



Test Monitoring Center


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

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

MEMORANDUM: 14-018

DATE: June 9, 2013

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

FROM: Scott Parke 

SUBJECT: L-60-1 Reference Oil Testing from October 1, 2013 through March 31, 2014

Please find attached a summary of testing activity this period.

SDP/sdp/mem14-018.sdp.doc

cc: Frank Farber

Jeff Clark

L-60-1 Surveillance Panel

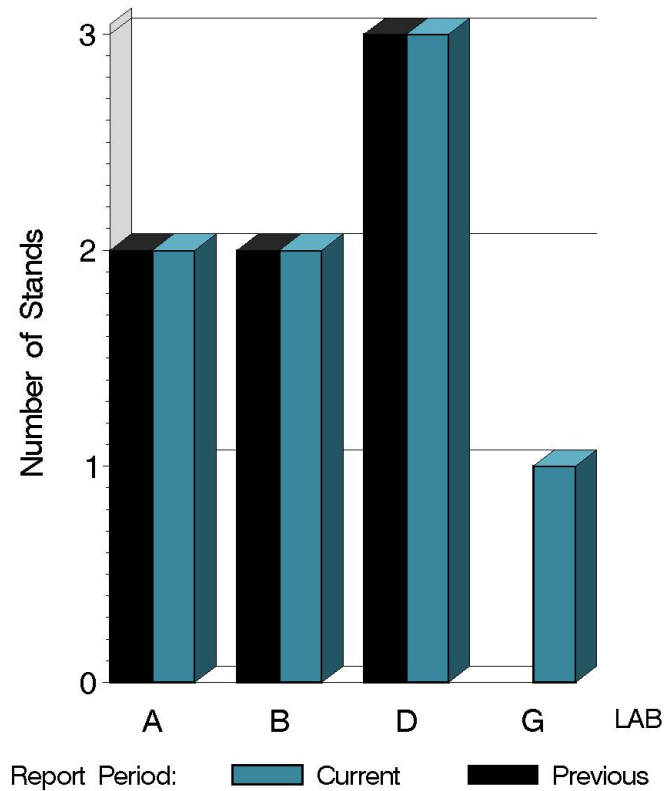
<ftp://ftp.astmtmc.cmu.edu/docs/gear/l601/semiannualreports/l601-04-2014.pdf>

Distribution: email

L-60-1 (D5704)

	Reporting Data	Calibrated on 3-31-14
Number of Labs	4	4
Number of Stands	8	8

BY-LAB STAND
DISTRIBUTION



13:34:10 05JUN2014

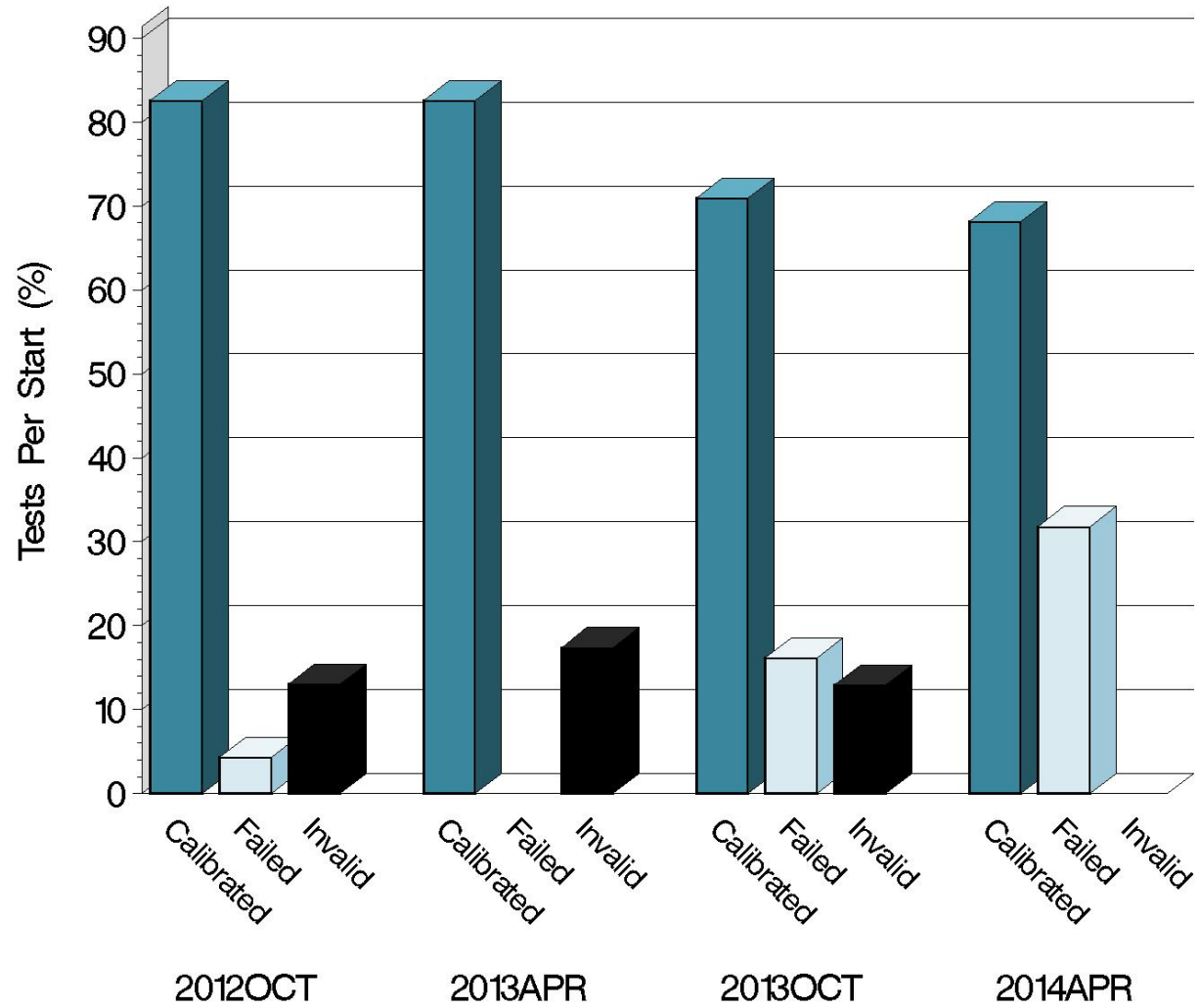
L-60-1 (D5704)

Test Distribution by Oil and Validity

				Totals	
		148-1	151-2	Last Period	This Period
Accepted for calibration	AC	7	8	22	15
Rejected (Mild)	OC	1	0	0	1
Rejected (Severe)	OC	3	3	5	6
Rejected (Precision)	OC	0	0	0	0
Invalidated calibration	LC	0	0	3	0
Hardware approval	NI	0	0	0	0
Operationally invalid	RC	0	0	0	0
Aborted	XC	0	0	1	0
Total		11	11	31	22

L-60-1 (D5704)

CALIBRATION ATTEMPT SUMMARY



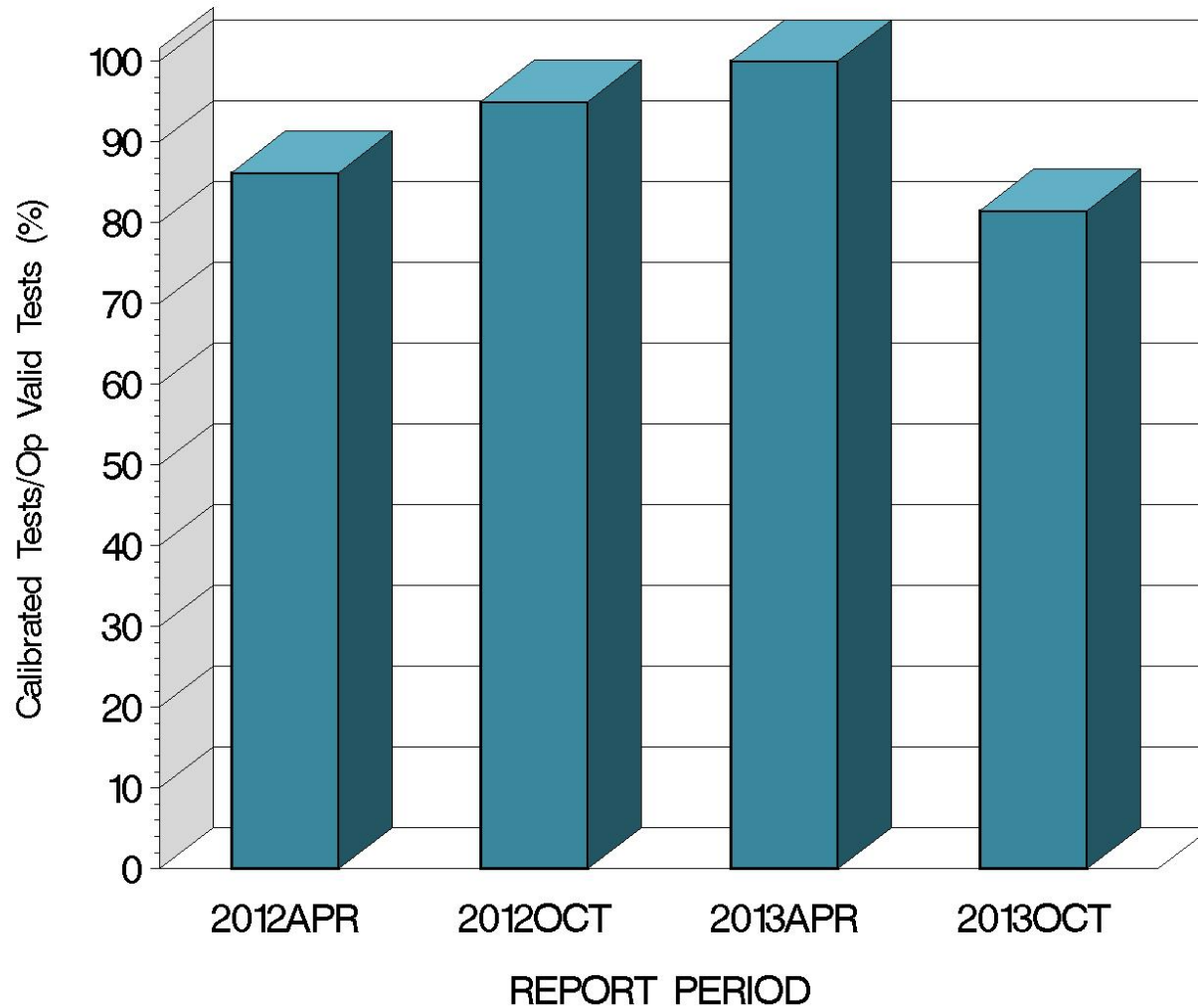
Resolution

Report Period

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L-60-1 (D5704)

OPERATIONALLY VALID TESTS
MEETING ACCEPTANCE CRITERIA

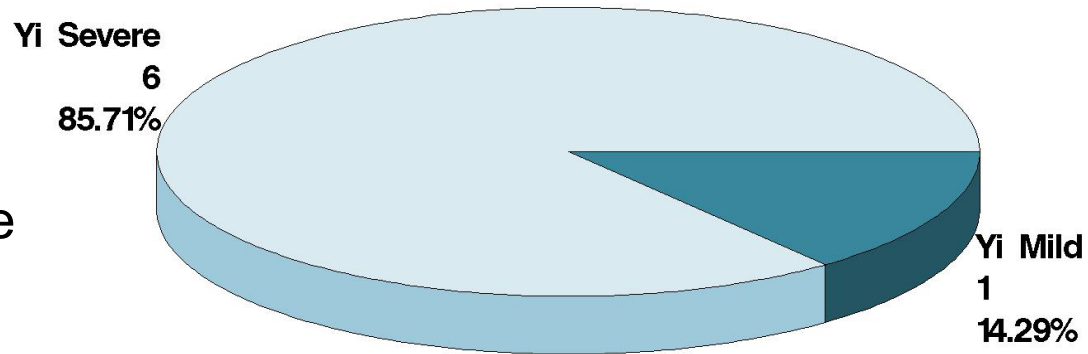


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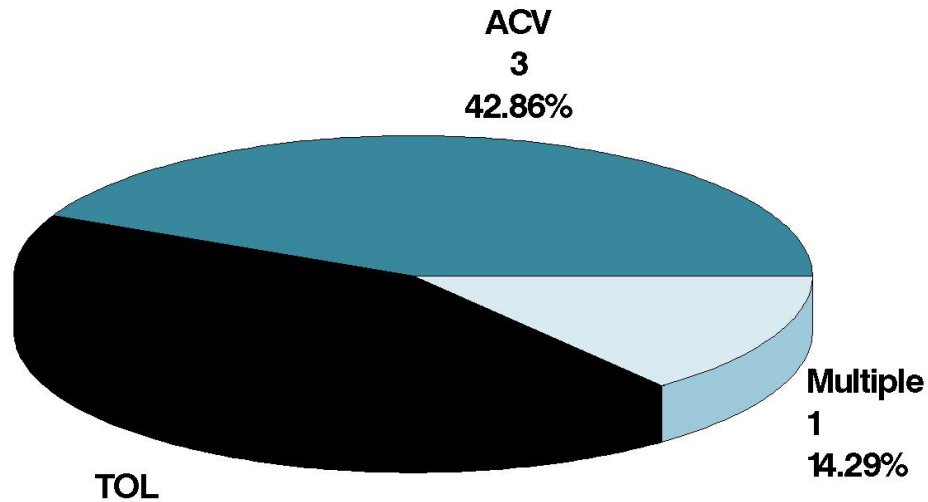
L-60-1 (D5704)

CAUSES FOR FAILED TESTS

By Alarm Type



By Parameter



L-60-1 (D5704)

CAUSES FOR LOST TESTS

		Oil		Validity			Loss Rate		
Lab	Cause	148-1	151-2	RC	LC	XC	Lost	Starts	%
	No tests were lost this period.						0	22	0%
	Lost	0	0	0	0	0			
	Starts	11	11	22	22	22			
	%	0%	0%	0%	0%	0%			

L-60-1 (D5704)

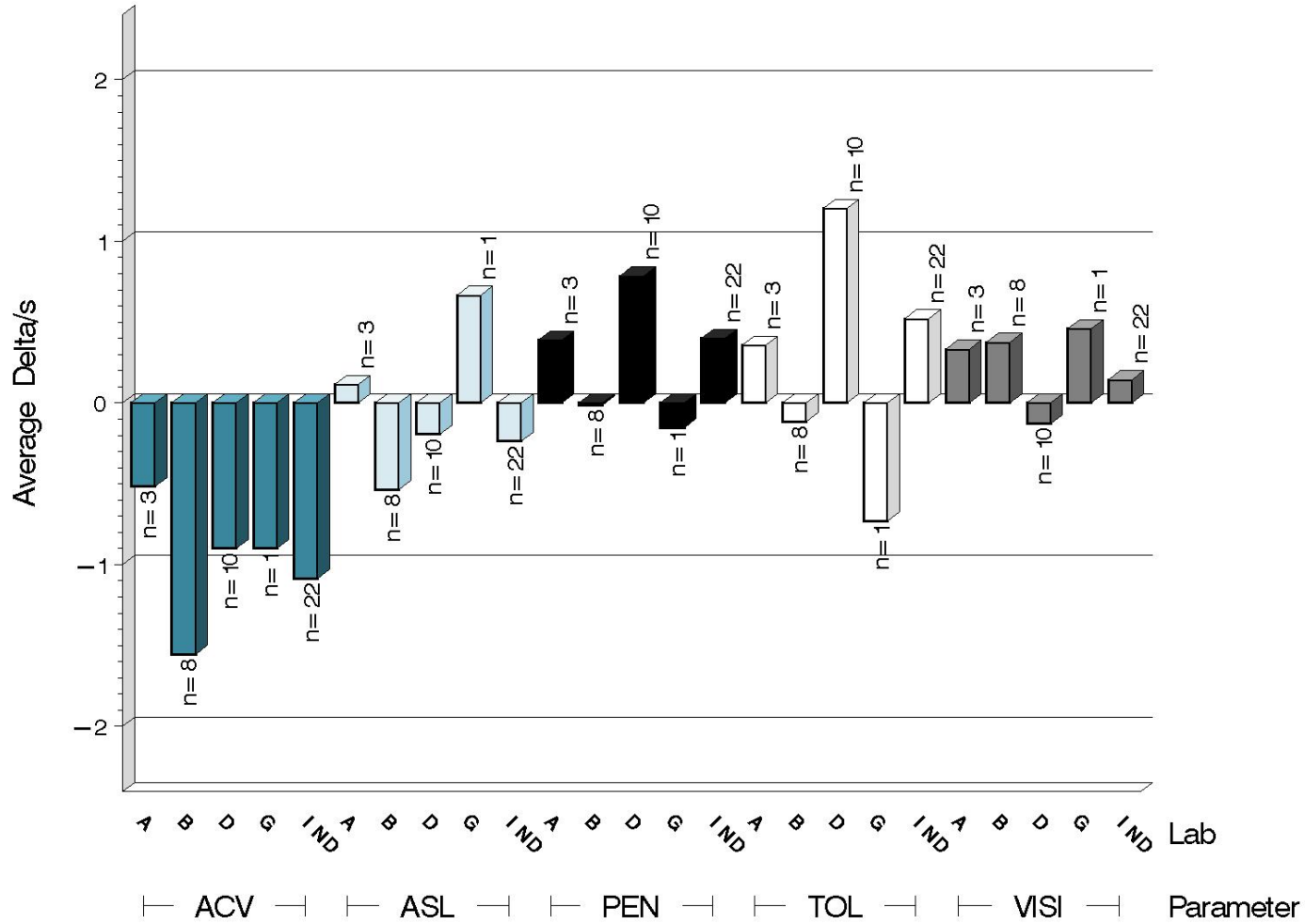
Average Δ /s by Lab						
Lab	n	VISI	PEN	TOL	ACV	ASL
A	3	0.333	0.388	0.356	-0.517	0.115
B	8	0.375	-0.012	-0.115	-1.555	-0.536
D	10	-0.128	0.786	1.203	-0.900	-0.193
	1	0.459	-0.154	-0.731	-0.900	0.666
Industry	22	0.145	0.399	0.520	-1.086	-0.237
Shift*	22	1.165%	0.249%	0.387%	-0.996 merits	-0.023 merits

*computed using severity adjustment standard deviation

L-60-1 (D5704)

TEST SEVERITY

DELTA/S BY LAB

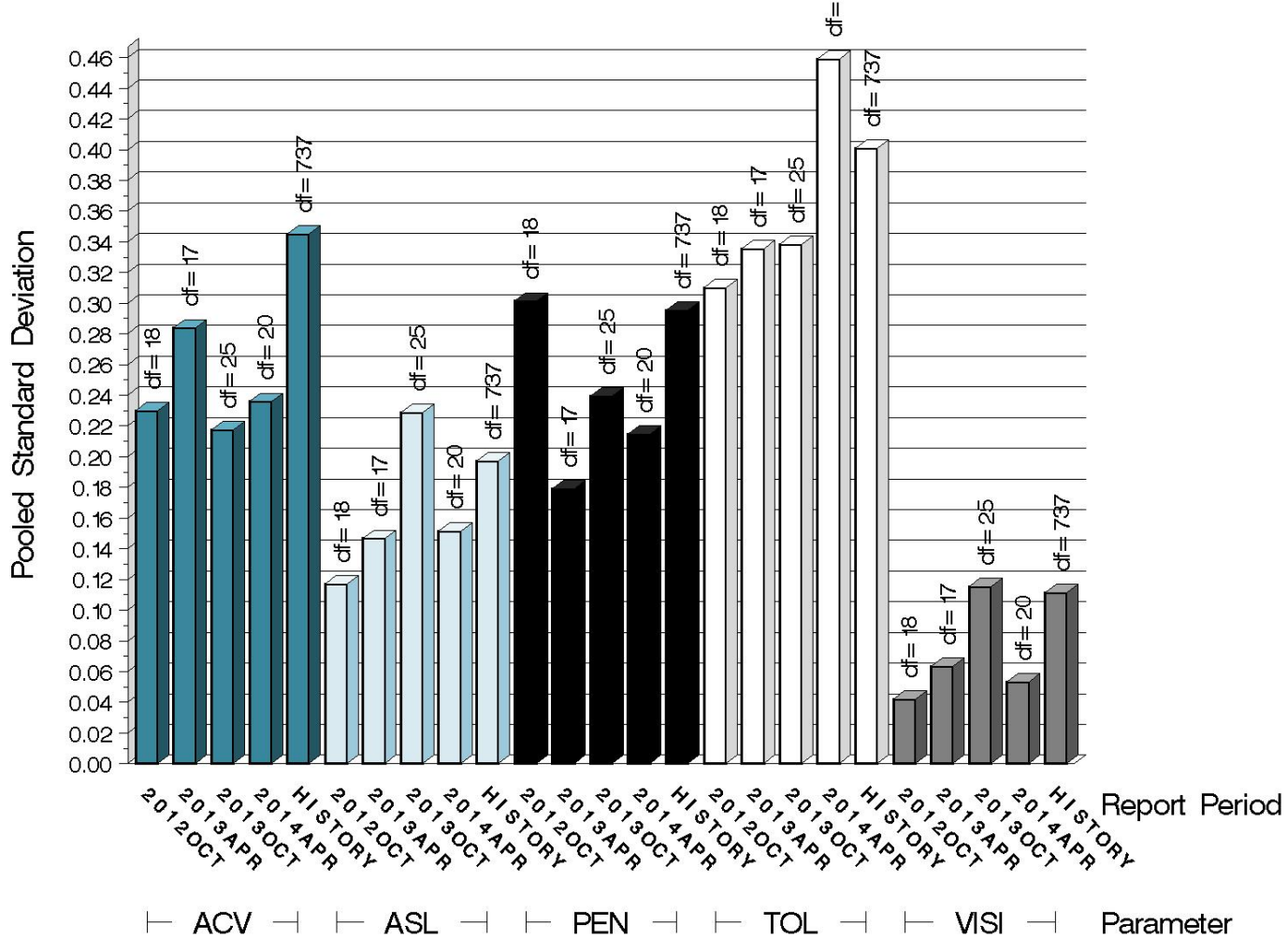


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L-60-1 (D5704)

TEST PRECISION

POOLED STANDARD DEVIATION
BY SIX-MONTH ASTM REPORT PERIOD



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L-60-1 (D5704)

SUMMARY OF SEVERITY & PRECISION

Severity

All parameters remain more or less severe of target. The ASL alarms from last period have cleared but ACV continues to exceed the control chart action limit. The test targets in use for the currently used reference oils may not accurately reflect the true performance of those blends. The 148-1 targets were a carryover from 148 targets set in 1994. The 151-2 targets were set on the first 9 tests of that oil in 2000. The surveillance panel held a day-long task force meeting May 6. Several items were flagged for investigation for possible action.

Precision

Precision for all parameters continues to be good.

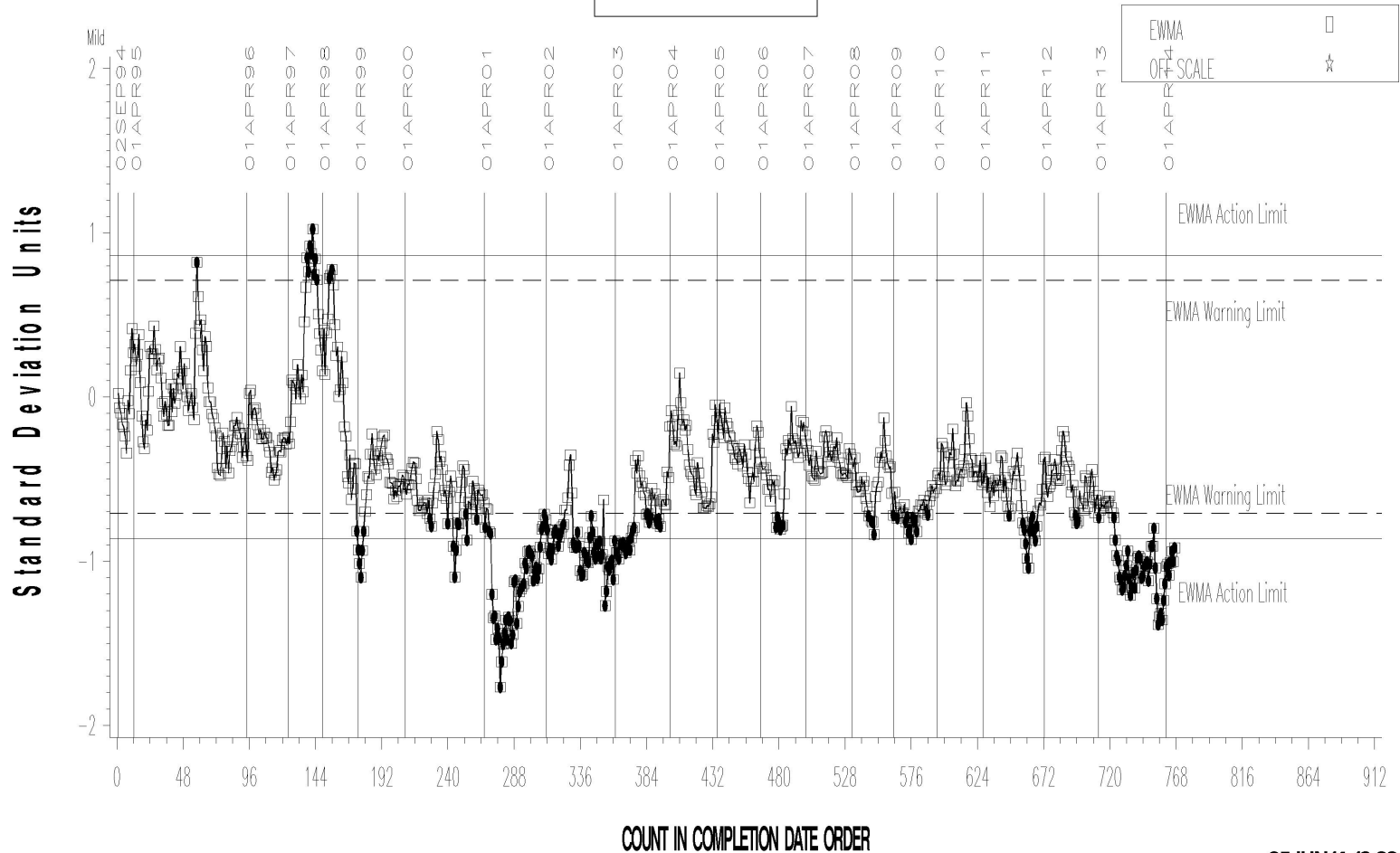
Industry control charts follow.

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

LTMS Severity Analysis



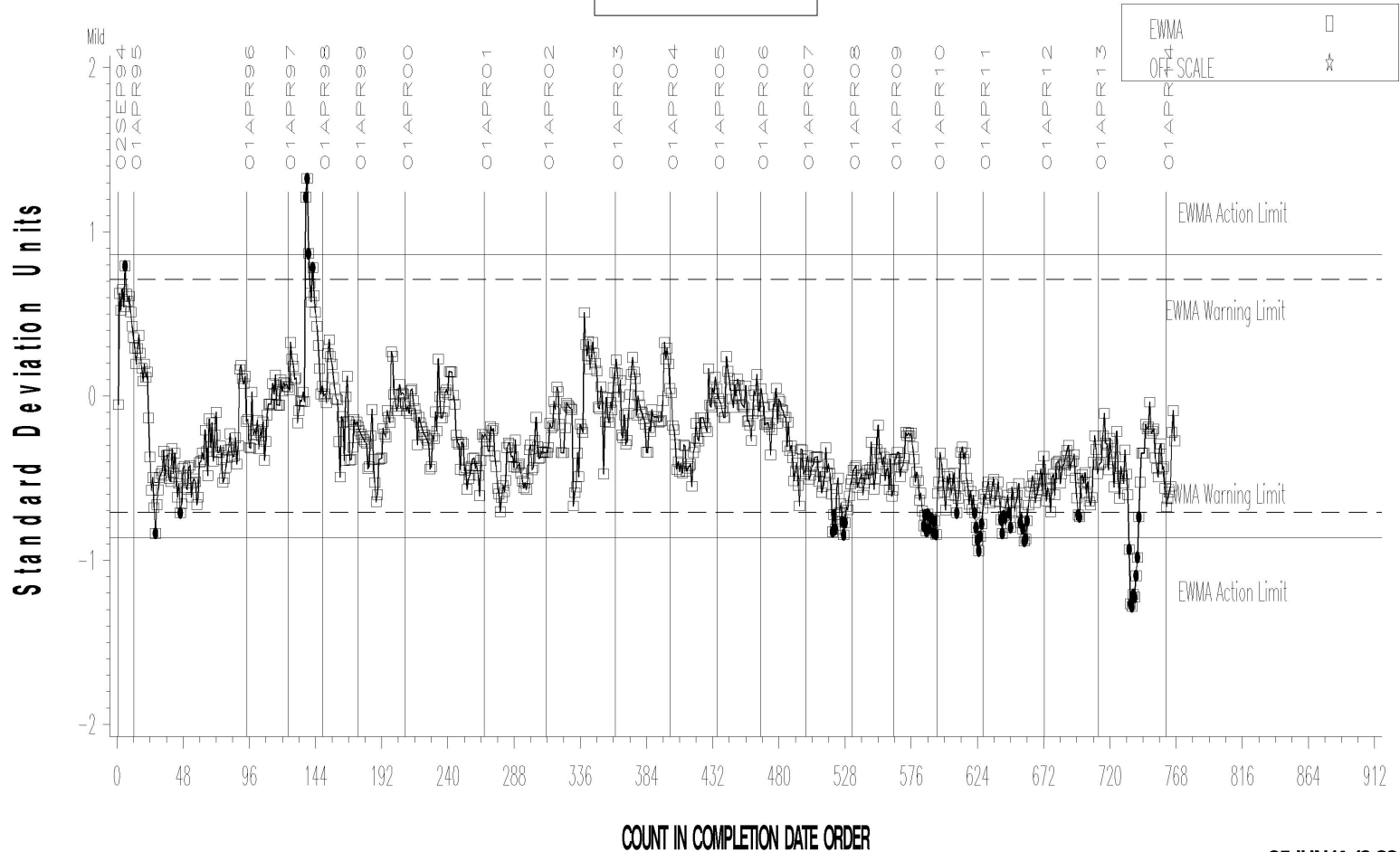
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

LTMS Severity Analysis



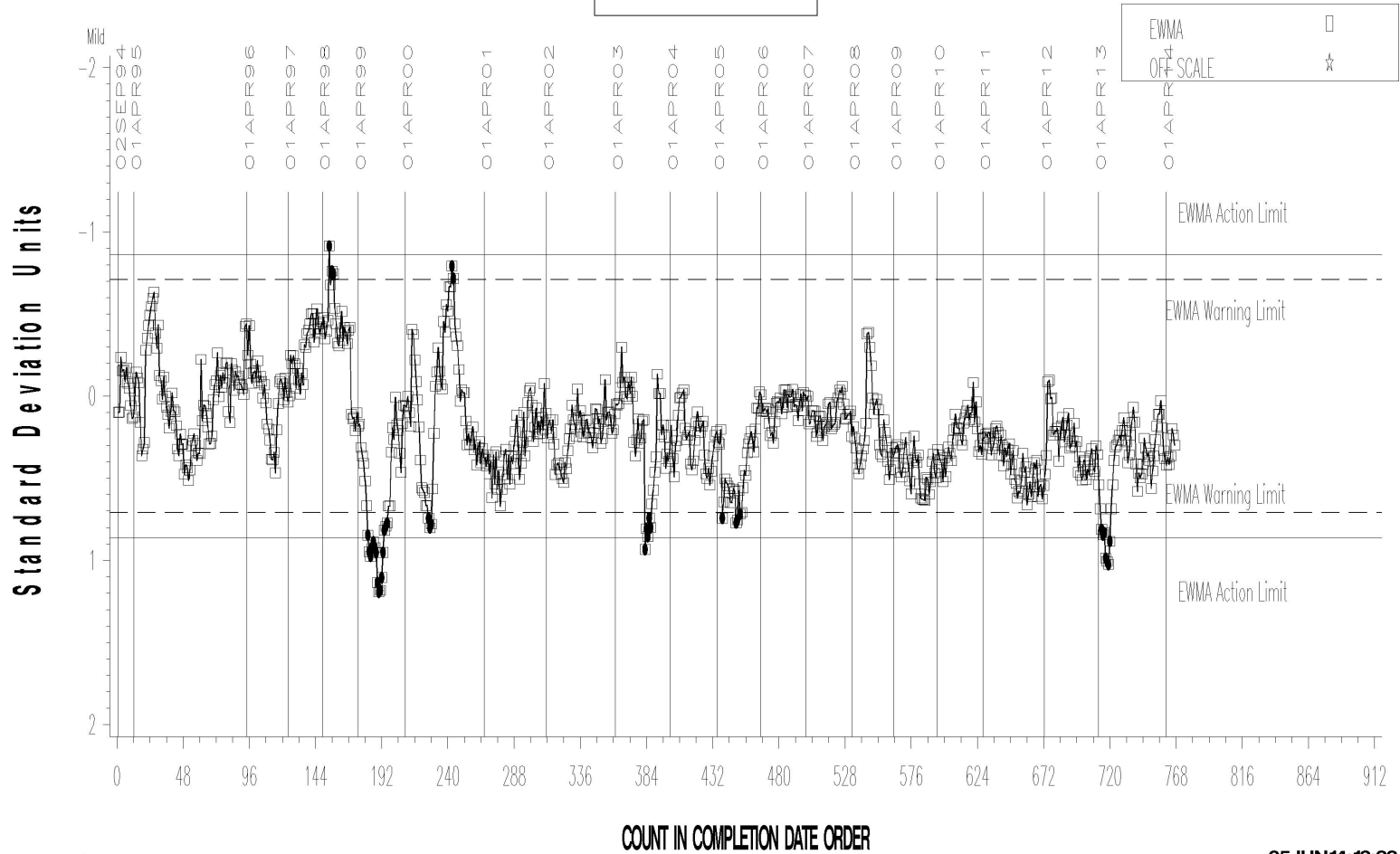
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

LTMS Severity Analysis



Severe

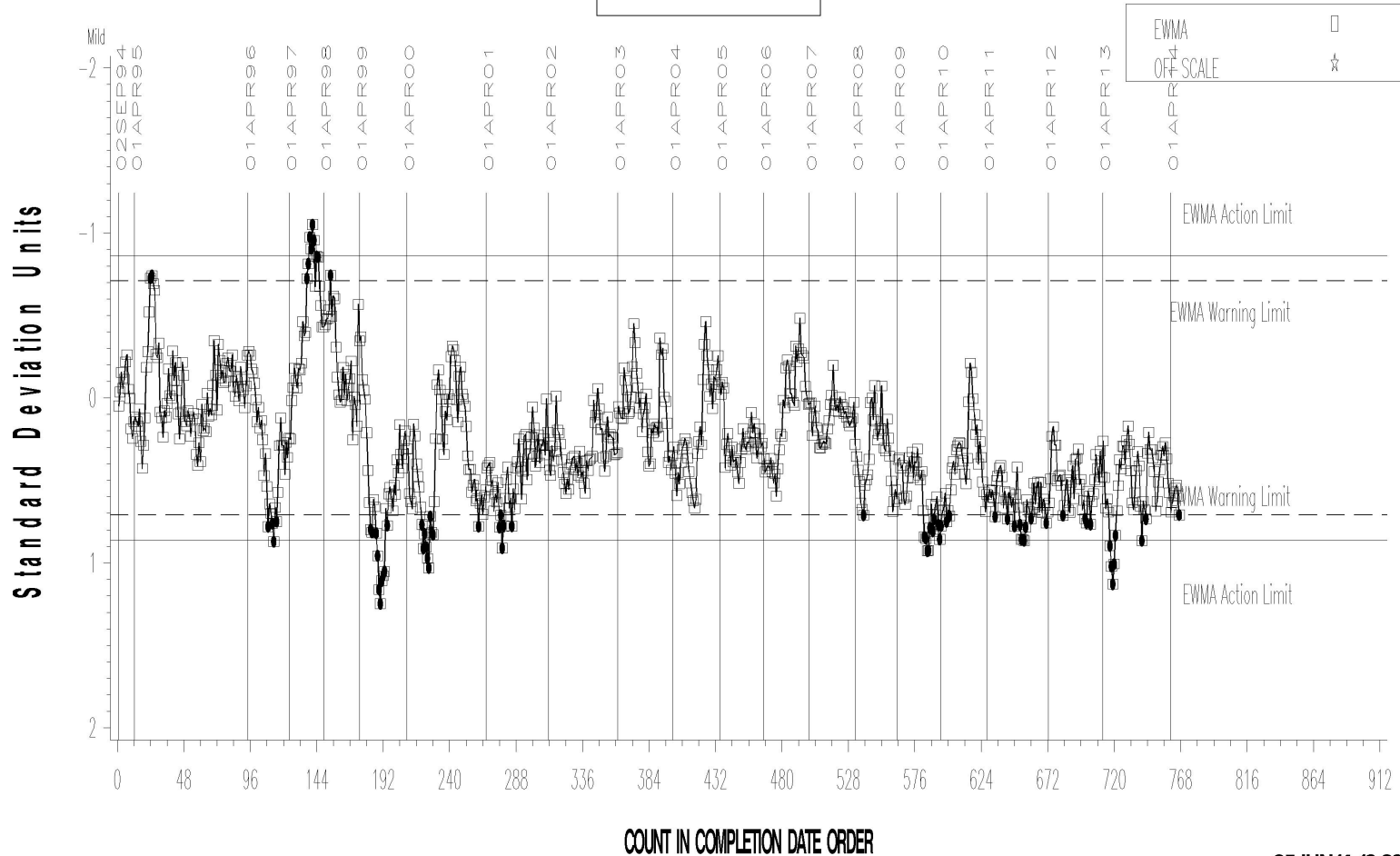
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

LTMS Severity Analysis



Severe

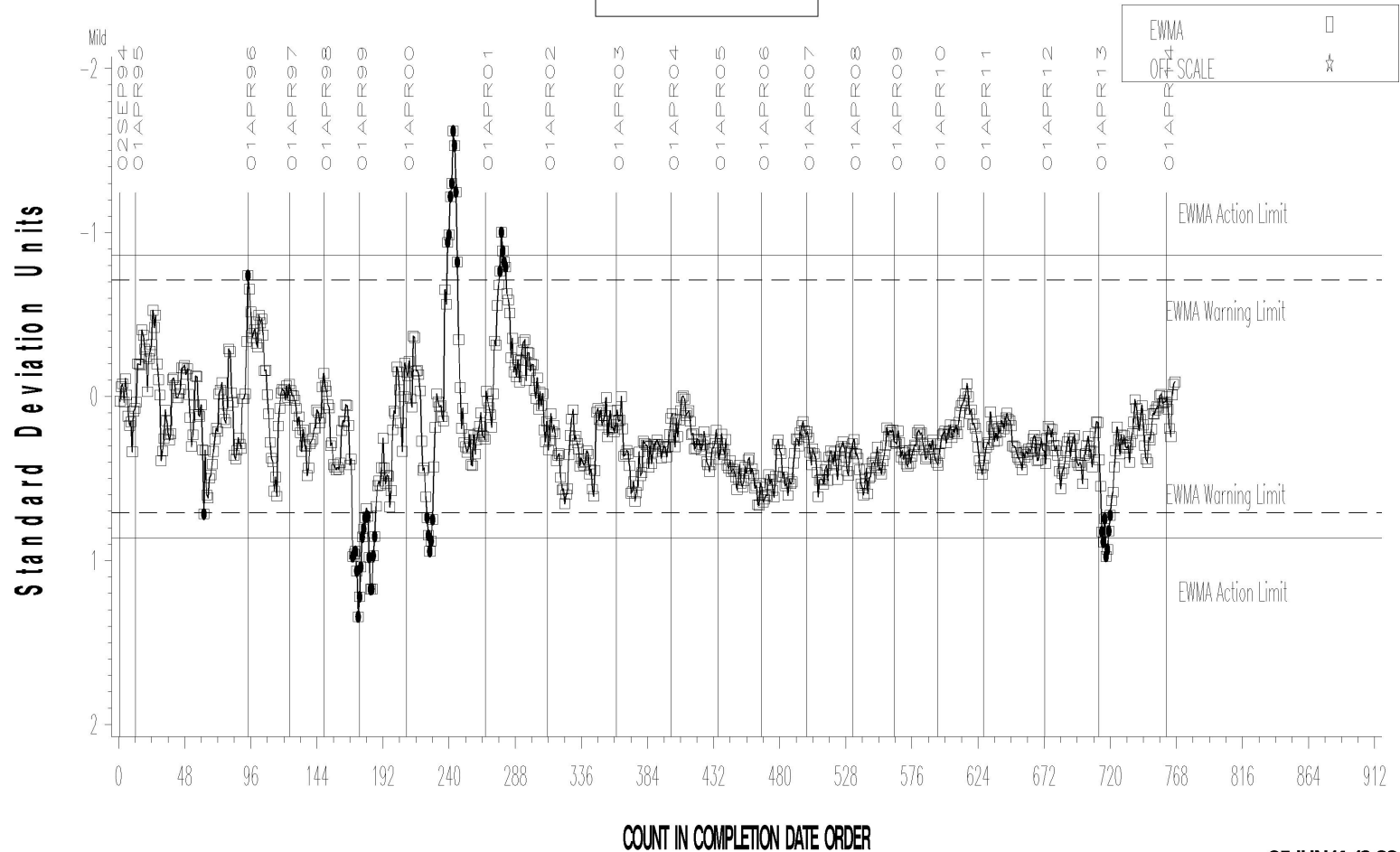
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL VISCOSITY INCREASE

LTMS Severity Analysis



Severe

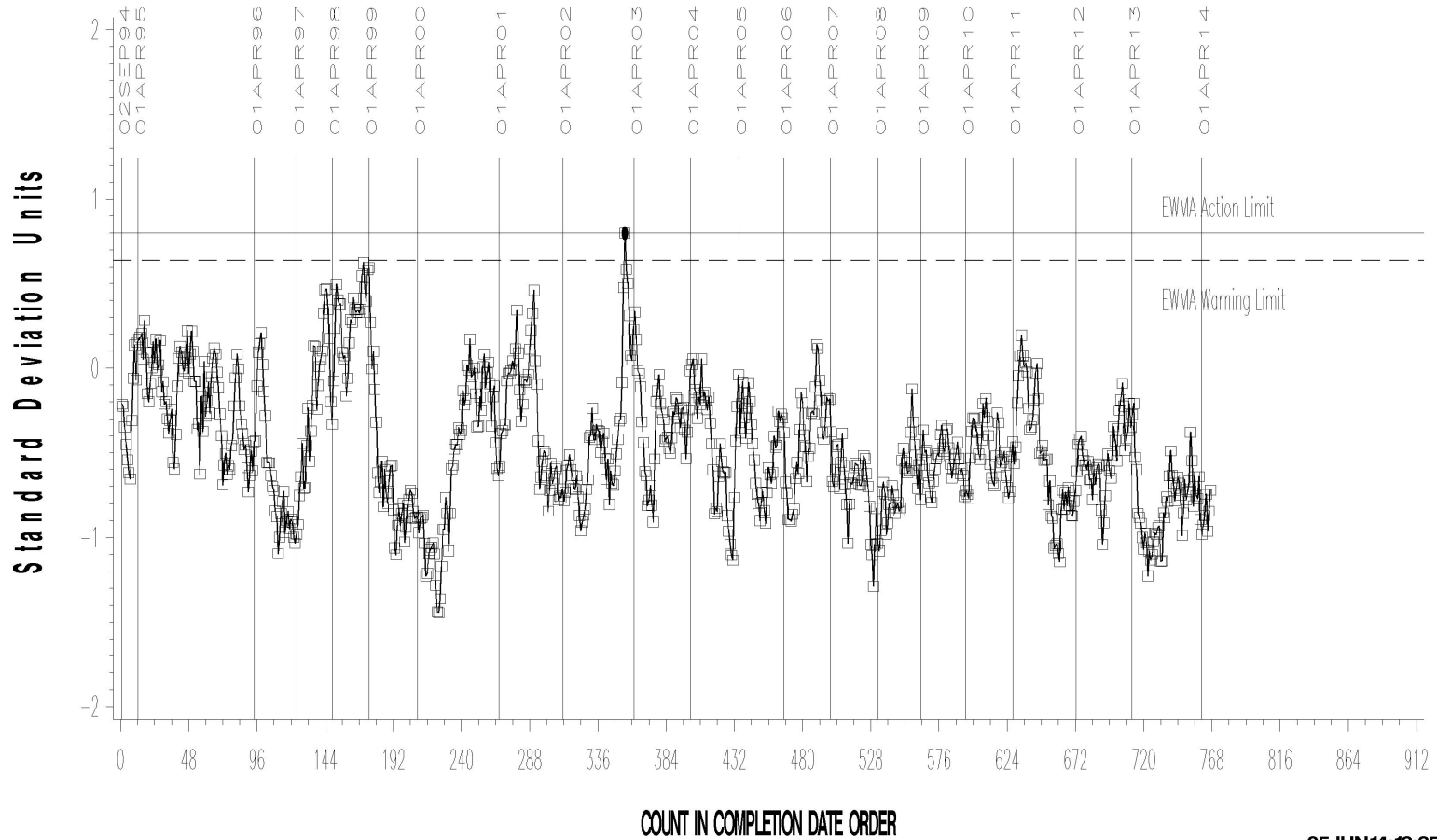
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

LTMS Precision Analysis



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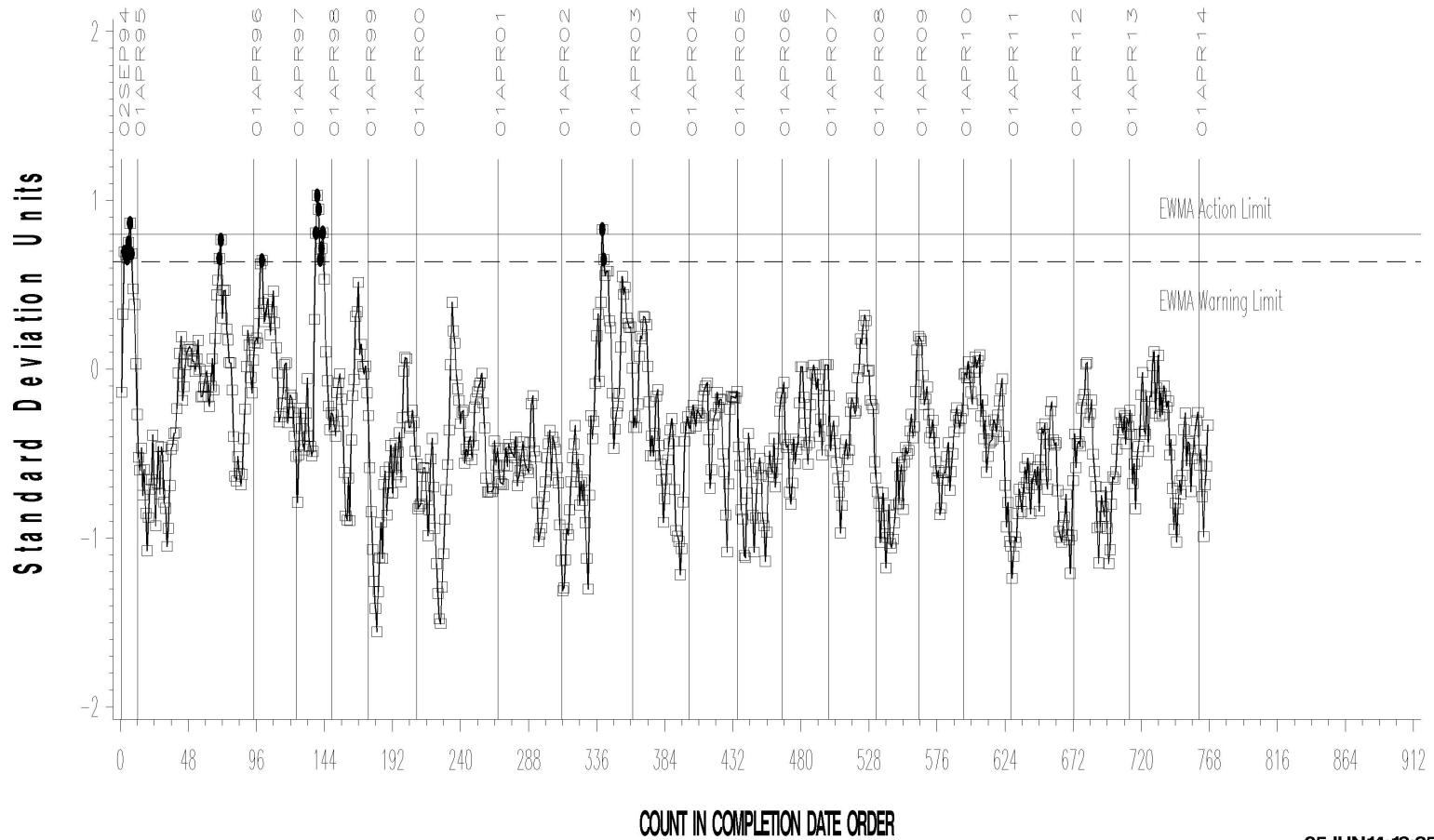
A Program of ASTM International

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

LTMS Precision Analysis



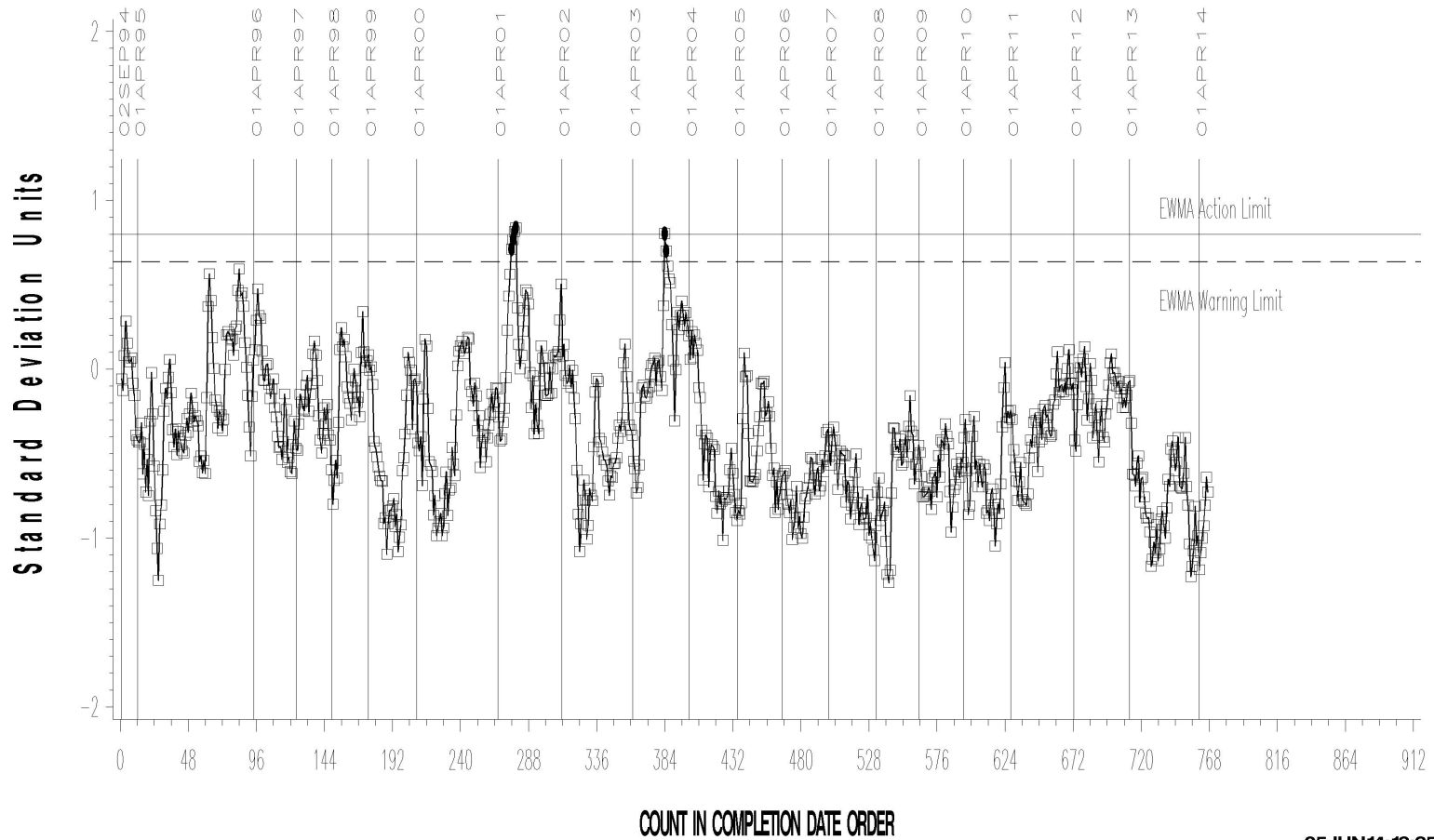
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

LTMS Precision Analysis



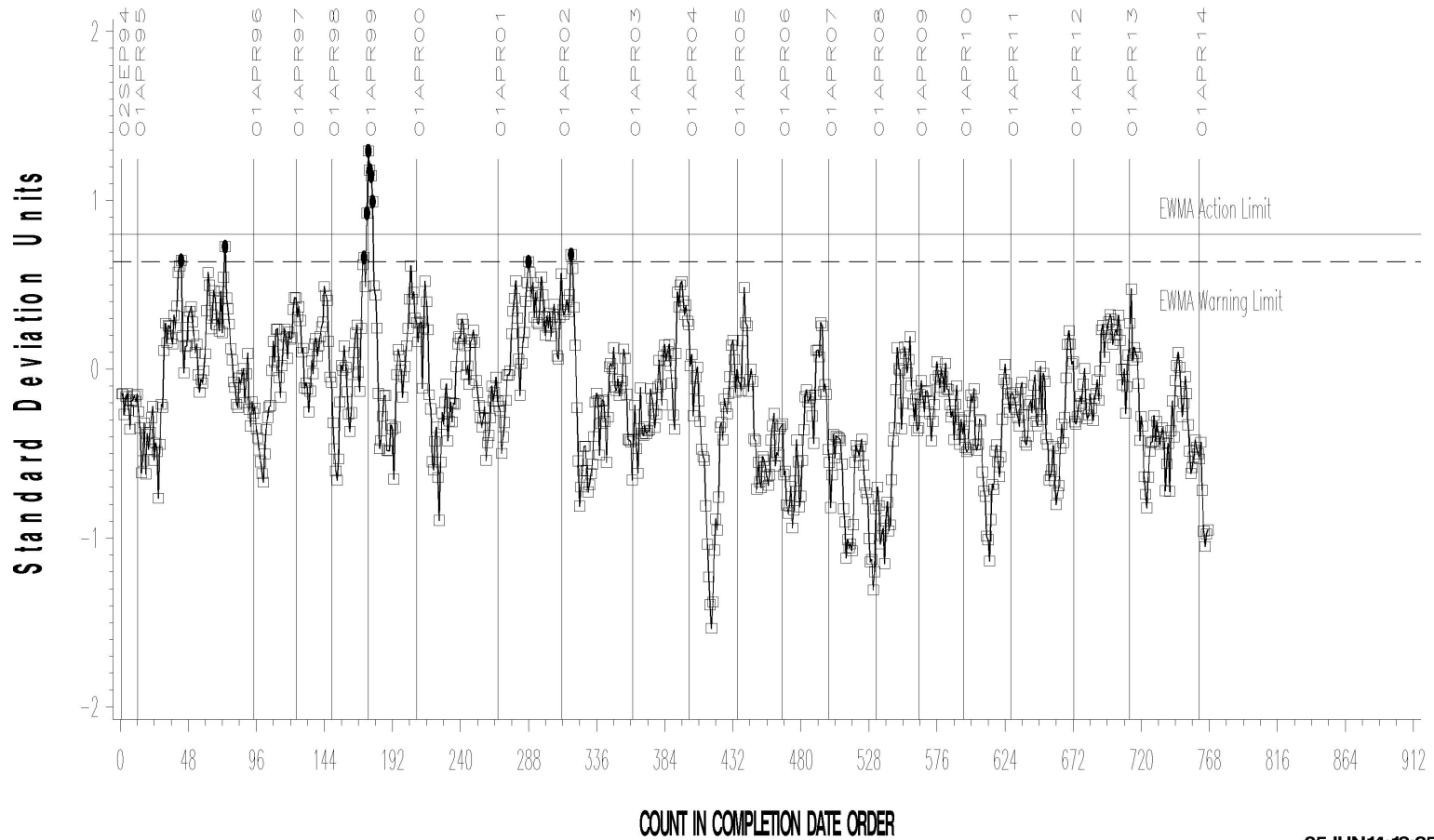
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

LTMS Precision Analysis



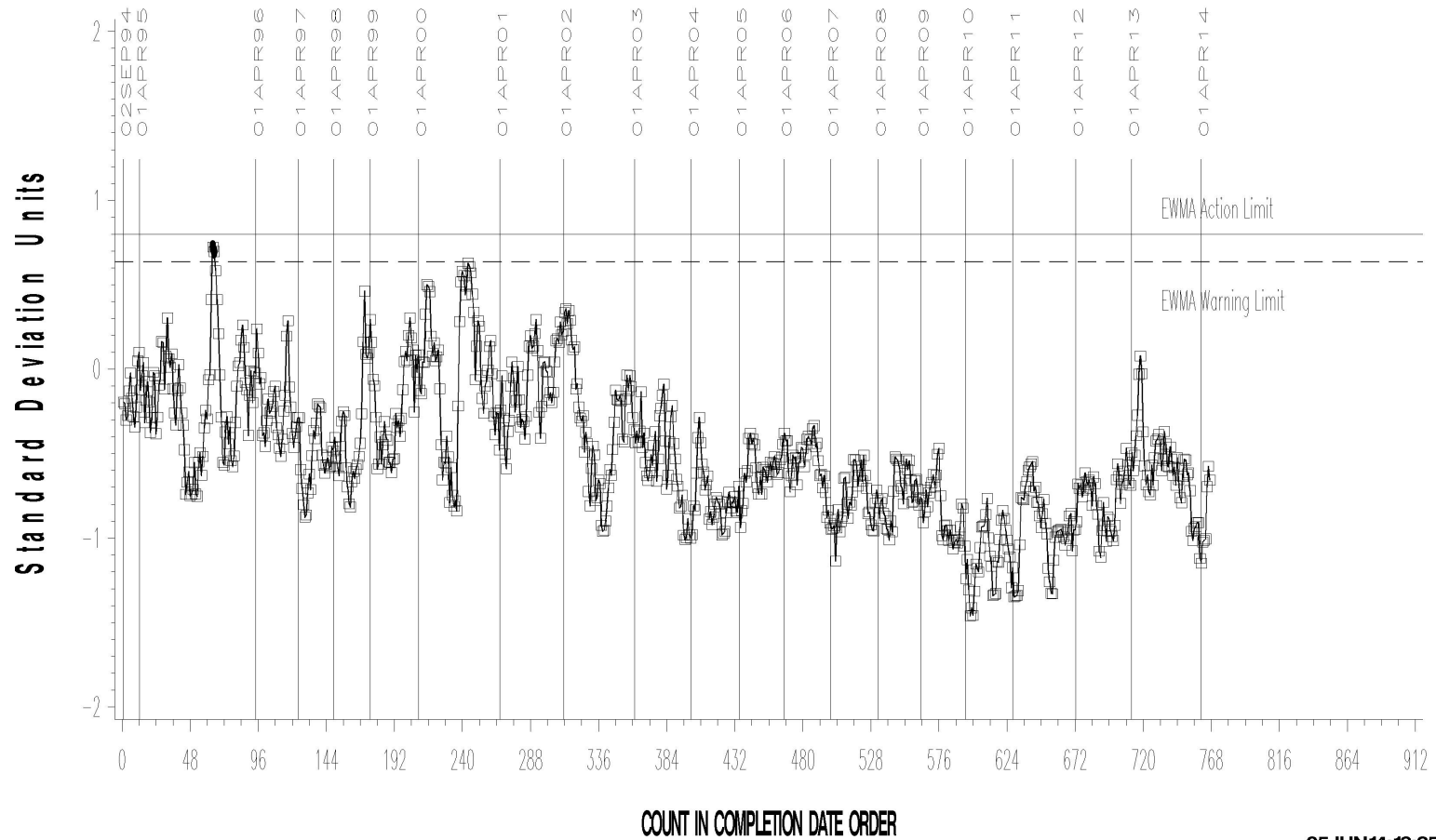
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL VISCOSITY INCREASE

LTMS Precision Analysis



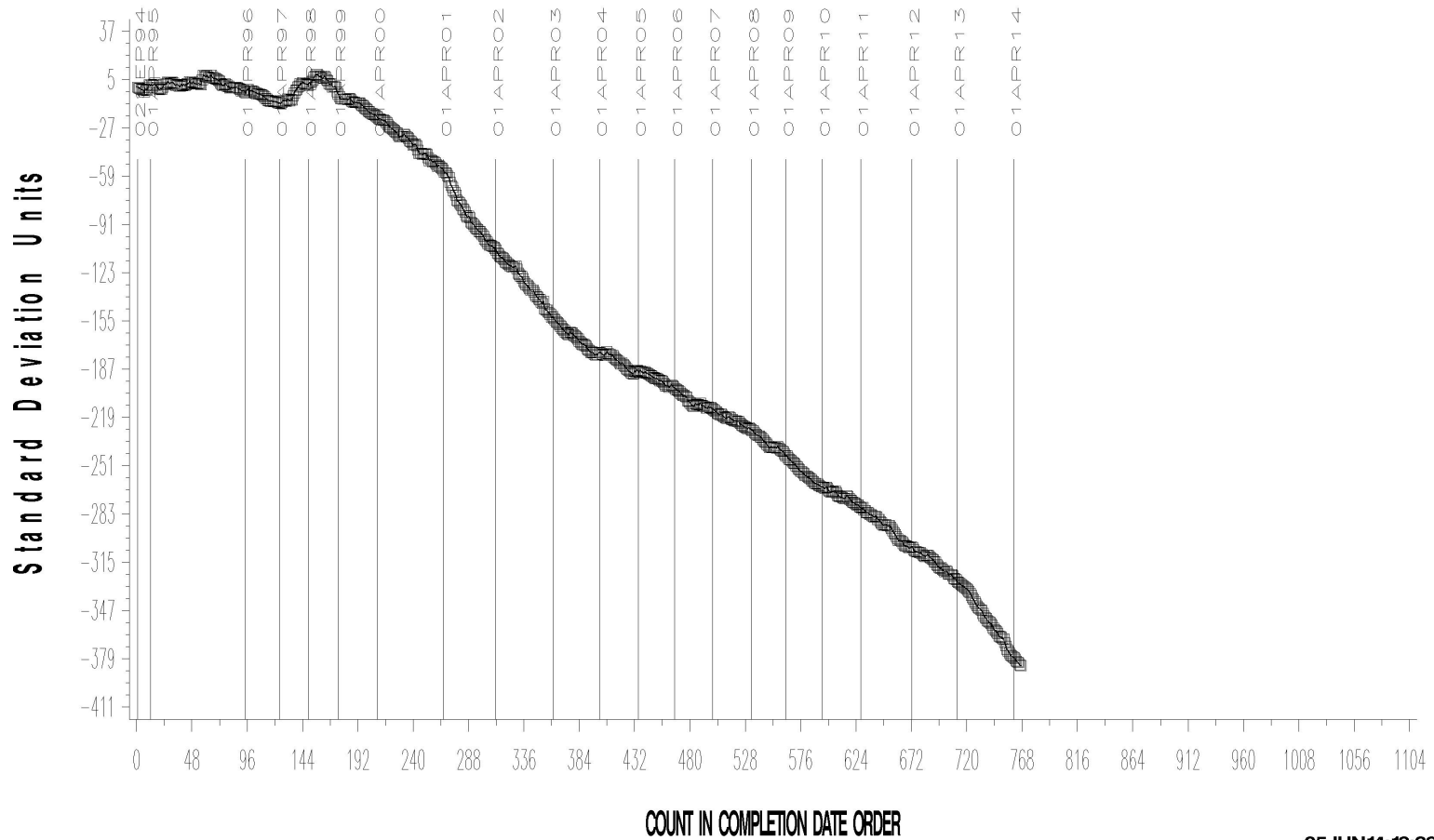
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L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE CARBON/ VARNISH

CUSUM Severity Analysis



05JUN14:13:29

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL AVERAGE SLUDGE

CUSUM Severity Analysis



05JUN14:13:30

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL PENTANE INSOLUBLES

CUSUM Severity Analysis



05 JUN 14: 13:29

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL TOLUENE INSOLUBLES

CUSUM Severity Analysis



05JUN14:13:29

L-60-1 (D5704)

L-60-1 INDUSTRY OPERATIONALLY VALID DATA

REF. FINAL VISCOSITY INCREASE

CUSUM Severity Analysis



05JUN14:13:29

L-60-1 (D5704)

TIMELINE ADDITIONS

Effective Date	Information Letter	Event
		No items have been added to the timeline this period.

L-60-1 (D5704)

LAB VISITS

No L-60-1 lab visits were completed this period.

INFORMATION LETTERS

No L-60-1 information letters were issued this period.

L-60-1 (D5704)

STATUS OF REFERENCE OIL SUPPLY

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
133	5	1693	105.8
148-1	16	516	32.3
151-2	19	30	1.9
155-1	16	668	41.8
Total	56	2907	181.8

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 sixteen tests of oil 148-1 remain in TMC inventory; however, this is only 32.3 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.