



Test Monitoring Center

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

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

MEMORANDUM: 18-035
DATE: November 21, 2018
TO: Kristijan Drlja, Chairman, L-60-1 Surveillance Panel
FROM: Dylan Beck *Dylan Beck*
SUBJECT: L-60-1 Reference Oil Testing from April 1, 2018 through September 30, 2018

Attached is a summary of testing activity this period.

DJB/djb/mem18-035.djb.doc

cc: Frank Farber
Jeff Clark
Scott Parke

L-60-1 Surveillance Panel

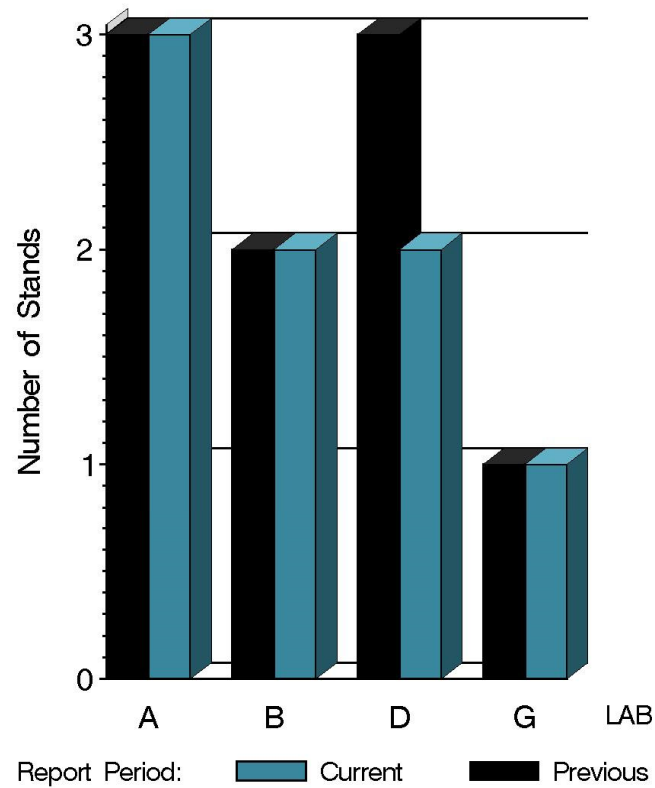
<http://www.astmtmc.cmu.edu/ftp/docs/gear/l601/semiannualreports/l601-10-2018.pdf>

Distribution: email

L-60-1 (D5704)

	Reporting Data	Calibrated on 9-30-18
Number of Labs	4	4
Number of Stands	8	8

BY-LAB STAND
DISTRIBUTION



14:08:35 17OCT2018

L-60-1 (D5704)

Test Distribution by Oil and Validity

				Totals	
		148-1	155-1	Last Period	This Period
Accepted for calibration	AC	5	9	21	14
Rejected (Mild)	OC	0	0	0	0
Rejected (Severe)	OC	0	0	0	0
Rejected (Combination)	OC	0	0	0	0
Rejected (Precision)	OC	0	0	0	0
Invalidated calibration	LC	0	0	4	0
Acceptable info run	NI	1	1	0	2
Unacceptable info run	MI	0	0	0	0
Aborted	XC	0	0	1	0
Total		6	10	26	16

L-60-1 (D5704)

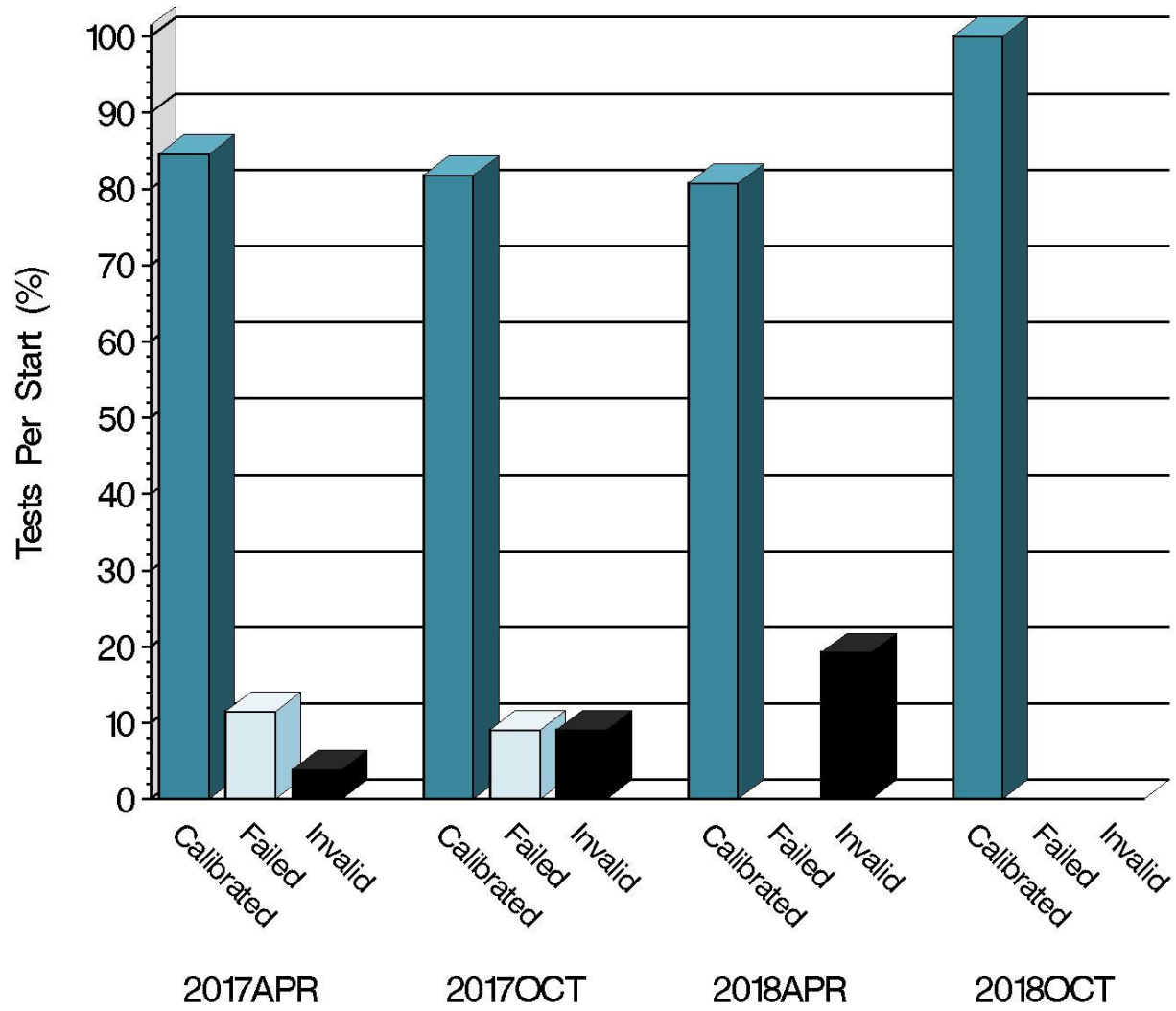
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CALIBRATION ATTEMPT SUMMARY



Resolution

Report Period

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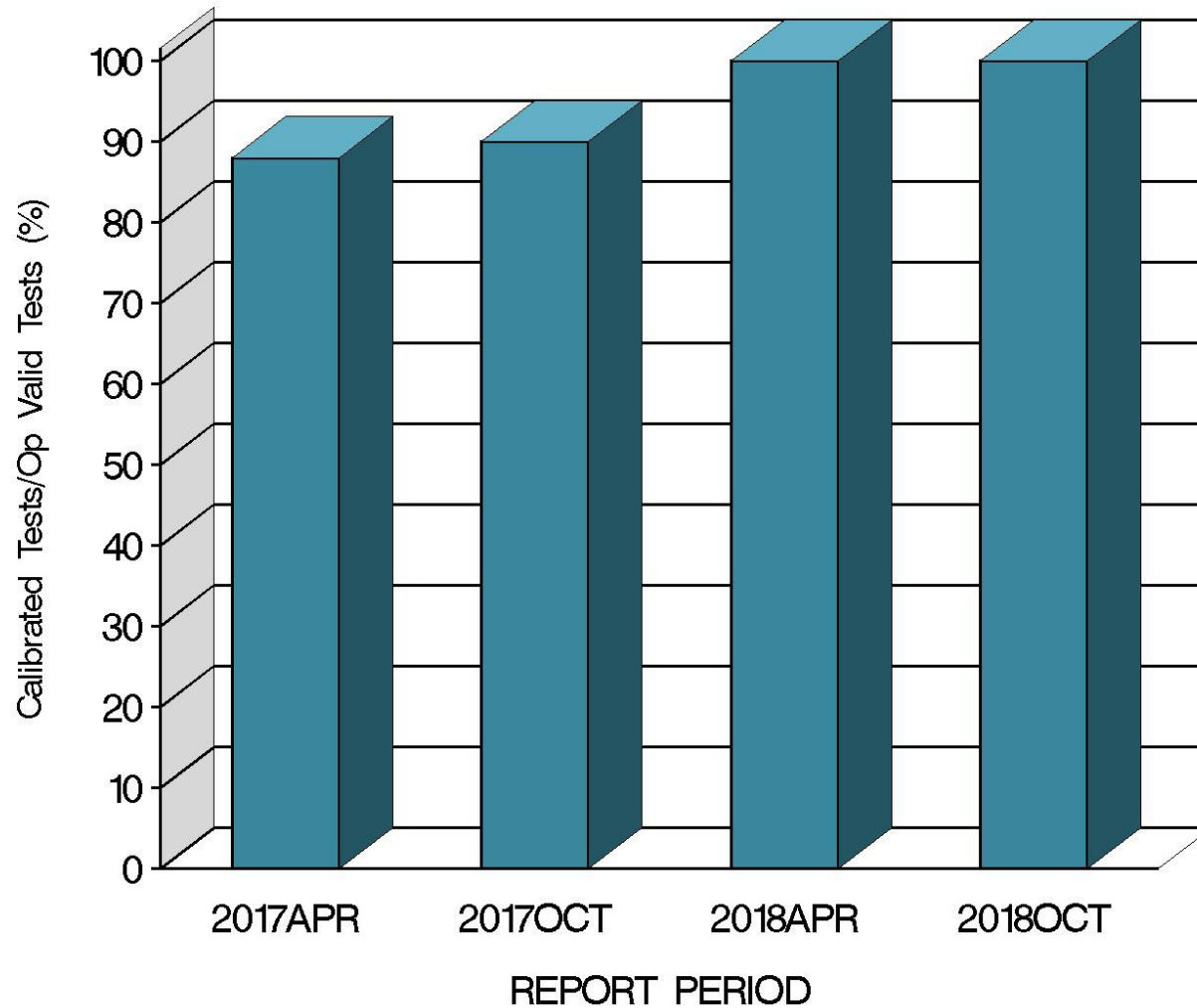
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L-60-1 (D5704)

OPERATIONALLY VALID TESTS
MEETING ACCEPTANCE CRITERIA



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L-60-1 (D5704)

CAUSES FOR LOST TESTS

		Oil		Validity			Loss Rate		
Lab	Cause	148-1	155-1	RC	LC	XC	Lost	Starts	%
	No Tests Lost This Period						0	16	0%
	Lost	0	0	0	0	0			
	Starts	6	10	16	16	16			
	%	0%	0%	0%	0%	0%			

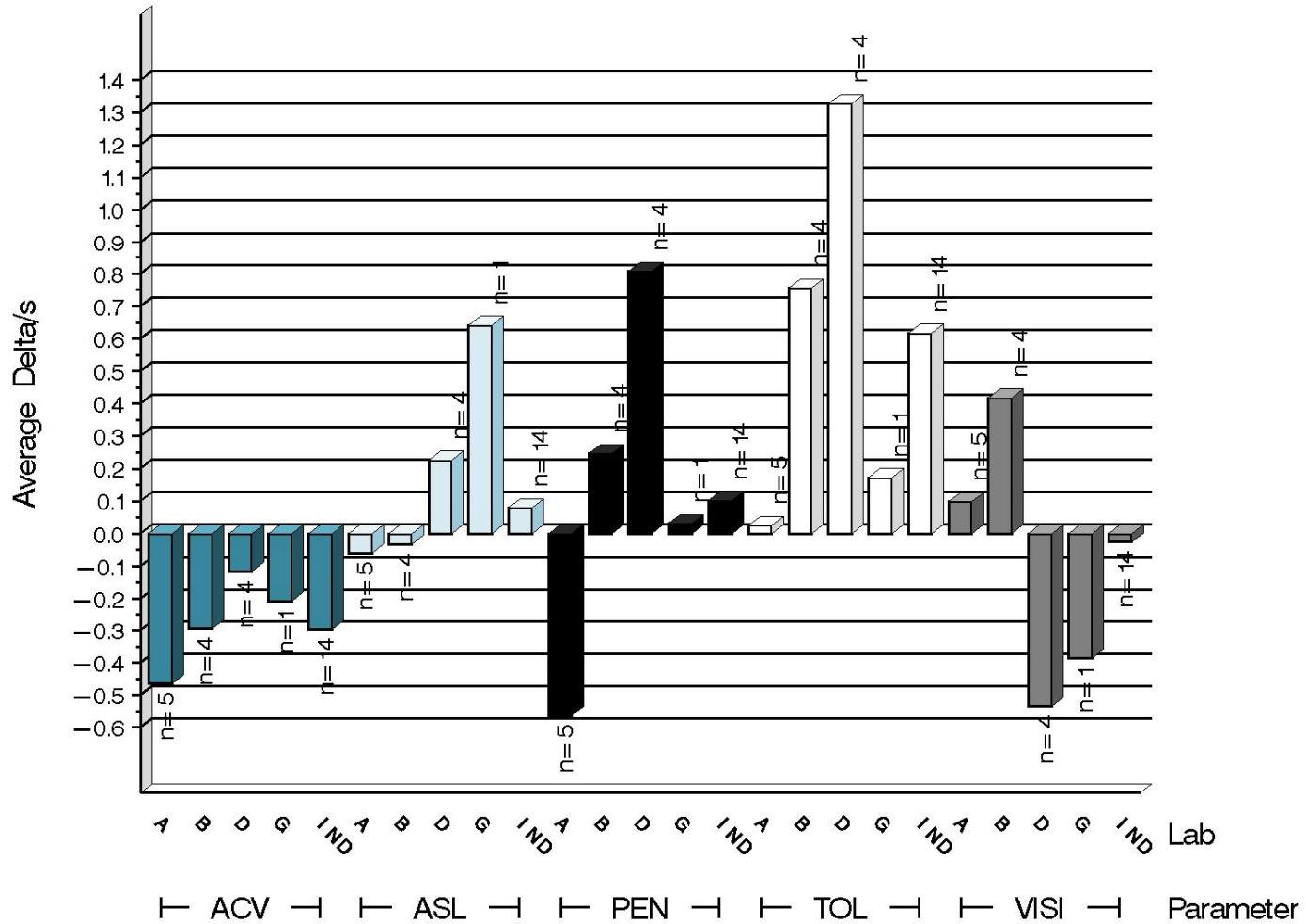
L-60-1 (D5704)

Average Δ /s by Lab						
Lab	n	VISI	PEN	TOL	ACV	ASL
A	5	0.099	-0.563	0.026	-0.464	-0.059
B	4	0.418	0.247	0.756	-0.295	-0.032
D	4	-0.536	0.807	1.328	-0.116	0.226
G	1	-0.387	0.0315	0.173	-0.207	0.641
Industry	14	-0.026	0.102	0.617	-0.298	0.080
Shift*	14	-0.20%	0.042%	0.154%	-0.152 merit	0.008 merit

*computed using severity adjustment standard deviation. A correction factor was implemented for ACV on October 1, 2015 that is intended to return industry ACV performance to the level originally seen in the test.

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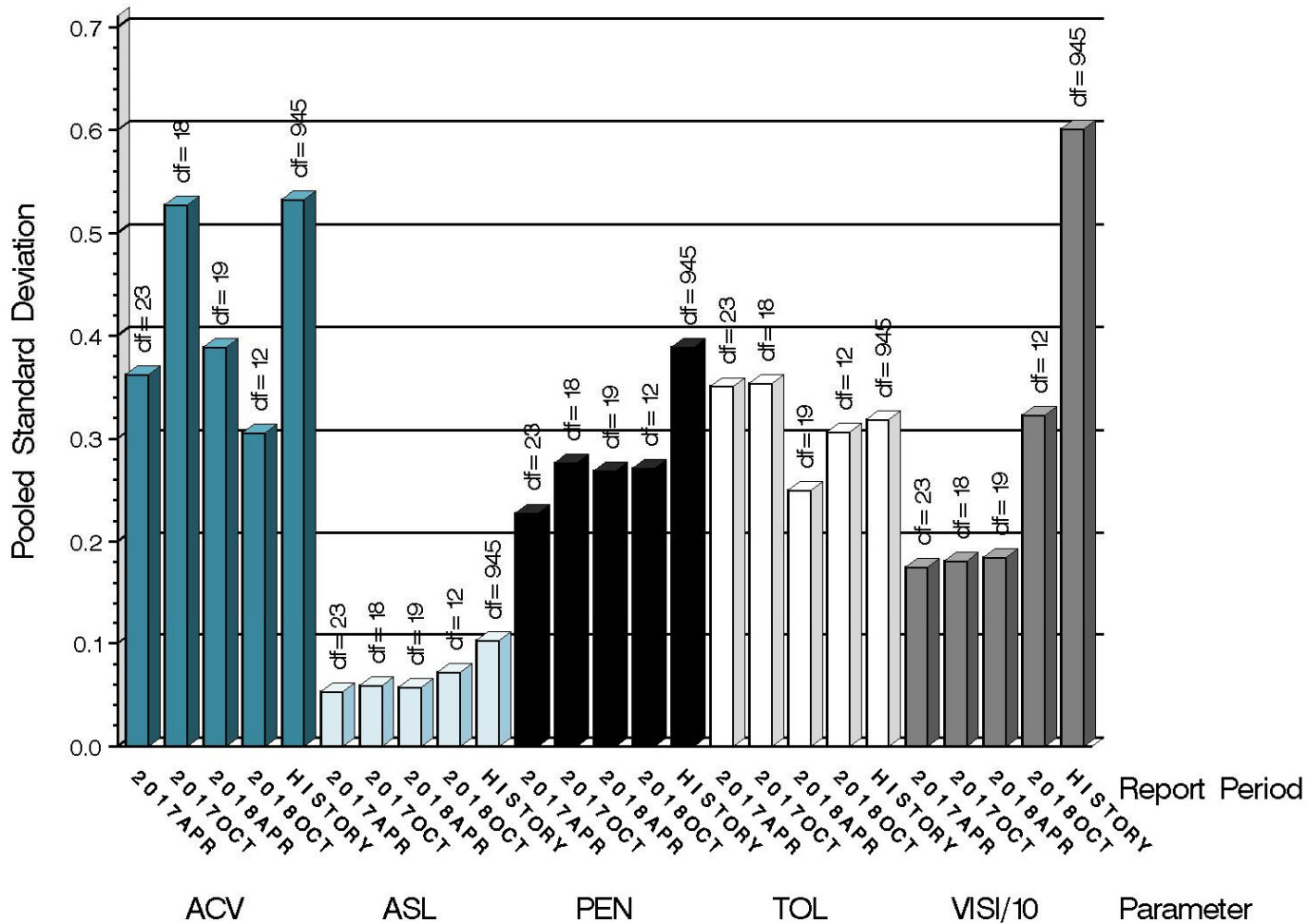
TEST SEVERITY
DELTA/S BY LAB



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L-60-1 (D5704)

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



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

The Surveillance Panel implemented a correction factor for ACV on October 1, 2015 intended to return ACV to target. ACV has remained within limits this period. Severity for all parameters remained within limits this period.

Precision

Precision for all parameters remained within limits this period.

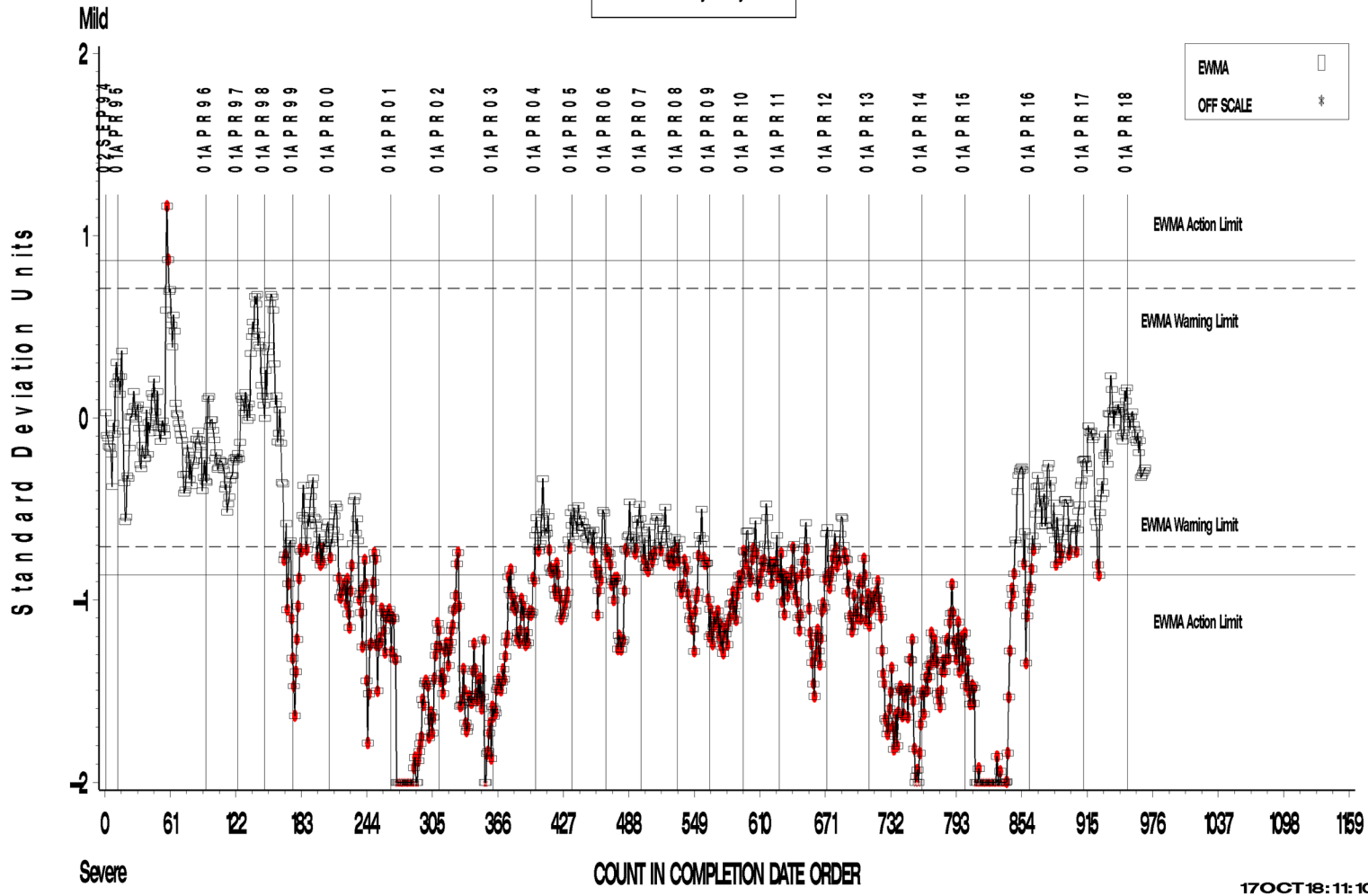
Industry control charts follow.

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

LTMS Severity Analysis



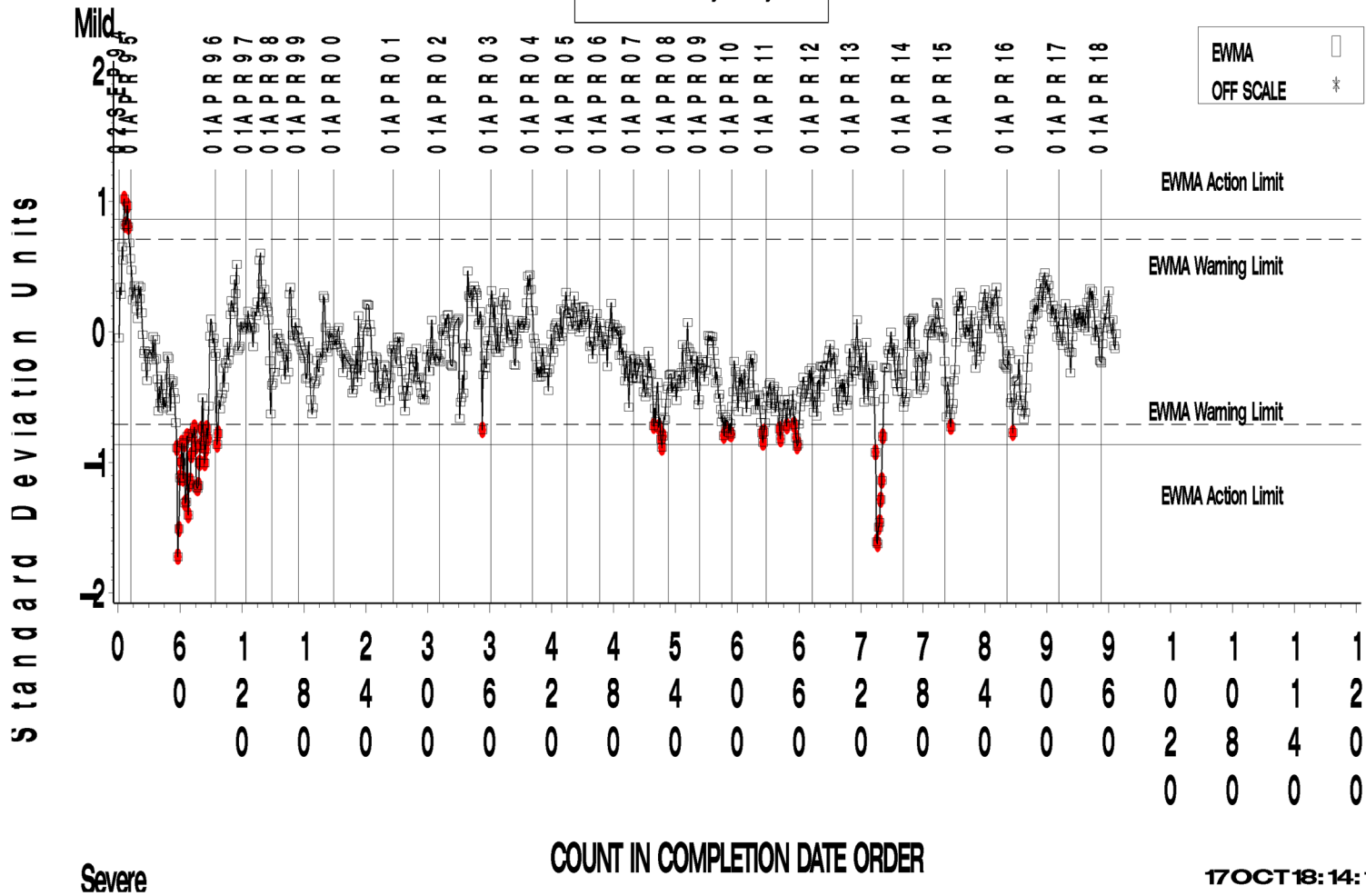
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

LTMS Severity Analysis

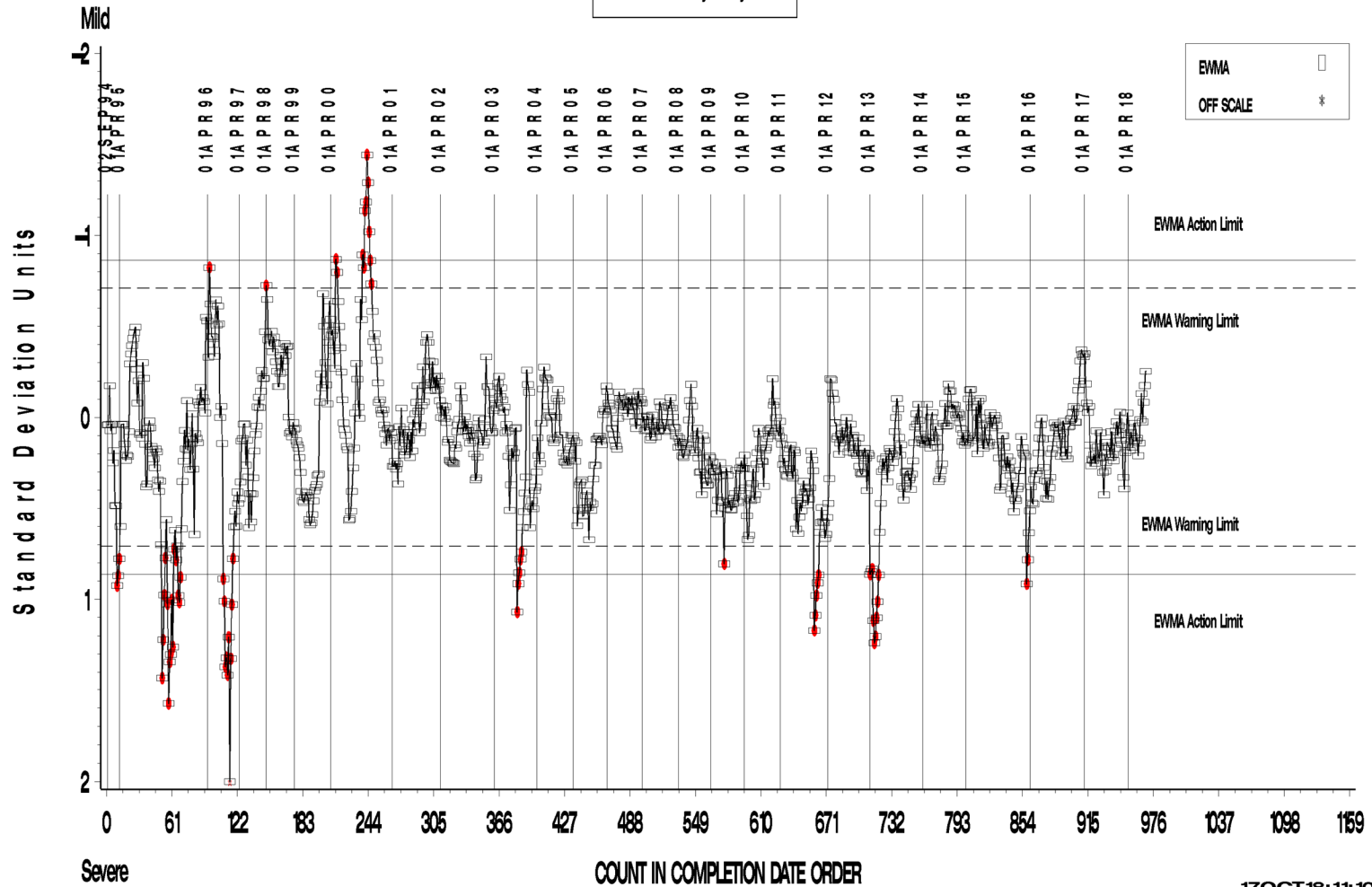


L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

LTMS Severity Analysis



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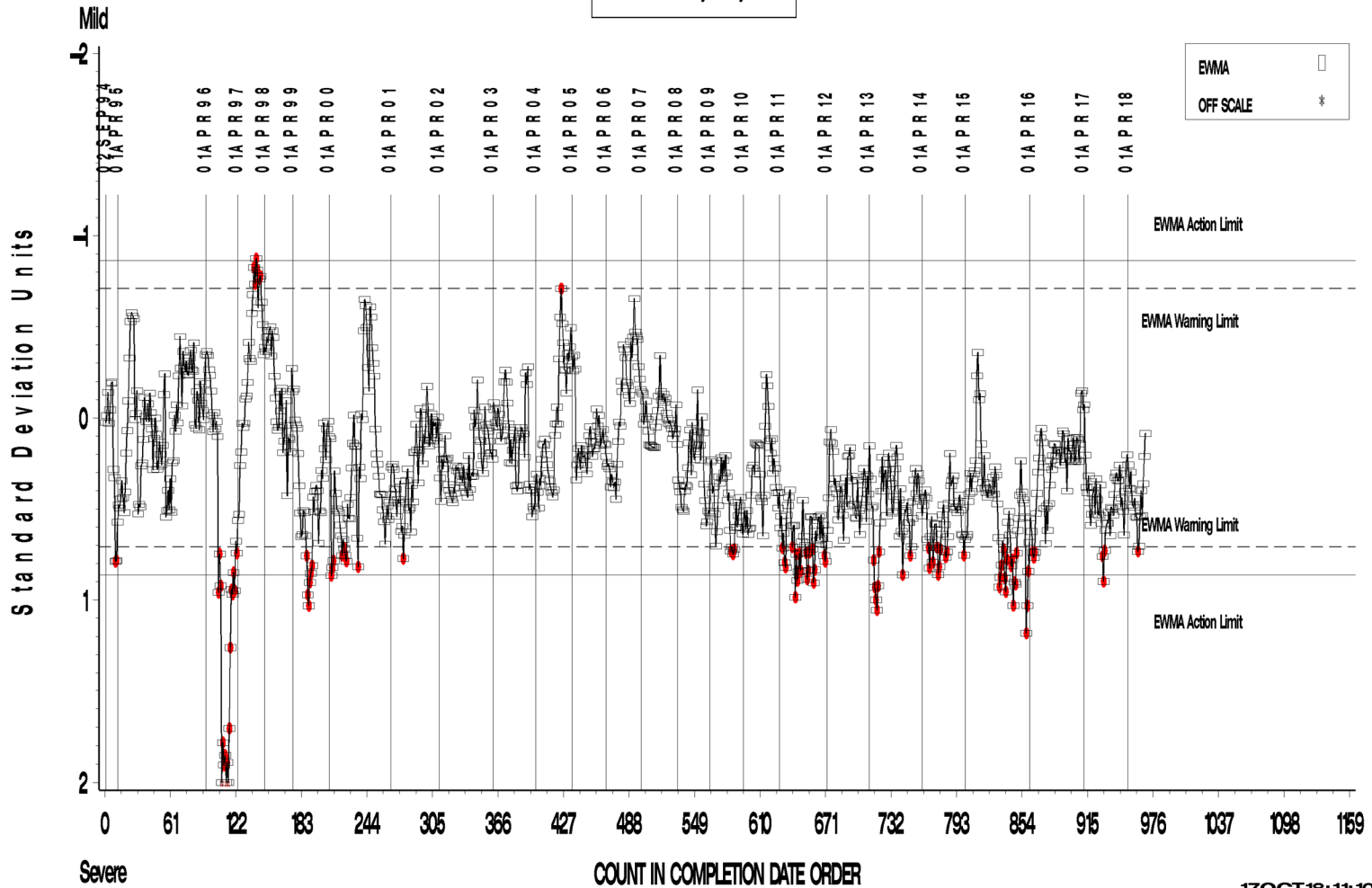
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

LTMS Severity Analysis



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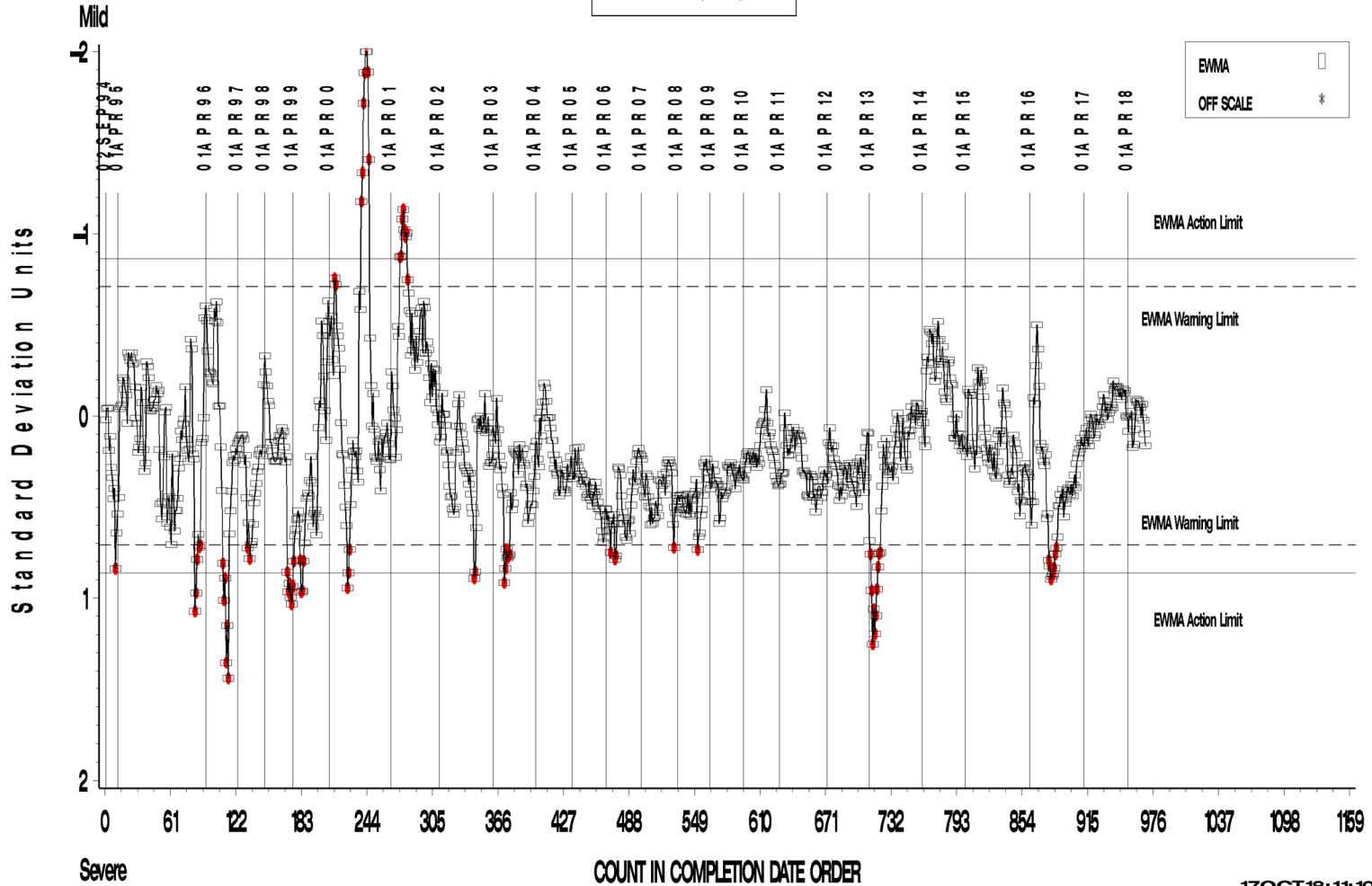
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L-60 → INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL VISCOSITY INCREASE

LTMS Severity Analysis



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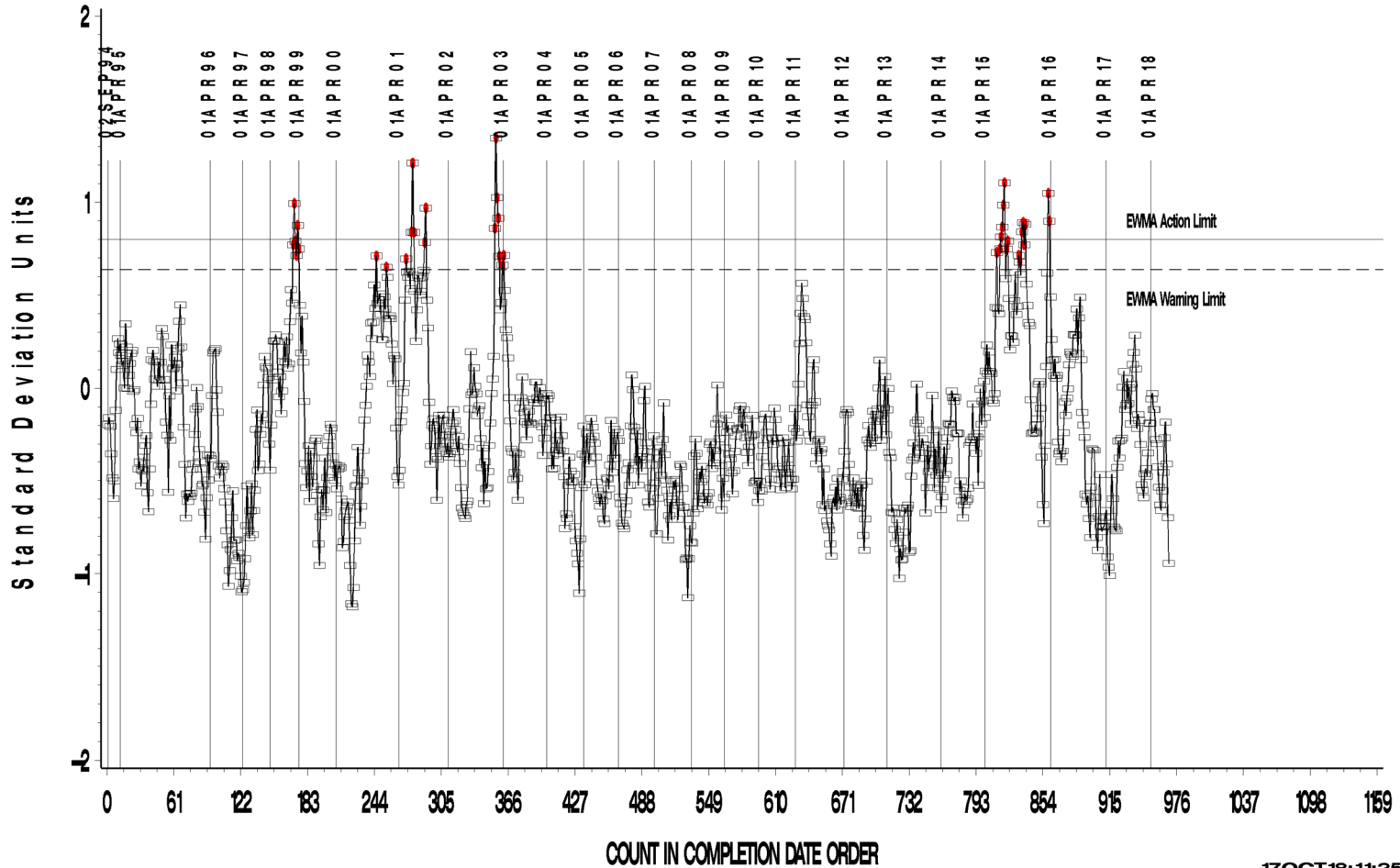
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

LTMS Precision Analysis



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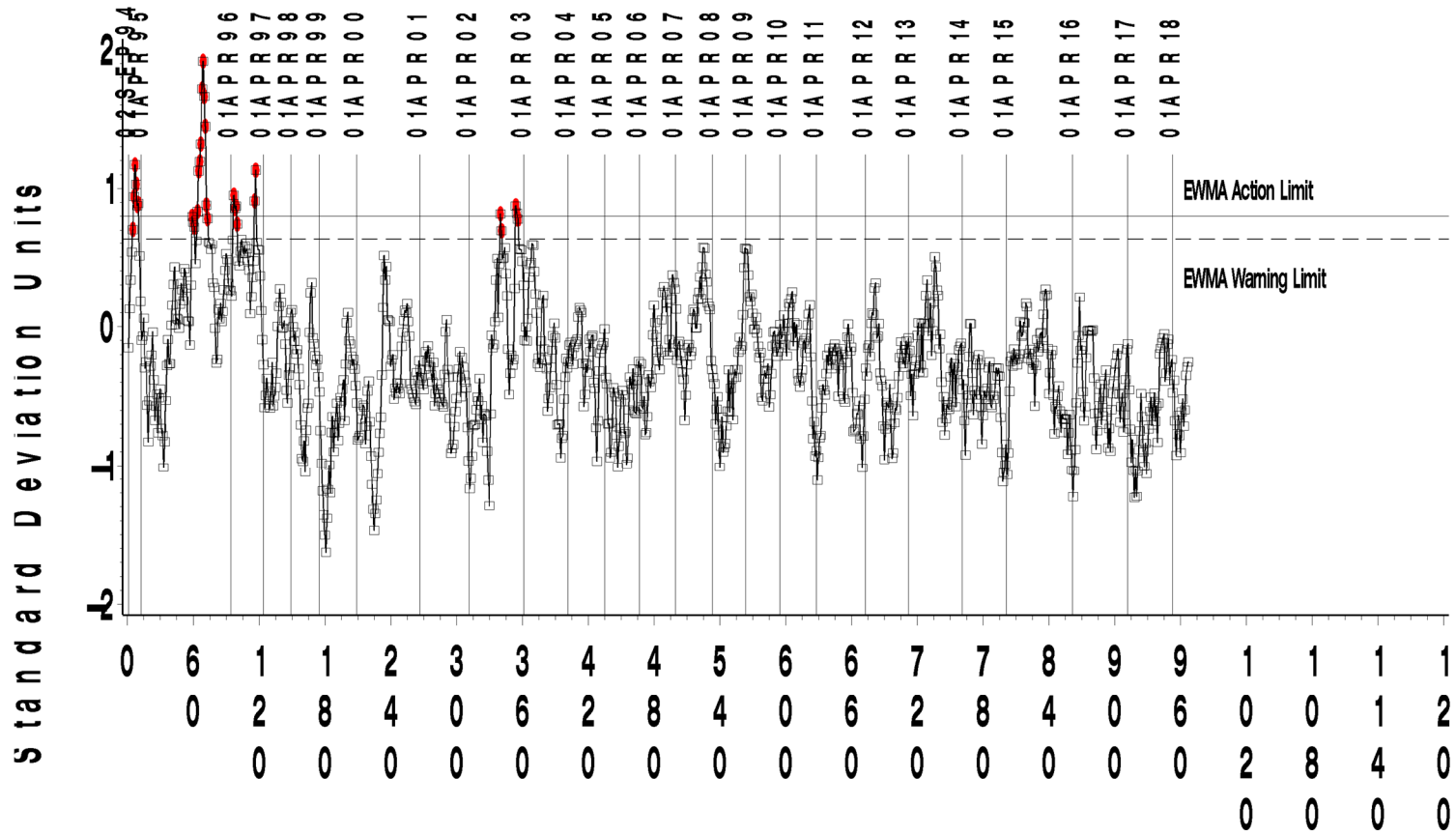
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

LTMS Precision Analysis



COUNT IN COMPLETION DATE ORDER

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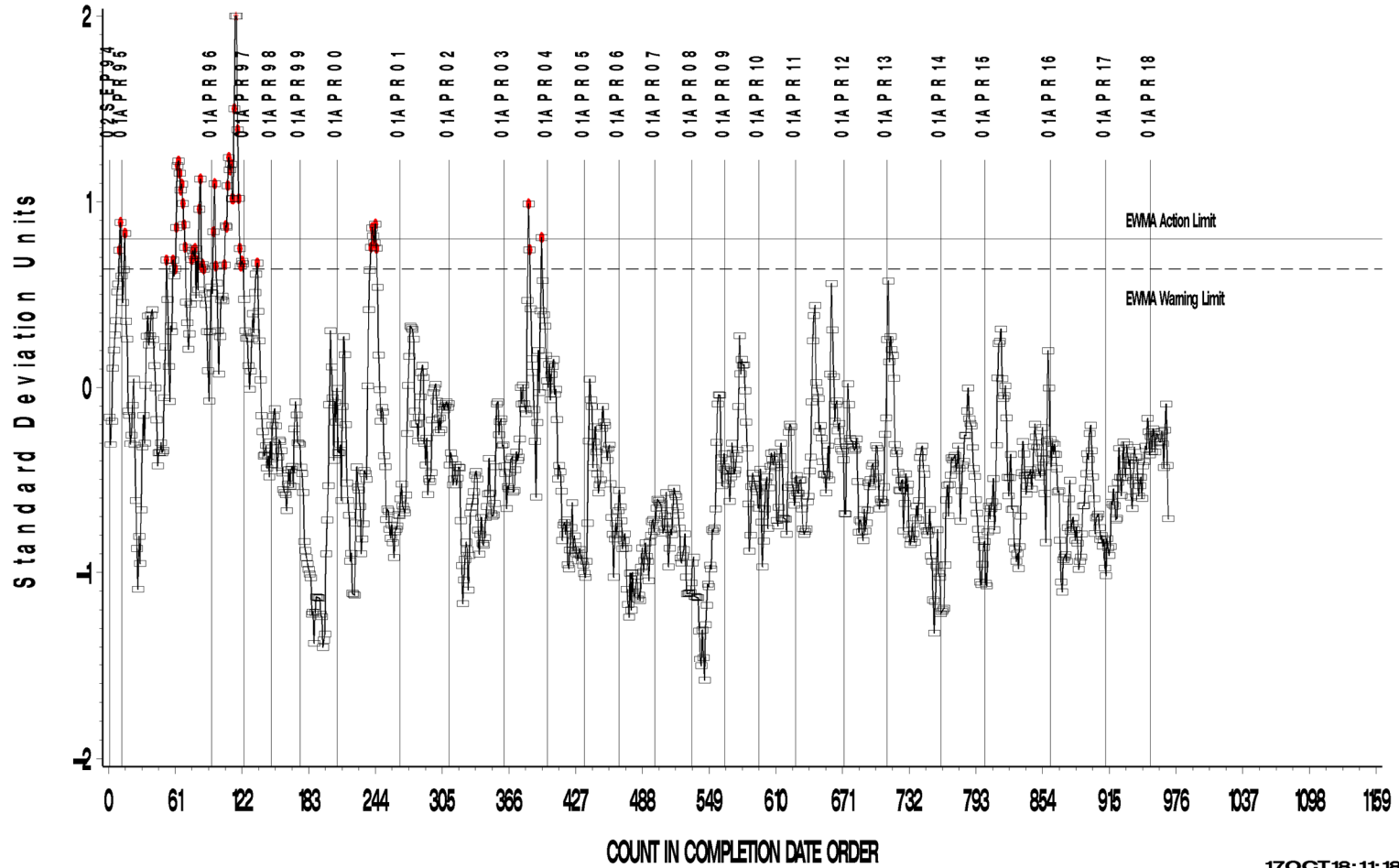
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

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LTMS Precision Analysis



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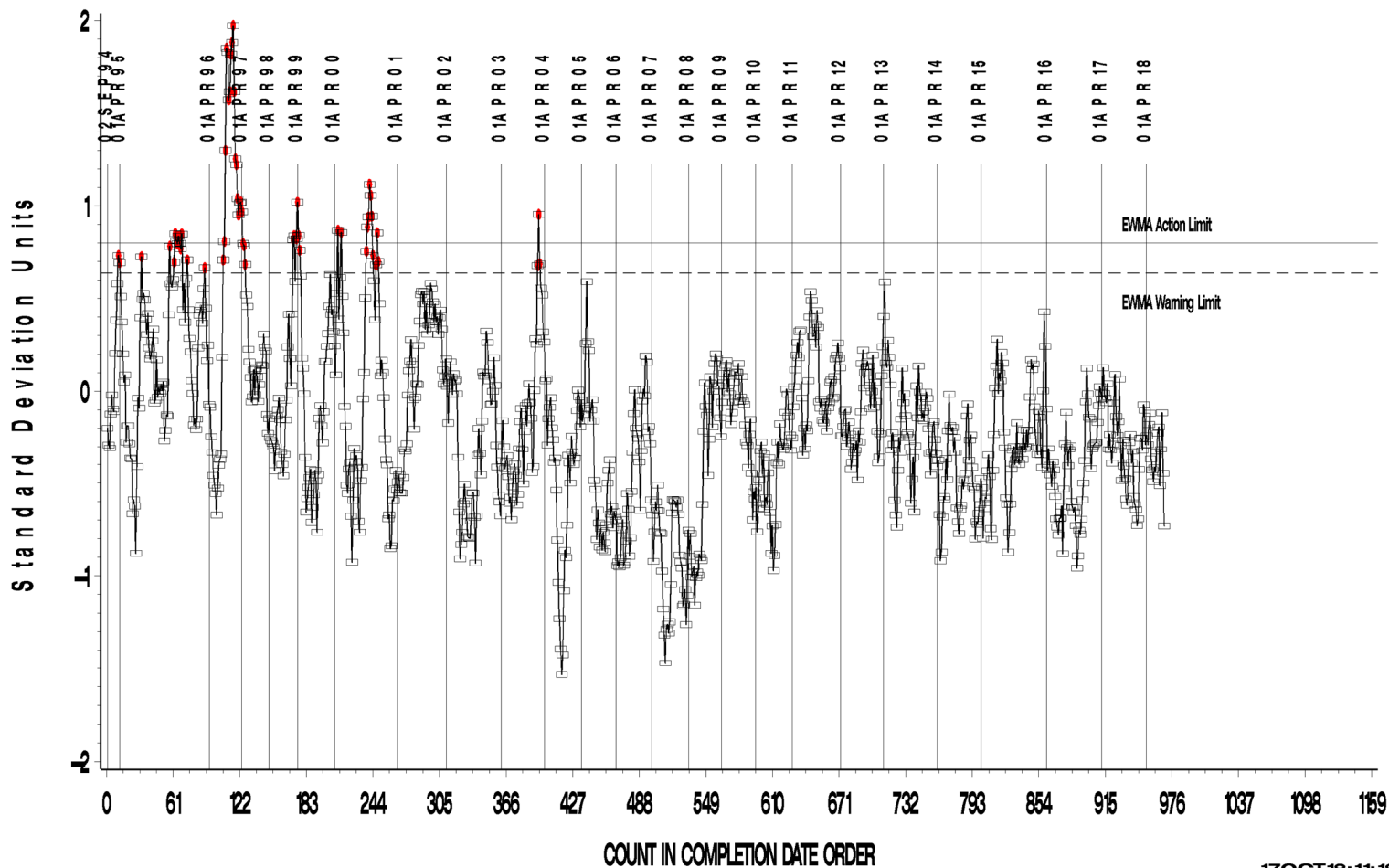
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

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LTMS Precision Analysis



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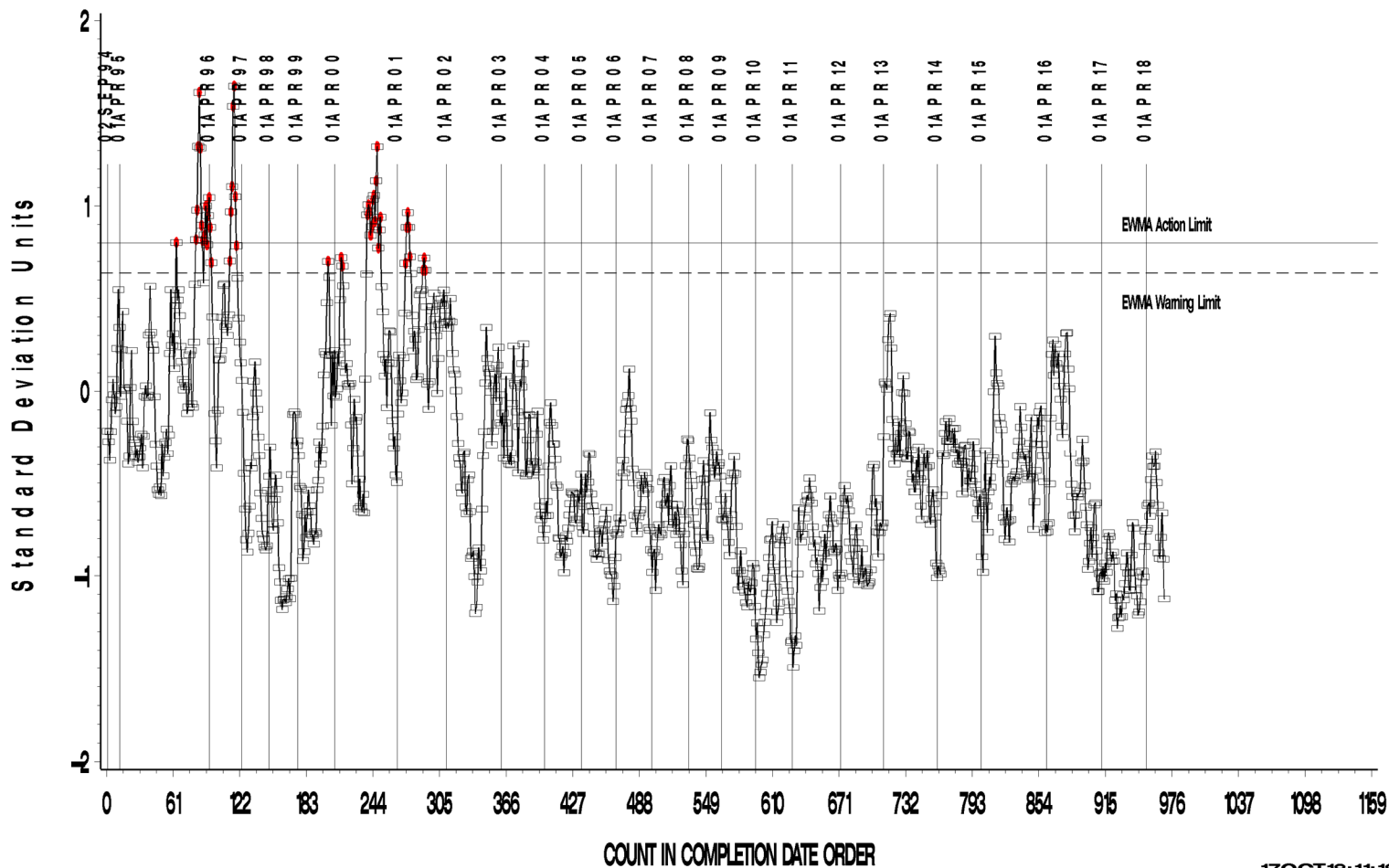
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L-60-1 (D5704)

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LTMS Precision Analysis



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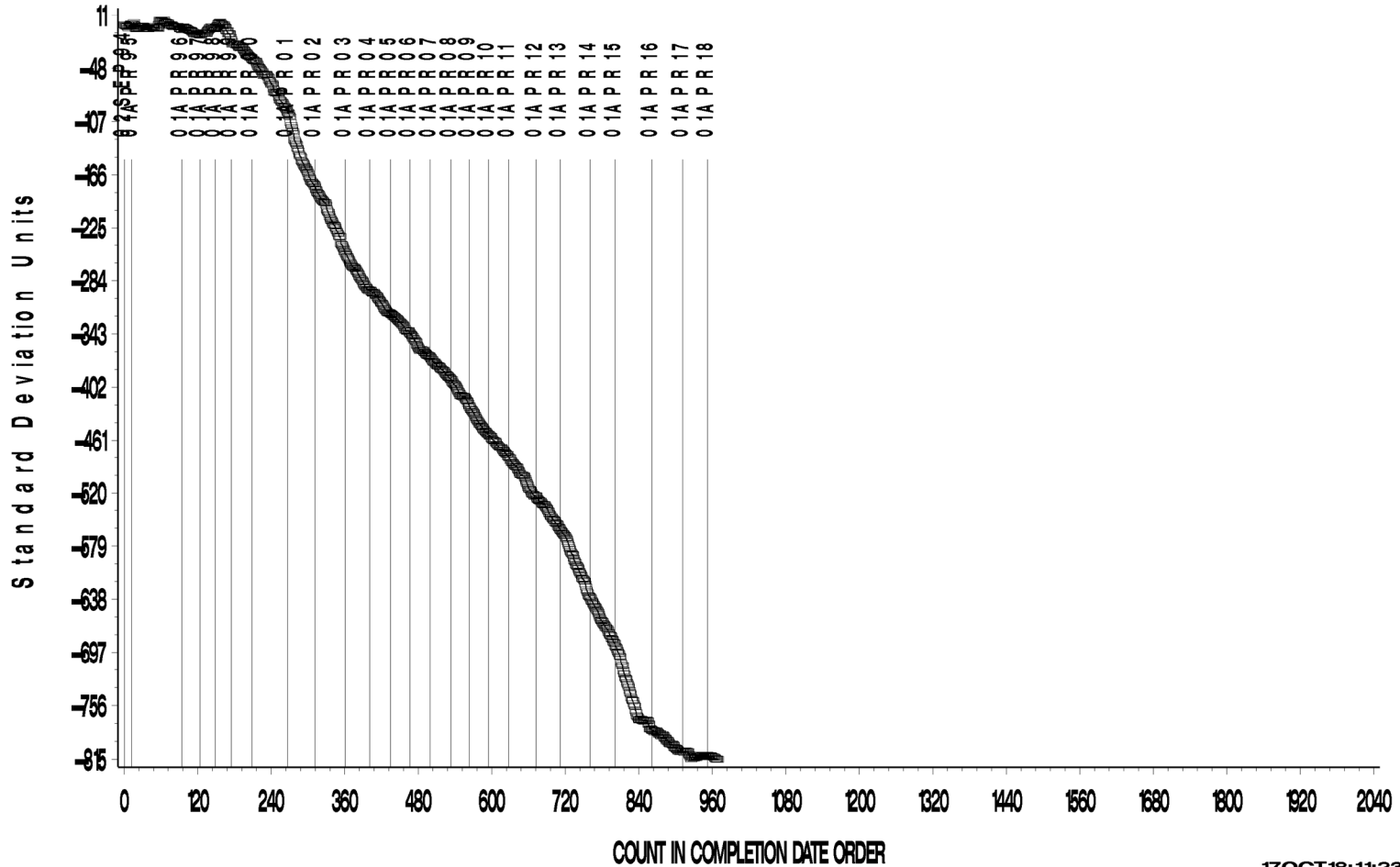
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

CUSUM Severity Analysis



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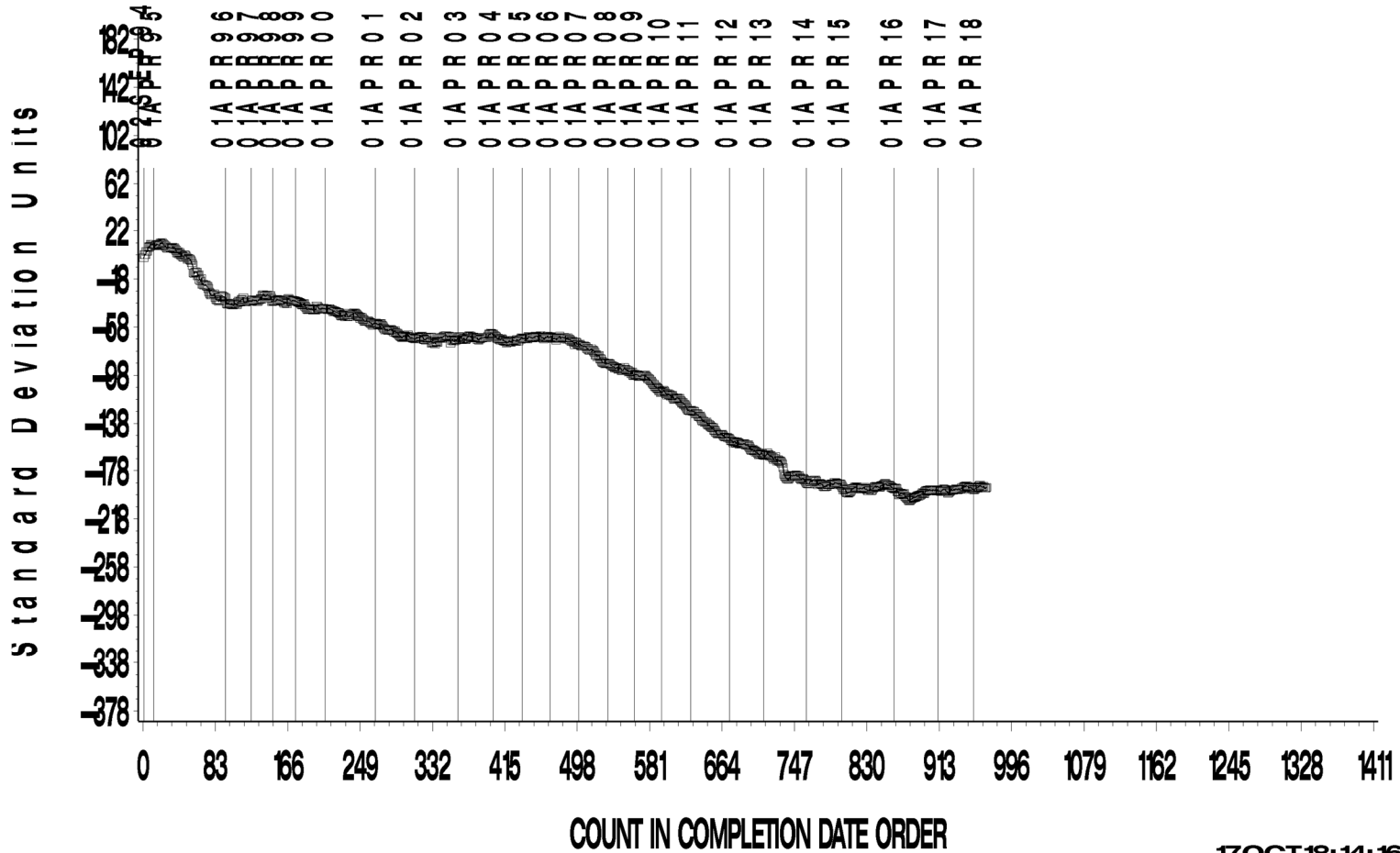
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

CUSUM Severity Analysis



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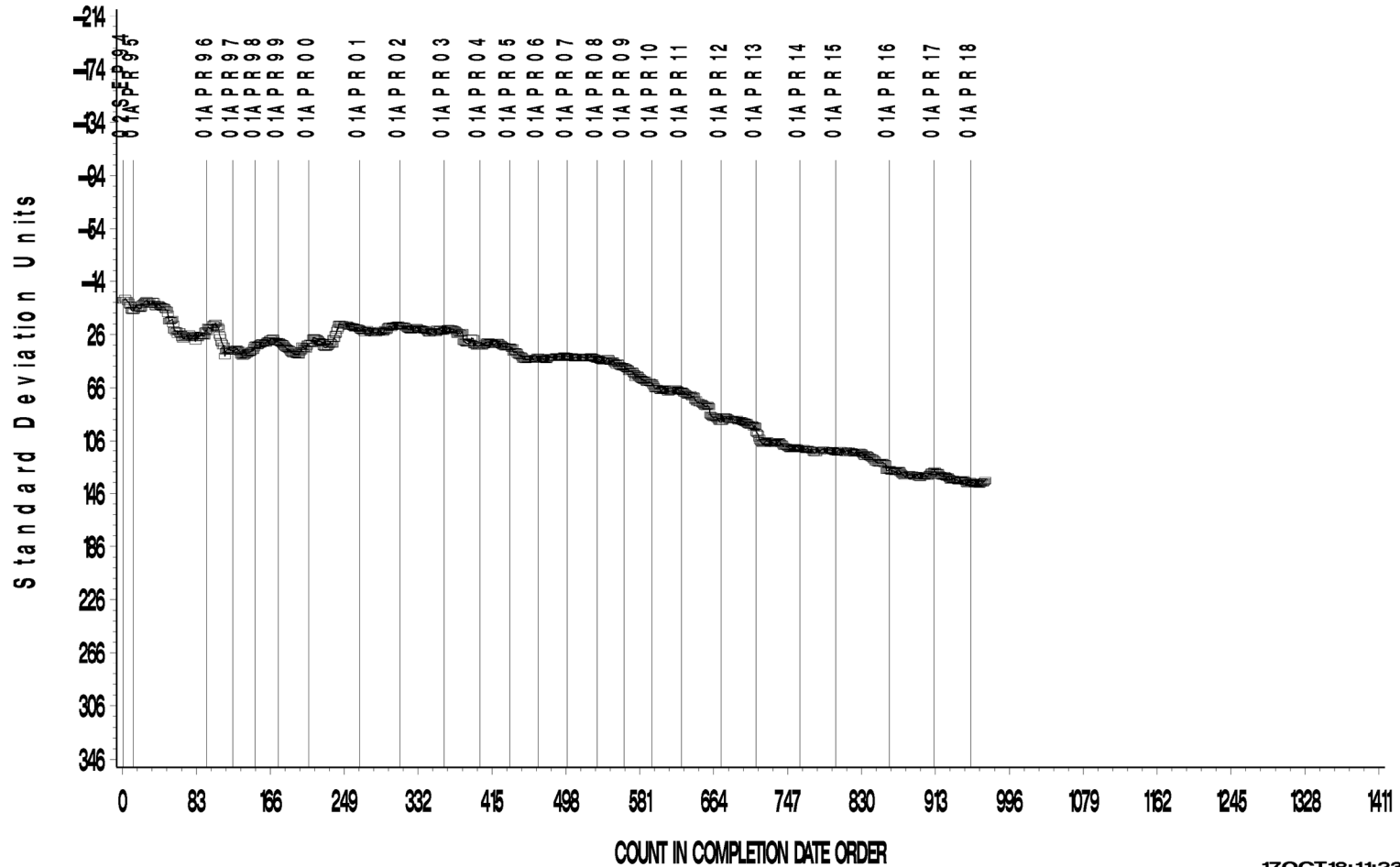
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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

CUSUM Severity Analysis



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L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

CUSUM Severity Analysis



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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
		No timeline additions were made this period.

L-60-1 (D5704)

LAB VISITS

One L-60-1 lab visit was conducted this period. The lab had a part with the wrong part number label but corrected it the day of the visit. All other inspected aspects of test were found to be in compliance with the documented test procedure.

INFORMATION LETTERS

No information letters were issued this period.

L-60-1 (D5704)

STATUS OF REFERENCE OIL SUPPLY

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
148-1	18	6288	393.0
155-1	17	9584	599.0
Total	35	15872	992.0

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 186 gallons is available for use in other gear testing. Four hundred and one tests of oil 148-1 remain in TMC inventory; however, this is only 25 gallons. When the need arises, it will not be possible to obtain a reblend of this oil. The panel is advised to begin considering a possible replacement for this oil.