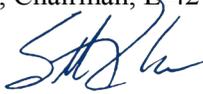




## Test Monitoring Center

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

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

MEMORANDUM: 15-039  
DATE: November 16, 2015  
TO: Eric Donovan, Chairman, L-42 Surveillance Panel  
FROM: Scott Parke   
SUBJECT: L-42 Reference Oil Testing from April 1, 2015 through September 30, 2015

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

SDP/sdp/mem15-039.sdp.doc

cc: Frank Farber

Jeff Clark

L-42 Surveillance Panel

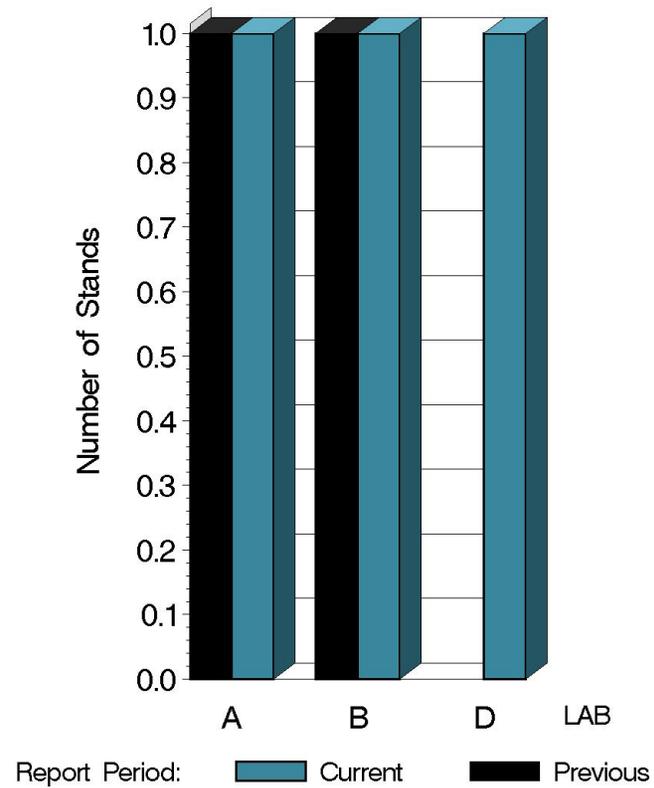
<ftp://ftp.astmtmc.cmu.edu/docs/gear/l42/semiannualreports/l42-10-2015.pdf>

Distribution: email

# L-42 (D7452)

	Reporting Data	Calibrated on 9-30-15
Number of Labs	3	3
Number of Stands	3	3

BY-LAB STAND  
DISTRIBUTION



16:58:12 13NOV2015

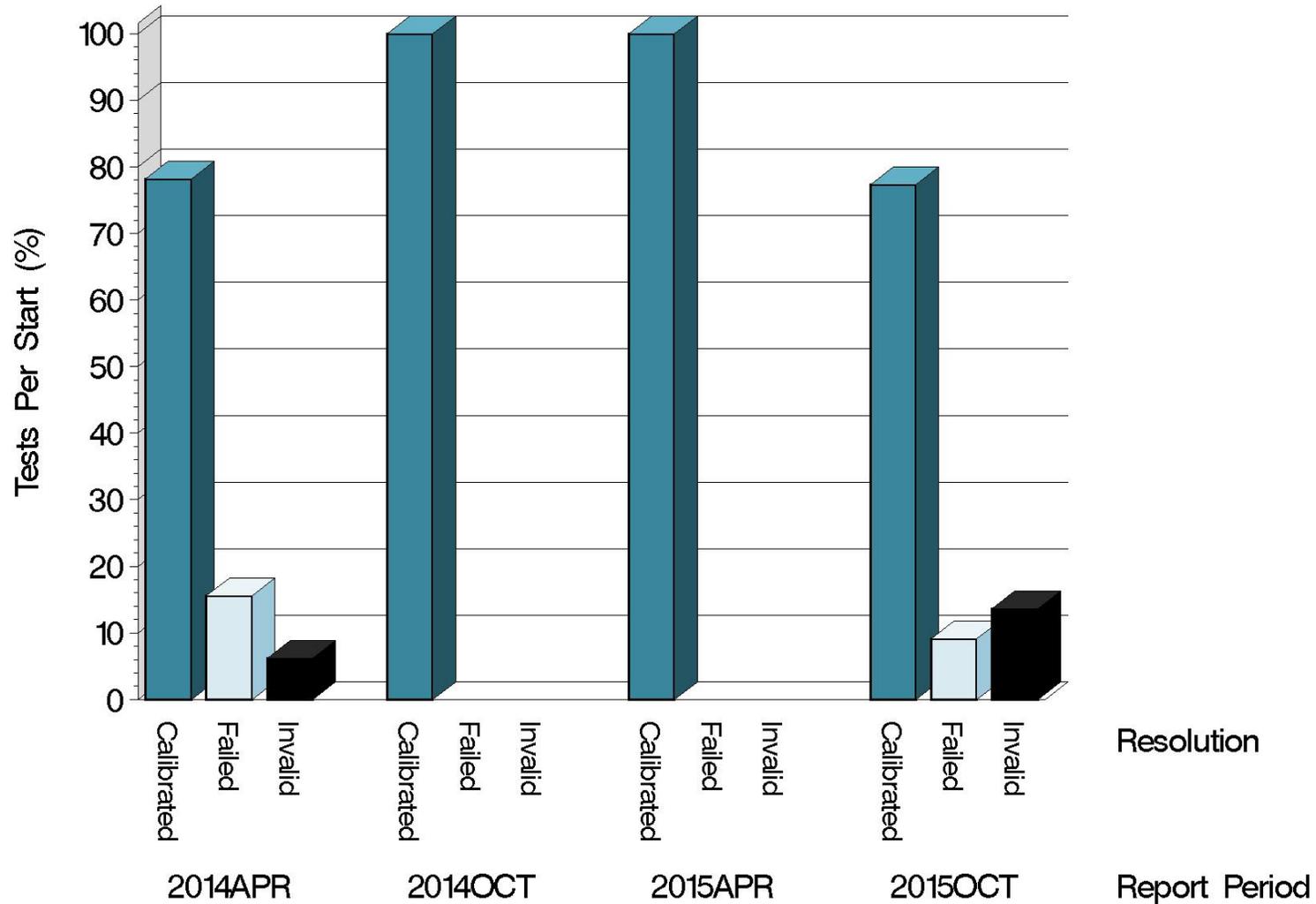
# L-42 (D7452)

## Test Distribution by Oil and Validity

						Totals	
						Last Period	This Period
		112-2	113	116-1	117		
Accepted for calibration	AC	0	0	0	17	7	17
Rejected (Mild)	OC	0	0	0	0	0	0
Rejected (Severe)	OC	0	0	0	2	0	2
Rejected (Precision)	OC	0	0	0	0	0	0
Accepted discrimination	AS	0	2	0	0	1	2
Unacceptable discrimination	MS	0	0	0	0	0	0
Invalidated discrimination	LS	0	0	0	0	0	0
Invalidated calibration	LC	0	0	0	3	0	3
Unacceptable calibration	MC	0	0	0	0	0	0
Aborted	XC	0	0	0	0	0	0
Acceptable information run	NI	0	3	0	2	5	5
Unacceptable information run	MI	0	0	0	0	3	0
<b>Total</b>		<b>0</b>	<b>5</b>	<b>0</b>	<b>24</b>	<b>16</b>	<b>29</b>

# L-42 (D7452)

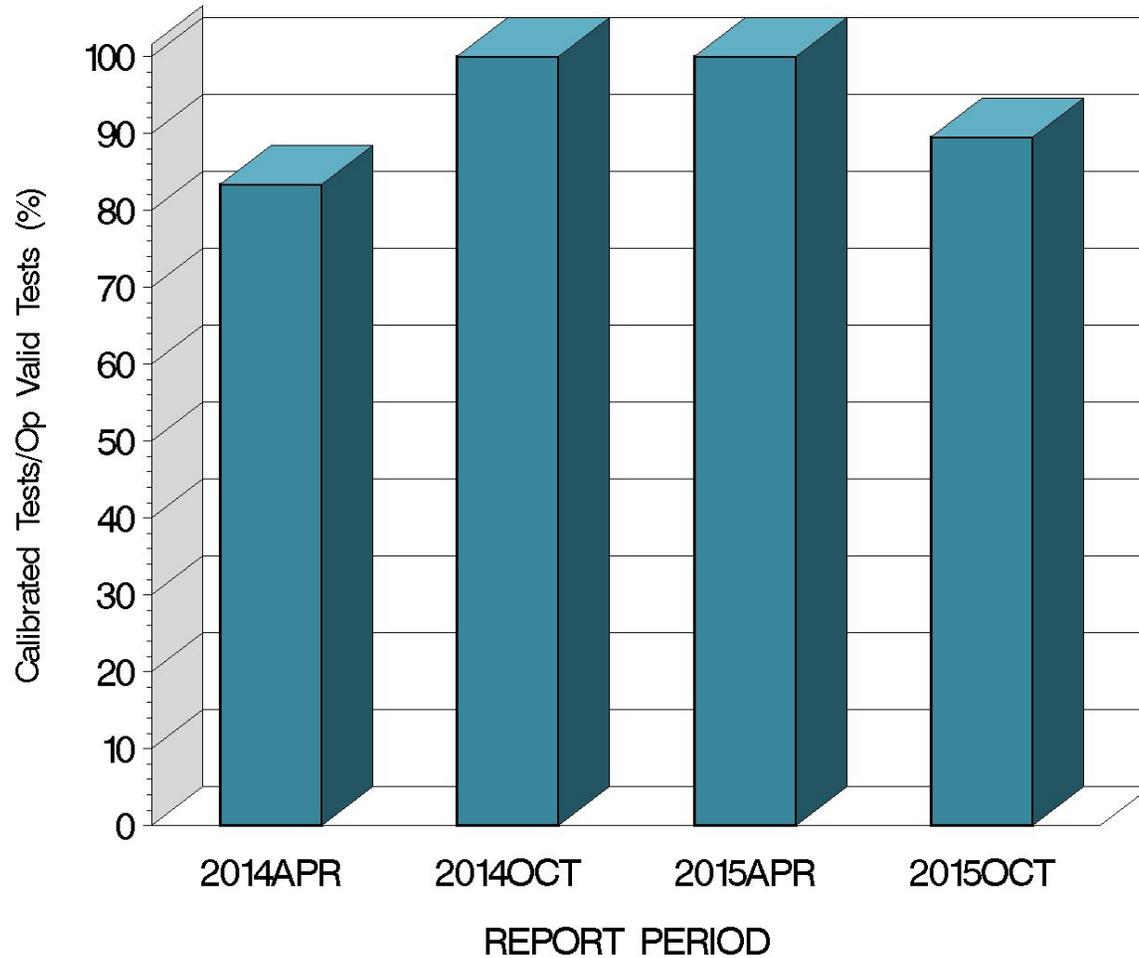
## CALIBRATION ATTEMPT SUMMARY



16:58:12 13NOV2015

# L-42 (D7452)

OPERATIONALLY VALID TESTS  
MEETING ACCEPTANCE CRITERIA



16:58:12 13NOV2015

# 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	%
A	Phase 1 conditioning torque out of spec				●			●		2	16	13%
	Loss of temp control due to failed thermocouple				●			●				
B	Wrong gear selected for shock series 2				●			●		1	6	17%
	Lost	0	0	0	3	0	0	3	0			
	Starts	0	5	0	24	29	29	29	29			
	%	0%	0%	0%	13%	0%	0%	10%	0%			

# L-42 (D7452)

			Coast Side Pinion Scoring		
Oil	Gear Batch	N	Mean	Std. Dev.	Average $\Delta/s$
117	C1L925/P8AD078X	19	24.8	11.04	0.33

		Pooled Standard Deviation			
Lab	Coast Side Pinion Scoring $\Delta/s$	df	Coast Side Pinion Scoring	Coast Side Ring Scoring	Shock Series I Coast Side Ring Scoring
A	-0.77	7	3.45	2.5	0
B	2.73	4	14.4	11.03	0
D	-0.21	5	3.54	3.51	0

# L-42 (D7452)

## SUMMARY OF SEVERITY & PRECISION

### Severity

Two severe tests from the same calibration attempt at the same lab caused ECSP severe alarms this period. Stand settings were changed after each of these tests and they were not used for stand calibration.

### Precision

The tests described above also generated ECSP precision alarms.

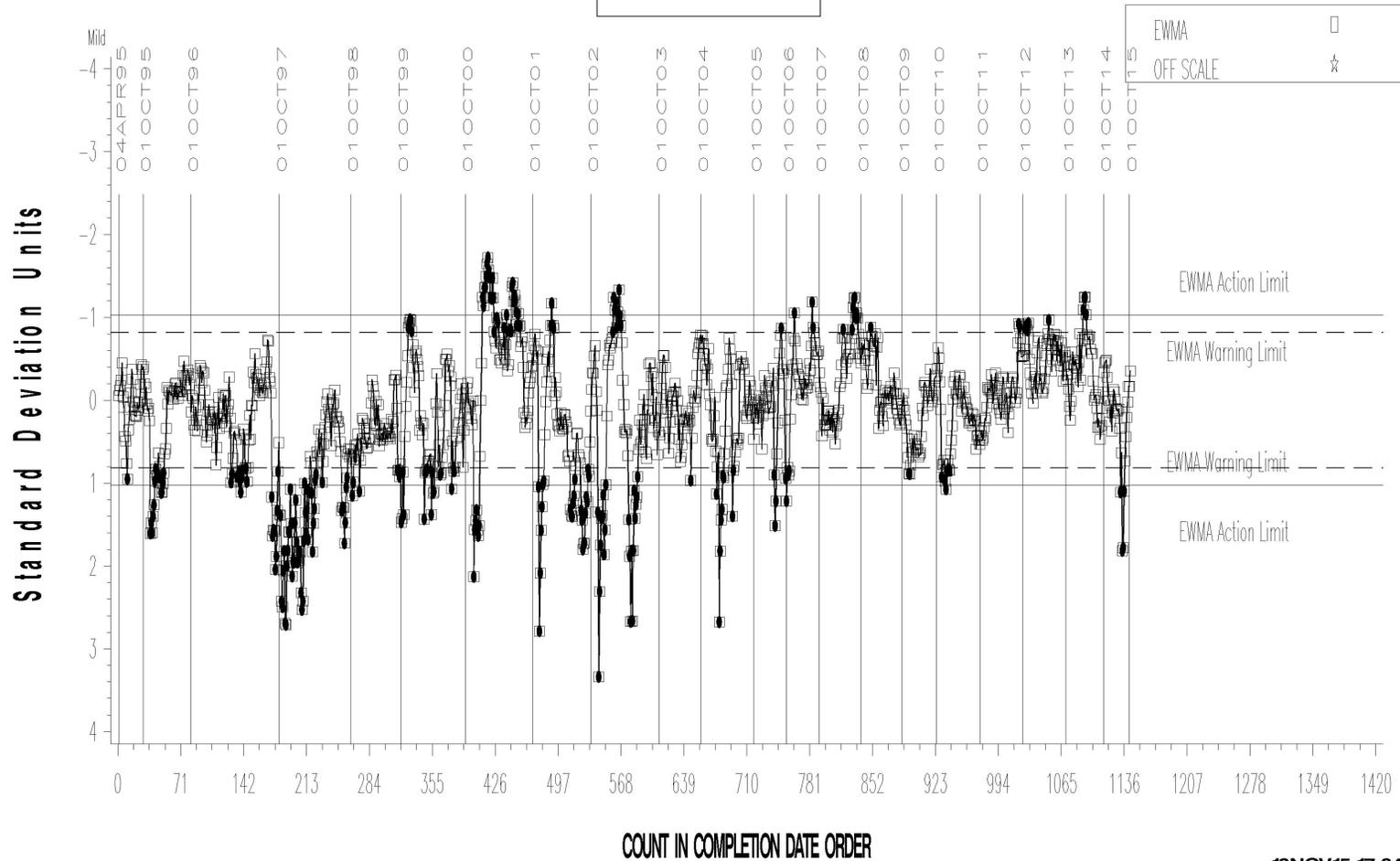
Industry control charts follow.

# L-42 (D7452)

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE

LTMS Severity Analysis



Severe

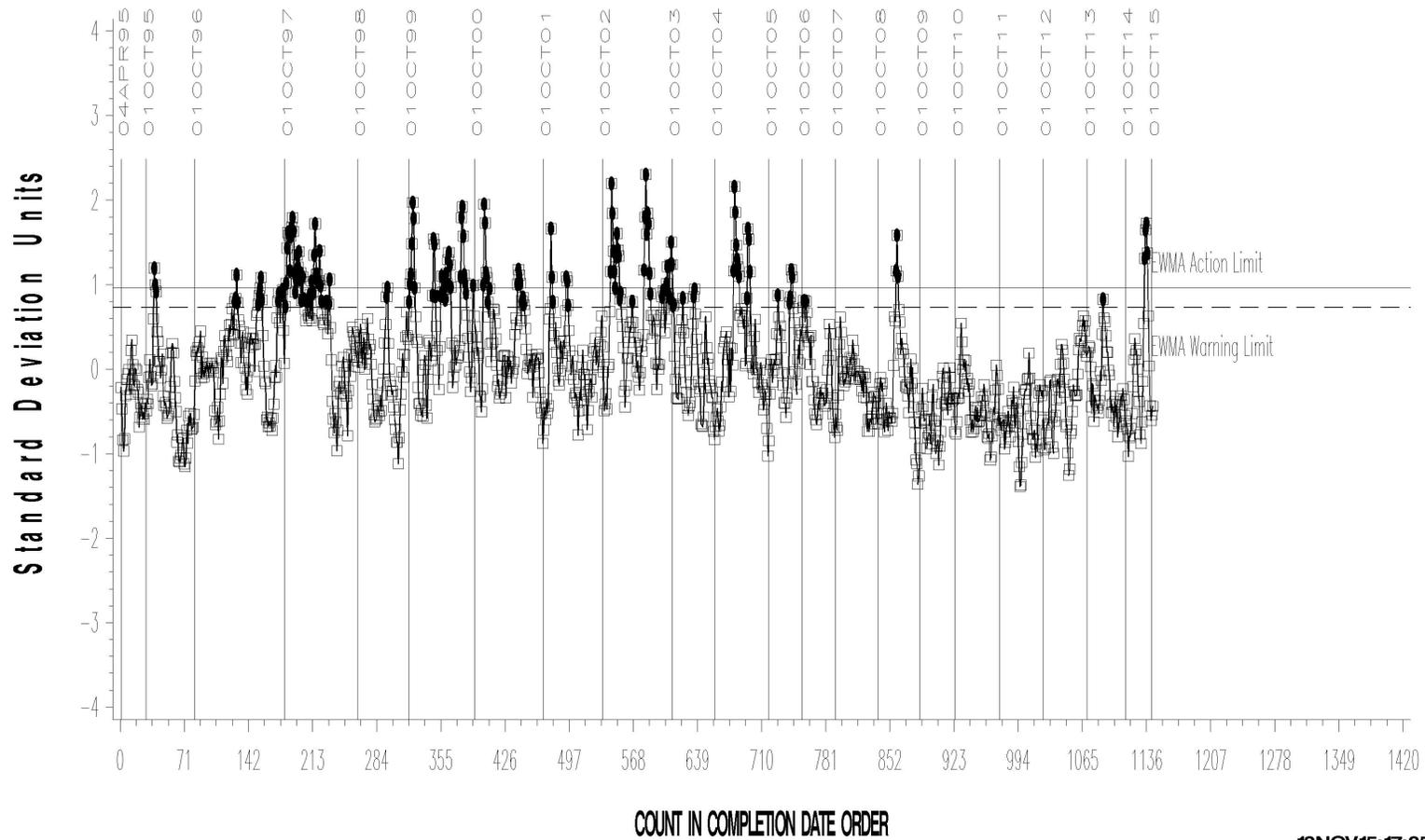
13NOV15:17:04

# L-42 (D7452)

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE

LTMS Precision Analysis



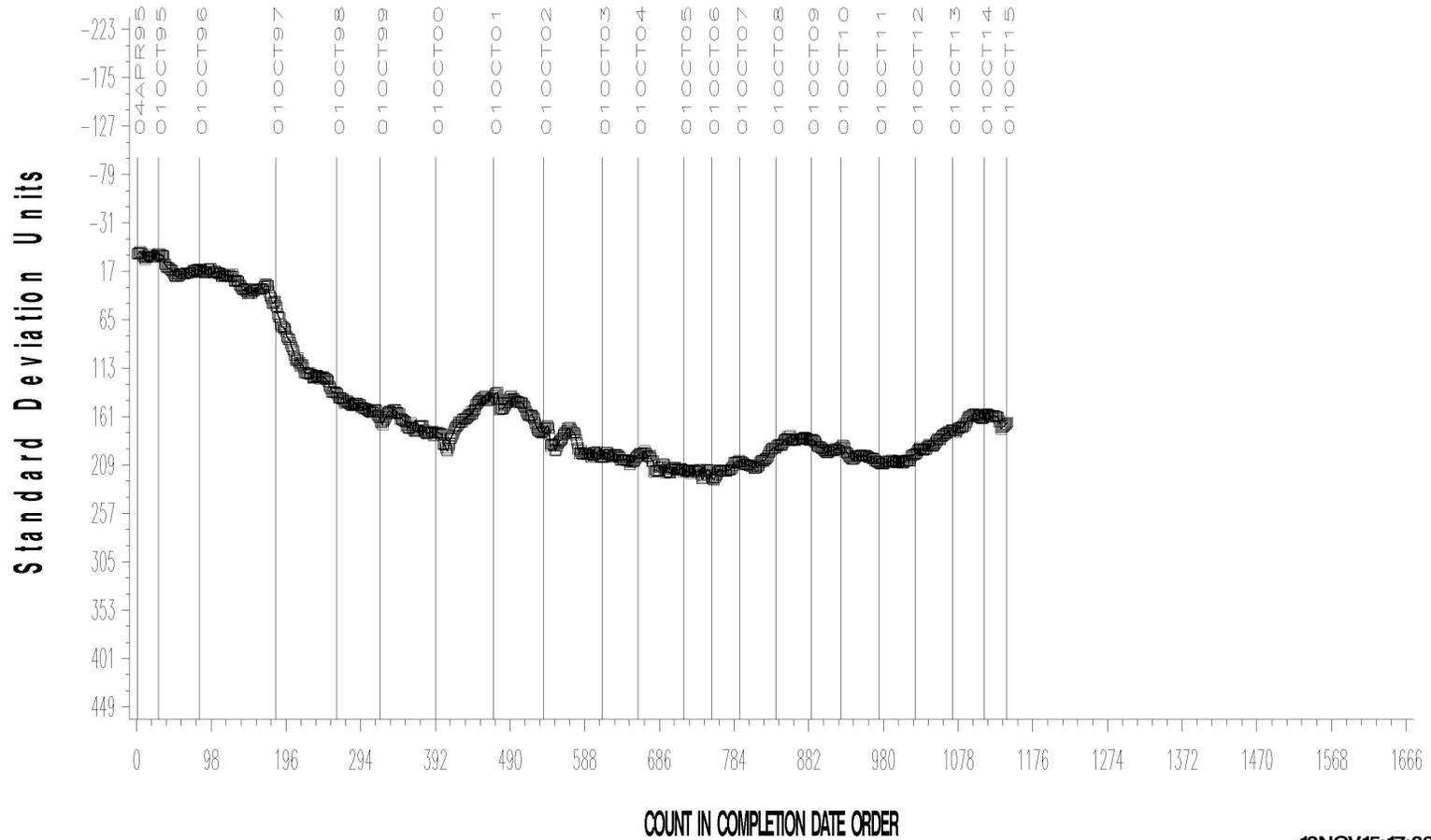
13NOV15:17:05

# L-42 (D7452)

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE

CUSUM Severity Analysis



13NOV15:17:06

# L-42 (D7452)

## TIMELINE ADDITIONS

Effective Date	Information Letter	Event
20150501	15-1	Alternate transmission and u-joint part numbers.
20150709	15-2	Single-test referencing permitted.

# L-42 (D7452)

## LAB VISITS

No L-42 lab visits were conducted during this period.

## INFORMATION LETTERS

Information letter 15-1 was issued 20150501 to allow the use of an alternate transmission and necessary accompanying universal joint. The transmission originally specified in the procedure is no longer available.

Information letter 15-2 was issued 20150709 to allow calibrating the stand with a single reference oil test provided no stand settings are changed. This information letter also clarified that candidate tests are permitted to start up until the end of the day the calibration expires and included several editorial changes.

# L-42 (D7452)

## STATUS OF REFERENCE OIL SUPPLY

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
112-2	0	15	7.5
113	14	124	62.0
116-1	6	0	0.0
117	25	906	453.0
Total	45	1045	522.5

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.