



Test Monitoring Center

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MEMORANDUM: 07-049
DATE: October 2, 2007
TO: Cory Koglin, Chairman, L-42 Surveillance Panel
FROM: Donald Lind
SUBJECT: L-42 Reference Test Status from April 1, 2007 through September 30, 2007

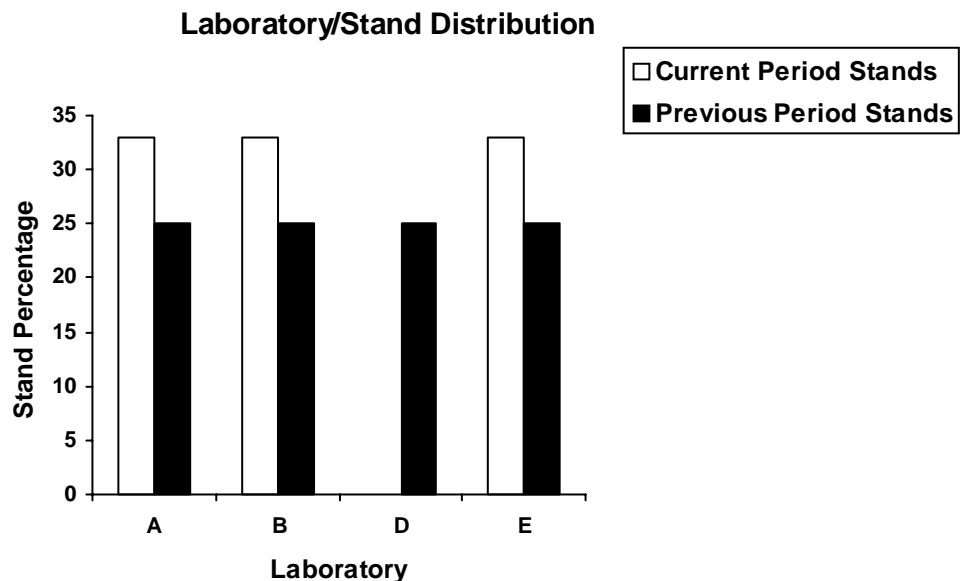
Summary

The following is a summary of the L-42 reference oil tests that were reported to the Test Monitoring Center during the period April 1, 2007 through September 30, 2007.

Lab/Stand Distribution

	Reporting Data	Calibrated as of 9/30/07
Number of Laboratories	3	3
Number of Stands	3	3

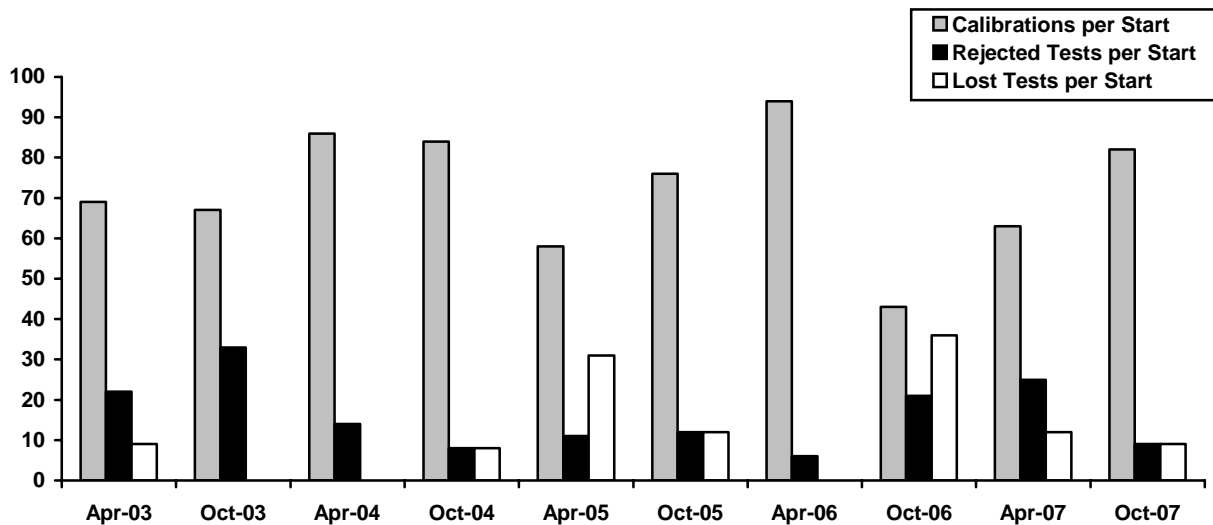
The following chart shows the laboratory/stand distribution:



A total of 20 operationally valid reference oil tests were conducted for stand calibration and reported to the TMC this report period. All 20 of the operationally valid reference oil tests were run on gear batch B6L544/P4L806. Eighteen of the operationally valid tests were used for stand calibration. The following summarizes the status of the reference oil tests reported to the TMC:

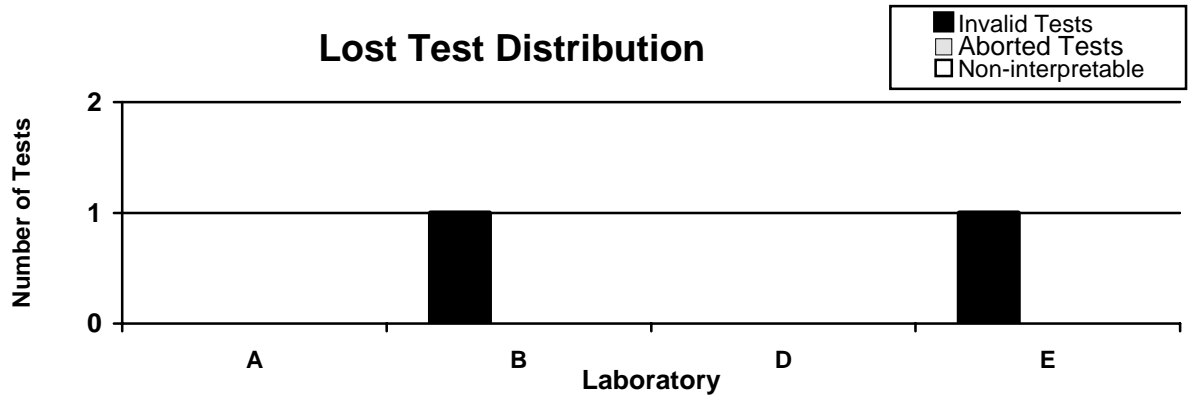
	TMC Validity Codes	Number of Tests
Operationally and Statistically Acceptable (LTMS)	AC	18
Operationally Valid, Statistically Unacceptable	OC	2
Operationally Invalid Calibration Test-Lab Judgment	LC	2
Aborted Calibration Test	XC	0
Non-interpretable (Drive Side Scoring, Ring Score > Pinion Score)	MC	0
Acceptable Discrimination Oil Test	AS	5
Unacceptable Discrimination Oil Test	OS	0
Operationally Invalid Discrimination Oil Test	LS	0
Aborted Discrimination Oil Test	XS	0
Donated Tests	AG	10
Invalid Donated Tests	LG	1
Non-interpretable (Drive Side Scoring, Ring Score > Pinion Score)	MG	3
Non-blind Tests (Stand Evaluation)	NN	1
Total		42

Attempted calibration tests are depicted graphically below by report period.



The calibration per start rate has increased this report period when compared to the previous period. The rejected test per start and lost test per start rates have decreased this report period when compared to the previous period.

The laboratory distribution of lost tests is shown below. A detailed list of reasons for tests declared operationally invalid, aborted, or non-interpretable is shown in Table 2.



Severity and Precision

The average Δ/s for this period is -0.51 (-2.47 % Scoring) mild as illustrated in Figures 1 and 2. There were two EWMA severity alarms (one action and one warning) and no EWMA precision warning alarms this report period (see Figure 2). The alarms can be attributed to lab (E). The means and standard deviations, by reference oil and gear batch for all operationally valid tests completed during this period, are tabulated below:

Oil	N	Gear Batch	Coast Side Pinion Scoring		
			Mean	Std. Dev.	Δ/s
116	20	B6L544/P8L806	22.3	7.0	-0.51

The Δ/s and pooled standard deviations, by lab, are listed in the following table:

Lab	Coast Side Pinion Scoring Δ/s	Pooled Standard Deviation			
		df	Coast Side Pinion Scoring	Coast Side Ring Scoring	Shock Series 1 Coast Side Ring Scoring
A	-0.38	5	2.10	1.37	0.00
B	-0.20	8	2.74	1.74	2.35
E	-1.22	4	8.05	7.91	0.00

Information Letters

There was one information letter issued during this report period. Information Letter 07-01 Sequence Number 27 was issued on May 9, 2007. Items changed with this information letter are documented in the L-42 timeline (Table 1).

TMC Lab Visits

There was one lab visit performed this report period with no discrepancies to report.

Reference Oil Status

The following table quantifies the reference oil supply and the expected number of tests remaining at the Test Monitoring Center and at the testing laboratories. L-42 reference oils are shipped in quantities of 1/2 gallon per test.

Oil	Lab A	Lab B	Lab D	Lab E	TMC	Total
112-2	5	3	4	6	30	48
113	2	2	1	1	190	196
116	13	16	10	19	102	170
116-1	0	0	0	0	330	330

DML/dml

Attachments

c: L-42 Surveillance Panel

<ftp://ftp.astmtmc.cmu.edu/docs/gear/142/semiannualreports/142-10-2007.pdf>

Distribution: Email

Listing of Tables and Figures Included as Part of This Report to the L-42 Surveillance Panel

Table 1 is the L-42 Industry Timeline.

Table 2 Summarizes the Reasons for Lost Tests.

Figure 1 is the Industry Control Chart for L-42 Scoring.

Figure 2 is the Industry Control Chart of the last 50 test results for L-42 Scoring.

Table 1

Effective Date	L-42 Timeline	
	Topic	IL#
19940110	Test report form and data dictionary changes version number 19940106	1
19940401	In-Line Torque Meter Addition	2
19940401	Instrument Calibration Requirement	2
19940701	Report Forms and Data Dictionary Version 19940526	3
19940903	Report Forms and Data Dictionary Version 19940707	4
19940903	Recording of Torque Measurement using Inline Torque Meter	5
19950824	Report Forms and Data Dictionary Version 19950721	5
19960713	Test Break-in Procedure	96-1
19960713	Report Forms and Data Dictionary Version 19960607	96-1
19960923	Non-reference oil test Sequence 2 (15%) and Sequence 4 (10%) coast side torque limits.	96-2
19960923	Sequence 2 and Sequence 4 dynamometer synchronization torque specification	96-2
19970317	Revised Calibration Schedule, Discrimination Requirements, Coast Side Torque Limits, Report Forms and Data Dictionary Version 19970305	97-1
19980302	Report Forms and Data Dictionary Version 19971211	98-1
19980122	Backlash Settings Clarification	98-2
	Section 5.2.4 Editorial Correction	98-3
19990101	Addition of CRC Gear Rating Workshop Training	98-4
19990901	Reference test requirement: EOT pinion c.s. scoring => EOT ring c.s. scoring	99-1
20020211	Replacement of CRC Manual 17 with CRC Manual 21	02-1
20020401	Remove Report Forms and Data Dictionary from ASTM Procedure	02-1
20030101	Require the Use of a Himmelstein Torque Meter	03-1
20030101	Require the Use of a Himmelstein Model 701 or 711 Strain Gage Conditioner	03-1
20030415	Non-interpretable Tests	03-2
20030415	Complete Test Procedure Update	03-2
20040101	Revised Solvent Specification	03-3
20031114	Non-interpretable Tests for Drive Side Scoring	03-4
20041210	Revised Drive Shaft Specifications	04-1
20041210	Surveillance Panel Use of Donated Reference Oil Test Programs	04-1
20041210	Guidelines for Shortening or Lengthening Reference Oil Calibration Periods	04-1
20050221	Revised Solvent Specifications	05-1
20050426	Updated Test Precision	05-2
20050426	Rounding Test Results Using ASTM E 29	05-2
20050629	Low Temperature Test Annex	05-3
20060301	Addition of Alternative Power Train	06-1
20060509	Revised Procedure Includes Single Common Power Train, Common Throttle Control, and Revised Data Acquisition Requirements	06-2
20060713	Revised Procedure Includes Revisions to Test Length Requirements, Unscheduled Shutdowns, Backlash Measurements, and Pretest Contact Patterns.	06-3
20070115	Revised Wording for Backlash Measurements	06-4
20061215	Revised Wording for Coast Side Gear Contact Segment Time	06-4
20061215	Revised Wording for Unscheduled Shutdowns Engine Throttle Body Calibration Procedure	06-4
20061215	Engine Throttle Body Calibration Procedure	06-4
20070411	Revised Wording for Backlash Measurements	07-1
20070411	Revised Pretest Contact Pattern Procedure	07-1

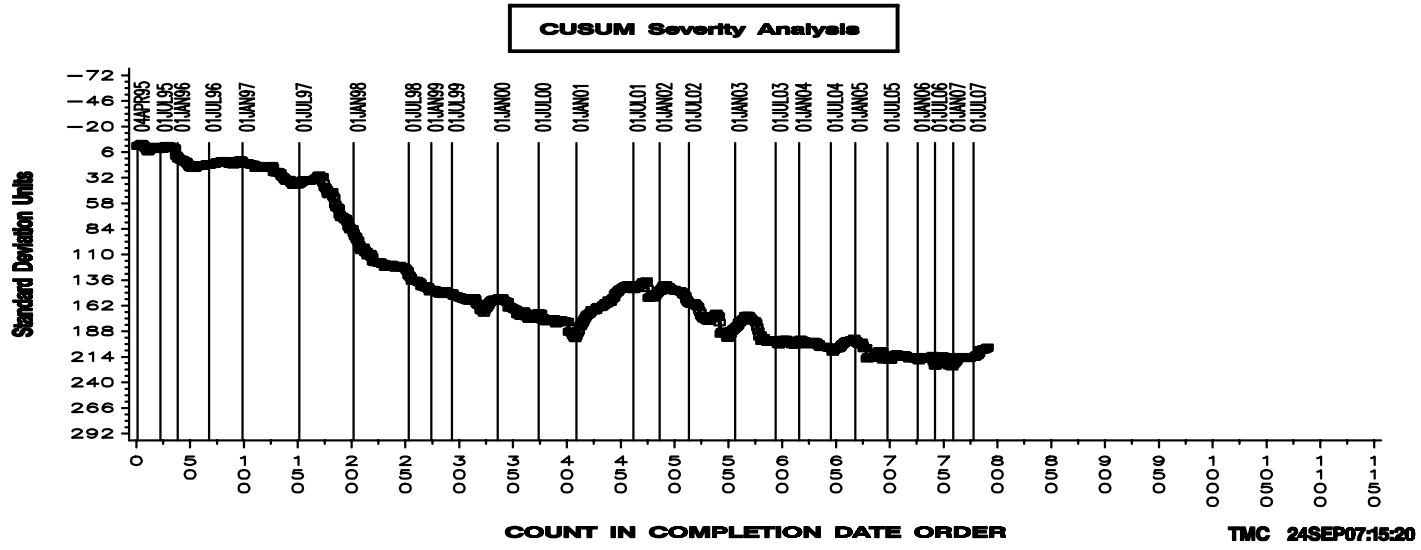
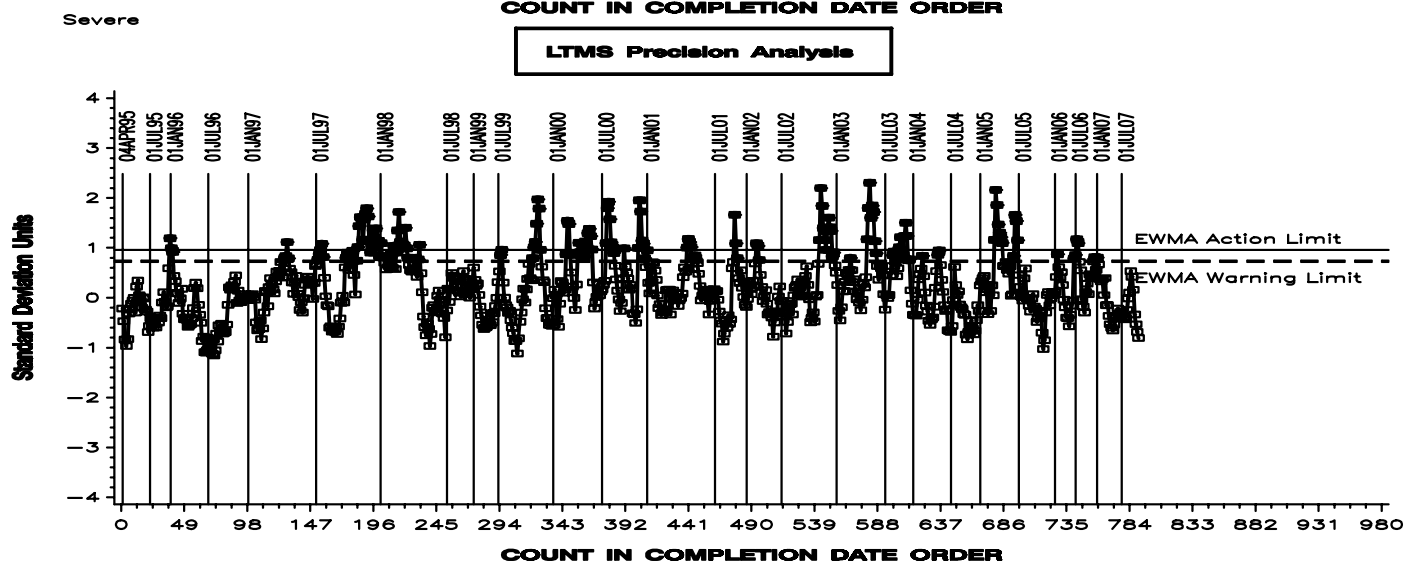
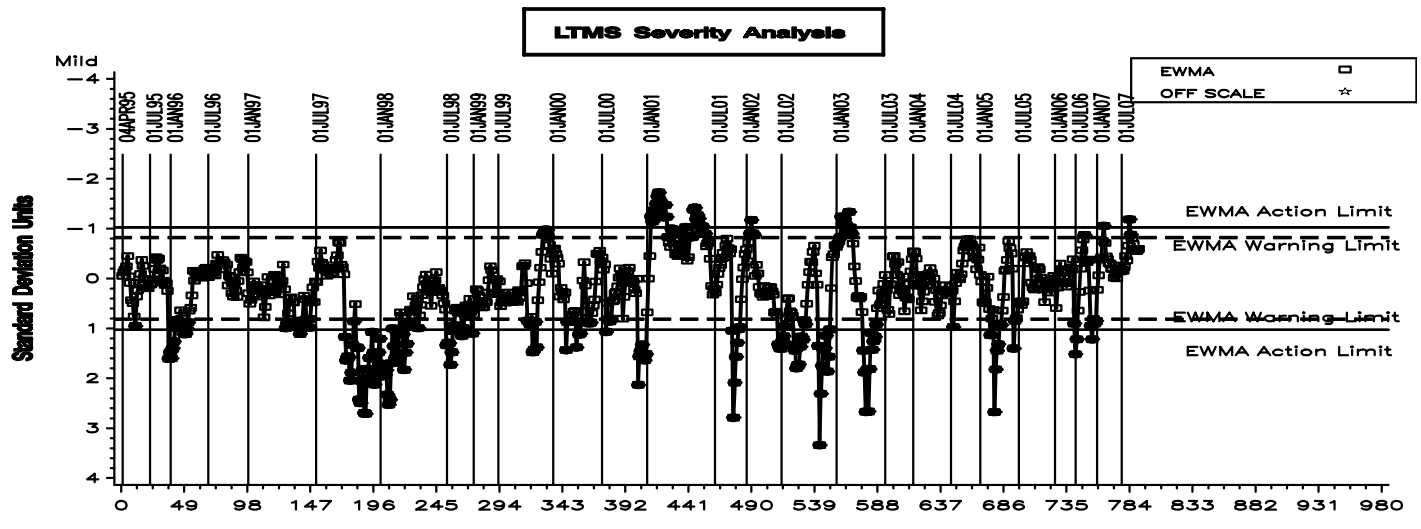
Table 2
Lost Tests Summary

Tests declared operationally invalid, aborted, or non-interpretable are summarized below by laboratory, reason, and number of lost tests.:

LAB	REASON	Tests Lost
B	Invalid due to axle temperature control problems. Axle temperature out of specification	1
E	Invalid due to speed control problems. Speed out of specification	1

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL END OF TEST PINION SCORING COAST SIDE

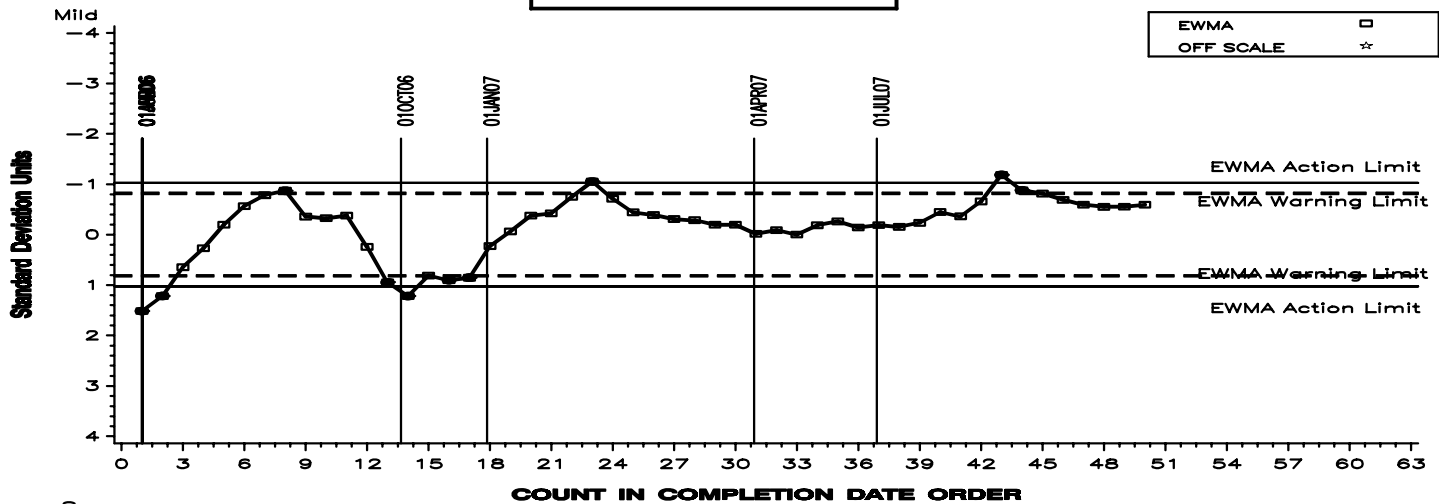


L-42 INDUSTRY OPERATIONALLY VALID DATA

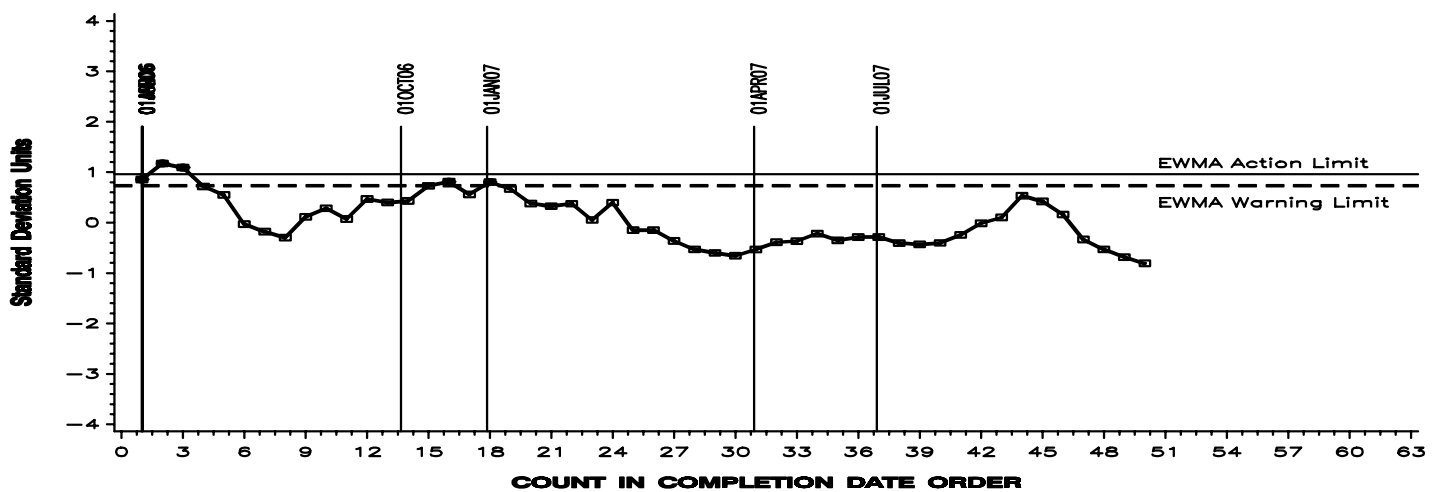
Last 50 Test Results

FINAL END OF TEST PINION SCORING COAST SIDE

LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

