



MEMORANDUM: 21-008  
DATE: April 13, 2021  
TO: Matthew Sangpeal, Chairman, L-42 Surveillance Panel  
FROM: Dylan Beck *Dylan Beck*  
SUBJECT: L-42 Reference Oil Testing from October 1, 2020 through March 31, 2021

Attached is a summary of reference oil testing activity this period.

DJB/djb/mem21-008.djb.doc

cc: Frank Farber

Jeff Clark

L-42 Surveillance Panel

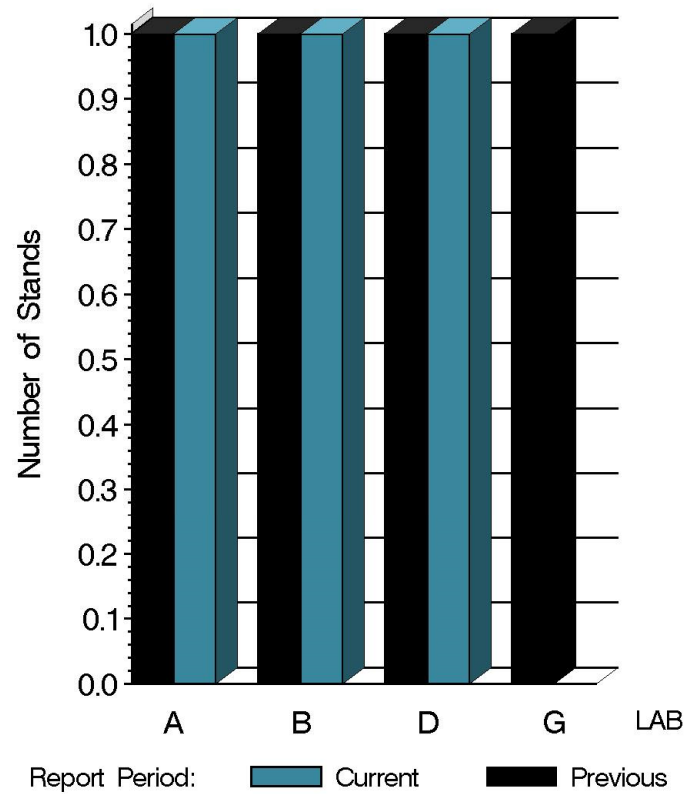
<http://www.astmtmc.cmu.edu/ftp/docs/gear/142/semiannualreports/142-04-2021.pdf>

Distribution: email

# L-42 (D7452)

	Reporting Data	Calibrated on 3-31-21
Number of Labs	3	3
Number of Stands	3	3

BY-LAB STAND  
DISTRIBUTION



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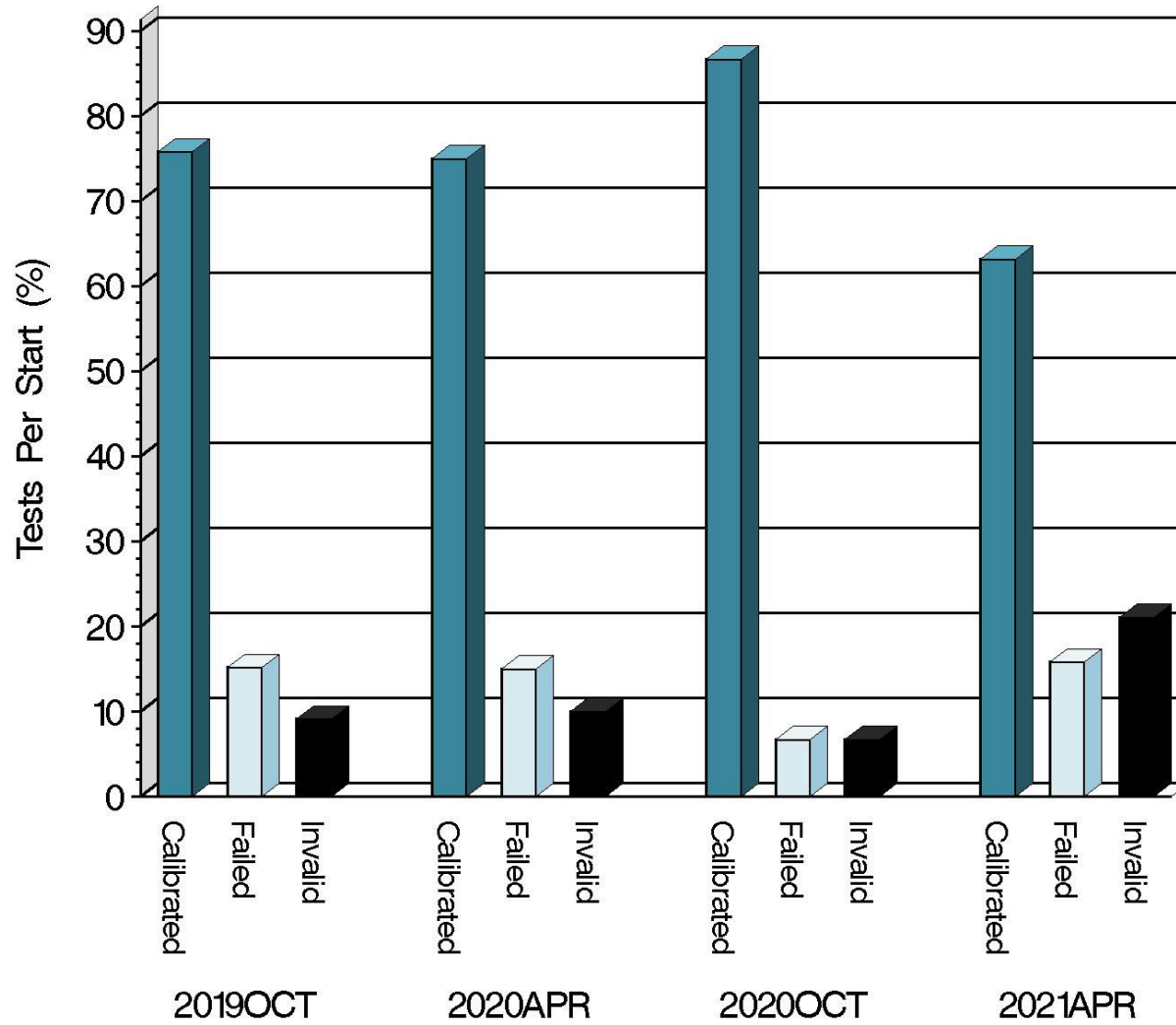
# L-42 (D7452)

## Test Distribution by Oil and Validity

					Totals				
					Last Period	This Period			
					113	117	119		
Accepted for calibration	AC	0	12	0	13	12			
Rejected (Mild)	OC	0	0	0	1	0			
Rejected (Severe)	OC	0	3	0	0	3			
Rejected (Precision)	OC	0	0	0	0	0			
Operationally Invalid (determined by lab)	LC	0	3	0	1	3			
Accepted discrimination	AS	2	0	0	7	2			
Unacceptable discrimination	MS	1	0	0	0	1			
Unacceptable calibration	MC	0	1	0	0	1			
Aborted	XC	0	0	0	0	0			
Acceptable information run	NI	0	0	0	1	0			
<b>Total</b>		<b>3</b>	<b>19</b>	<b>0</b>	<b>23</b>	<b>22</b>			

# L-42 (D7452)

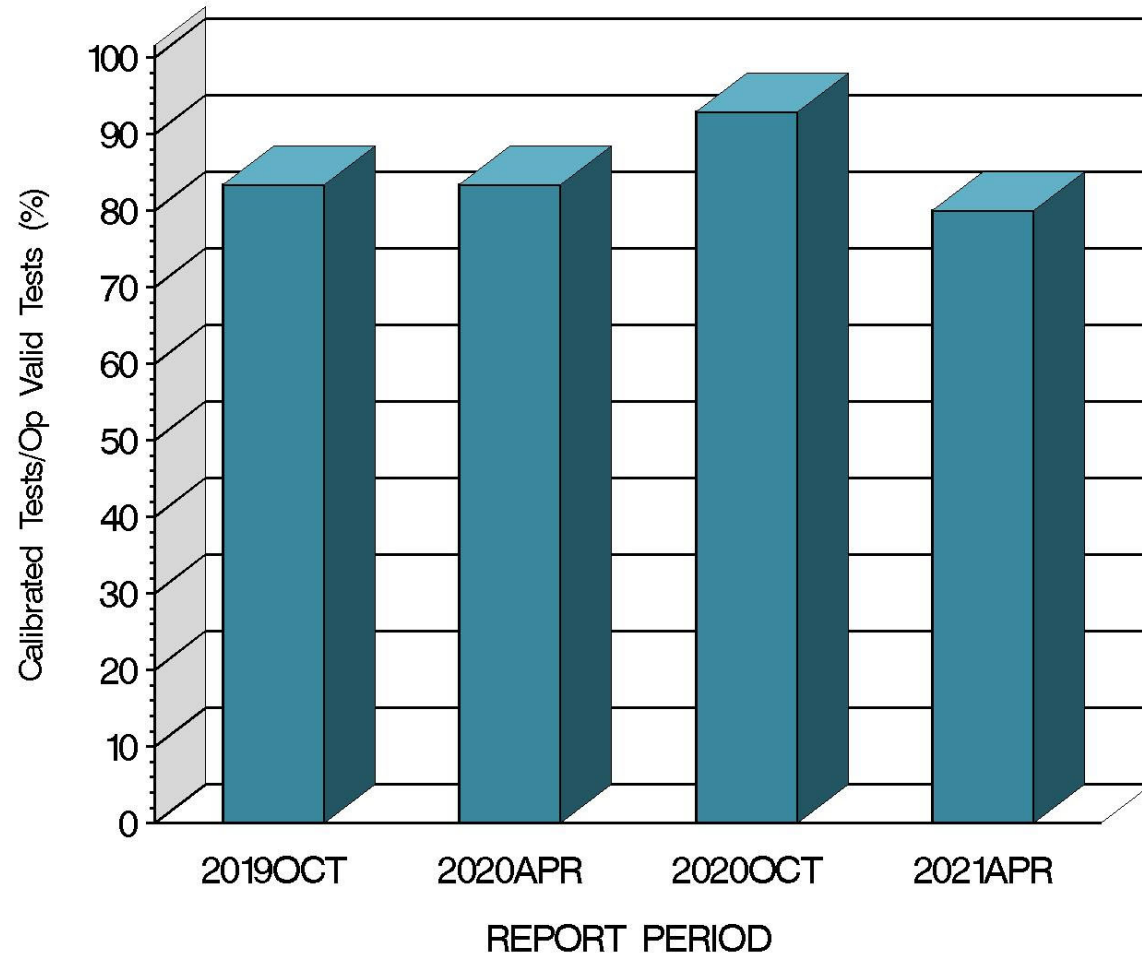
## CALIBRATION ATTEMPT SUMMARY



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OPERATIONALLY VALID TESTS  
MEETING ACCEPTANCE CRITERIA



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## CAUSES FOR LOST TESTS

		Oil		Loss Rate					
Lab	Cause	113	117	MS	MC	LC	Lost	Starts	%
A	Engine exhaust leak		●			●	1	14	7%
	Input torque meter failure		●			●	2		14%
	Ring scoring greater than pinion scoring	●		●			1		7%
D	Ring scoring greater than pinion scoring		●		●		1	6	17%
Lost		1	4	1	1	3			
Starts		3	19	22	22	22			
%		33%	21%	4%	4%	14%			

# L-42 (D7452)

			Coast Side Pinion Scoring		
Oil	Gear Batch	N	Mean	Std. Dev.	Average $\Delta/s$
117	C1L446/P8AD132	13	30.8	15.08	1.43
117	C1L925/P8AD078X	2	21.5	3.54	-0.27

		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	1.84	9	17.84	17.33	12.19
B	-0.27	2	3.53	2.12	0.00
D	0.50	4	3.30	2.89	0.00

# L-42 (D7452)

## SUMMARY OF SEVERITY & PRECISION

### Severity

Pinion scoring exceeded the action limit in the severe direction this period, but has since returned within limits.

### Precision

Pinion scoring exceeded the action limit this period, but has since returned within limits.

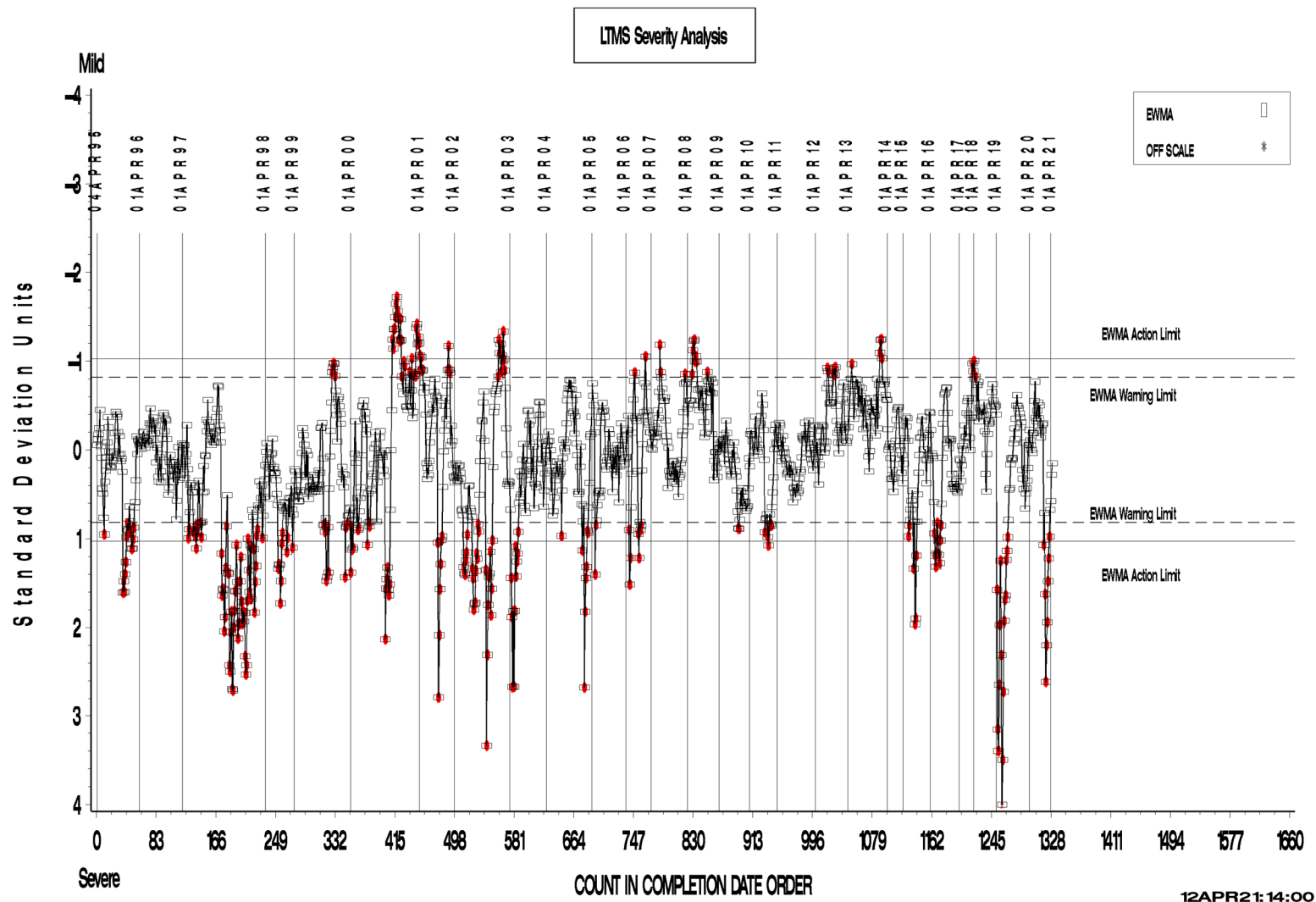
Industry control charts follow.



# L-42 (D7452)

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE



**Test Monitoring Center**

<http://astmtmc.cmu.edu>



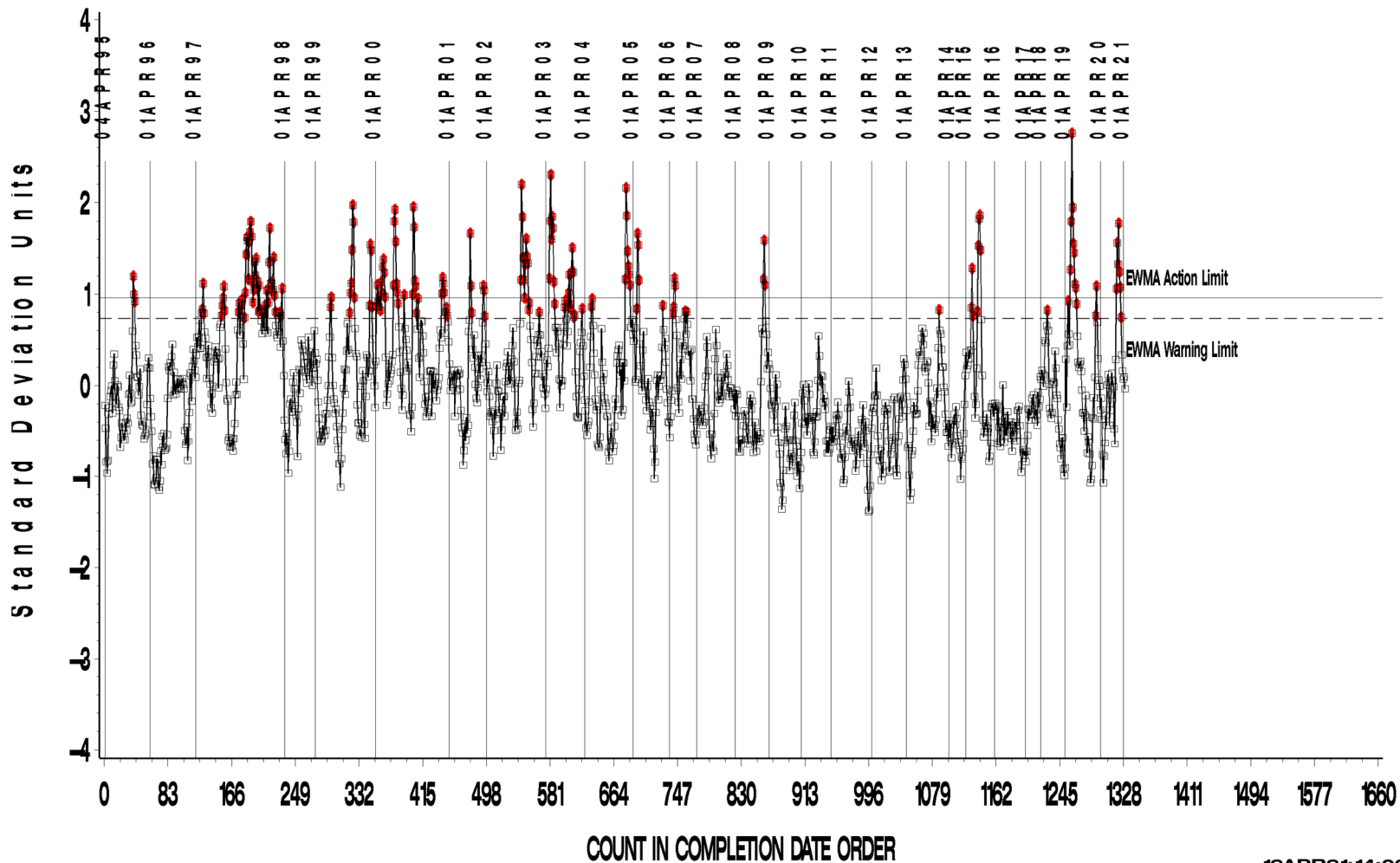
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# L-42 (D7452)

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE

LTMS Precision Analysis



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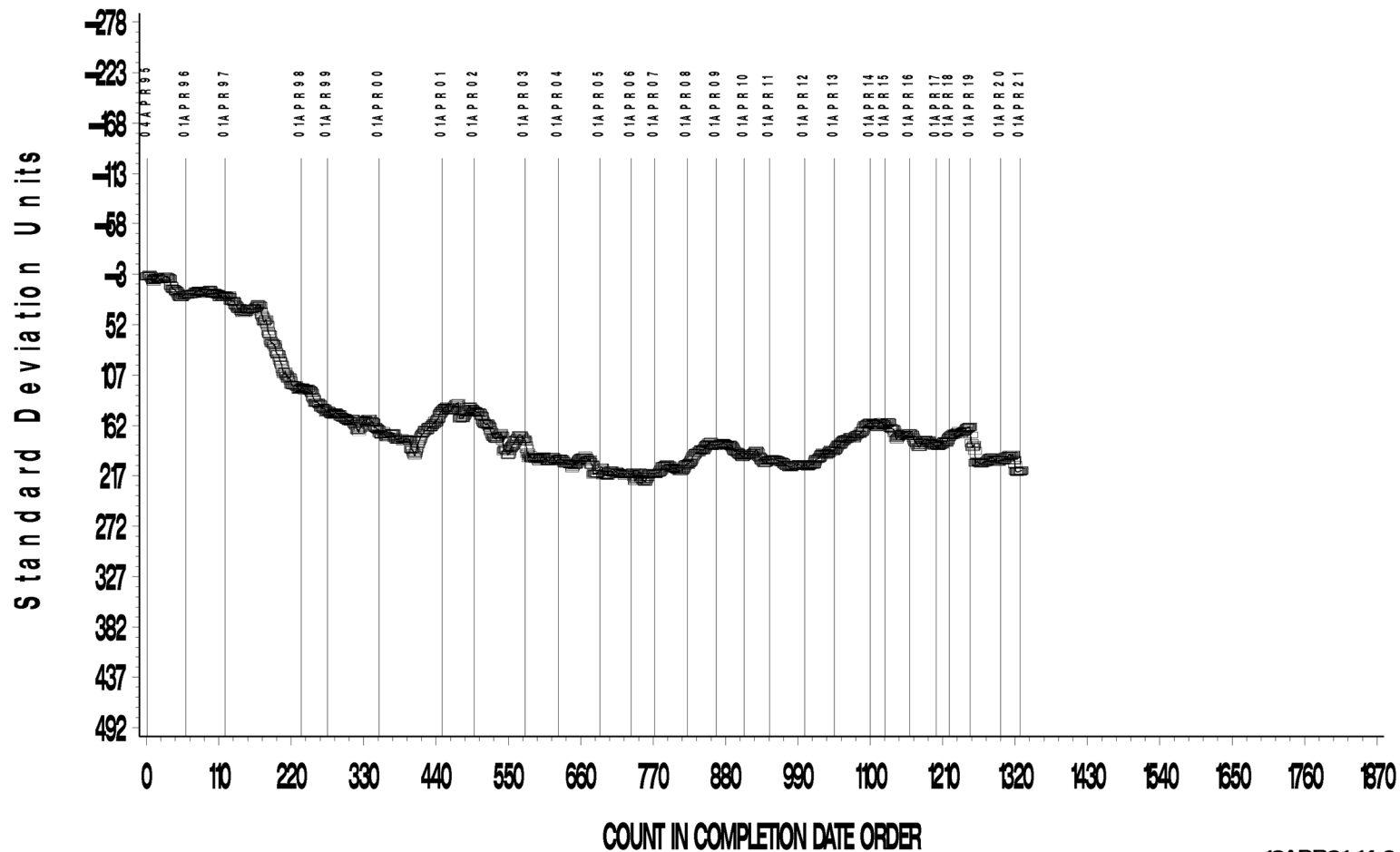
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L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL EOT PINION SCORING COAST SIDE

CUSUM Severity Analysis



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**Test Monitoring Center**

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# L-42 (D7452)

## TIMELINE ADDITIONS

Effective Date	Information Letter	Event
No timeline additions during this period.		

# L-42 (D7452)

## LAB VISITS

No lab visits were conducted during this period.

## INFORMATION LETTERS

No information letters issued during this period.

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## STATUS OF REFERENCE OIL SUPPLY

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
113	6	57	28.7
117	27	628	314.0
119	14	81	40.5
Total	47	766	383.2

Oil 117 meets J2360 specifications, and produces somewhat milder scoring than its predecessor 116-1. Oil 117 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.

119 oil has been approved as a replacement for discrimination oil 113. The remaining inventory of 113 at the test labs will be used, and then replaced by shipments of 119 oil.