




Test Monitoring Center

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

MEMORANDUM: 14-017
DATE: June 3, 2014
TO: Thomas Gottwald, Chairman, L-42 Surveillance Panel
FROM: Scott Parke 
SUBJECT: L-42 Reference Oil Testing from October 1, 2013 through March 31, 2014

Please find attached a summary of reference oil testing activity this period.

SDP/sdp/mem14-017.sdp.doc

cc: Frank Farber

Jeff Clark

L-42 Surveillance Panel

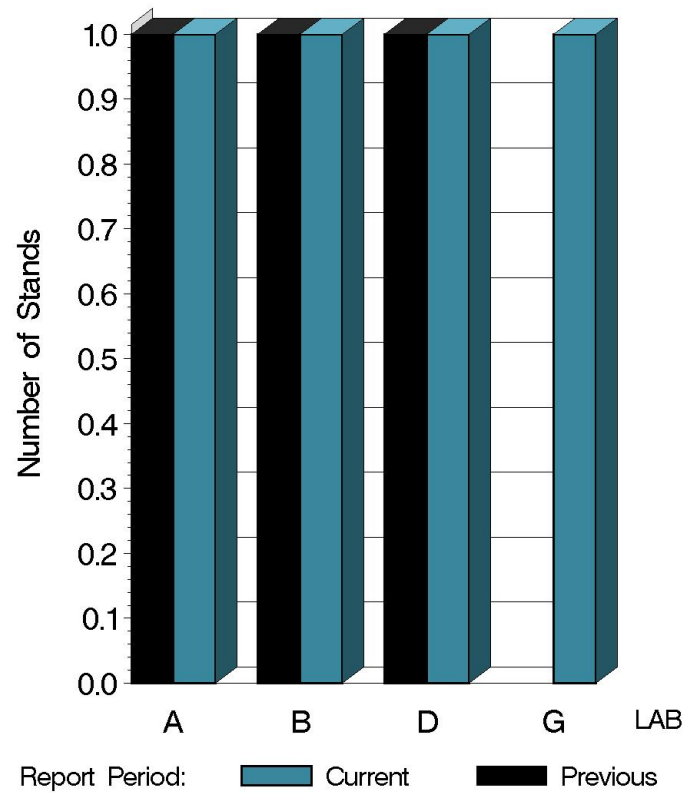
<ftp://ftp.astmtmc.cmu.edu/docs/gear/l42/semiannualreports/l42-04-2014.pdf>

Distribution: email

L-42 (D7452)

	Reporting Data	Calibrated on 3-31-14
Number of Labs	4	2
Number of Stands	4	2

BY-LAB STAND
DISTRIBUTION



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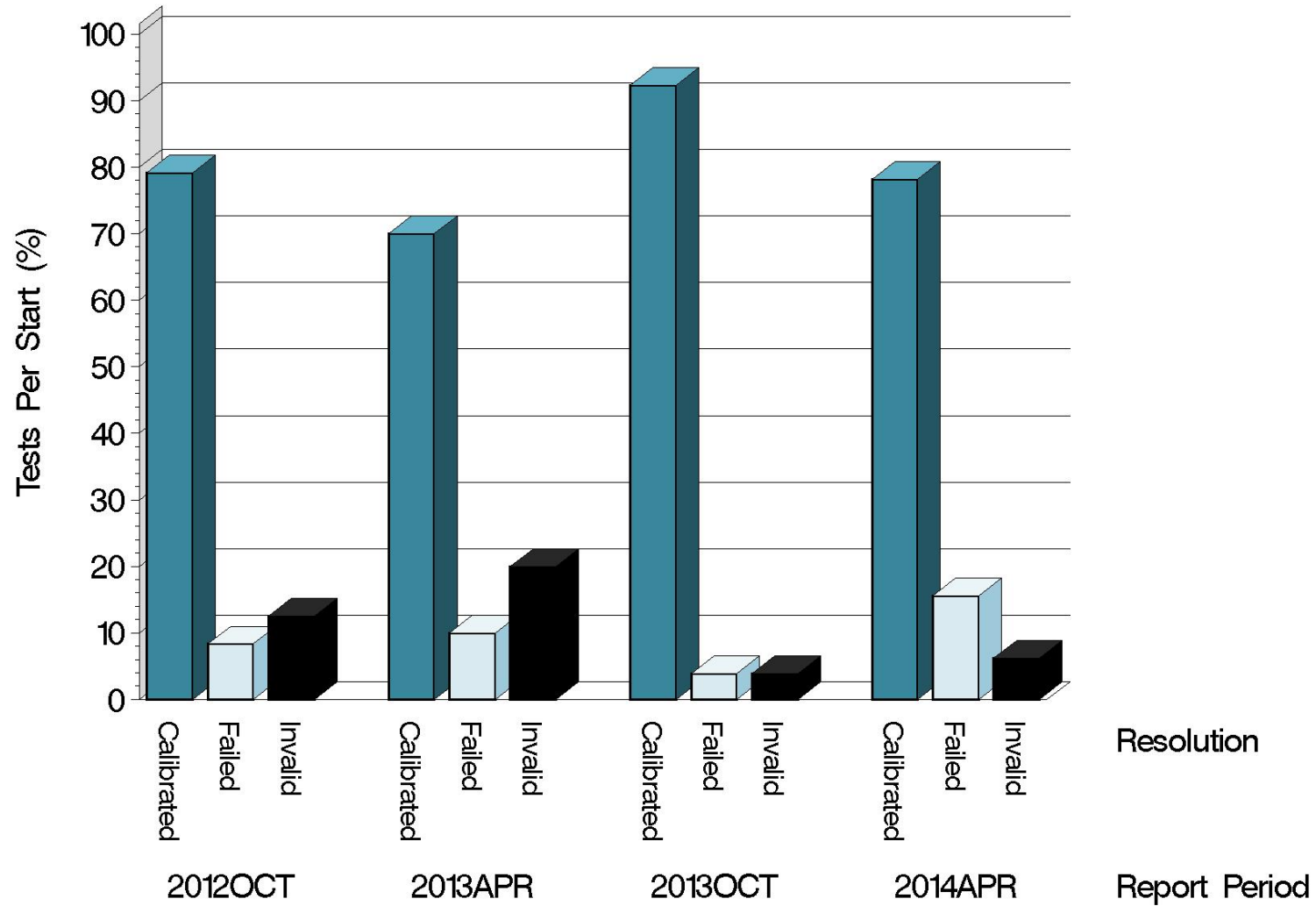
L-42 (D7452)

Test Distribution by Oil and Validity

						Totals	
		112-2	113	116-1	117	Last Period	This Period
Accepted for calibration	AC	0	0	25	0	24	25
Rejected (Mild)	OC	0	0	4	0	1	4
Rejected (Severe)	OC	0	0	1	0	0	1
Rejected (Precision)	OC	0	0	0	0	0	0
Accepted discrimination	AS	0	3	0	0	3	3
Unacceptable discrimination	MS	1	3	0	0	0	4
Invalidated discrimination	LS	0	1	0	0	0	1
Invalidated calibration	LC	0	0	2	0	1	2
Unacceptable calibration	MC	0	0	0	0	0	0
Aborted	XC	0	0	0	0	0	0
Acceptable information run	NI	0	0	0	11	0	11
Unacceptable information run	MI	0	0	0	1	0	1
Total		1	7	32	12	29	52

L-42 (D7452)

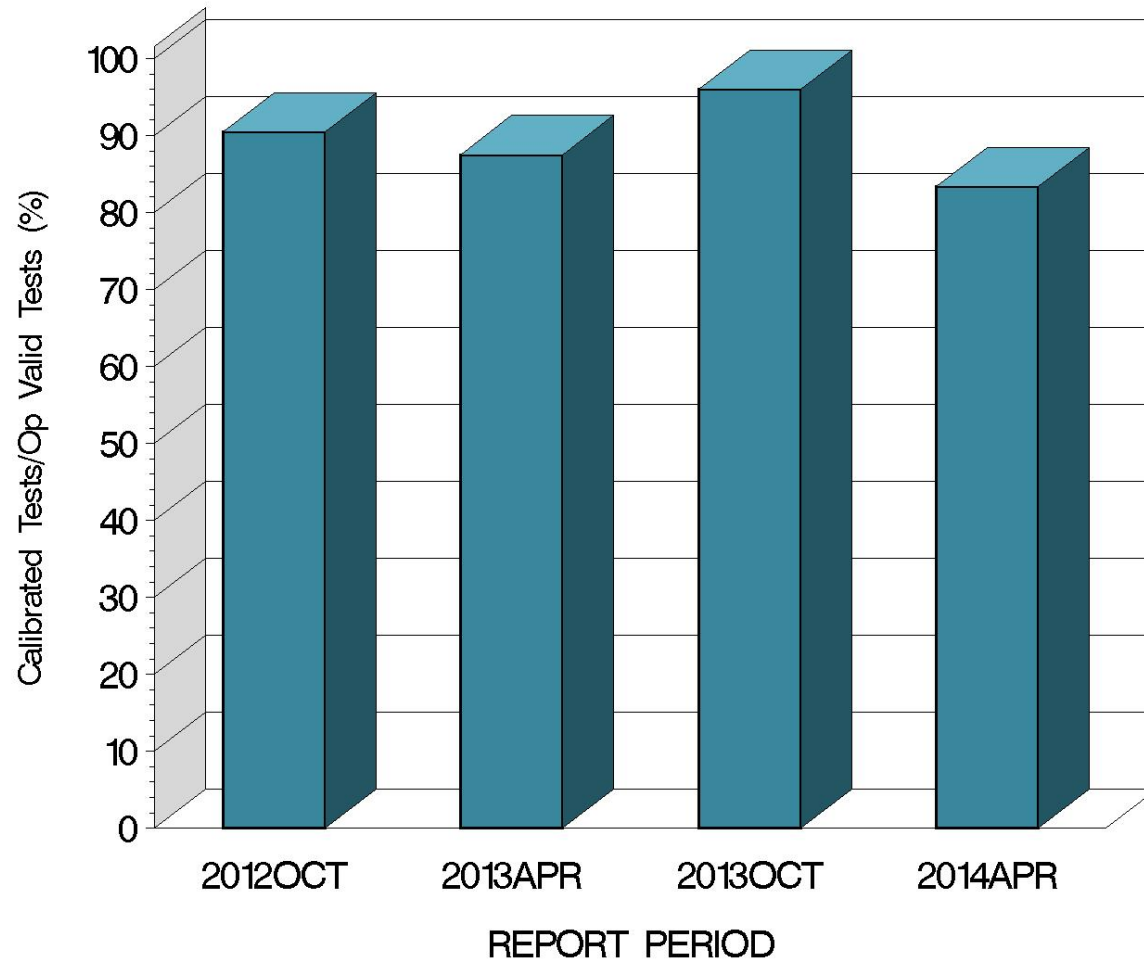
CALIBRATION ATTEMPT SUMMARY



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L-42 (D7452)

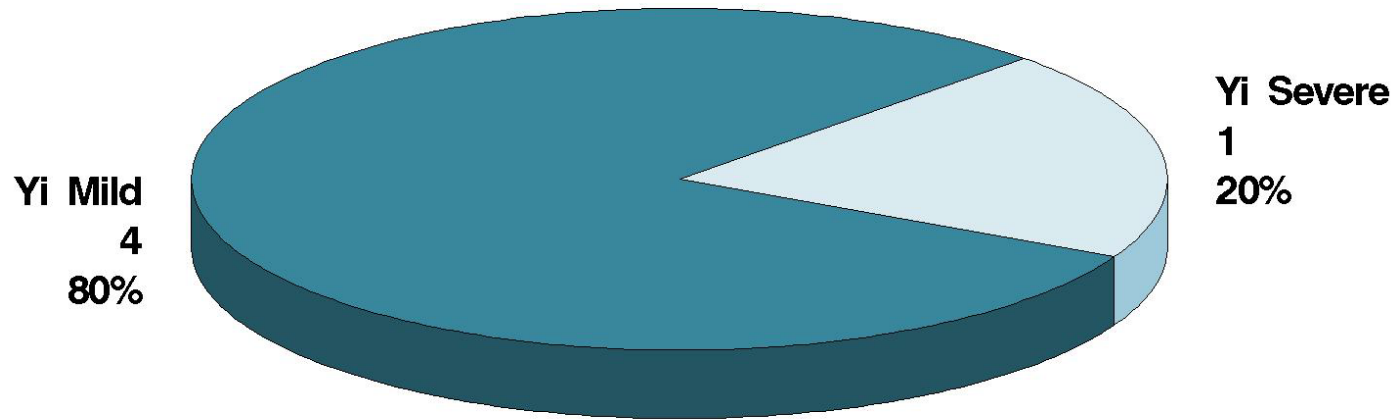
OPERATIONALLY VALID TESTS
MEETING ACCEPTANCE CRITERIA



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L-42 (D7452)

CAUSES FOR FAILED TESTS



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L-42 (D7452)

CAUSES FOR LOST TESTS

Lab	Cause	Oil				Validity				Loss Rate		
		112-2	113	116-1	117	MS	LS	LC	MI	Lost	Starts	%
B	Conditioning 4 wheel speed out of spec			•				•		1	10	10%
D	Drive side scoring & ring scoring > pinion	•				•				2	19	11%
	Conditioning 2 wheel speed out of spec				•			•				
G	Ring scoring > pinion		•				•			2	8	25%
	Conditioning 1 torque out of spec			•				•				
	Lost	1	1	2	1	1	1	2	1			
	Starts	1	7	32	12	52	52	52	52			
	%	100%	14%	6%	8%	2%	2%	4%	2%			

L-42 (D7452)

			Coast Side Pinion Scoring		
Oil	Gear Batch	N	Mean	Std. Dev.	Average Δ/s
116-1	B6L544/P4L806	3	23.3	2.52	-0.32
116-1	C1L680/P8T025A	27	20.0	6.13	-0.55

		Pooled Standard Deviation			
Lab	Coast Side Pinion Scoring Δ/s	df	Coast Side Pinion Scoring	Coast Side Ring Scoring	Shock Series I Coast Side Ring Scoring
A	-1.11	11	6.58	5.08	2.89
B	0.15	4	3.56	1.64	0.00
D	-0.24	9	5.10	3.66	0.00
G	-0.32	2	2.52	6.03	2.00

L-42 (D7452)

SUMMARY OF SEVERITY & PRECISION

Severity

A string of four mild, failing tests in February pushed ECSP severity beyond the severity action limit. Three of the four tests were from a single lab dialing in settings changes. The alarms were cleared once all settings changes were completed.

Precision

ECSP precision remained within control chart limits throughout this period.

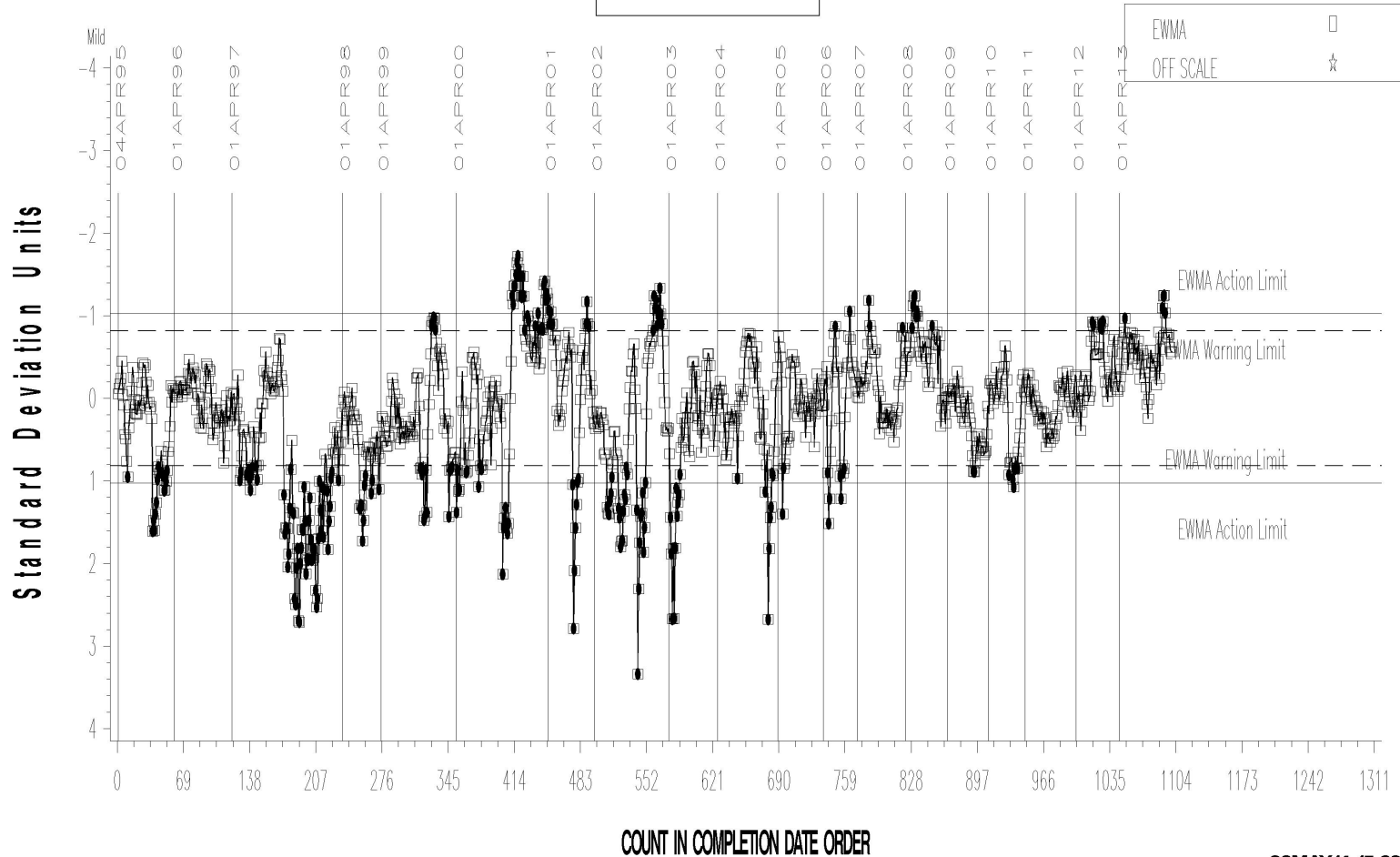
Industry control charts follow.

L-42 (D7452)

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE

LTMS Severity Analysis



Severe

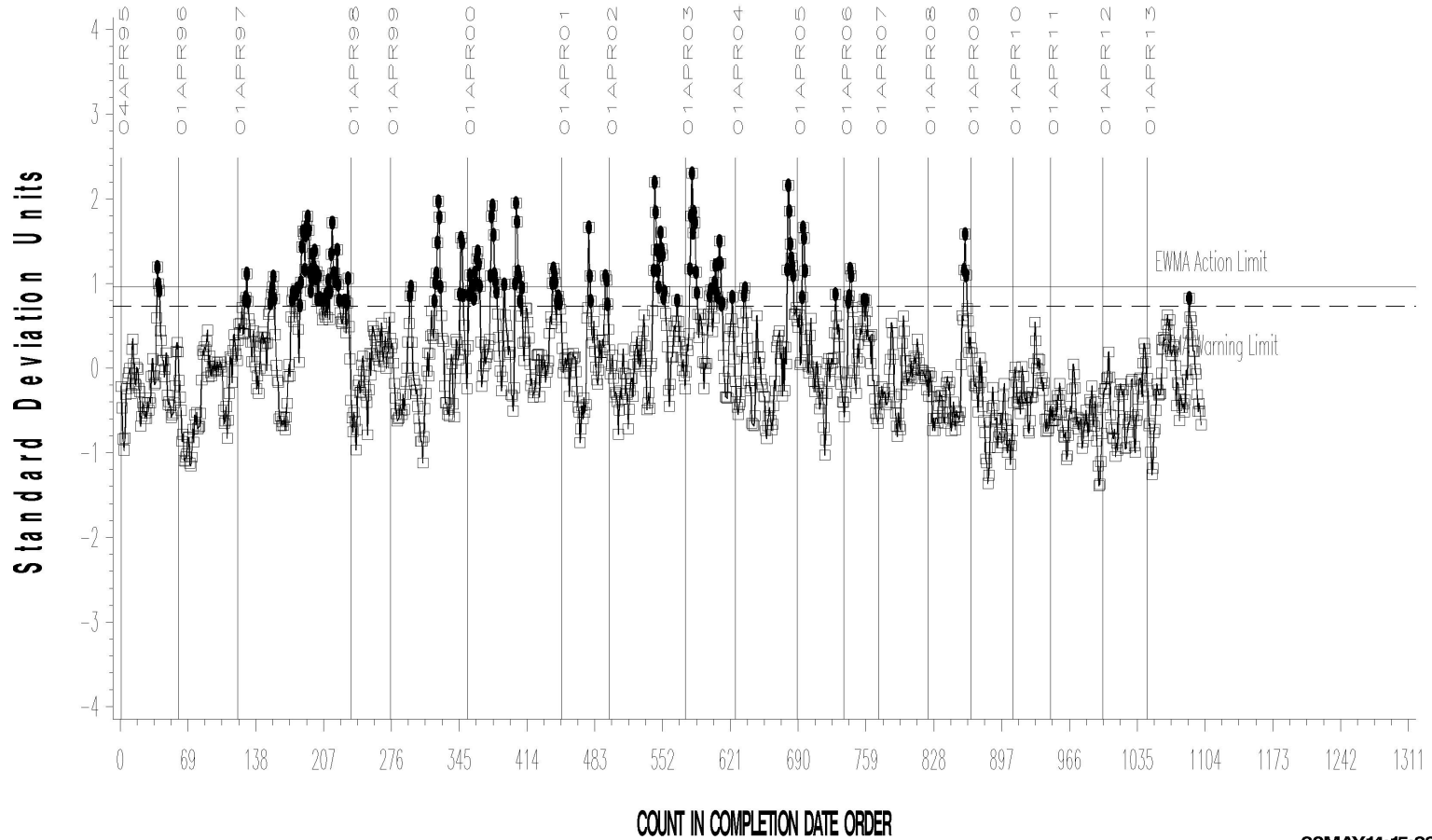
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L-42 (D7452)

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE

LTMS Precision Analysis



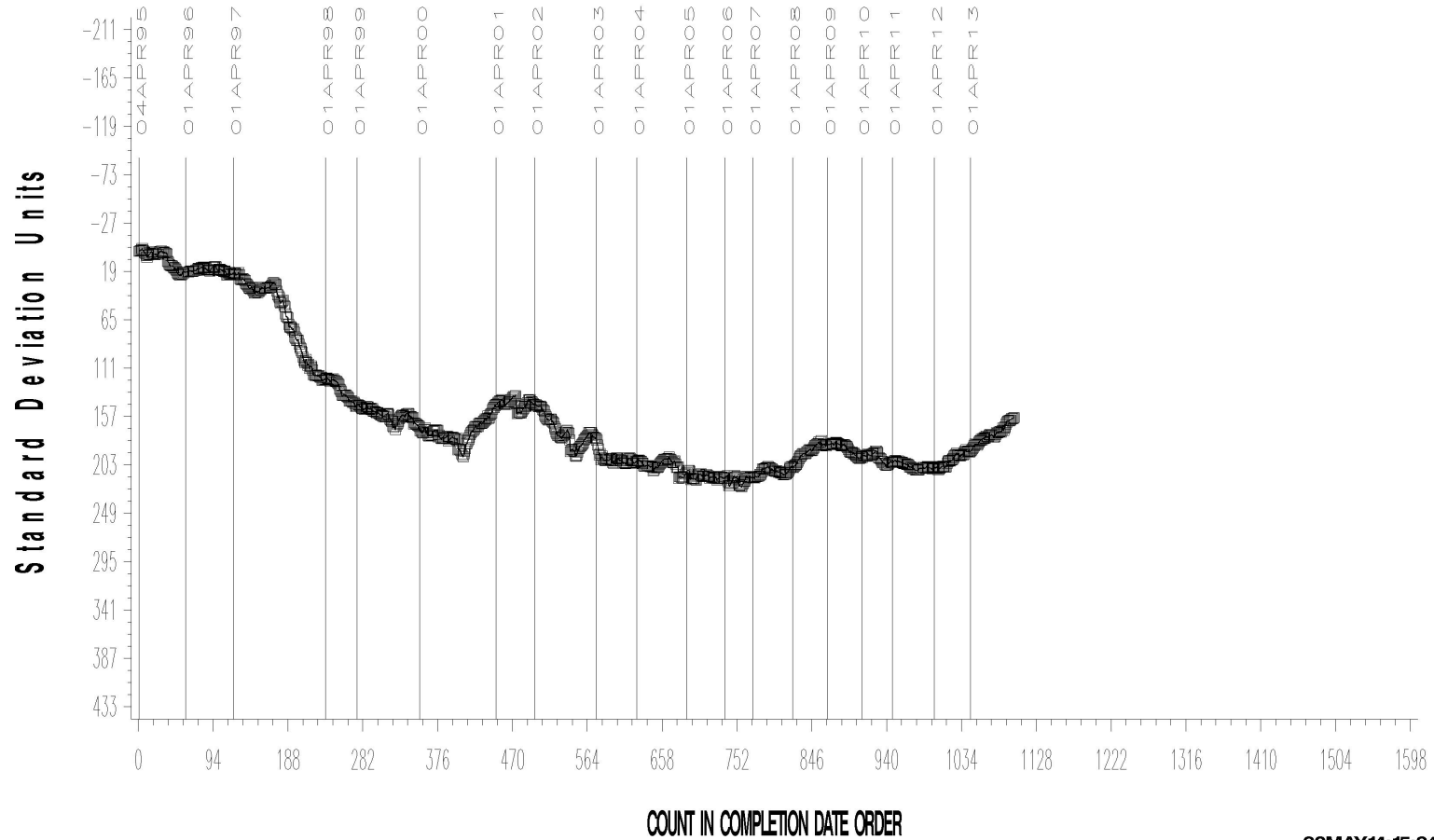
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L-42 (D7452)

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE

CUSUM Severity Analysis



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L-42 (D7452)

TIMELINE ADDITIONS

Effective Date	Information Letter	Event
		No timeline additions this period.

L-42 (D7452)

LAB VISITS

One L-42 lab visit was conducted during this period. No procedural nonconformances were found. However, the duration of shock series 1 at this lab was found generally to be notably longer than at the other labs. The duration at this lab is typically 350s while at the other labs the duration typically runs from 265s at one lab to 280s at the other two. The procedure does not specify any particular duration but gives an example plot of shock series 1 with a 230s duration. All labs currently run exceeding this duration.

INFORMATION LETTERS

No L-42 information letters were issued during this period.

L-42 (D7452)

STATUS OF REFERENCE OIL SUPPLY

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
112-2	3	15	7.5
113	13	136	68.0
116-1	16	0	0.0
117	33	1001	500.6
Total	65	1152	576.1

At surveillance panel direction, the TMC has procured oil 117 as a replacement oil for 116-1. This is a J2360 oil which produces somewhat milder scoring. The oil has been implemented for use as the new “pass” oil with a correction factor +6% for the pinion scoring result and +4% for the ring scoring result.