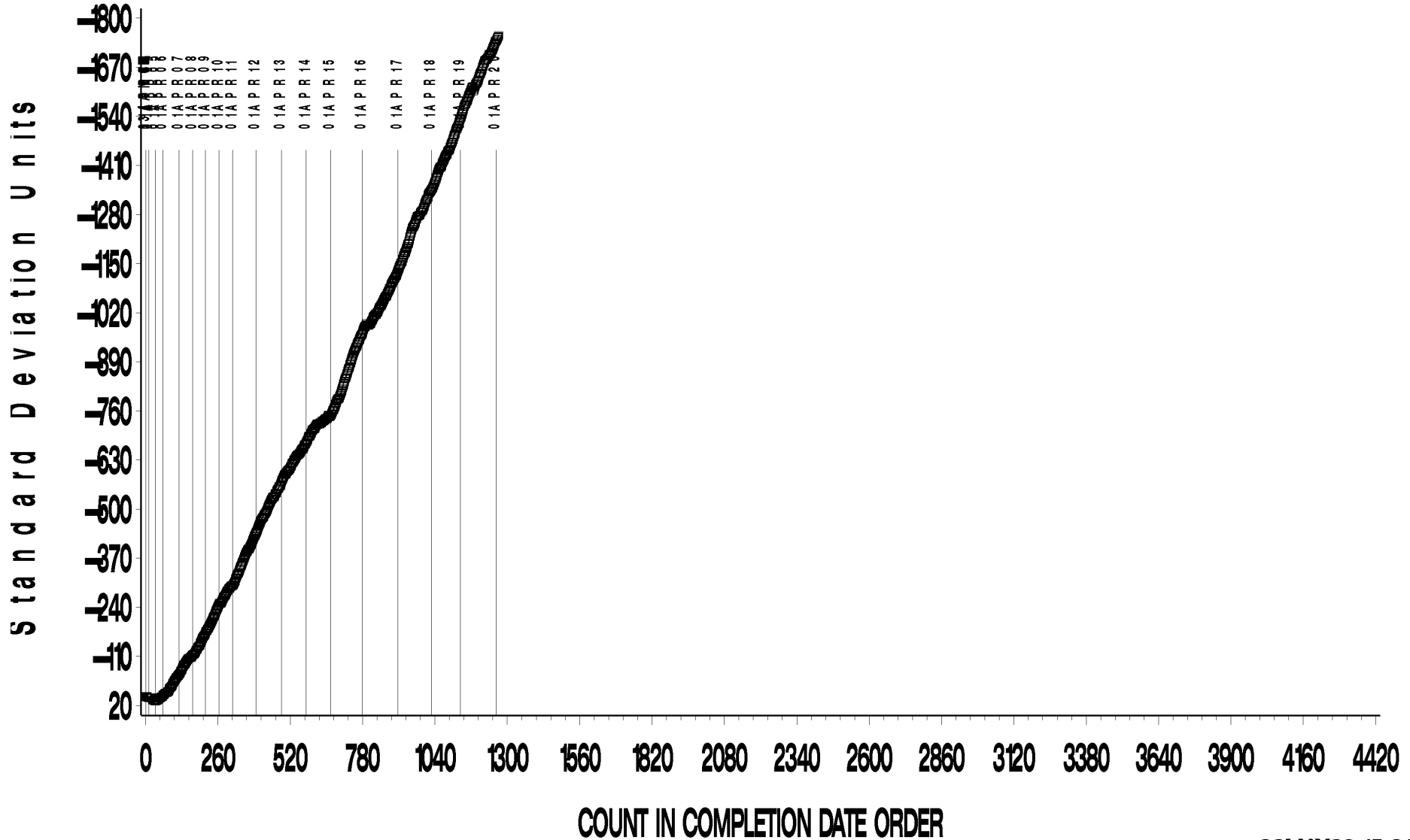
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CUSUM Severity Analysis



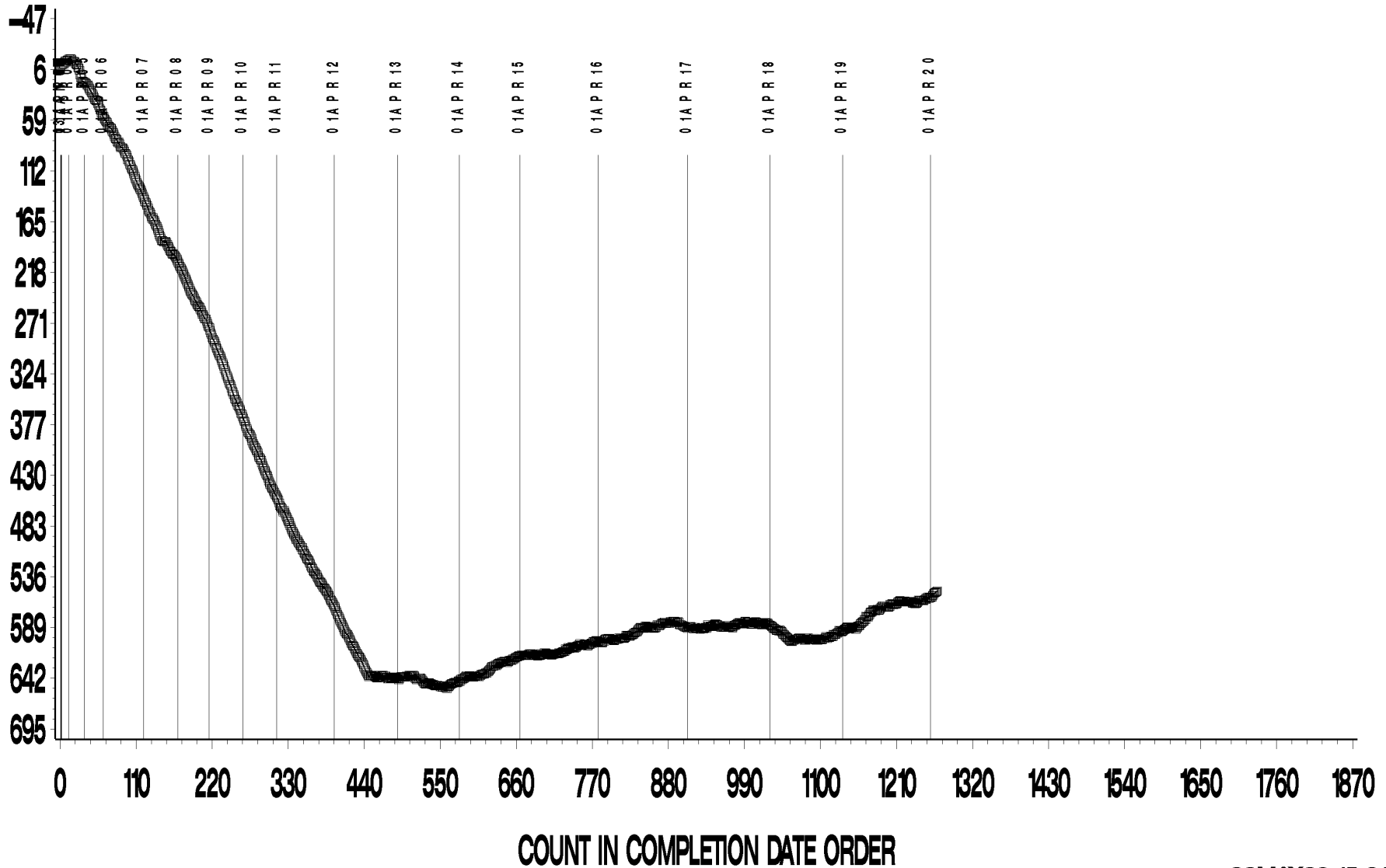
REF VAMAC G POINTS HARDNESS CHANGE CORRECTED AVG

CUSUM Severity Analysis



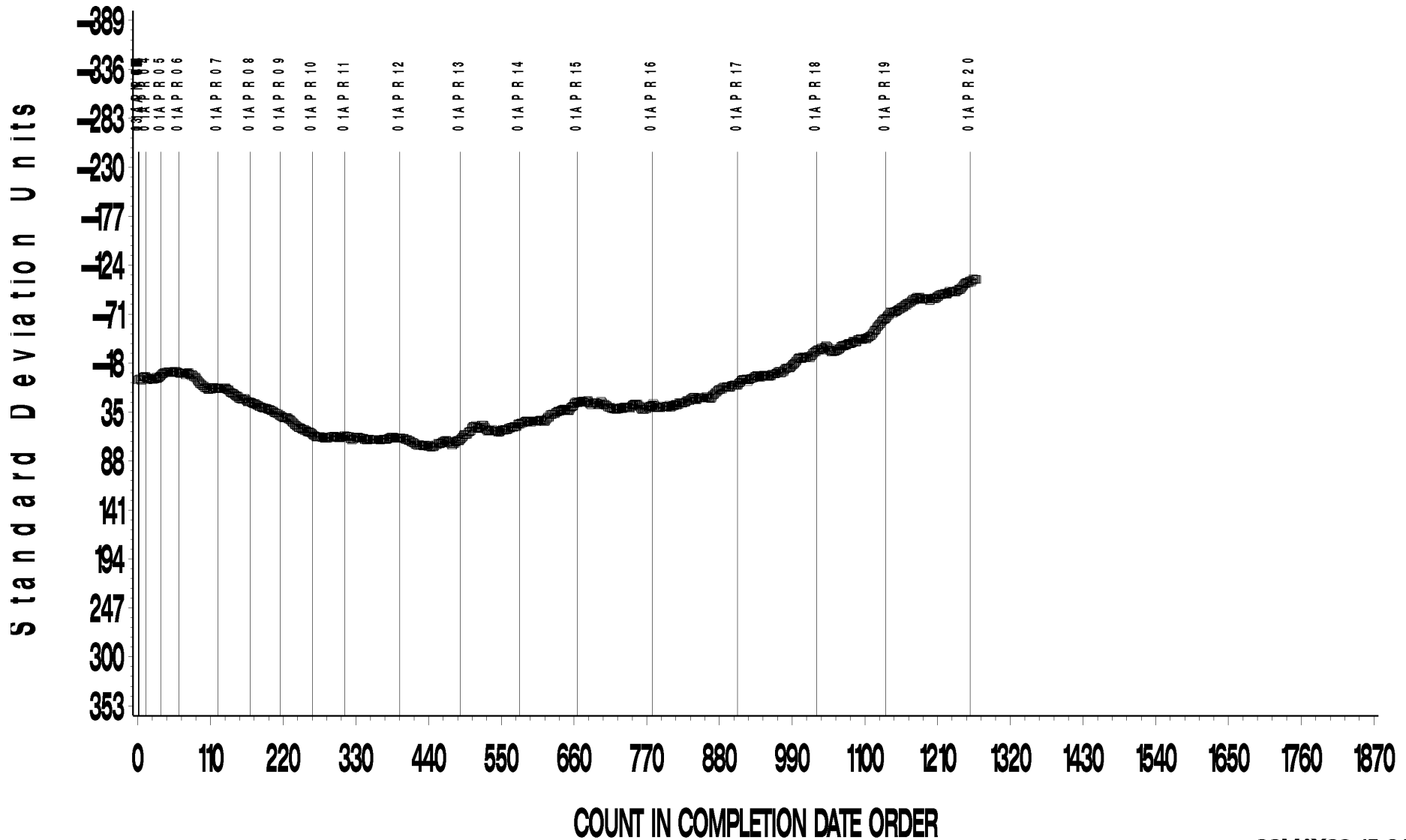
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CUSUM Severity Analysis

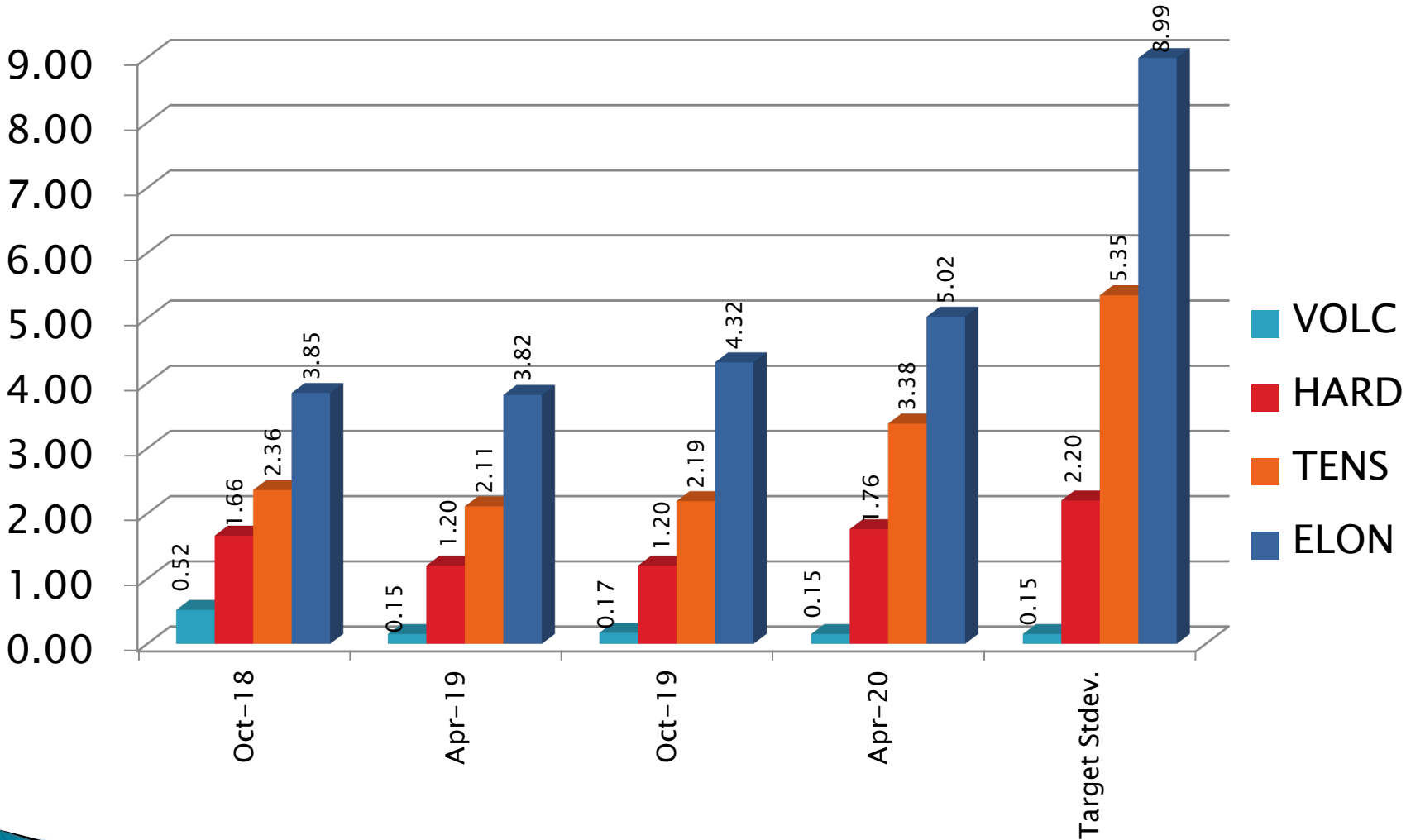


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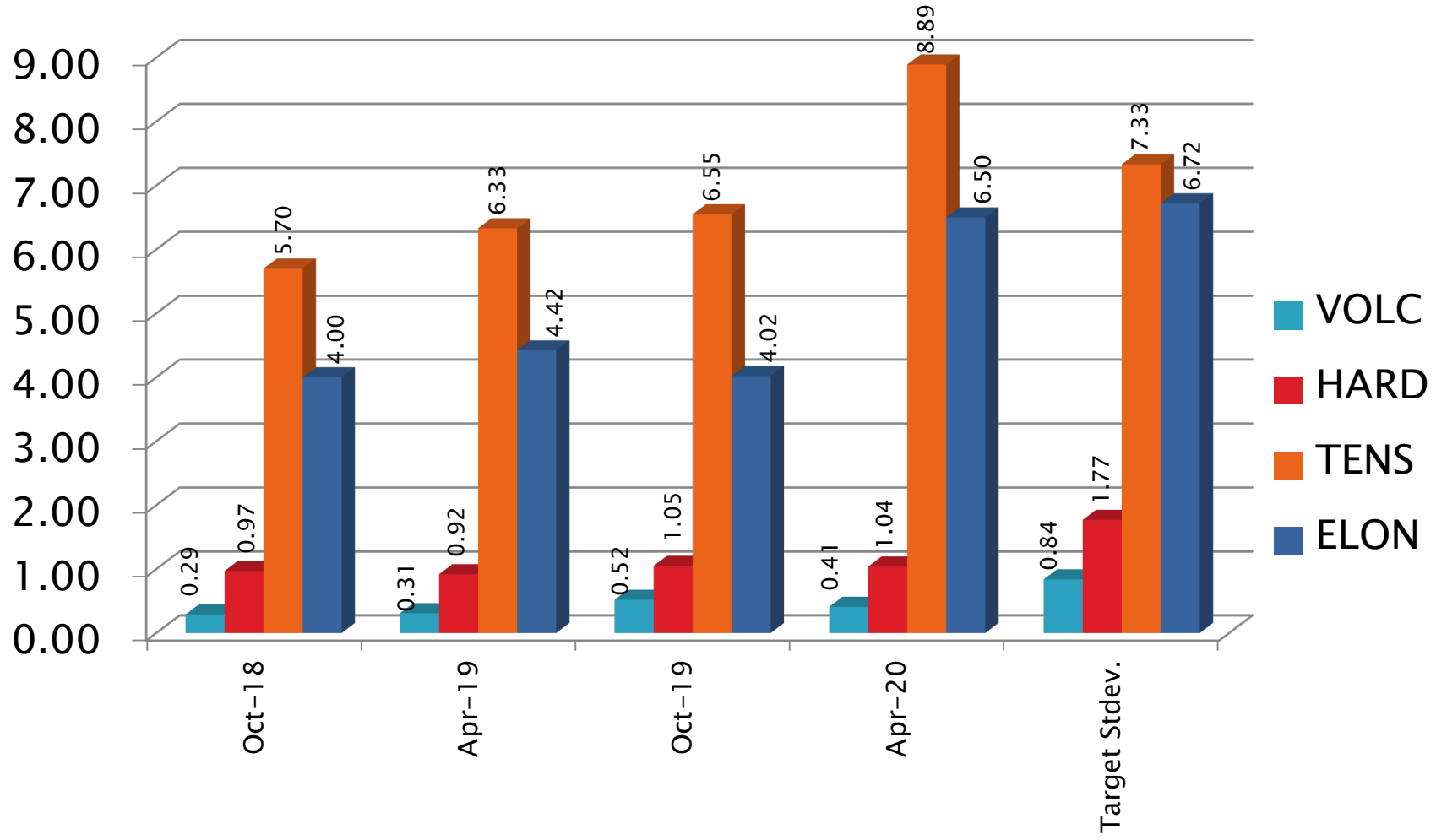
CUSUM Severity Analysis



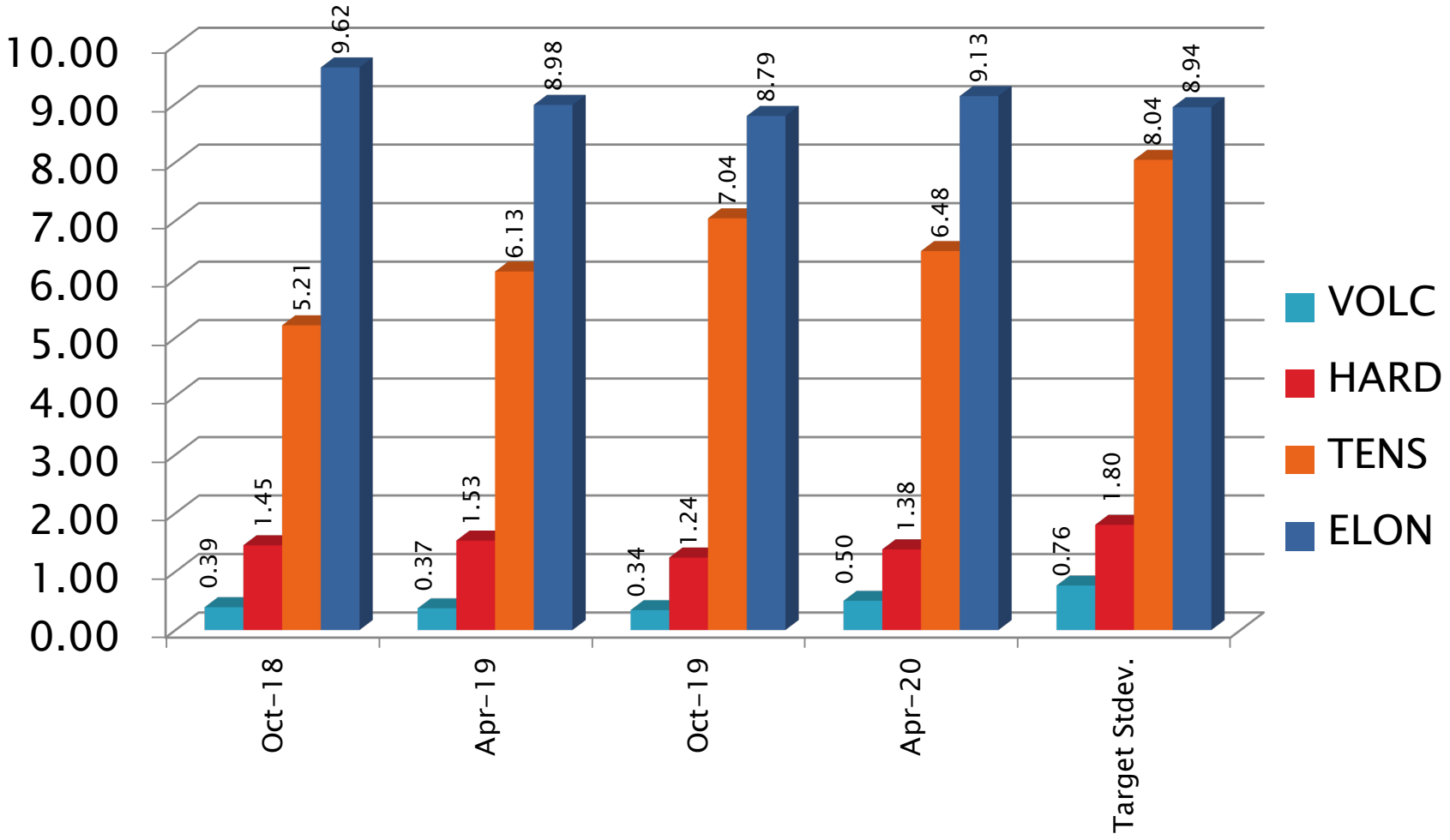
# EOEC Precision Estimates - Fluoroelastomer



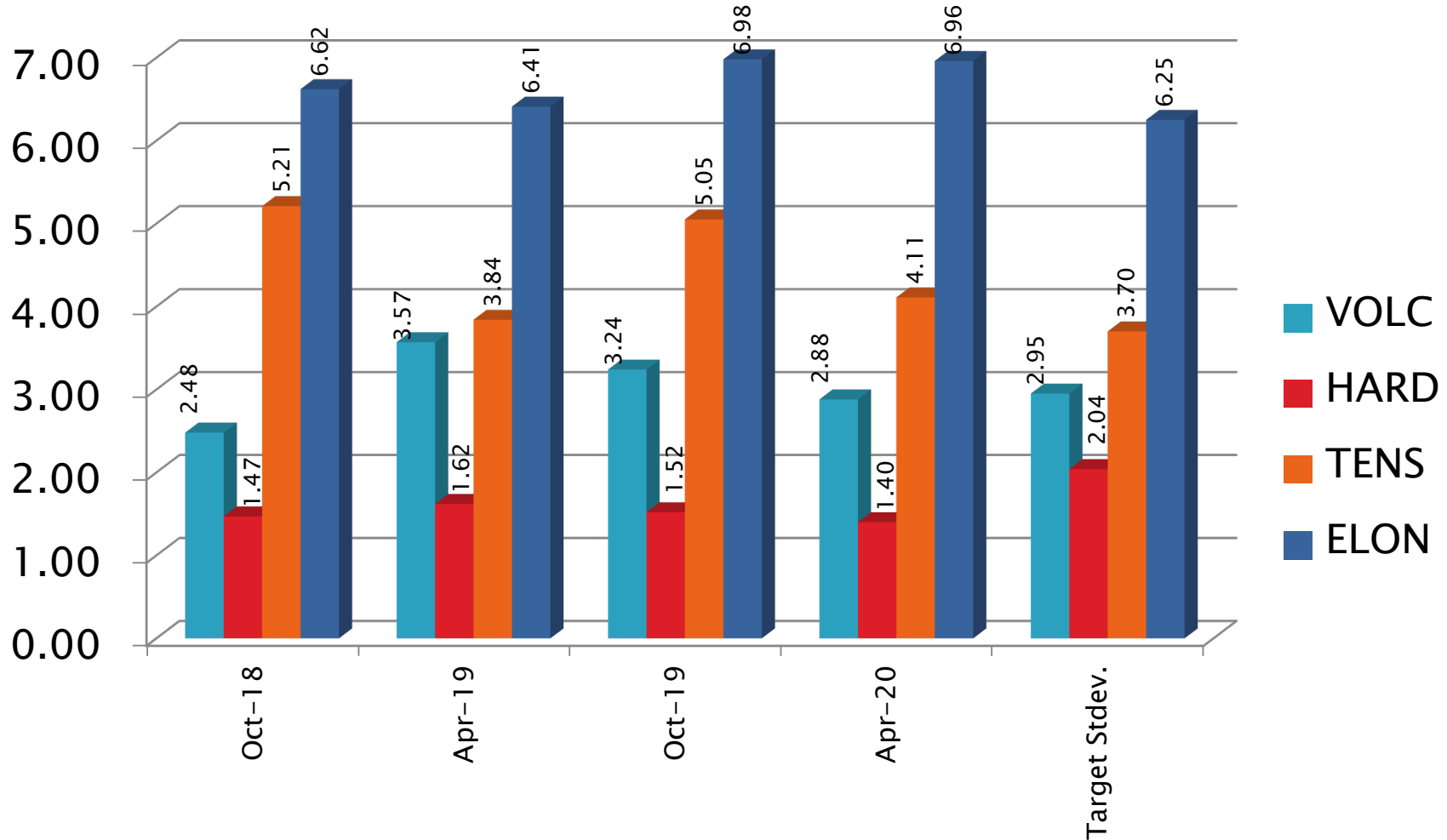
# EOEC Precision Estimates - Nitrile



# EOEC Precision Estimates – Polyacrylate

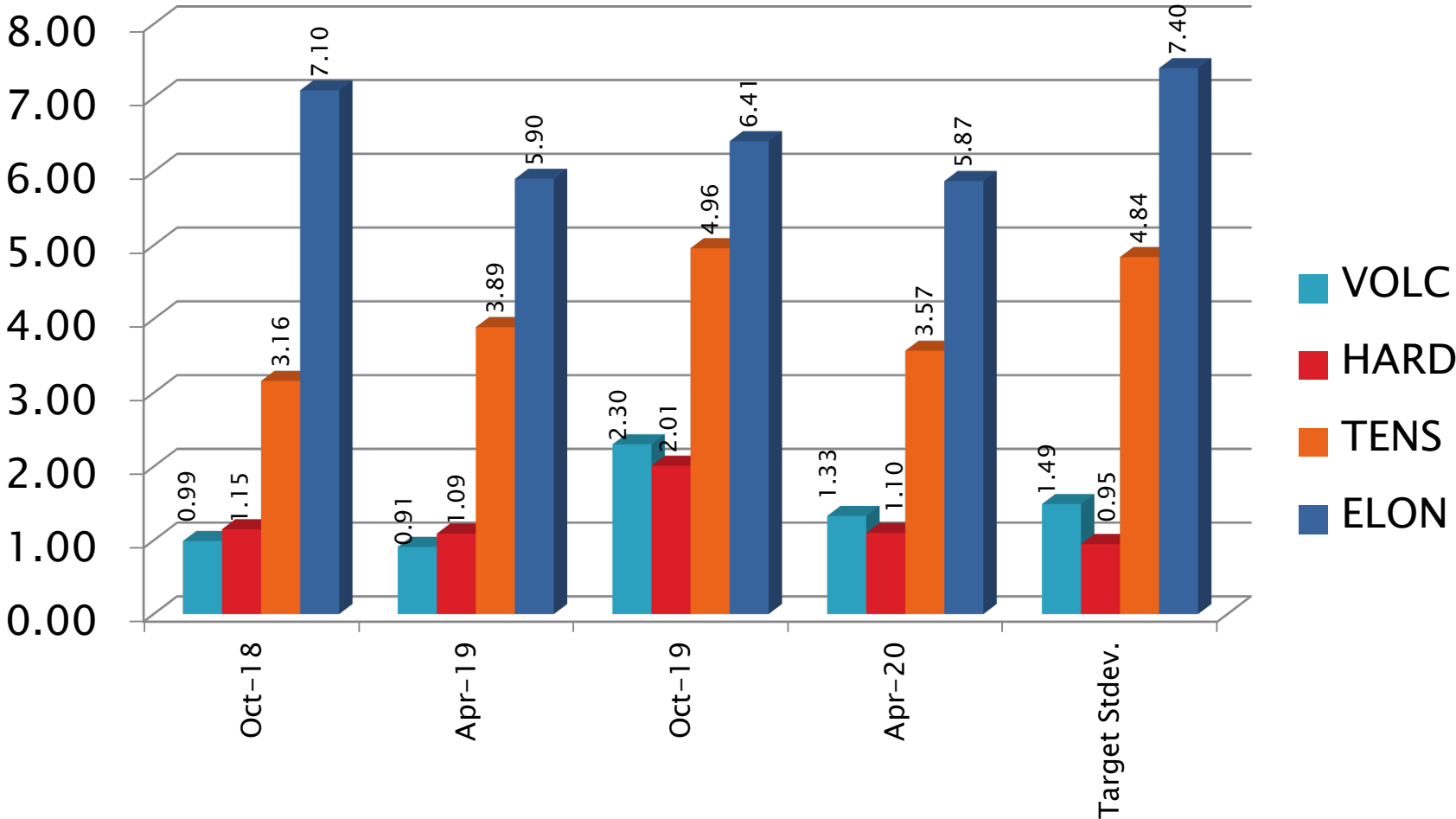


# EOEC Precision Estimates - Silicone





# EOEC Precision Estimates - VAMAC



# Information Letters & Technical Updates\*

Test	Date	IL or Memo Number	Topic
EOEC	20200109	Mem 20-001	Replacement Reference Oil SL107 Performance Targets
EOEC	20200330	IL 20-1, Seq. 11	Heavy Duty Polyacrylate Elastomer Correction Factor for Volume Change
EOEC	20200413	EOEC-20200324	Report Package Revision Notice (effective 20200429)

\*Available from TMC Website

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# Reference Oil Inventory Estimated Life

Oil	TMC Inventory Gallons	Gallons Shipped Past 12 Months	Estimated Life
SL107 <sup>A, B</sup>	3532	341	5+ years

<sup>A</sup>TMC Inventory is used across several test methods

<sup>B</sup>SL107 replaces oil 1006; still assigning existing lab inventories of 1006 batches where available.

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# Miscellaneous Information

- ▶ Available on TMC Website:
  - Oil Assignment Request and Test File Upload
  - Live Reference Test Data Bases
  - Surveillance Panel Meeting Minutes
- ▶ [www.astmtmc.cmu.edu](http://www.astmtmc.cmu.edu)



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