



Test Monitoring Center


@ Carnegie Mellon University
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<http://astmtmc.cmu.edu>
412-365-1000

MEMORANDUM: 14-027

DATE: October 28, 2014

TO: Larry Hamilton, Chairman, L-60-1 Surveillance Panel

FROM: Scott Parke 

SUBJECT: L-60-1 Reference Oil Testing from April 1, 2014 through September 30, 2014

Please find attached a summary of testing activity this period.

SDP/sdp/mem14-027.sdp.doc

cc: Frank Farber
Jeff Clark

L-60-1 Surveillance Panel

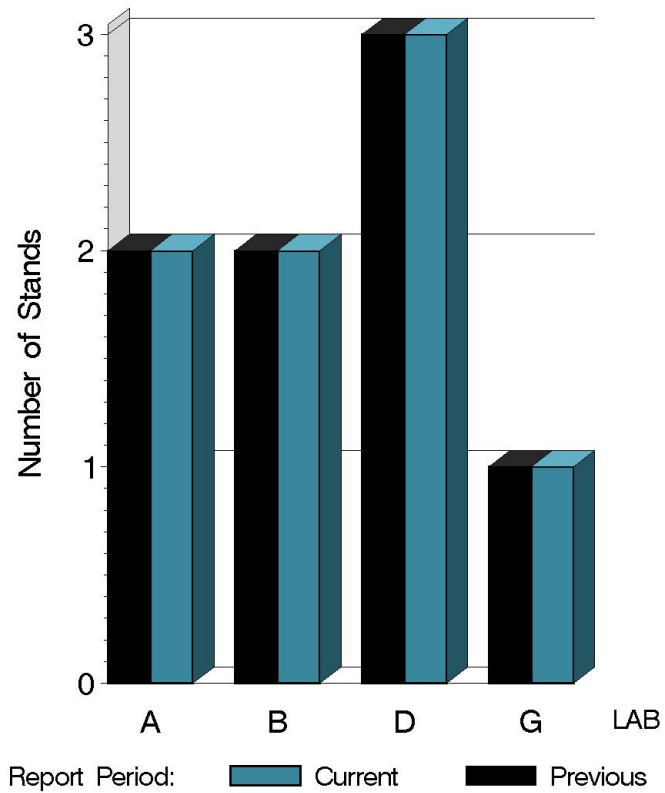
<ftp://ftp.astmtmc.cmu.edu/docs/gear/l601/semiannualreports/l601-10-2014.pdf>

Distribution: email

L-60-1 (D5704)

	Reporting Data	Calibrated on 9-30-14
Number of Labs	4	4
Number of Stands	8	8

BY-LAB STAND
DISTRIBUTION



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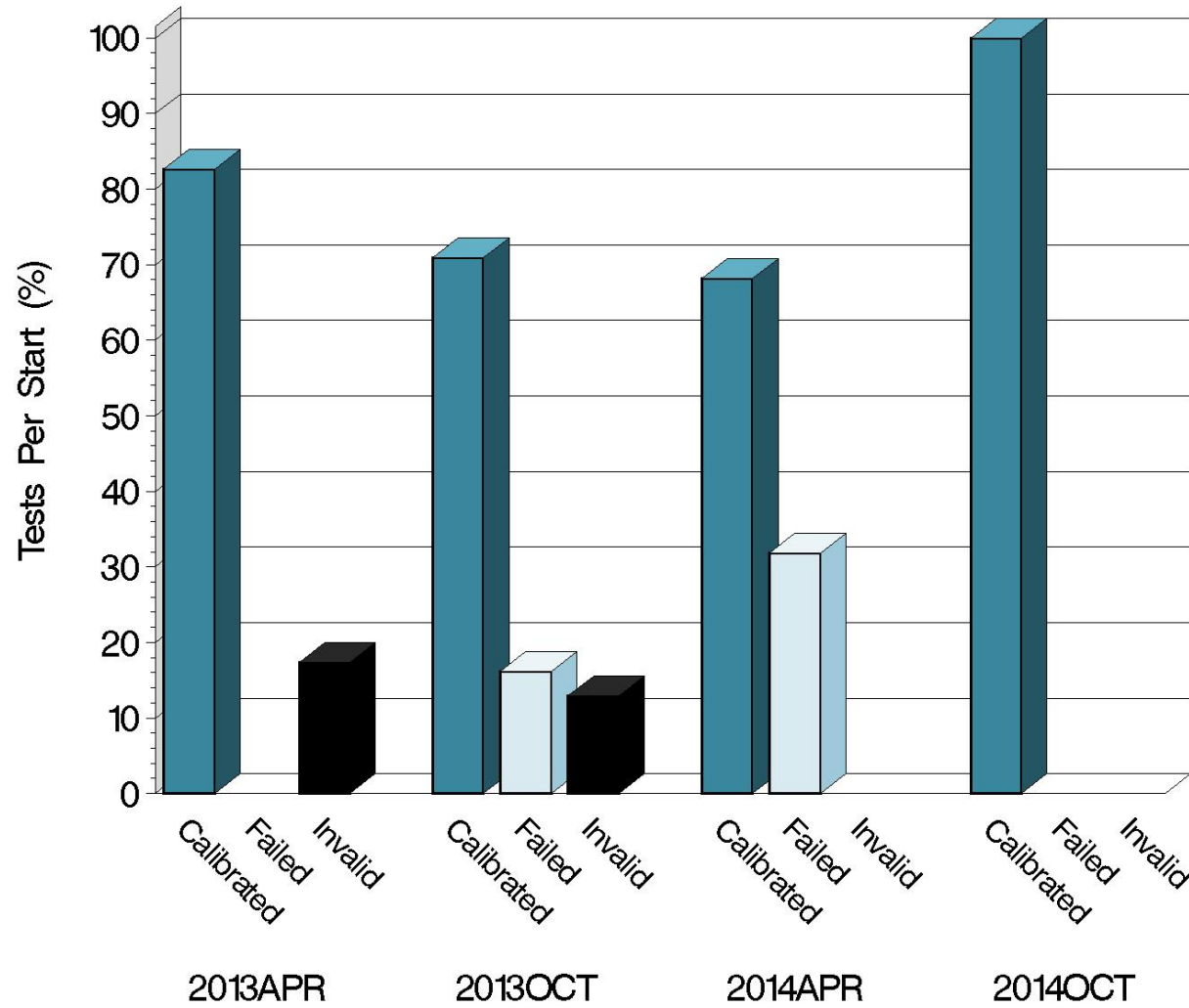
L-60-1 (D5704)

Test Distribution by Oil and Validity

					Totals	
		148-1	151-2	155-1	Last Period	This Period
Accepted for calibration	AC	10	10	0	15	20
Rejected (Mild)	OC	0	0	0	1	0
Rejected (Severe)	OC	0	0	0	6	0
Rejected (Precision)	OC	0	0	0	0	0
Invalidated calibration	LC	0	0	0	0	0
Hardware approval	NI	0	0	6	0	6
Operationally invalid	RC	0	0	0	0	0
Aborted	XC	0	0	0	0	0
Total		10	10	6	22	26

L-60-1 (D5704)

CALIBRATION ATTEMPT SUMMARY



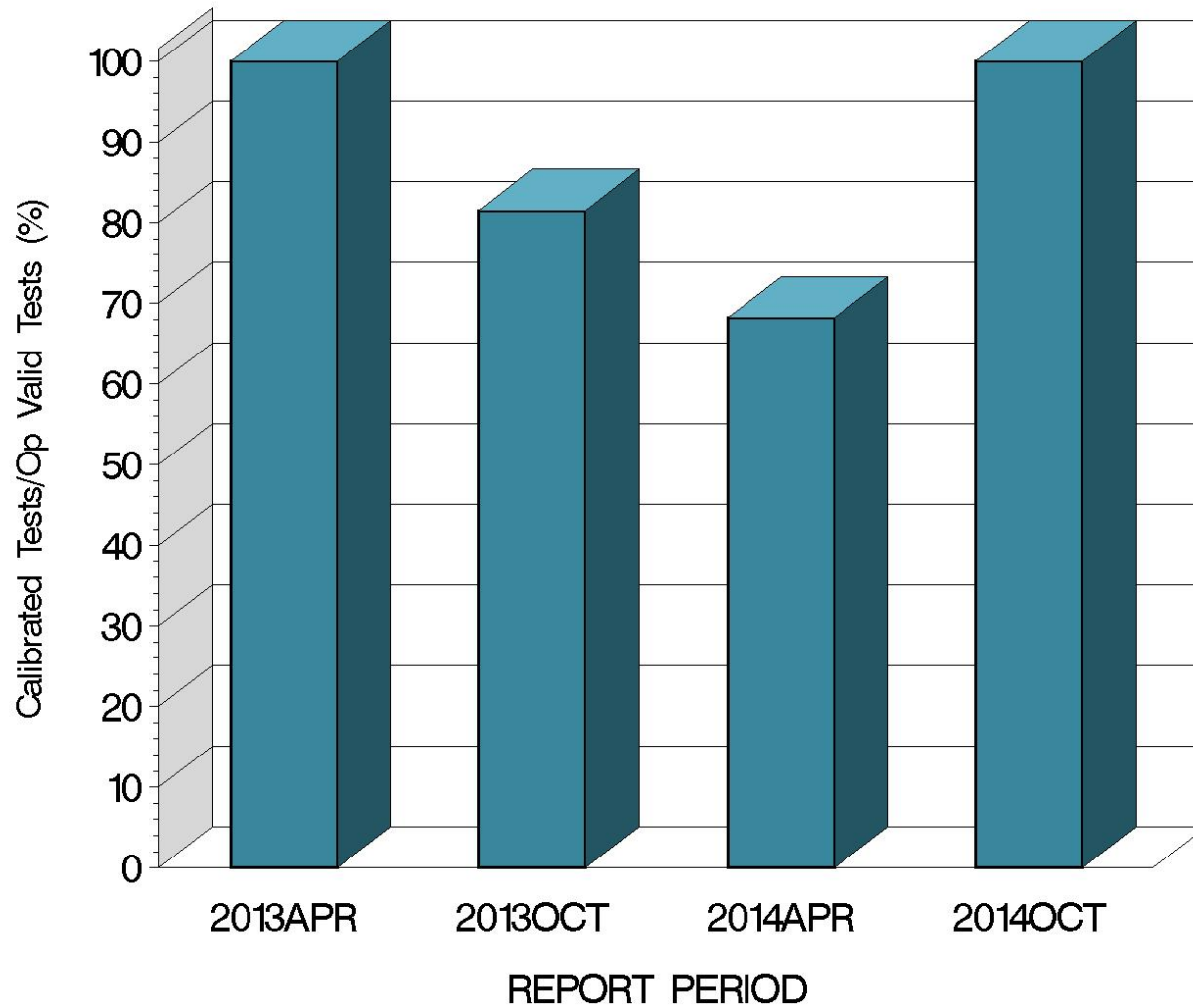
Resolution

Report Period

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OPERATIONALLY VALID TESTS
MEETING ACCEPTANCE CRITERIA



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L-60-1 (D5704)

CAUSES FOR LOST TESTS

		Oil			Validity			Loss Rate		
Lab	Cause	148-1	151-2	155-1	RC	LC	XC	Lost	Starts	%
	No tests were lost this period.							0	26	0%
	Lost	0	0	0	0	0	0			
	Starts	10	10	6	26	26	26			
	%	0%	0%	0%	0%	0%	0%			

L-60-1 (D5704)

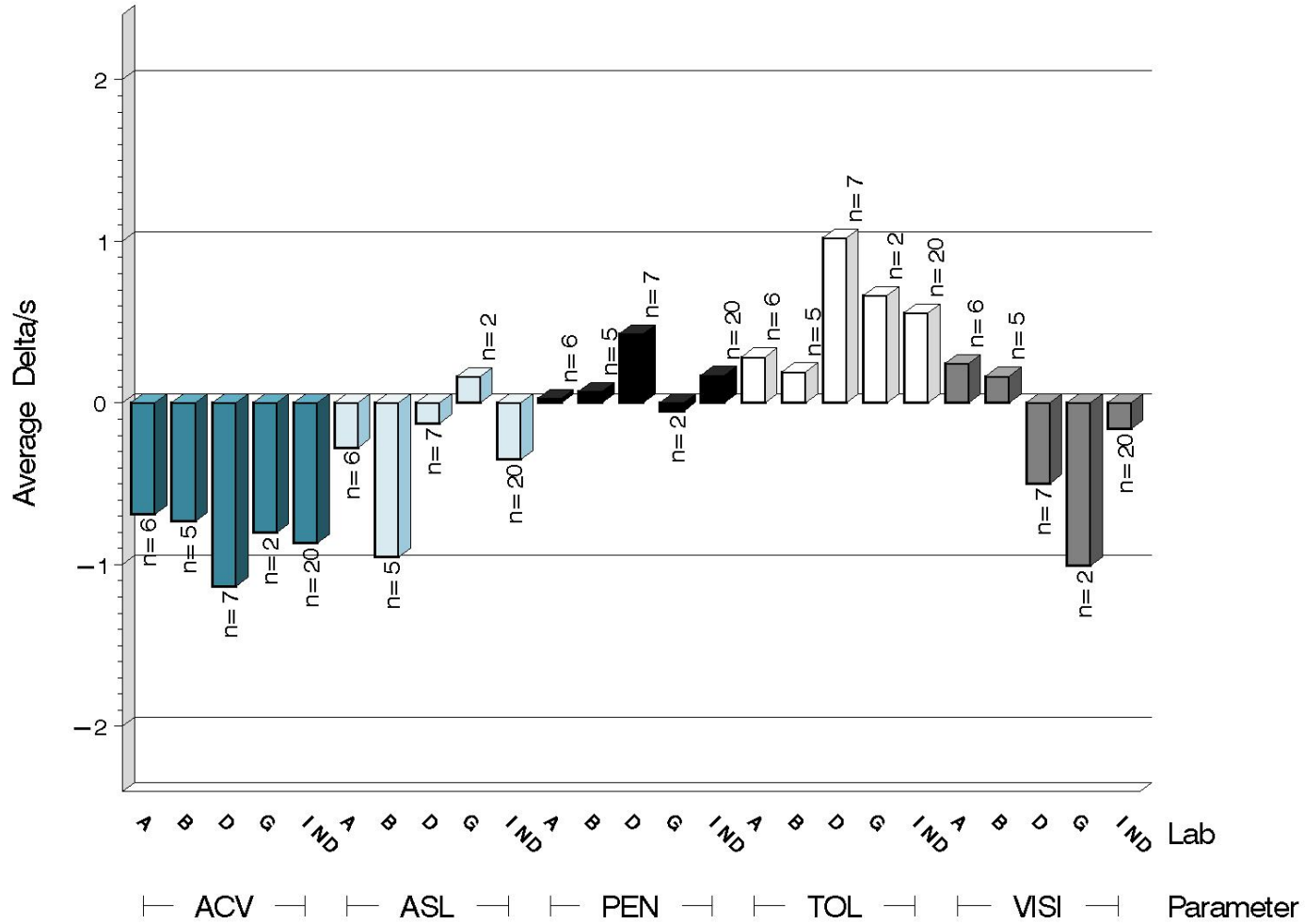
Average Δ /s by Lab						
Lab	n	VISI	PEN	TOL	ACV	ASL
A	6	0.243	0.029	0.285	-0.691	-0.277
B	5	0.166	0.071	0.193	-0.733	-0.954
D	7	-0.498	0.427	1.019	-1.134	-0.126
G	2	-1.008	-0.049	0.663	-0.803	0.162
Industry	20	-0.161	0.171	0.557	-0.868	-0.349
Shift*	20	-1.277%	0.104%	0.417%	-0.781 merits	-0.034 merits

*computed using severity adjustment standard deviation

L-60-1 (D5704)

TEST SEVERITY

DELTA/S BY LAB

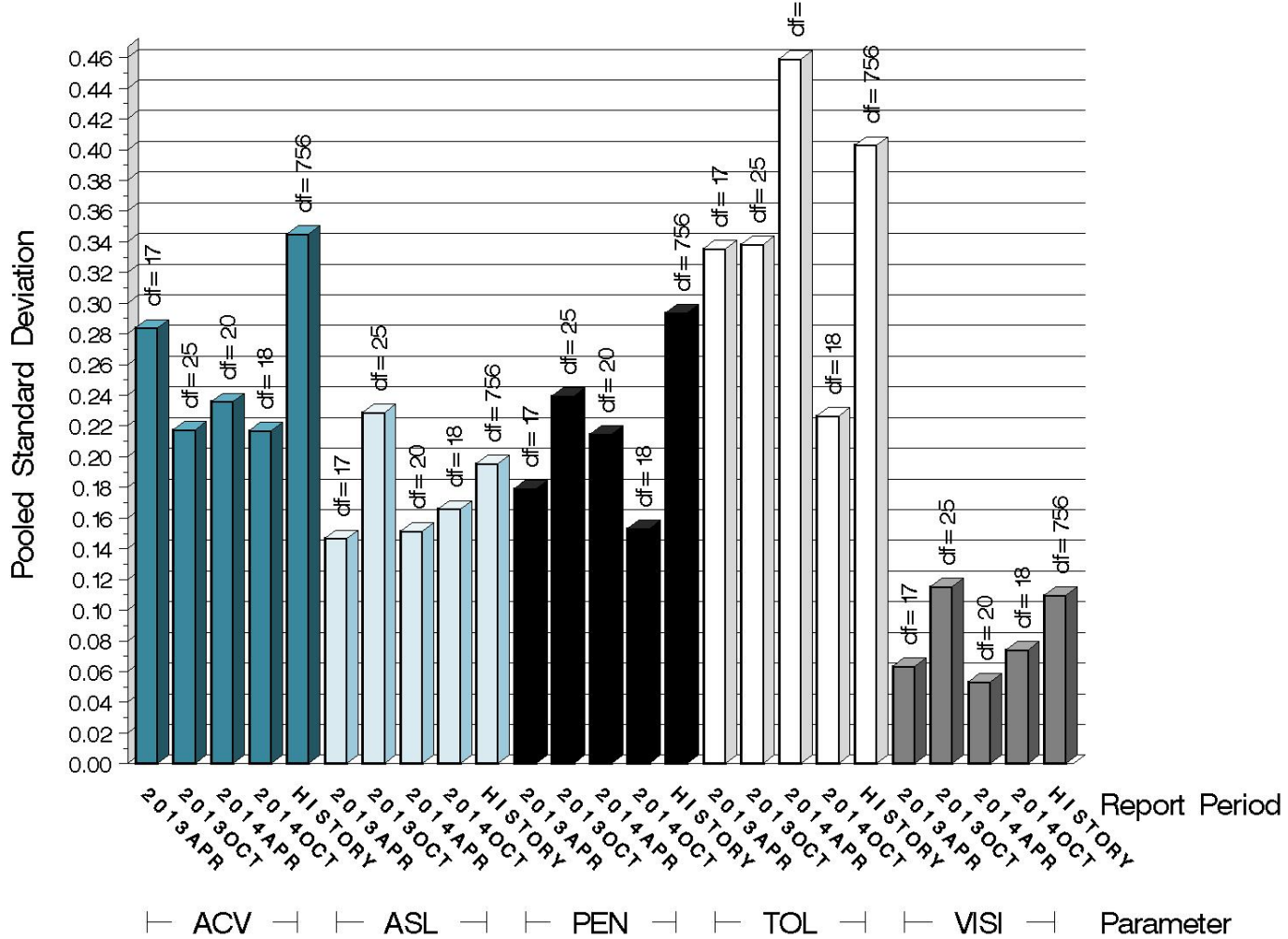


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L-60-1 (D5704)

TEST PRECISION

POOLED STANDARD DEVIATION
BY SIX-MONTH ASTM REPORT PERIOD



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L-60-1 (D5704)

SUMMARY OF SEVERITY & PRECISION

Severity

In a break from the long-standing severe performance, VISI, on average, was on-target. This should be tempered, however, by noting that this performance is the result of two labs performing severe being offset by two other labs performing mild. TOL, PEN, and ASL all remain more or less severe of target though, for the most part, within control chart limits. ACV continued again to exceed control chart limits for nearly every test. On May 6, 2014, the surveillance panel held a day-long task force meeting to discuss several items for possible investigation but no changes have yet been made to the test.

Precision

Precision for all parameters continues to be good.

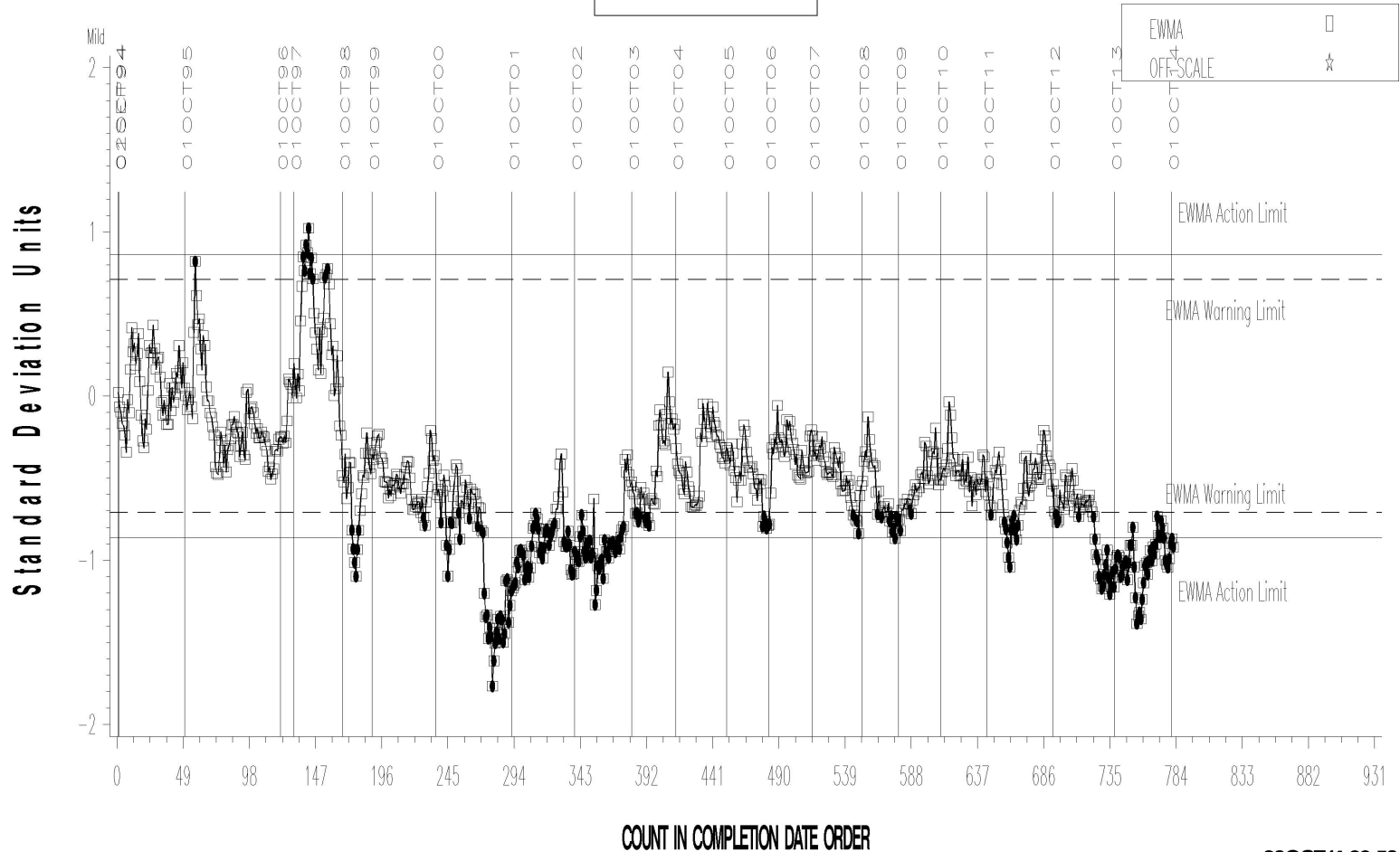
Industry control charts follow.

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

LTMS Severity Analysis



Severe

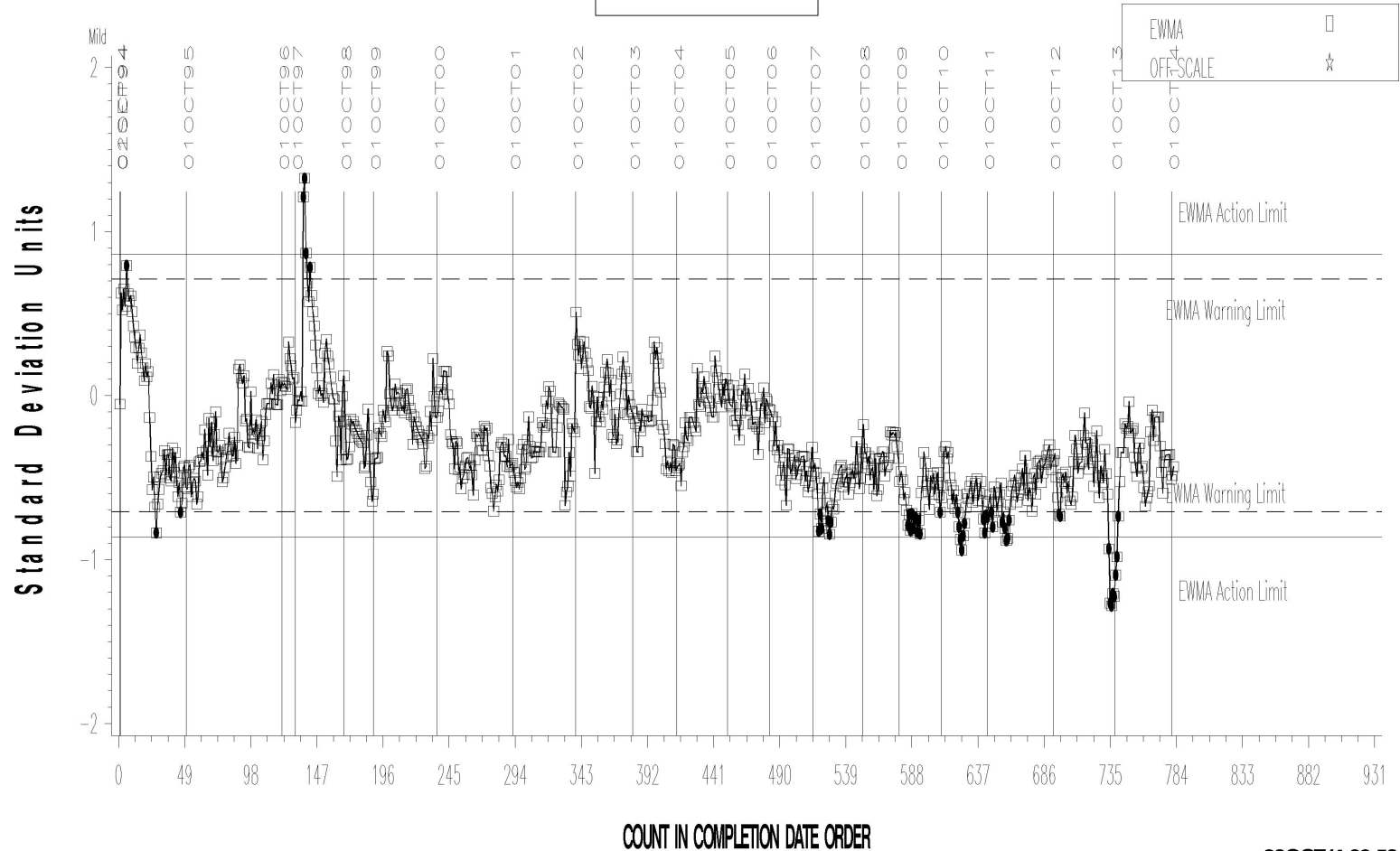
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

LTMS Severity Analysis

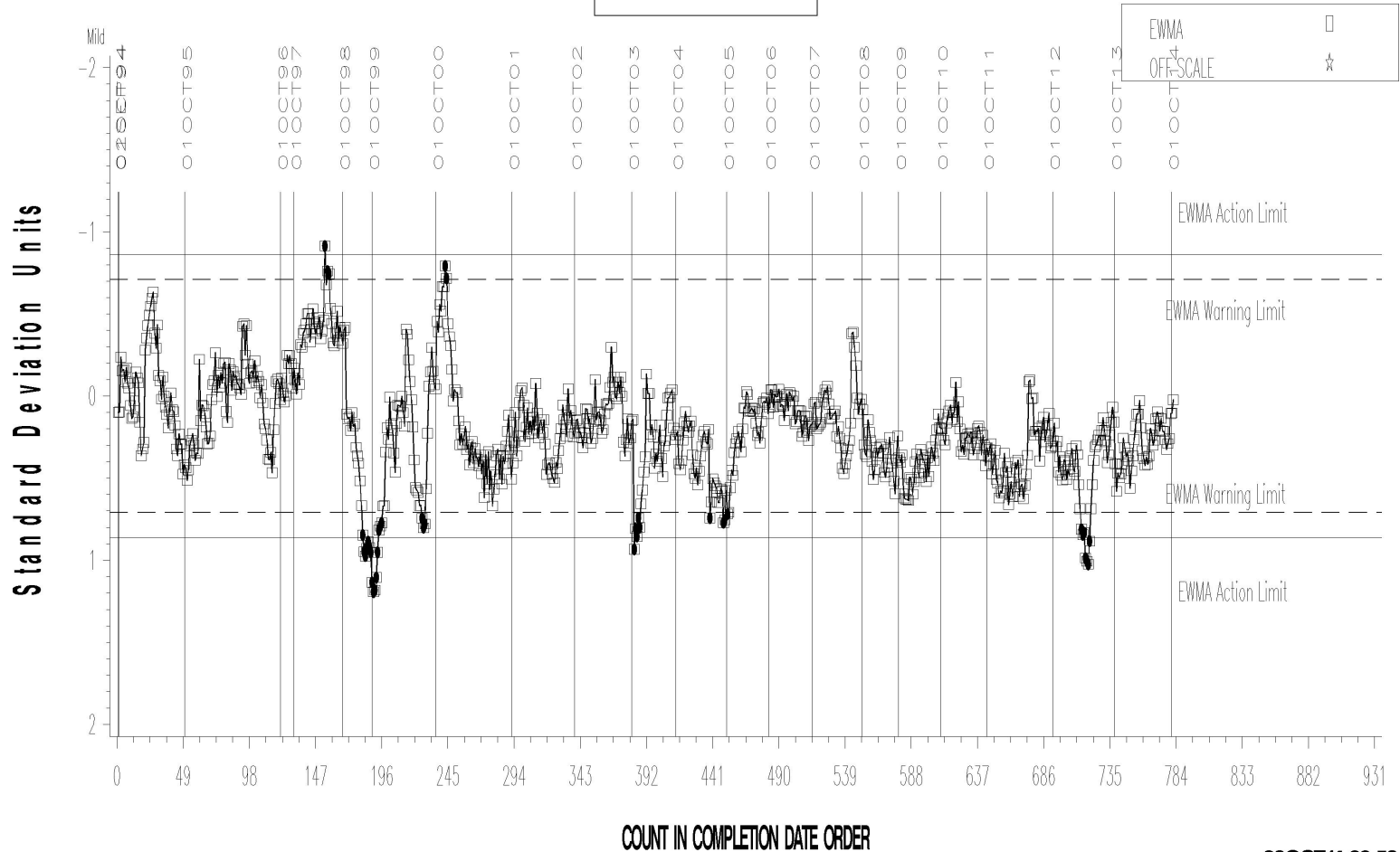


L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

LTMS Severity Analysis



Severe

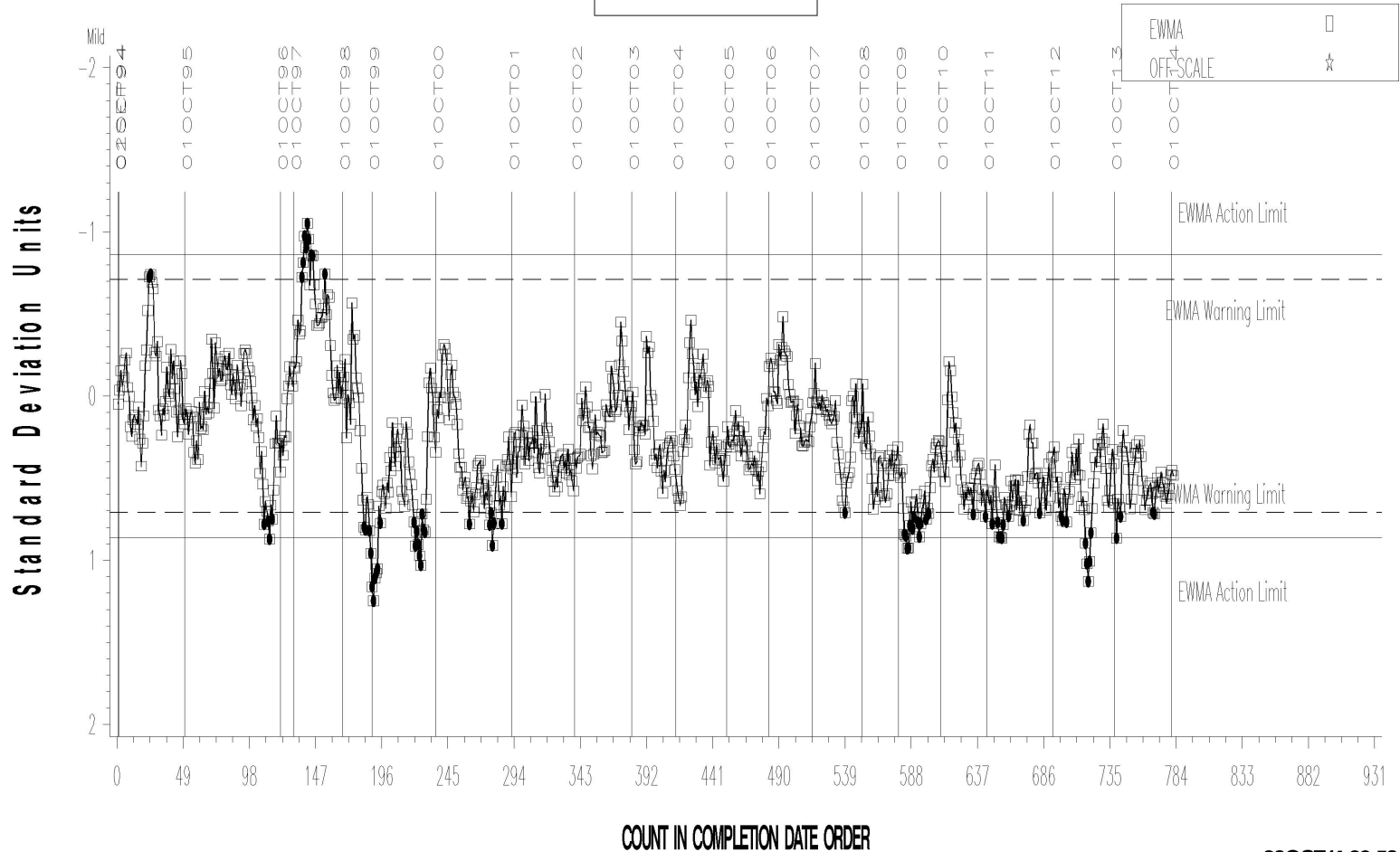
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

LTMS Severity Analysis



Severe

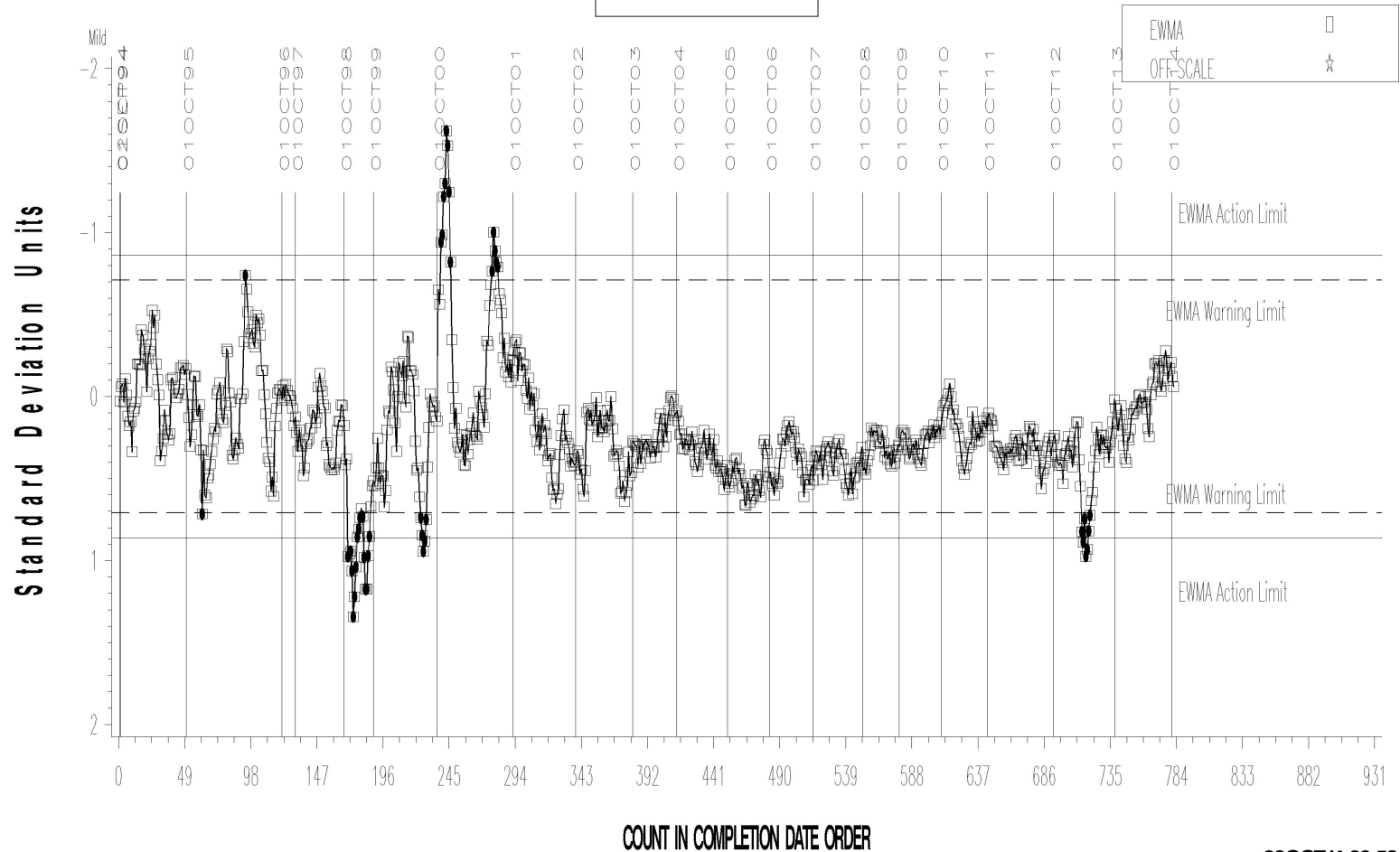
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL VISCOSITY INCREASE

LTMS Severity Analysis



Severe

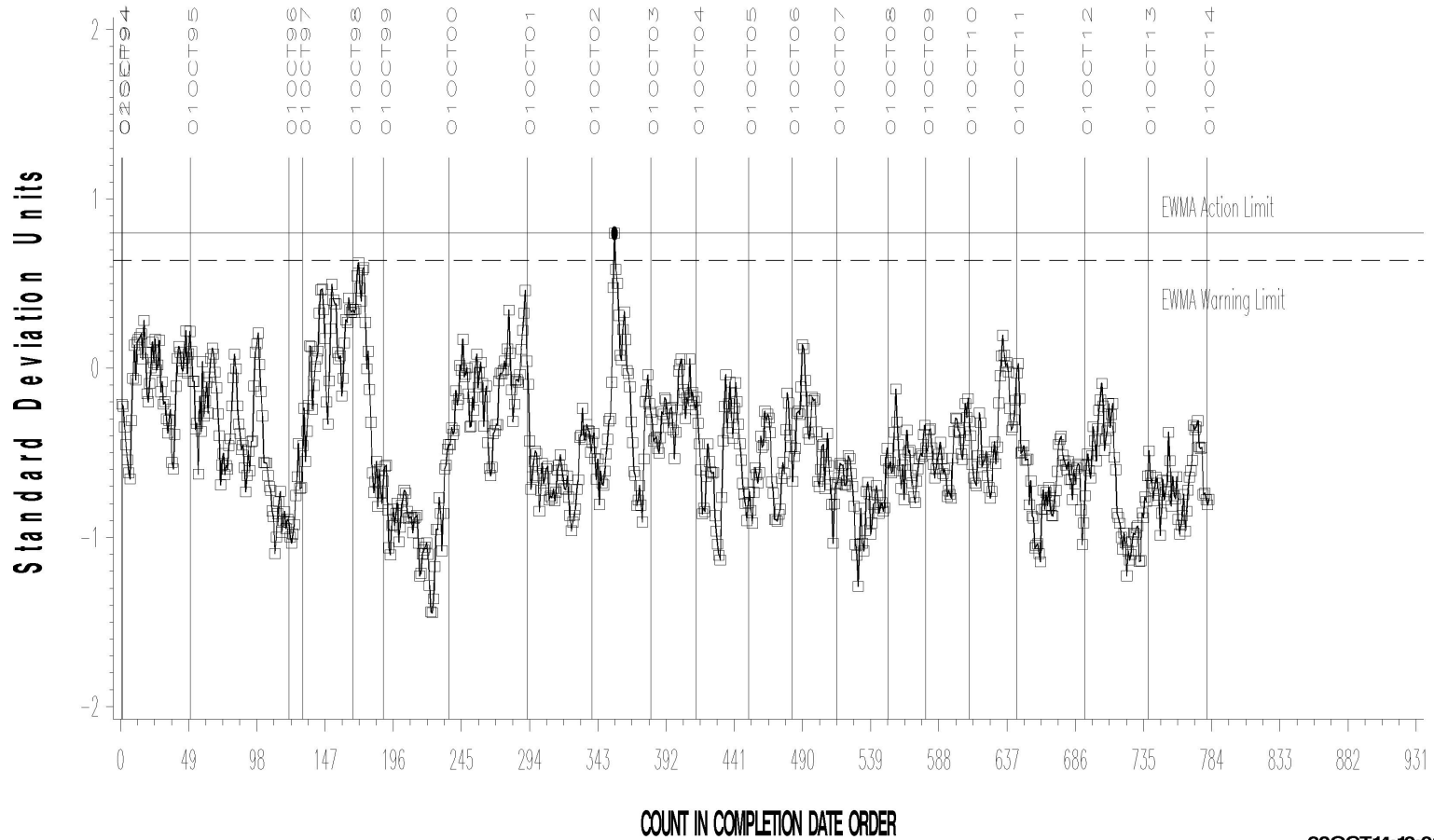
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

LTMS Precision Analysis



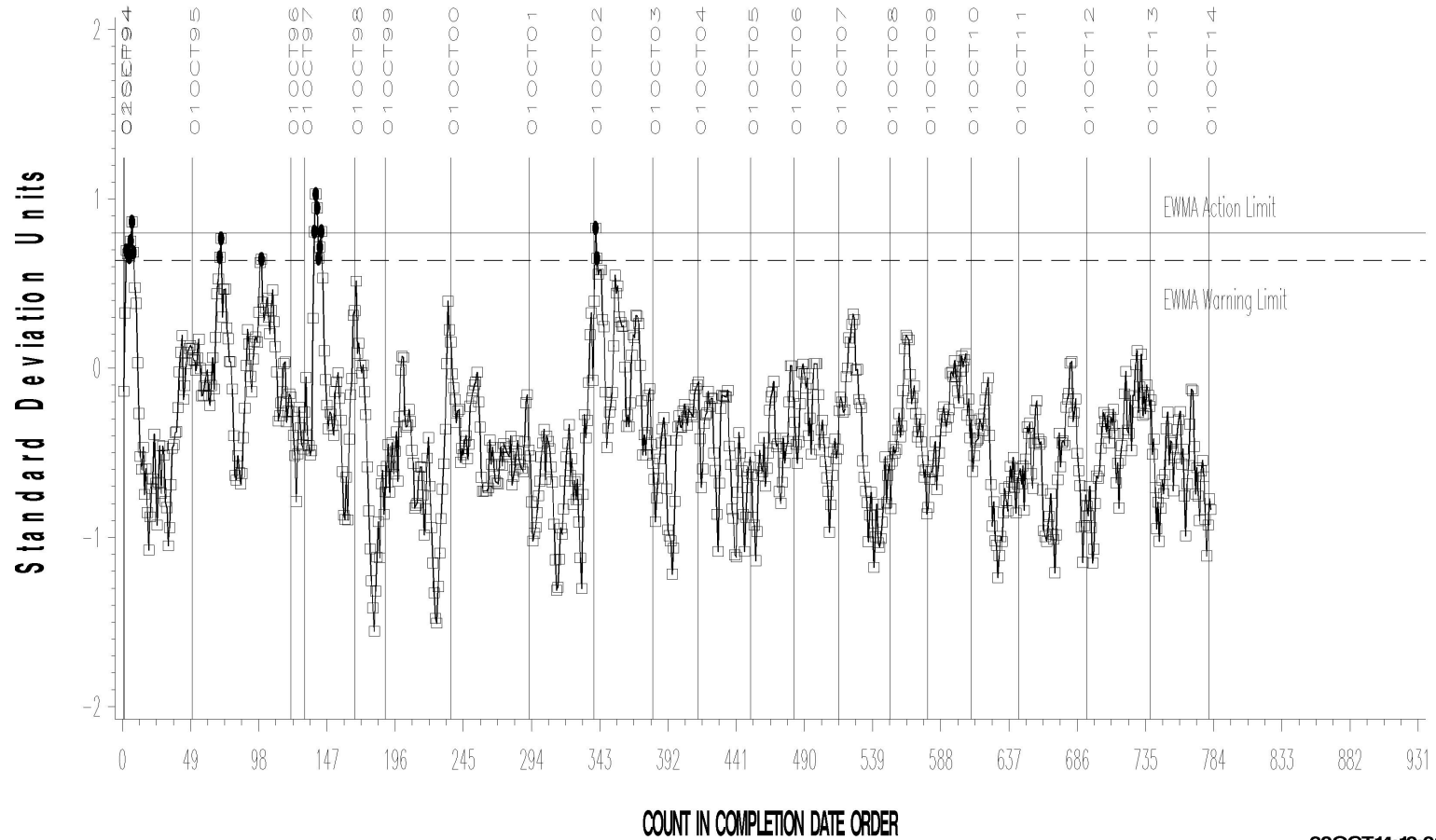
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

LTMS Precision Analysis



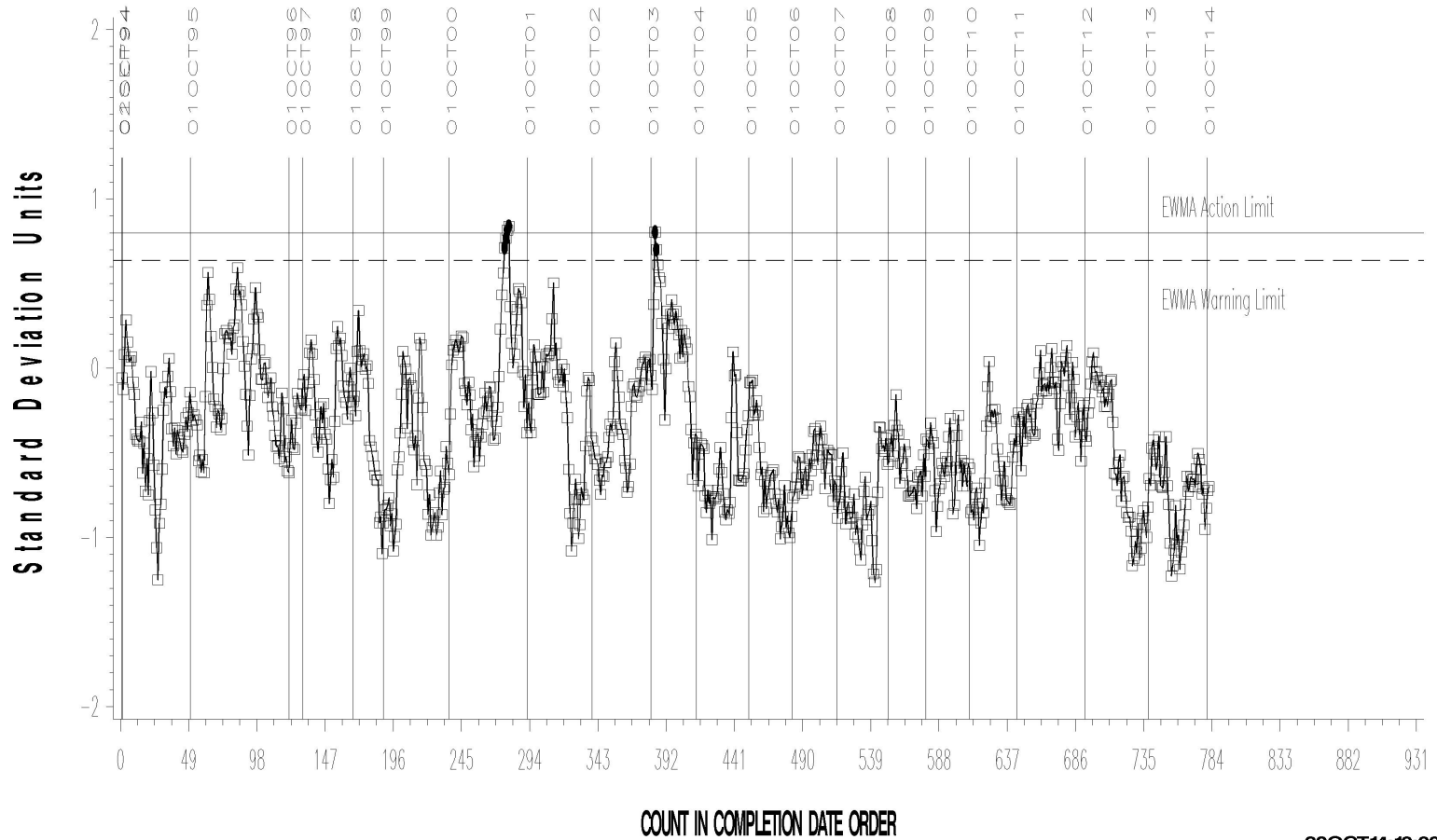
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

LTMS Precision Analysis



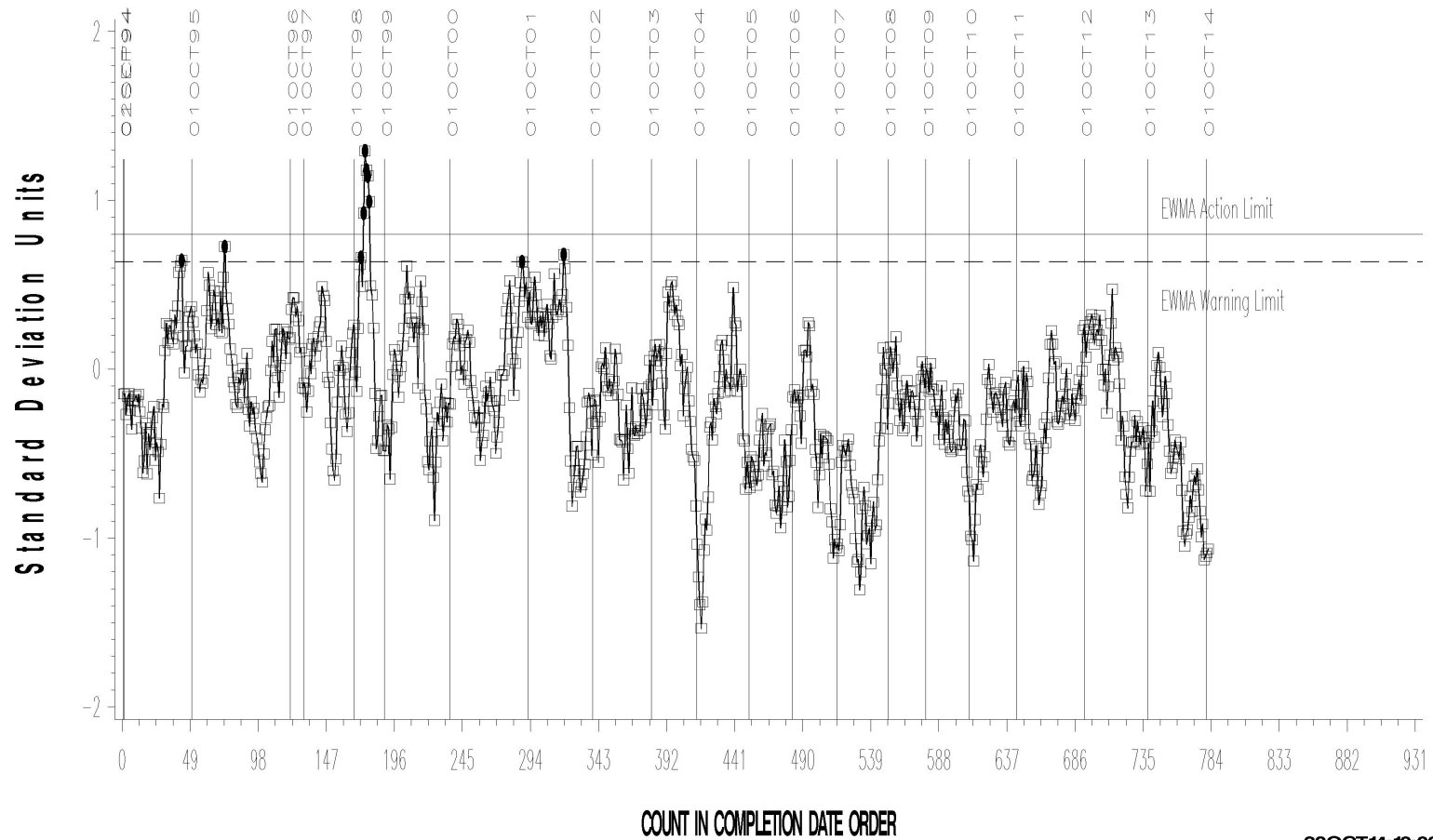
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

LTMS Precision Analysis



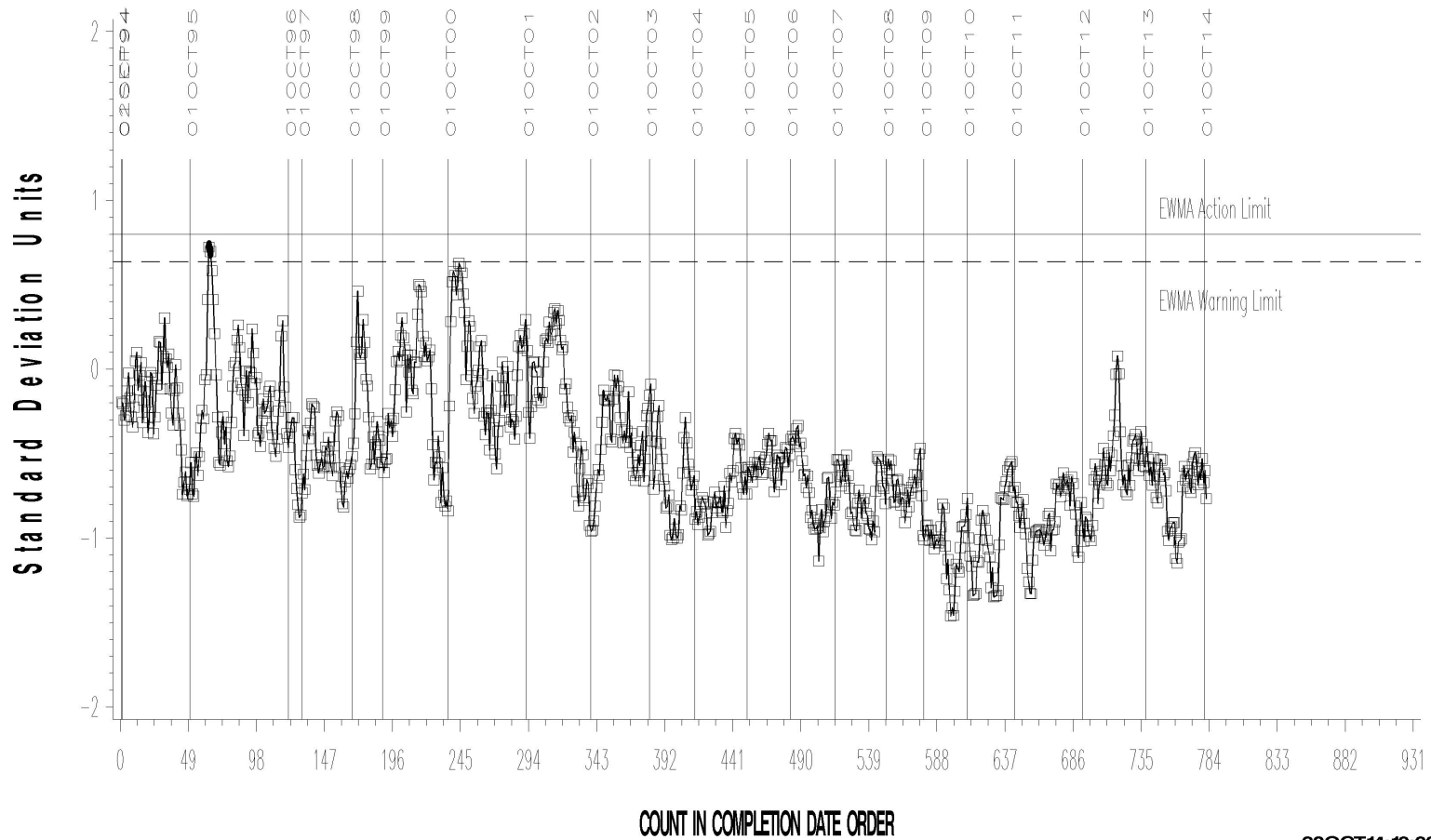
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL VISCOSITY INCREASE

LTMS Precision Analysis



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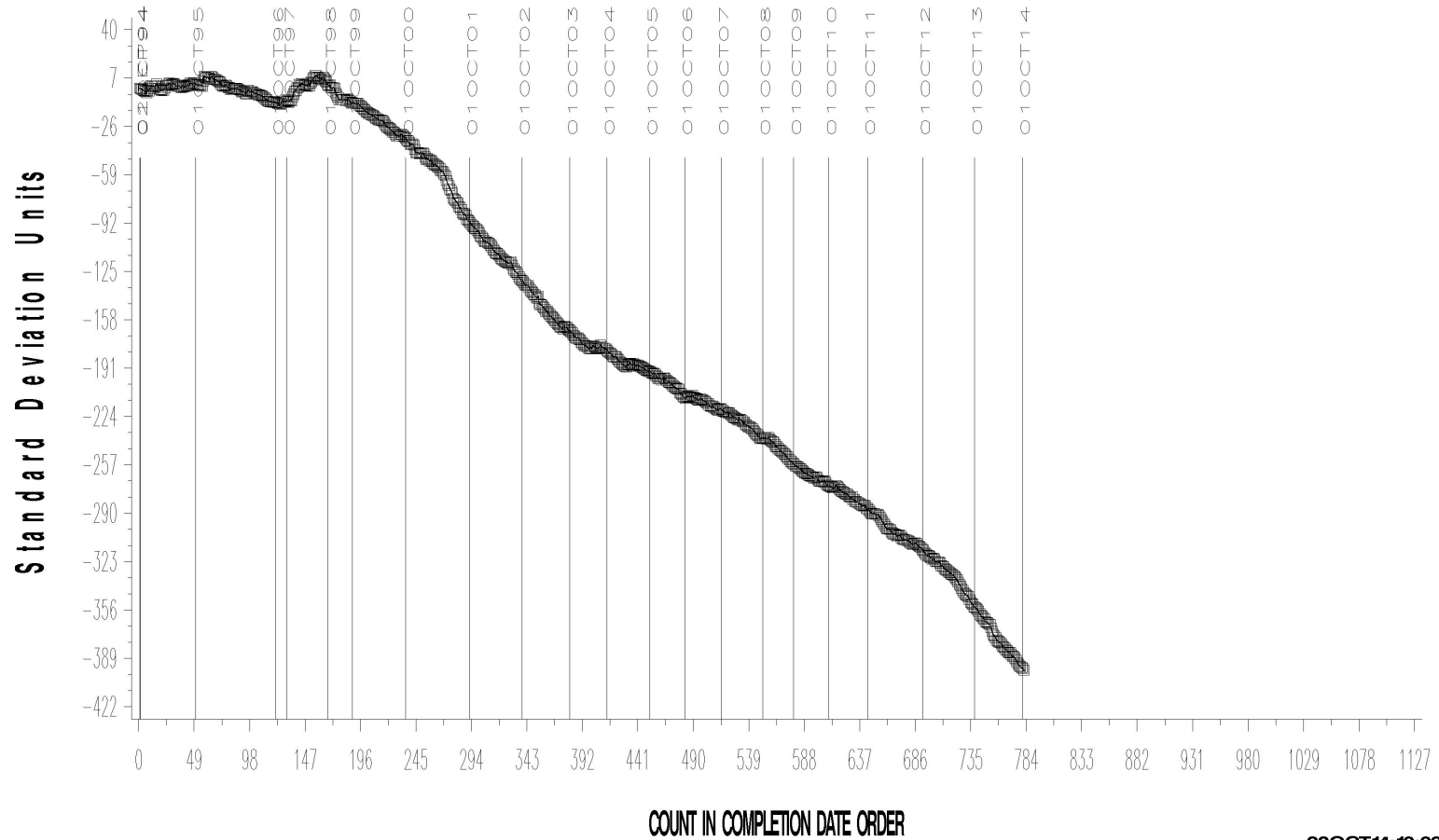
A Program of ASTM International

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

CUSUM Severity Analysis



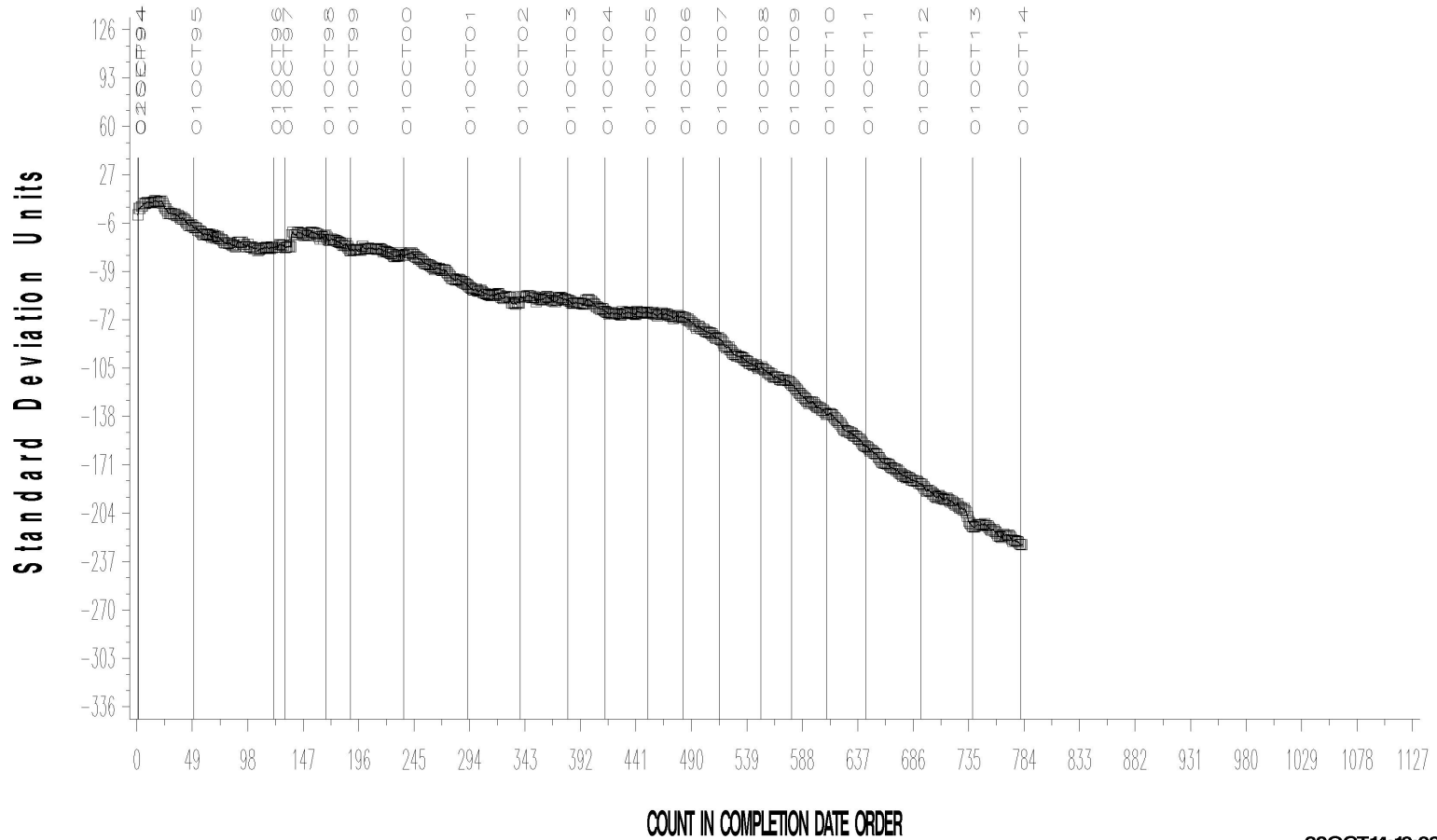
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

CUSUM Severity Analysis



28OCT14:10:03

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

CUSUM Severity Analysis



28OCT14:10:02

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

CUSUM Severity Analysis



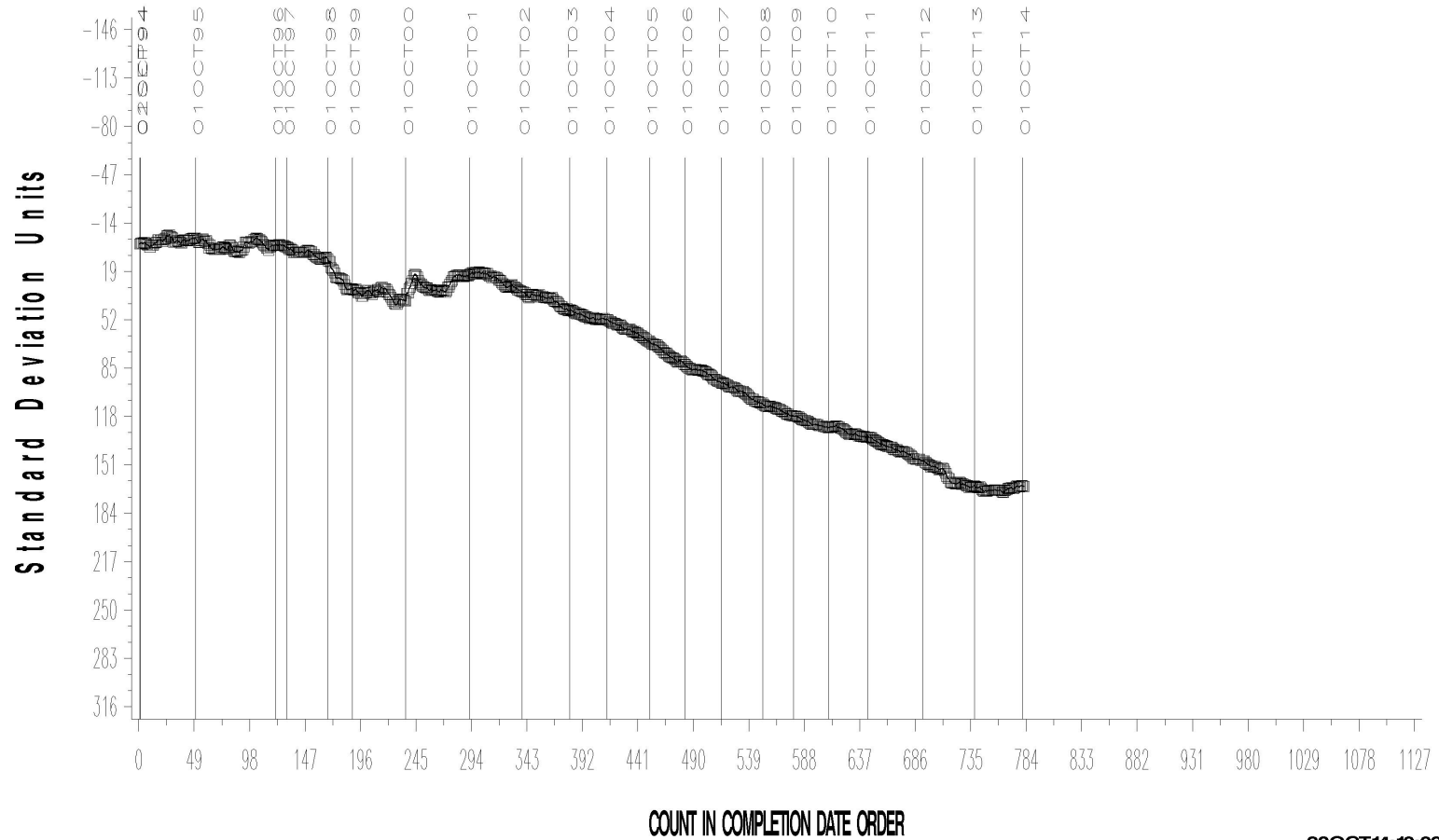
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL VISCOSITY INCREASE

CUSUM Severity Analysis



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L-60-1 (D5704)

TIMELINE ADDITIONS

Effective Date	Information Letter	Event
20140609	14-1	Time Window for Post-Test Gear Removal.

L-60-1 (D5704)

LAB VISITS

Two L-60-1 lab visits were completed this period. No procedural non-conformances were found.

INFORMATION LETTERS

Information Letter 14-1 was issued on June 9, 2014 to clarify time requirements for post-test gear removal.

L-60-1 (D5704)

STATUS OF REFERENCE OIL SUPPLY

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
133	5	1693	105.8
148-1	18	508	31.8
151-2	19	19	1.2
155-1	16	662	41.4
Total	58	2882	180.1

A reblend of 151-2 (151-3) was acquired by TMC in 1999 but has since been consumed in other test types. That oil was then replaced by 155 which is also now depleted. A 155 reblend (155-1) is on hand at TMC. The surveillance panel has asked that the TMC reserve a portion of that oil for L-60-1 testing.

Five hundred and eight tests of oil 148-1 remain in TMC inventory; however, this is only 31.8 gallons. When the need arises, it will not be possible to obtain a reblend of this oil. The panel may want to begin considering a possible replacement for this oil.