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Test Monitoring Center

203 Armstrong Drive, Freeport, PA 16229, USA

www.astmtmc.org
412-365-1000

MEMORANDUM: 23-013
DATE: May 9, 2023
TO: Nick Schaup, Chairman, L-60-1 Surveillance Panel
FROM: Dylan Beck *Dylan Beck*
SUBJECT: L-60-1 Reference Oil Testing from October 30, 2022 through March 31, 2023

Attached is a summary of testing activity this period

DJB/djb/mem23-013.djb.doc

cc: Jeff Clark

Sean Moyer

L-60-1 Surveillance Panel

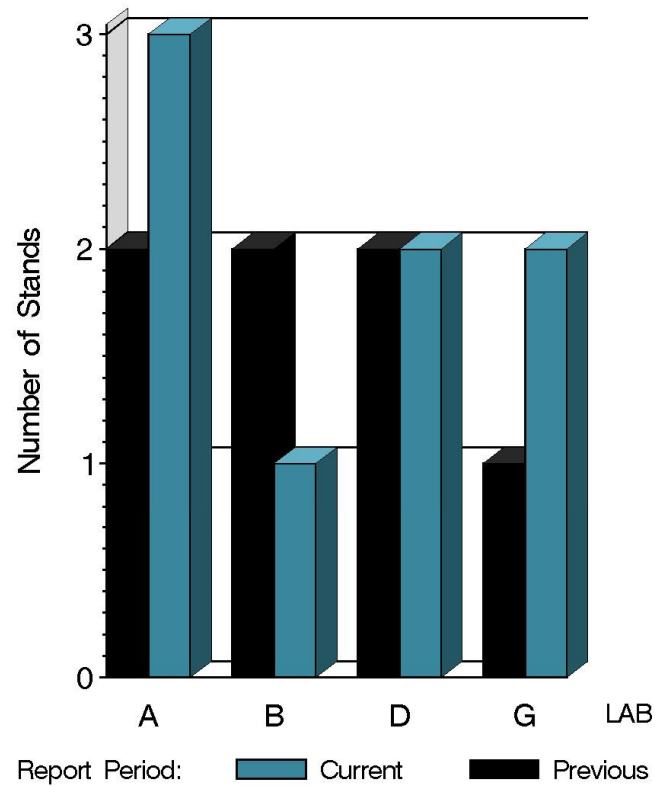
<https://www.astmtmc.org/ftp/docs/gear/l601/semiannualreports/l601-04-2023.pdf>

Distribution: email

L-60-1 (D5704)

	Reporting Data	Calibrated on 3-31-23
Number of Labs	4	4
Number of Stands	8	8

BY-LAB STAND DISTRIBUTION



9:48:21 24APR2023



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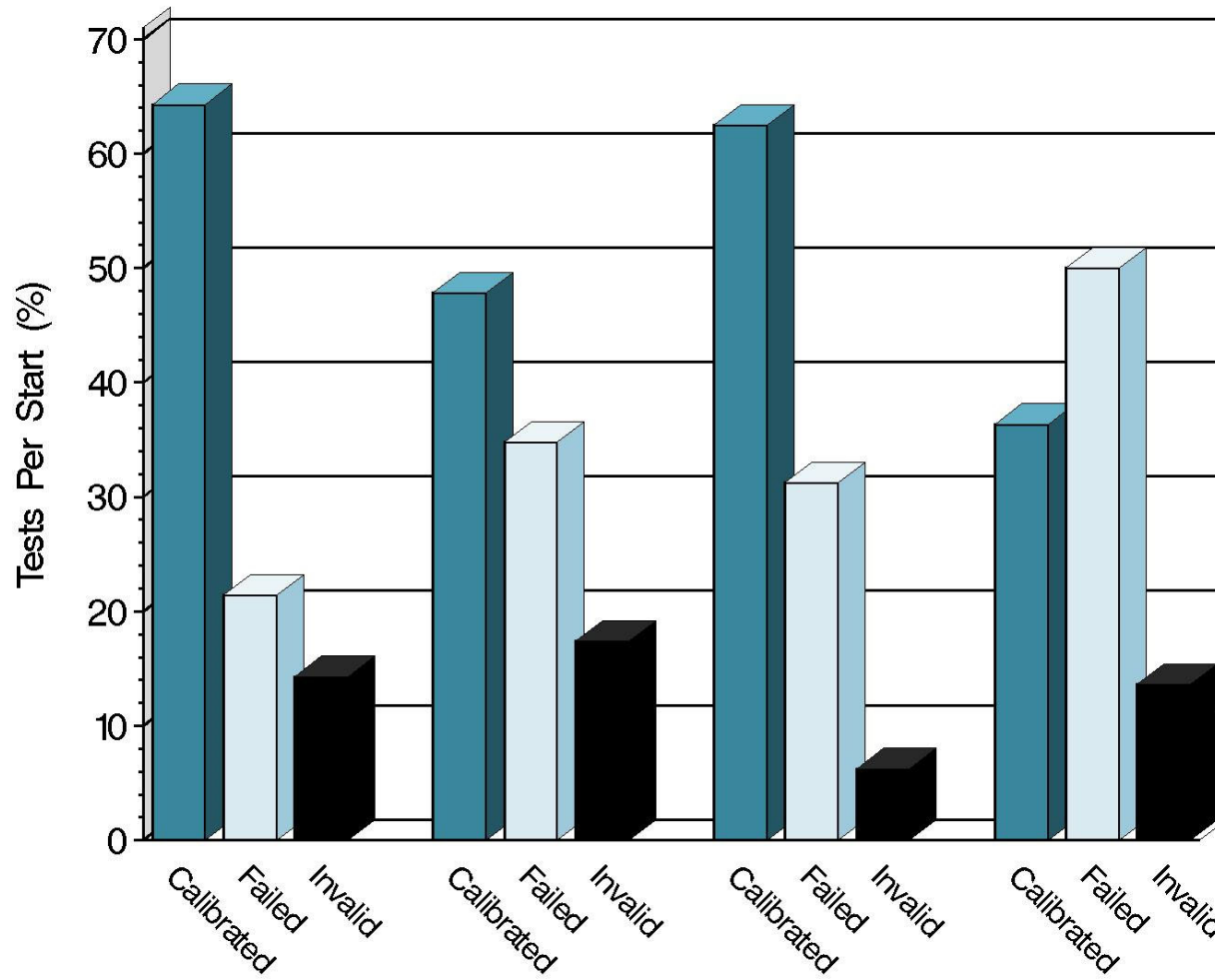
L-60-1 (D5704)

Test Distribution by Oil and Validity

				Totals	
		148-1	155-1	Last Period	This Period
Accepted for calibration	AC	2	6	10	8
Rejected (Mild)	OC	0	0	0	0
Rejected (Severe)	OC	3	2	4	5
Rejected (Precision)	OC	3	3	1	6
Unacceptable Info Run	MI	0	1	0	1
Invalidated calibration	RC	0	0	1	0
Acceptable info run	NI	4	0	5	4
Aborted	XC	2	1	0	3
Total		14	13	21	27

L-60-1 (D5704)

CALIBRATION ATTEMPT SUMMARY



2021OCT

2022APR

2022OCT

2023APR

Resolution

Report Period

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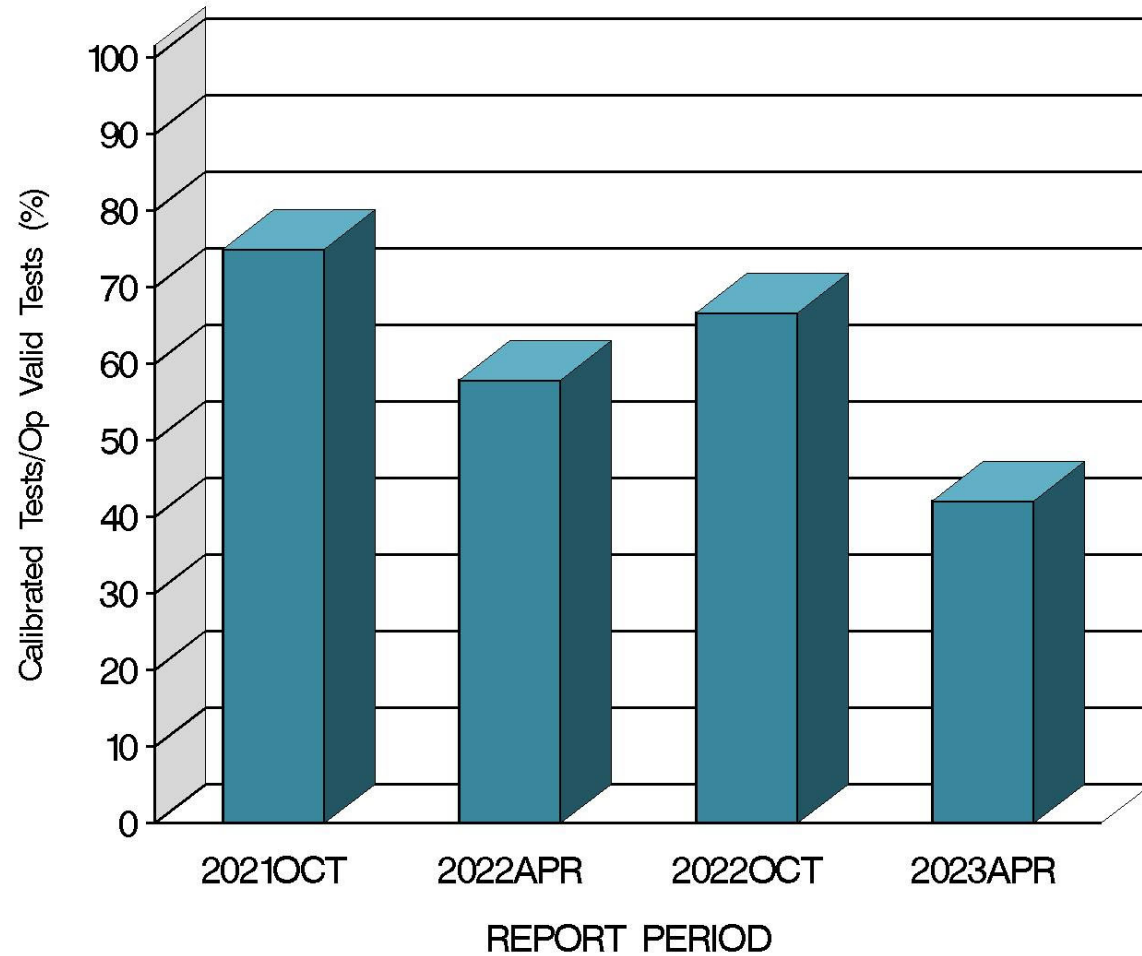
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L-60-1 (D5704)

OPERATIONALLY VALID TESTS
MEETING ACCEPTANCE CRITERIA



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CAUSES FOR LOST TESTS

		Oil		Validity			Loss Rate		
Lab	Cause	148-1	155-1	LI	RC	XC	Lost	Starts	%
D	Heater Control Issues		●			●	1	4	25%
A	Temp Sensor Failure	●				●	2	11	18%
	Heater Control Issues	●				●			
Lost		2	1	0	0	3			
Starts		14	13	27	27	27			
%		14%	7.7%	0%	0%	11%			

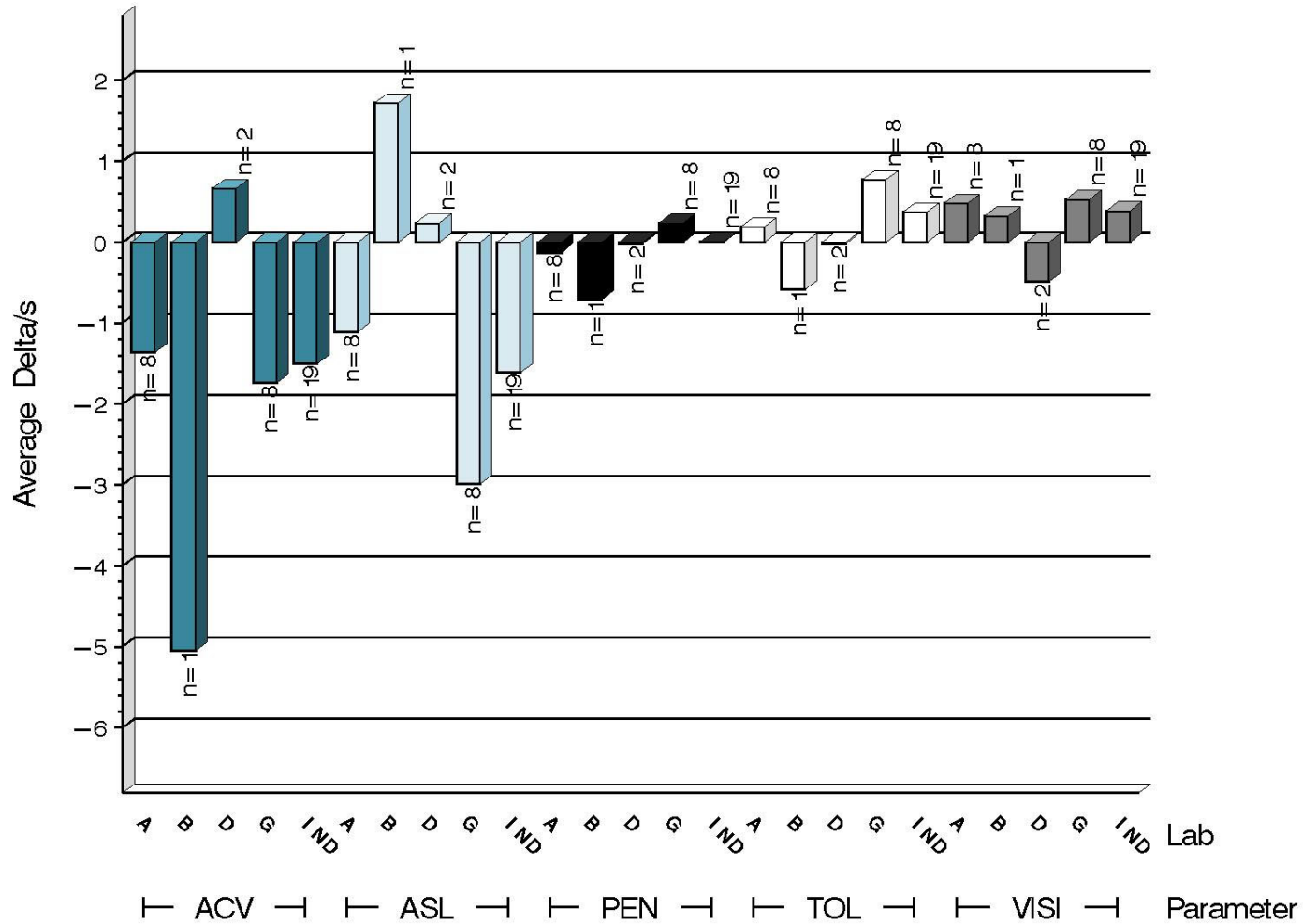
L-60-1 (D5704)

Average Δ /s by Lab						
Lab	n	VISI	PEN	TOL	ACV	ASL
A	8	0.480	-0.128	0.190	-1.362	-1.111
B	1	0.327	-0.712	-0.583	-5.051	1.723
D	2	-0.491	-0.021	-0.017	0.665	0.238
<i>Industry</i>	19	0.391	0.006	0.372	-1.502	-1.611
<i>Shift*</i>	19	2.995	0.002	0.093%	-0.767 merits	-0.171 merits

*computed using severity adjustment standard deviation.

L-60-1 (D5704)

TEST SEVERITY
DELTA/S BY LAB



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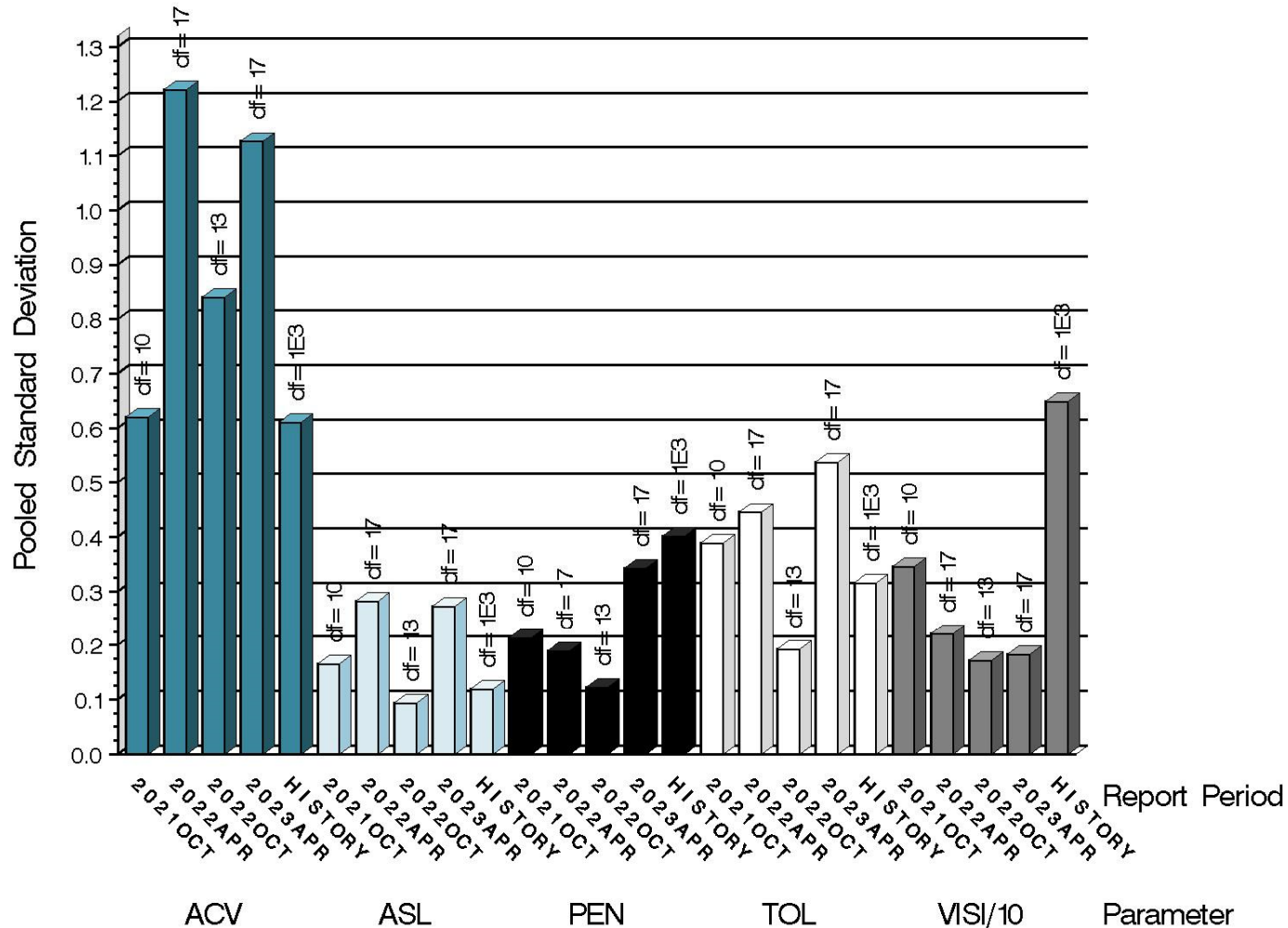


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L-60-1 (D5704)

TEST PRECISION
 POOLED STANDARD DEVIATION
 BY SIX-MONTH ASTM REPORT PERIOD



due to the vastly larger reported results for VISI in relation to the other parameters, it is shown scaled by 0.1

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L-60-1 (D5704)

SUMMARY OF SEVERITY & PRECISION

Severity

ACV and ASL both remained outside of the limits in the severe direction for most of the reporting period.

TOL exceeded the severity action limit this period but is now within limits.

Precision

ACV and ASL both exceeded the action limit this period and remain outside of the limit.

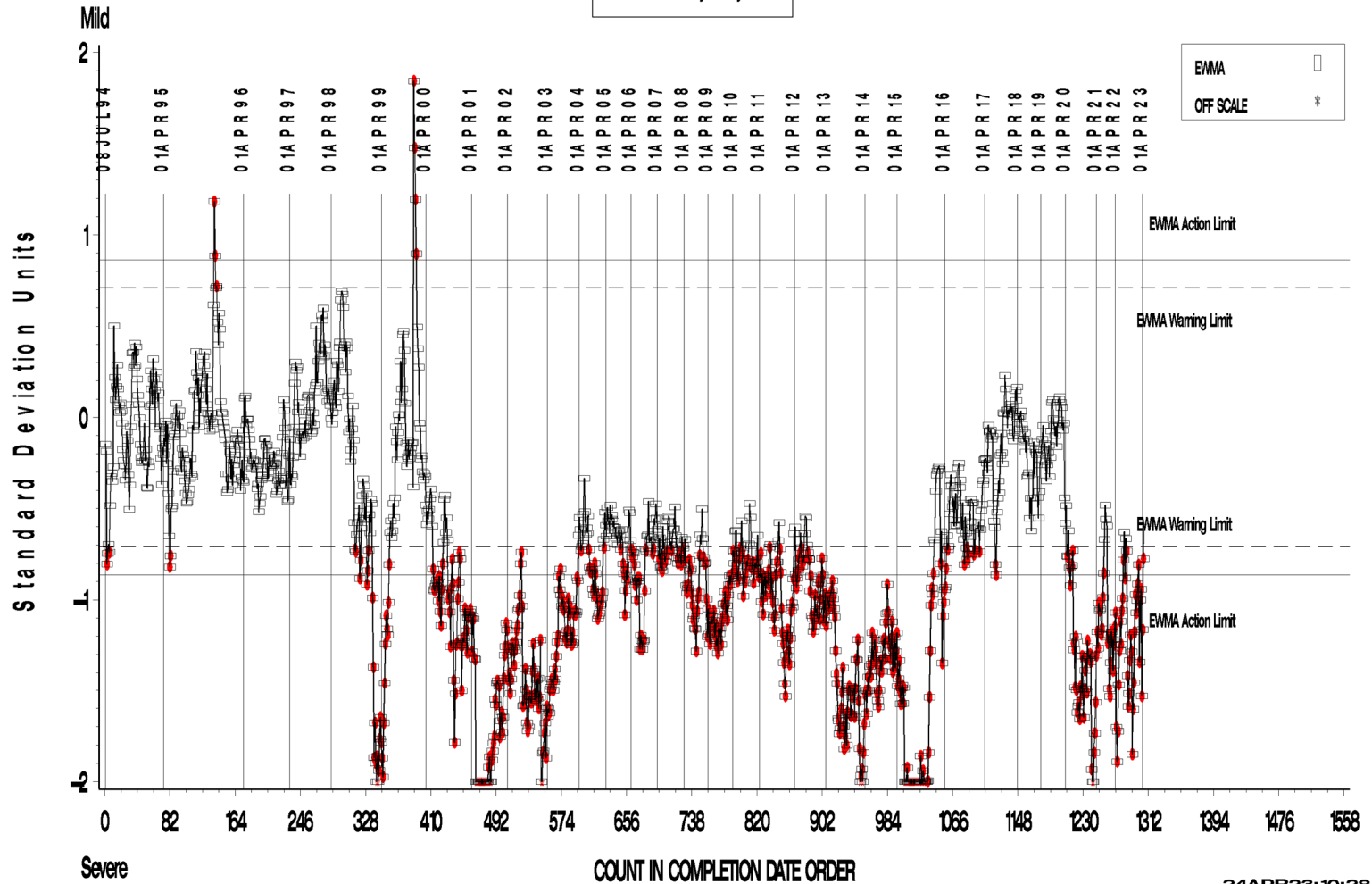
Industry control charts follow.

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

LTMS Severity Analysis



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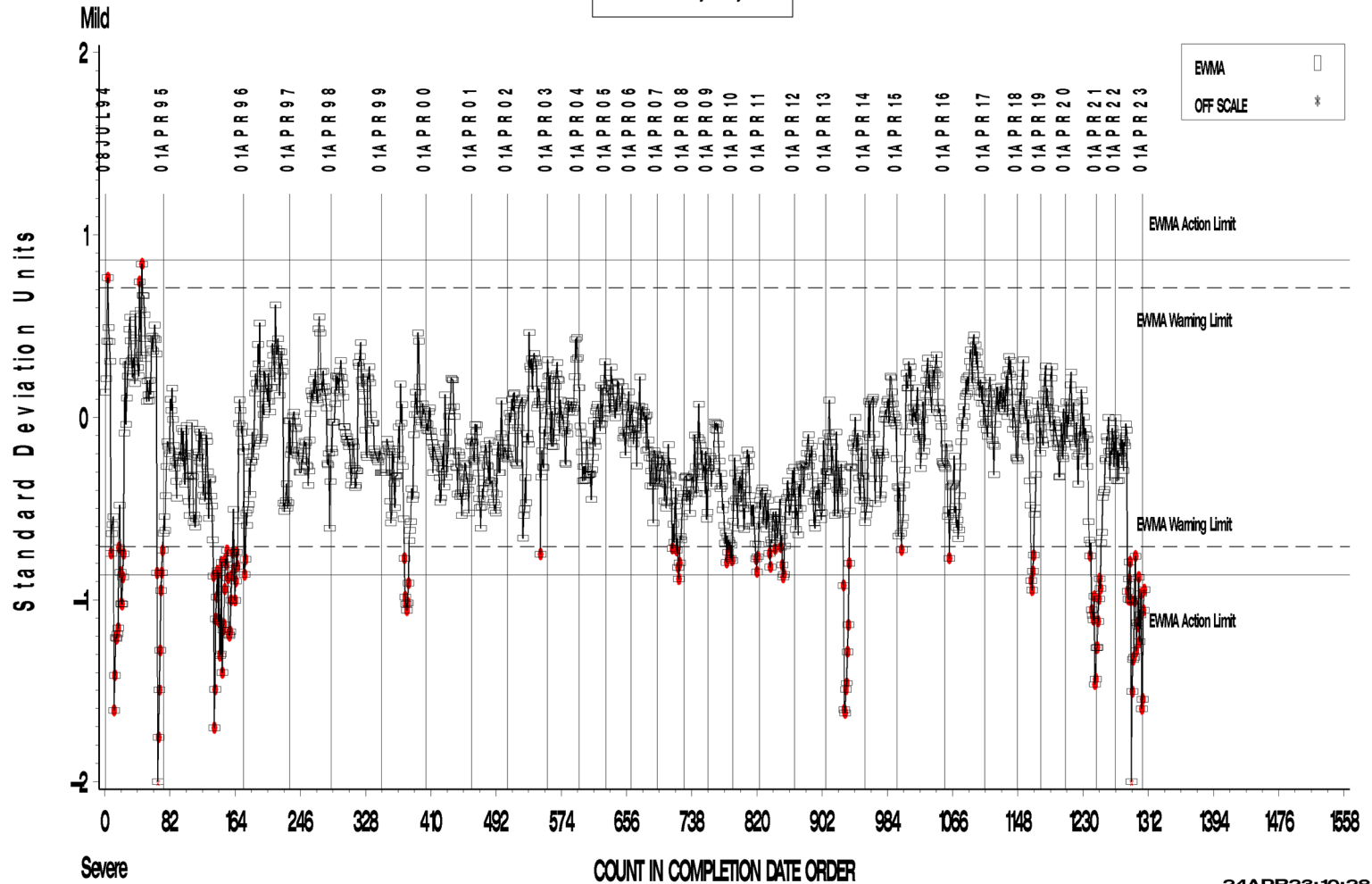
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

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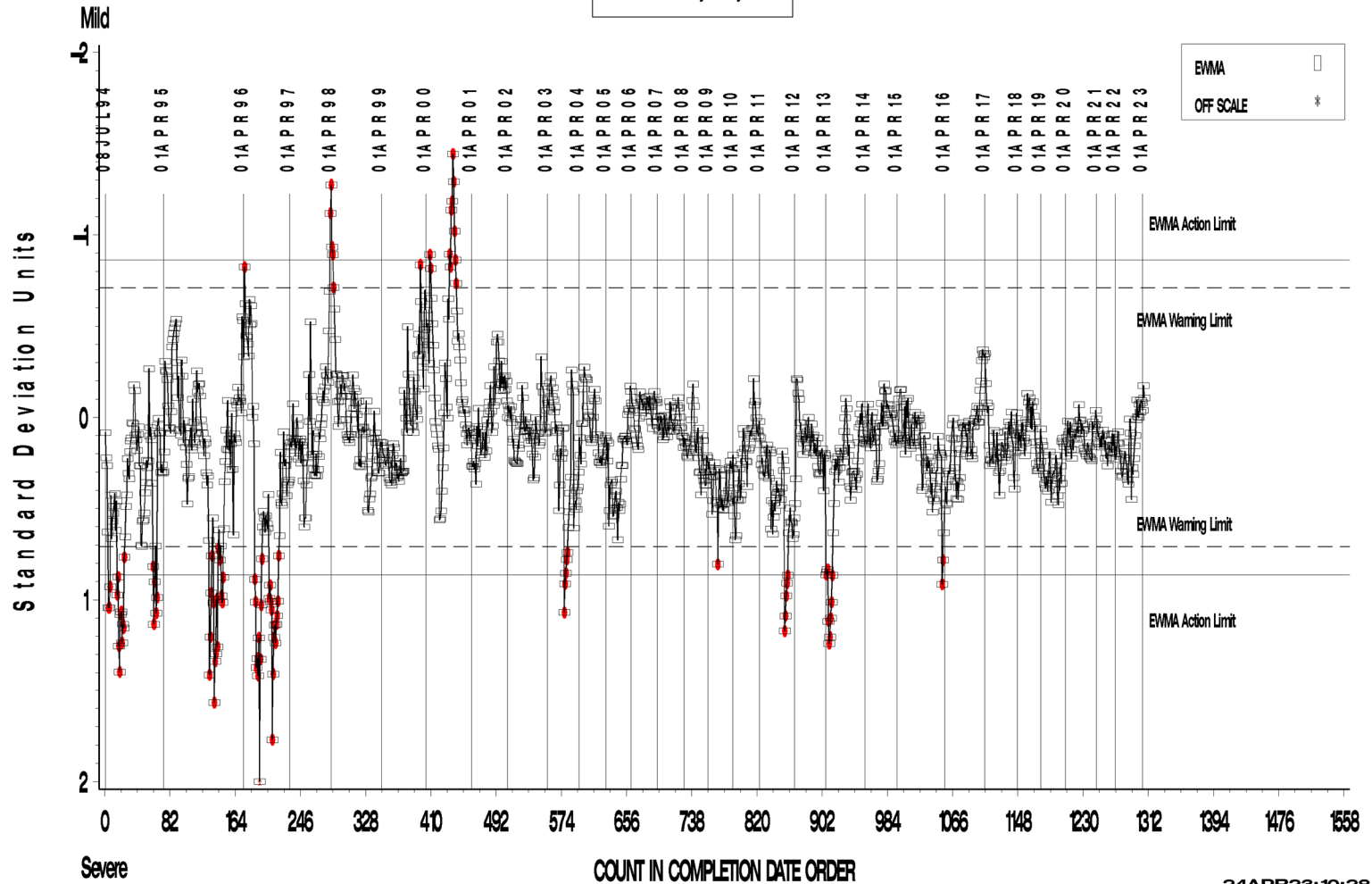
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

LTMS Severity Analysis



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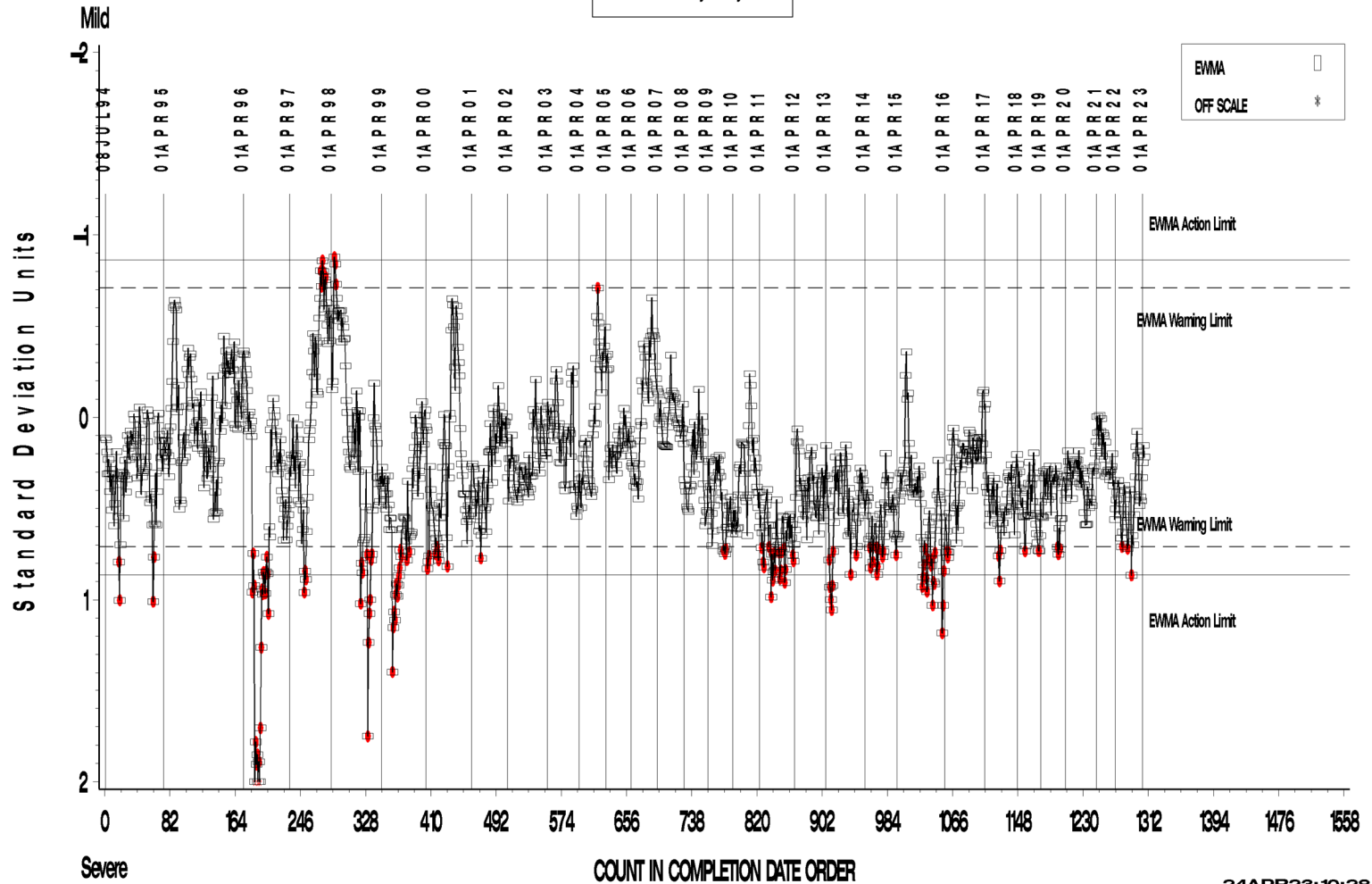
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

LTMS Severity Analysis



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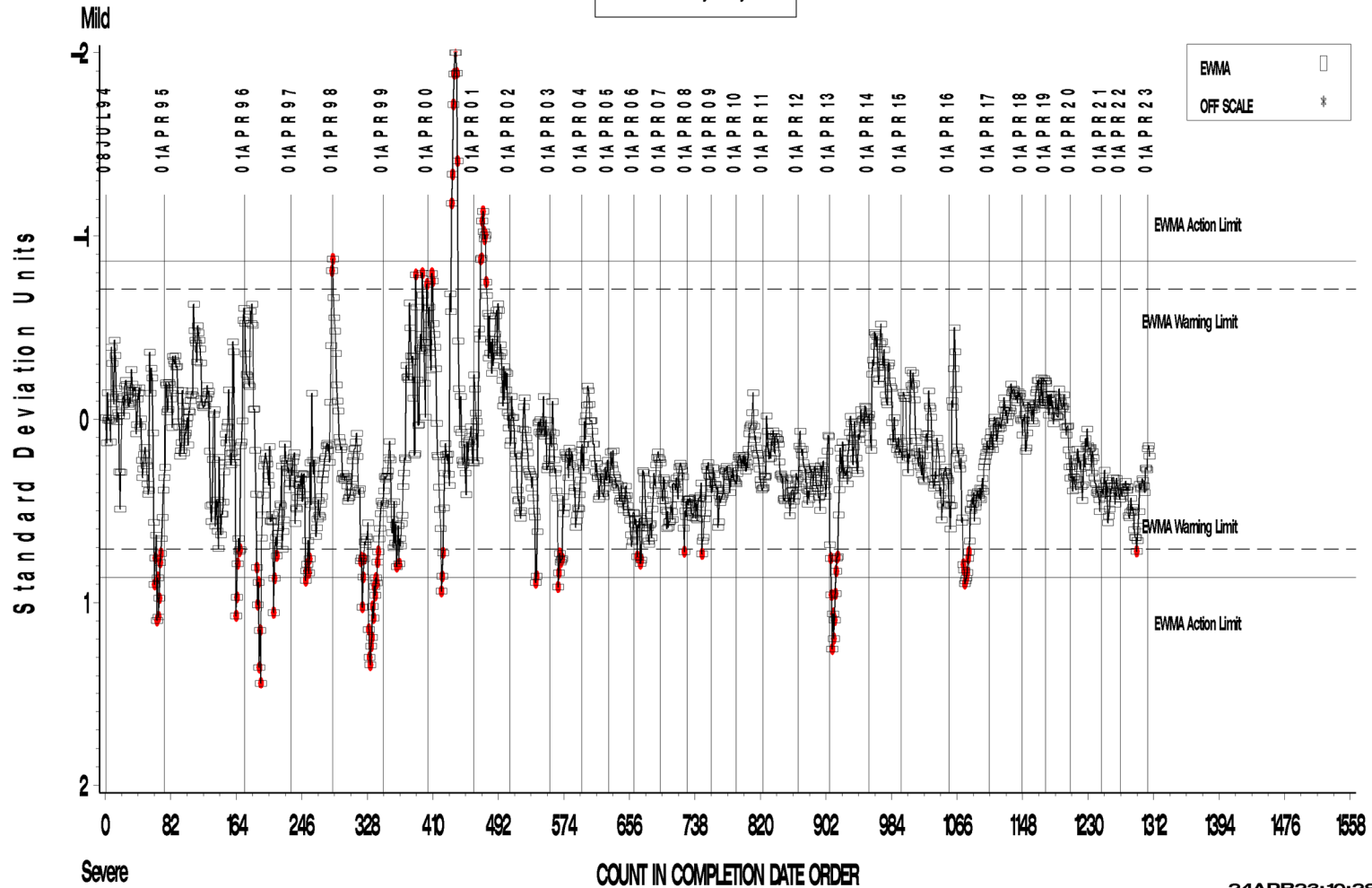
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL VISCOSITY INCREASE

LTMS Severity Analysis



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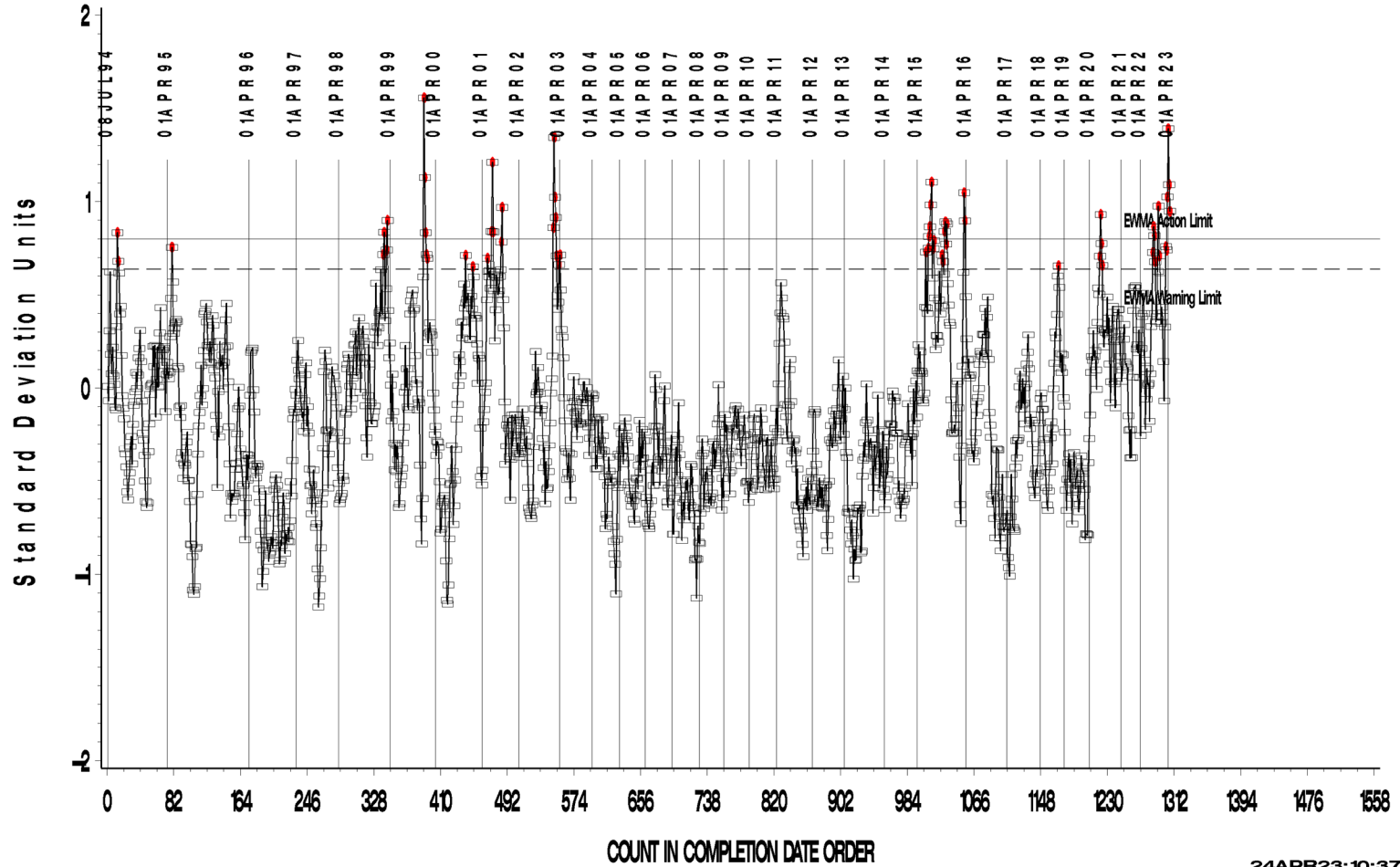
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LTMS Precision Analysis



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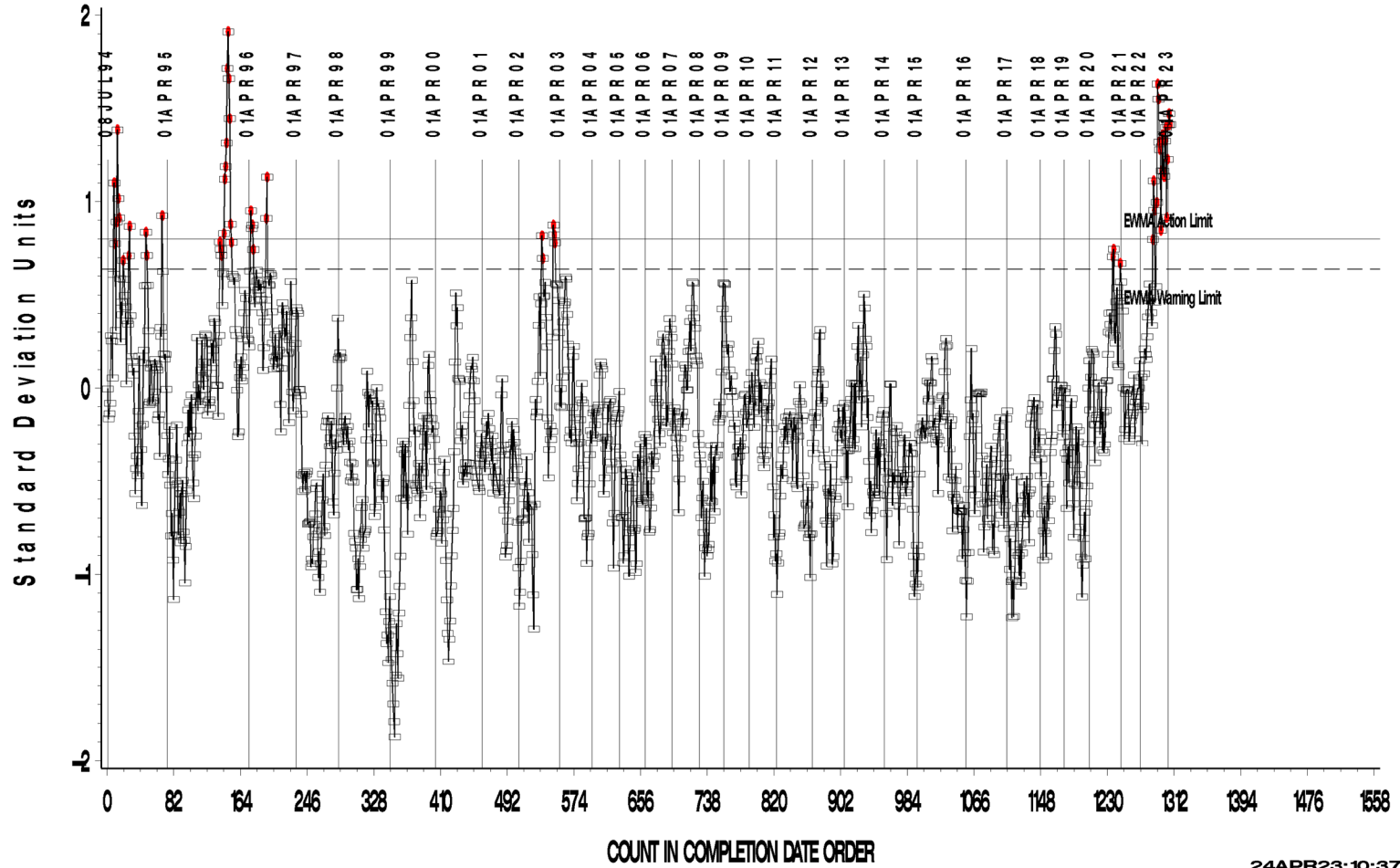
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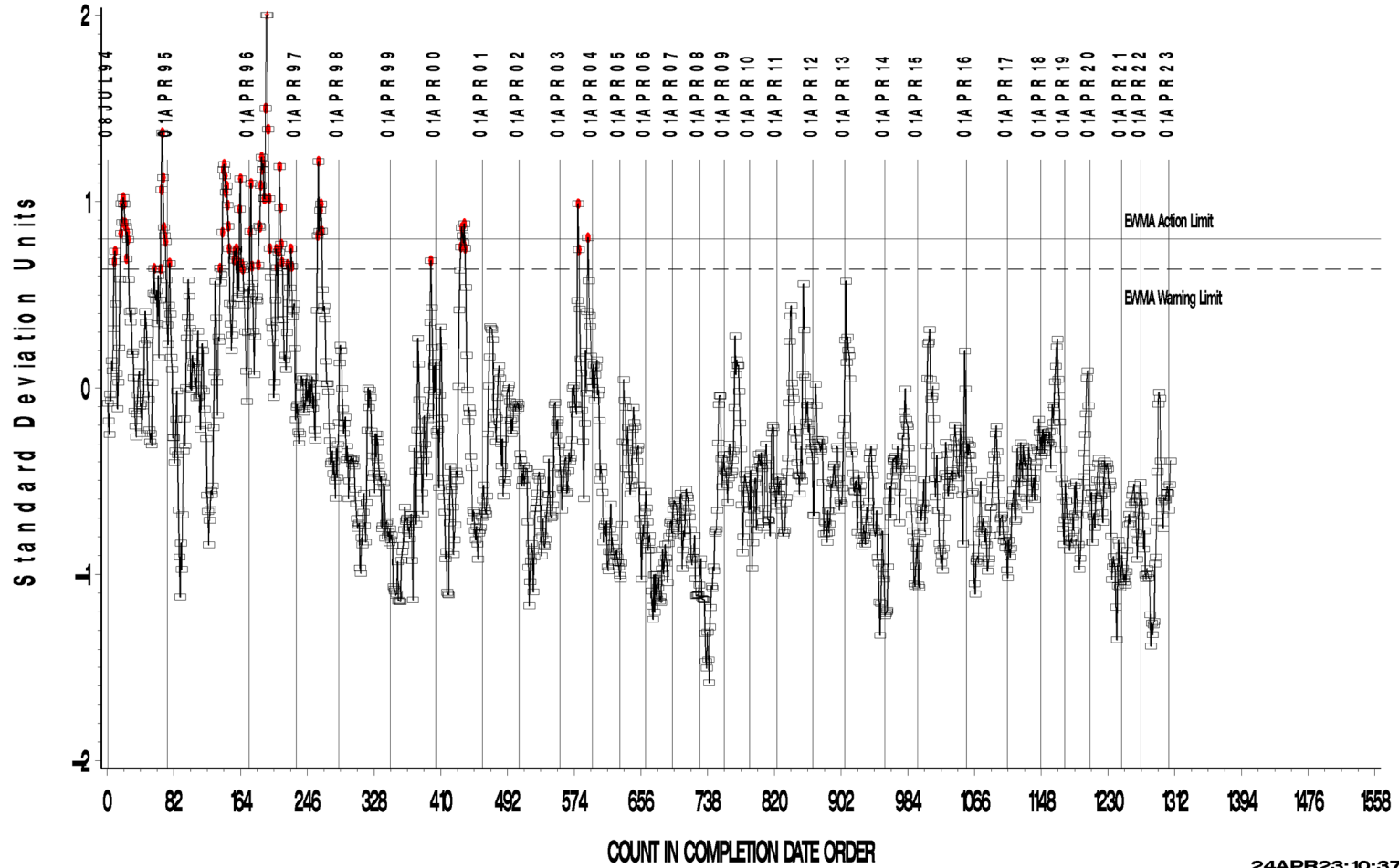
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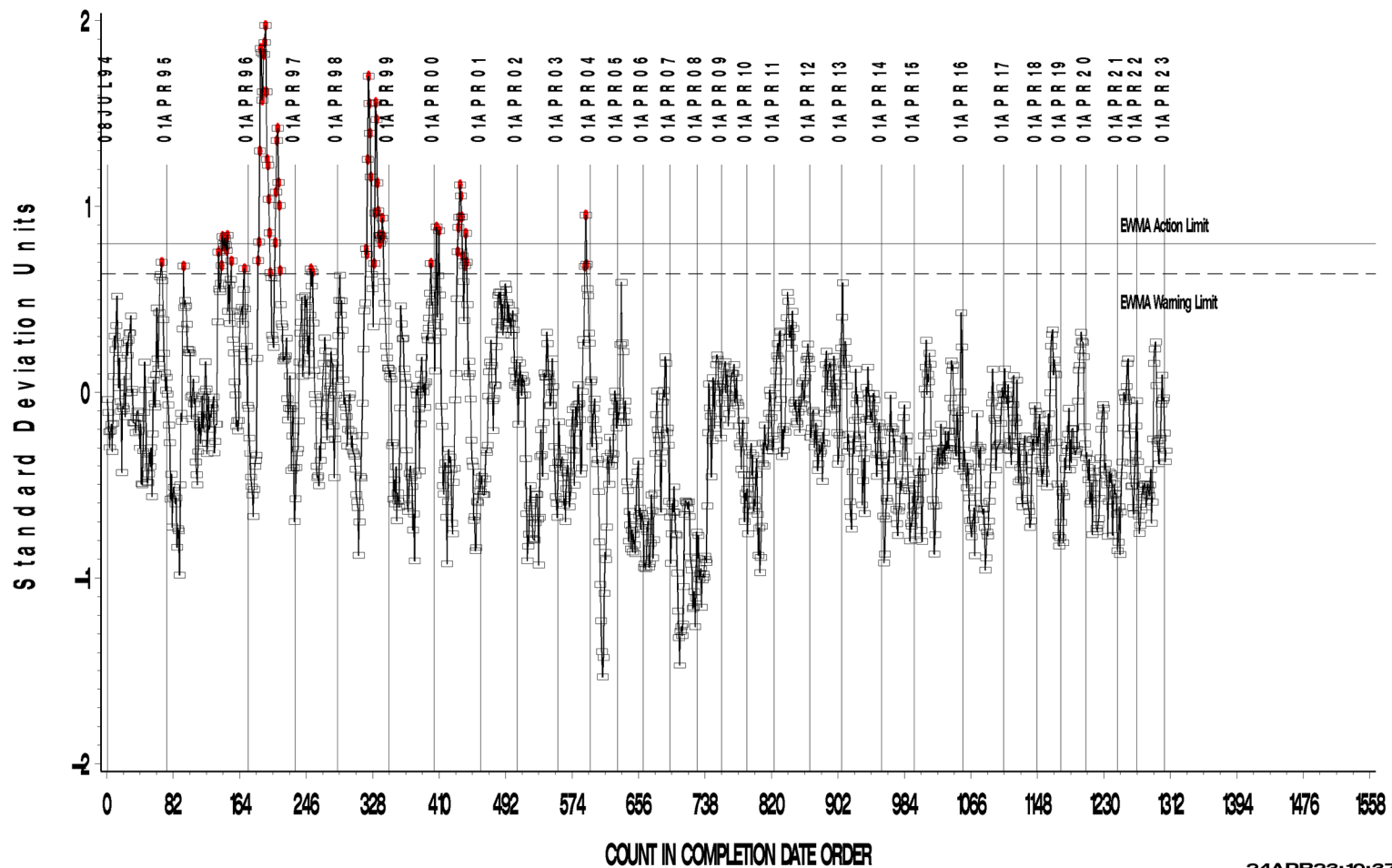
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

LTMS Precision Analysis



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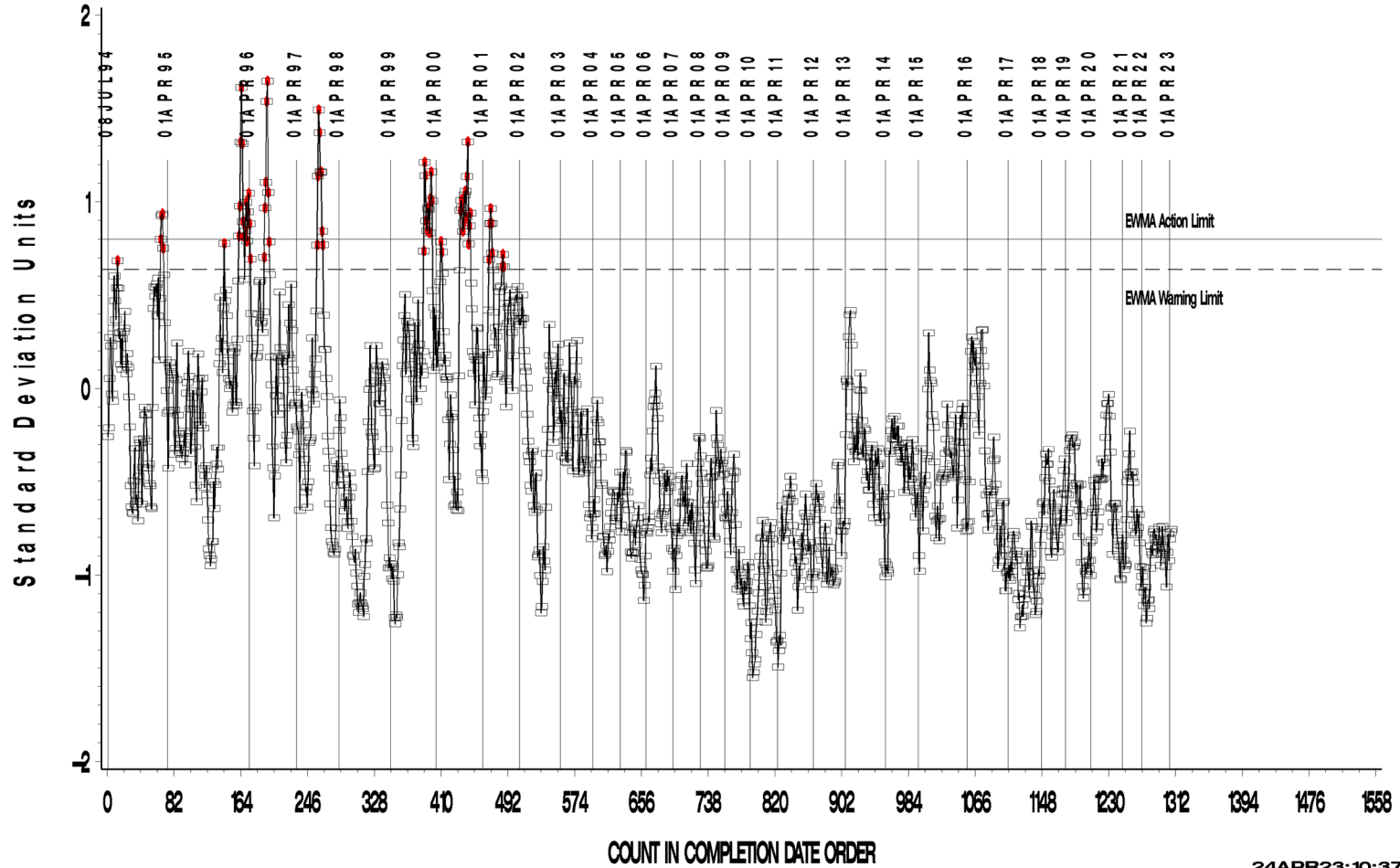
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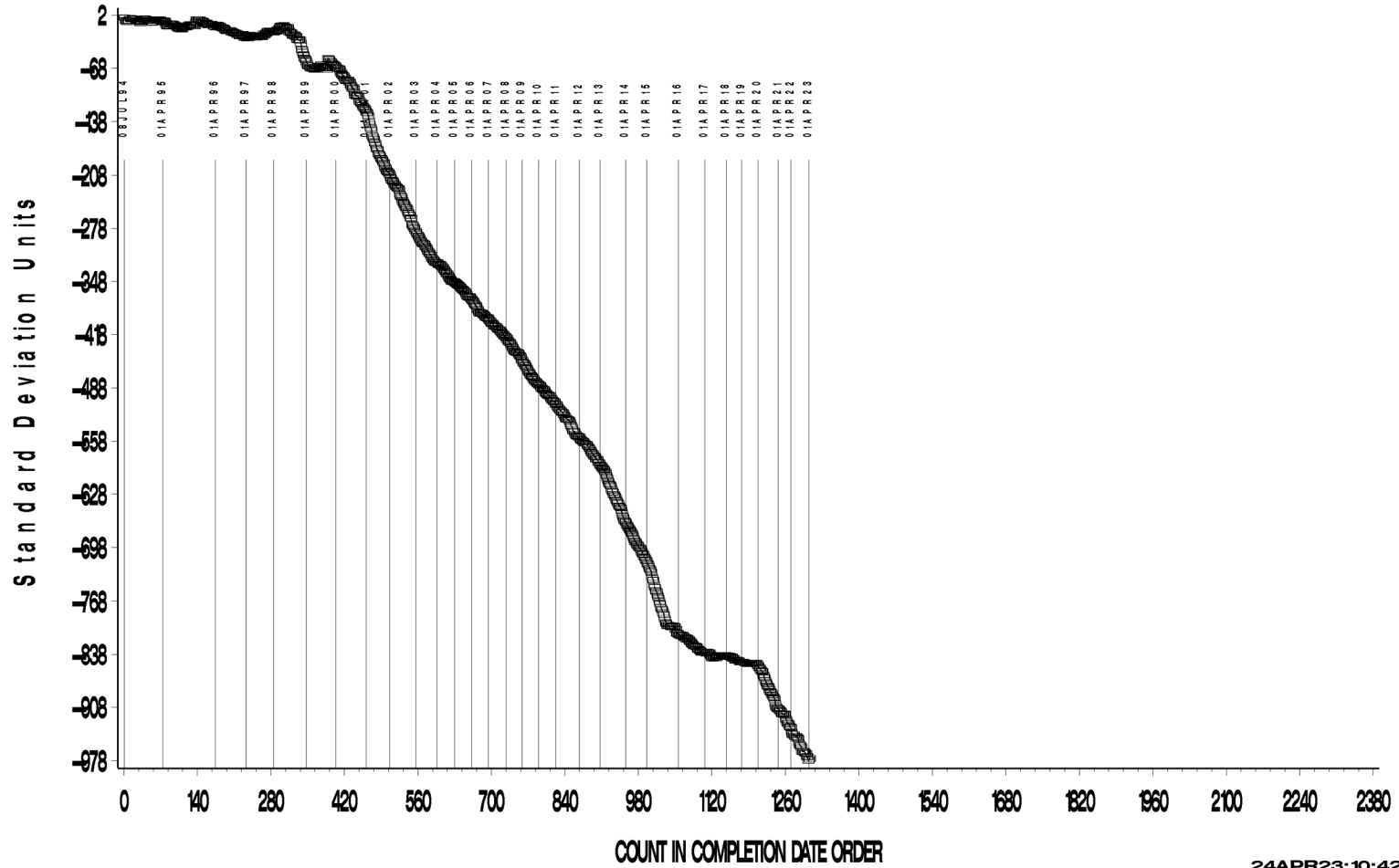
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

CUSUM Severity Analysis



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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

CUSUM Severity Analysis

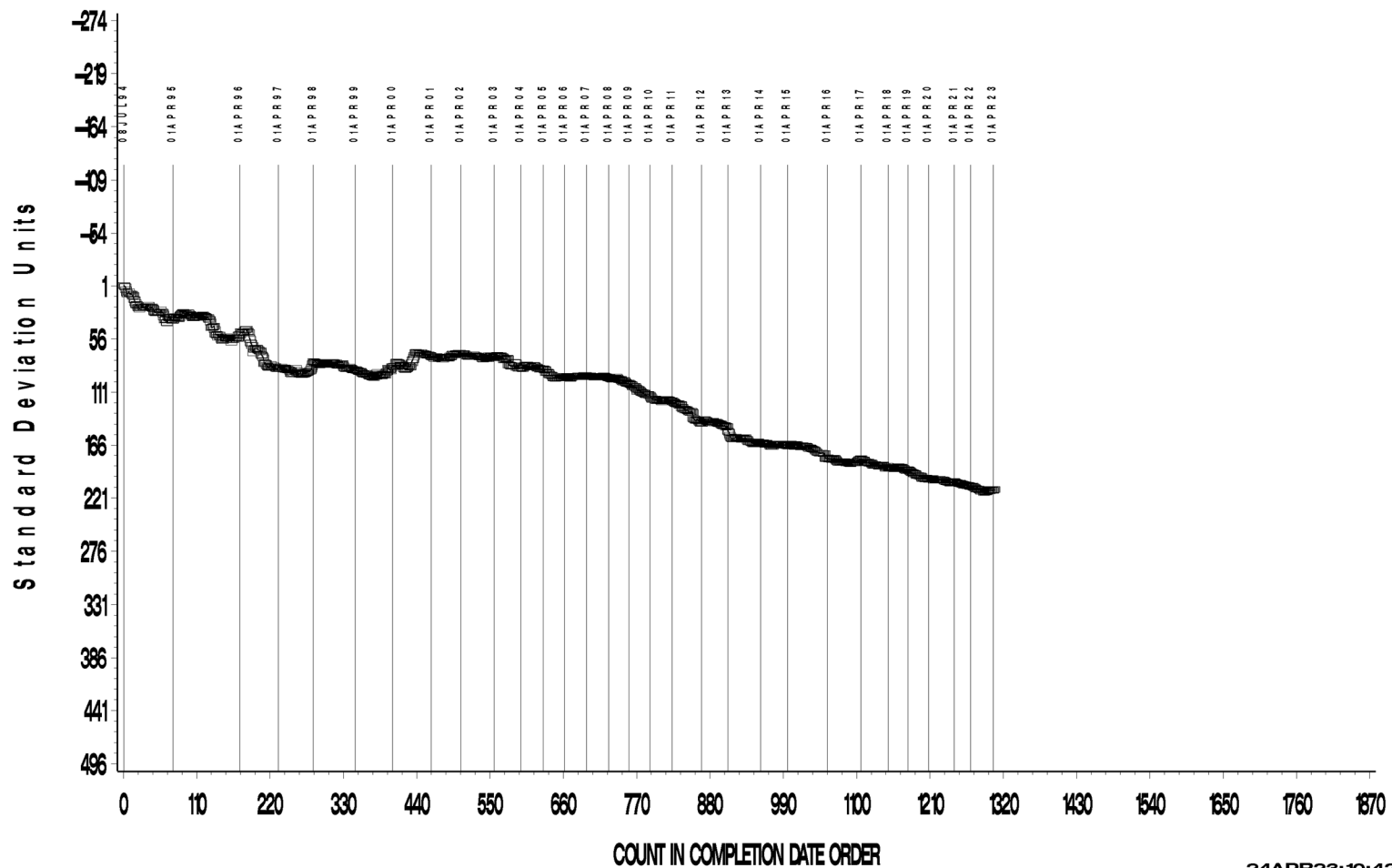


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CUSUM Severity Analysis



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L-60-1 (D5704)

TIMELINE ADDITIONS

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

L-60-1 (D5704)

LAB VISITS

No L-60-1 lab visits were conducted during this reporting period.

INFORMATION LETTERS

No information letters were issued during this reporting period.

L-60-1 (D5704)

STATUS OF REFERENCE OIL SUPPLY

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
148-1	32	108	6.8
155-1	28	265	16.6
155-2	9	3892	243.3
Total	69	4265	266.7

The surveillance panel has asked that the TMC reserve a portion of oil 155-1 for L-60-1 testing. The TMC quantity shown for this oil is for that reserved portion. A separate quantity of 16.4 gallons is available for use in other gear testing. The panel has begun the process of approving 155-2 as a replacement for oil 155-1.

(108) tests of oil 148-1 remain in TMC inventory; however, this is less than 7 gallons. When the need arises, it will not be possible to obtain a reblend of this oil. The panel has begun the process of creating a possible replacement for this oil.