Test Monitoring Center
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Pittsburgh, PA 15206-4489
(412) 365-1000

MEMORANDUM: 06-072

DATE: October 9, 2006

TO: Dale Smith, Chairman, L-33-1 Surveillance Panel

FROM: Donald Lind

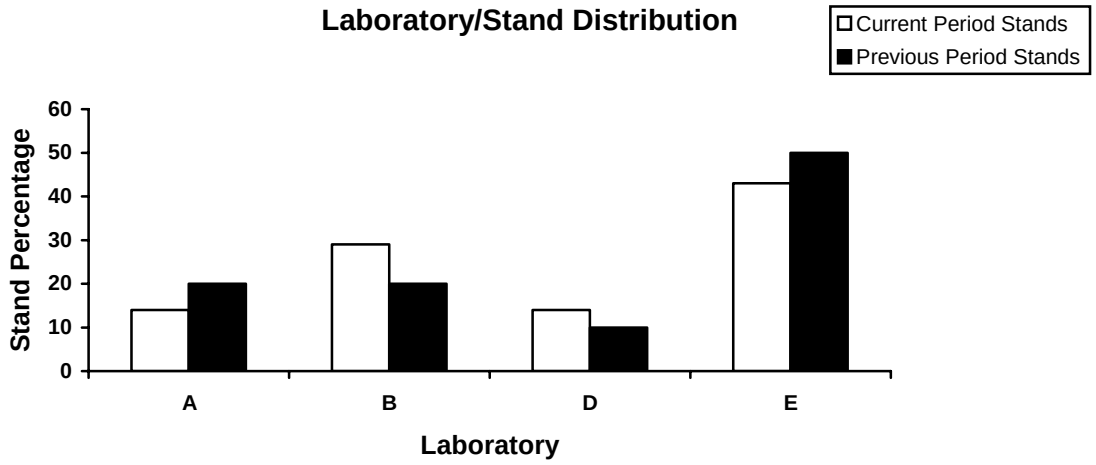
SUBJECT: L-33-1 Reference Test Status from April 1, 2006 through September 30, 2006

The following is a summary of the L-33-1 reference oil tests that were reported to the Test Monitoring Center during the period April 1, 2006 through September 30, 2006.

Lab and Stand Summary

	Reporting Data	Calibrated as of 9/30/06
Number of Laboratories	4	3
Number of Storage Boxes	7	5

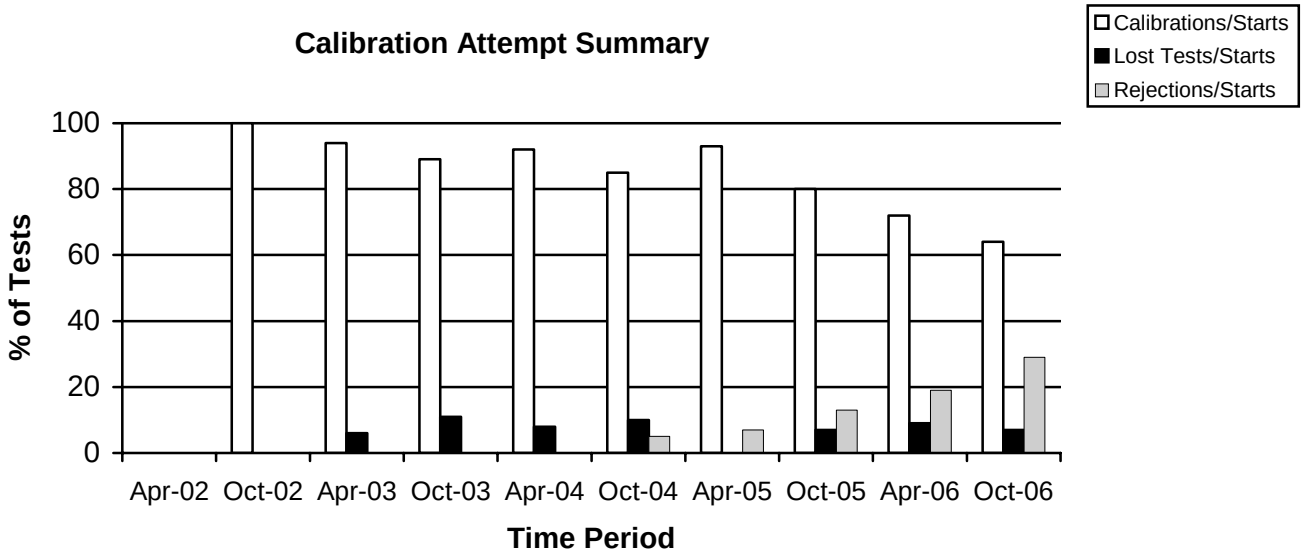
The following chart shows the laboratory/stand distribution:



The following summarizes the status of the reference oil tests reported to the TMC:

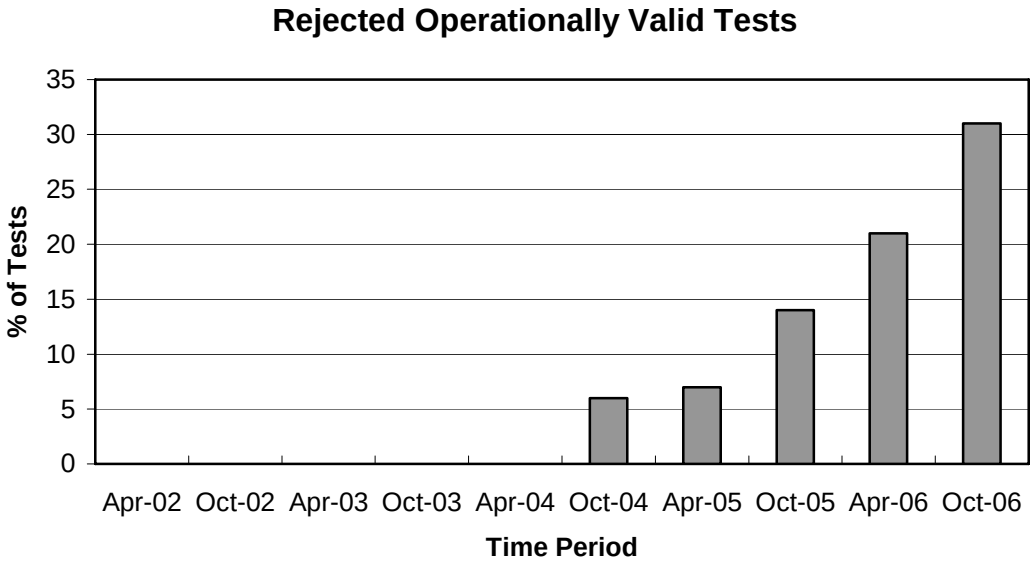
	TMC Validity Codes	No. of Tests
Operationally and Statistically Acceptable	AC	9
Failed Acceptance Criteria	OC	4
Operationally Invalid (Lab Judgement)	LC	0
Operationally Invalid (Lab / TMC Judgement)	RC	0
Aborted	XC	1
Total		14

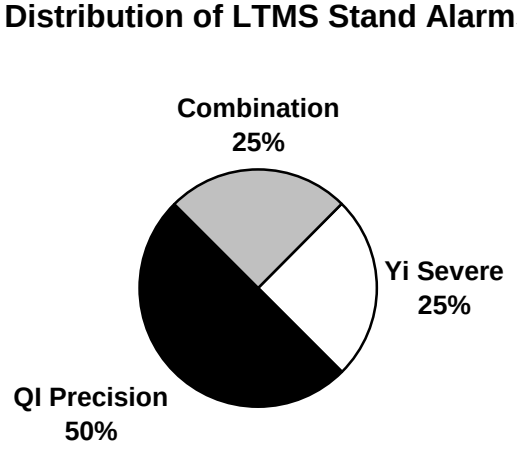
Calibrations per start, lost tests per start and rejection per start rates are summarized below:



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

There were four statistically rejected operationally valid tests reported this report period. Two of the four tests were from lab (E) and two were from lab (A). The statistically rejected operationally valid test rate has increased for the fourth consecutive report period. The increase seems to be related to one lab (E). Since the October 2004 report period there has been a total of 11 statistically rejected operationally valid tests reported. Seven of those have been from lab (E), 2 from lab (A), two from lab (B), and none from lab (D).

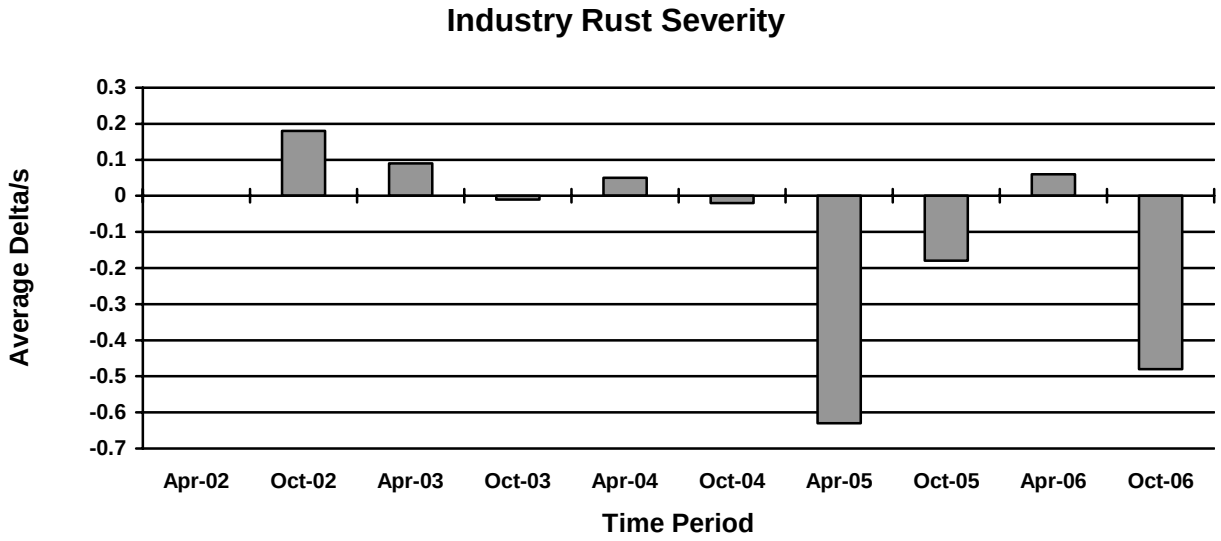




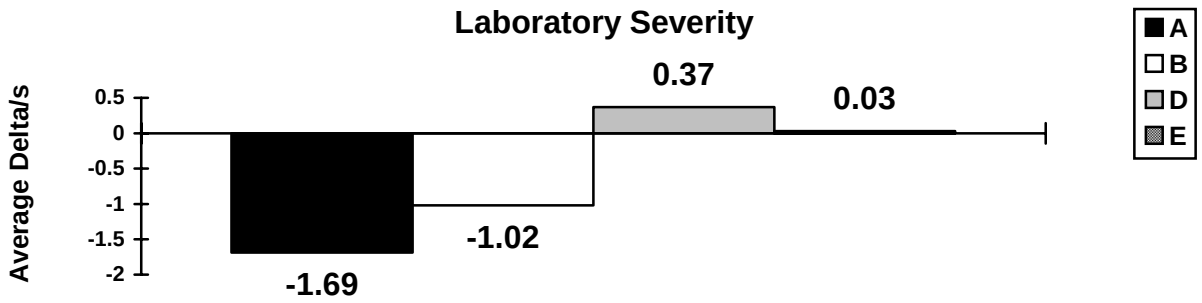
One test failed the acceptance criteria severe, two tests failed the EWMA precision criteria, and one test failed both the acceptance criteria severe and EWMA precision criteria this report period.

Severity and Precision

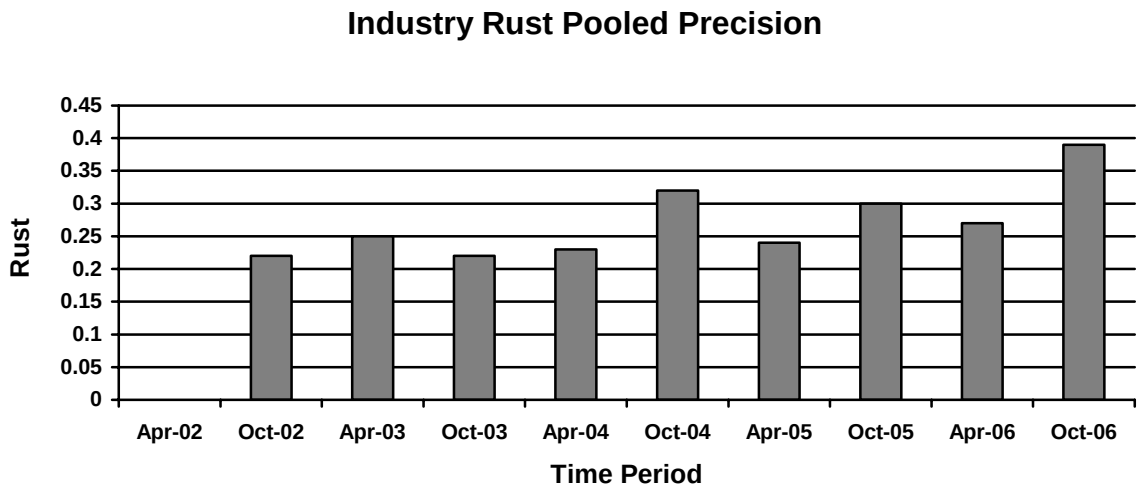
A total of 13 operationally valid test results were reported this period. The mean delta/s for this period is -0.48 severe, which equates to -0.19 merits. All of the 13 operationally valid tests reported this period were conducted on V01.1 hardware. Severity for the 13 operationally valid test results is severe of target as indicated in the chart below and Figure 1. The severe trend appears to be caused by two severe test results from two different labs (Lab A, -3.6 and Lab E, -2.2). The mean delta/s without these two test results is -0.04. The severe test result from lab A is related to a rating issue and the cause of the severe result from lab E has not been determined. Figure 2 illustrates the Industry charts without these two test results.



Shown below is a summary of the average rust Δ/s for all laboratories reporting data this report period.



The industry precision estimate for this report period is 0.39 merits (pooled s). Precision this report period has degraded compared to previous period as shown below:



Industry Control Charts

Figure 1 is the Industry EWMA severity and precision chart of tests completed through September 30, 2006. There were four industry EWMA severity warning alarms and two industry EWMA precision warning alarms triggered this report period. The alarms were caused by two severe results (-2.2 and -3.6). Figure 2 shows the control charts without these two tests.

TMC Lab Visits

There were three lab visits conducted this report period with two discrepancies noted. Both discrepancies were from the same lab.

1. The drive speed measuring system was not being calibrated as per Section 10.2.1 of the test procedure.

2. There were no calibrations records prior to one reference period as per Section 10.2.

Information Letters

There was one information letter issued this report period. Information Letter 06-02, Sequence Number 6 was issued on August 23, 2006. Items changed with this information letter are documented in the L-33-1 timeline (Table 1).

Reference Oils

The following is a listing of reference oils with the expected number of tests remaining at the Test Monitoring Center and at the testing laboratories. L-33-1 reference oils are shipped in quantities of 1 gallon per test.

Reference Oil	Lab A	Lab B	Lab D	Lab E	TMC
123	0	0	1	0	0
123-2	8	7	6	3	228
151-3	10	11	11	4	*
155	4	2	4	4	**

* 14 Gallons (Multiple test area usage)
** 466 Gallons (Multiple test area usage)

Attachments

c: L-33-1 Surveillance Panel
ftp://ftp.astmtmc.cmu.edu/docs/gear/l331/semiannualreports/l331-10-2006.pdf
J. L. Zalar
F. M. Farber

Distribution: Email

Listing of Tables and Figures Included as Part of This Report to the L-33-1 Surveillance Panel

Table 1 is the L-33-1 Industry Timeline.

Figure 1 is the Industry Control Chart for L-33-1 Rust.

Figure 2 is the Industry Control Chart for L-33-1 Rust Excluding the Two Severe Results Over 2 Standard Deviations

Table 1
L-33-1 Industry Timeline

Effective Date	Topic	Information Letter Number
20030106	New L-33-1 test procedure	02-1
20030507	Revised test unit assembly procedure	03-1
20030507	Revised specification for the abrasive blasting cabinet regulator	03-1
20030507	Revised electric fan motor RPM specification	03-1
20030507	Tests run on non-calibrated stands are deemed non-interpretable tests	03-1
20030507	Revision to light rust definition	03-1
20030507	Editorial changes	03-1
20030916	Addition of bearing replacement guidelines	03-2
20030916	Addition of Dana Bulletin No. 5304-2 for Drive Pinion Shaft Installation	03-2
20040101	Change in cleaning solvent specification	03-2
20050221	Revised Solvent Specification	05-1
20050221	Revised Cover Plate Guide Pin Requirement	05-1
20050221	Updated Test Precision	05-1
20050221	Donated Reference Oil Test Programs/Calibration Period Length Adjustment	05-1
20050221	Revised Footnote 2	05-1
20060207	Axle Cover Rating Template Serialization	06-1
20060721	Housing Cover Gasket Supplier Name and Address Change	06-2

FIGURE 1

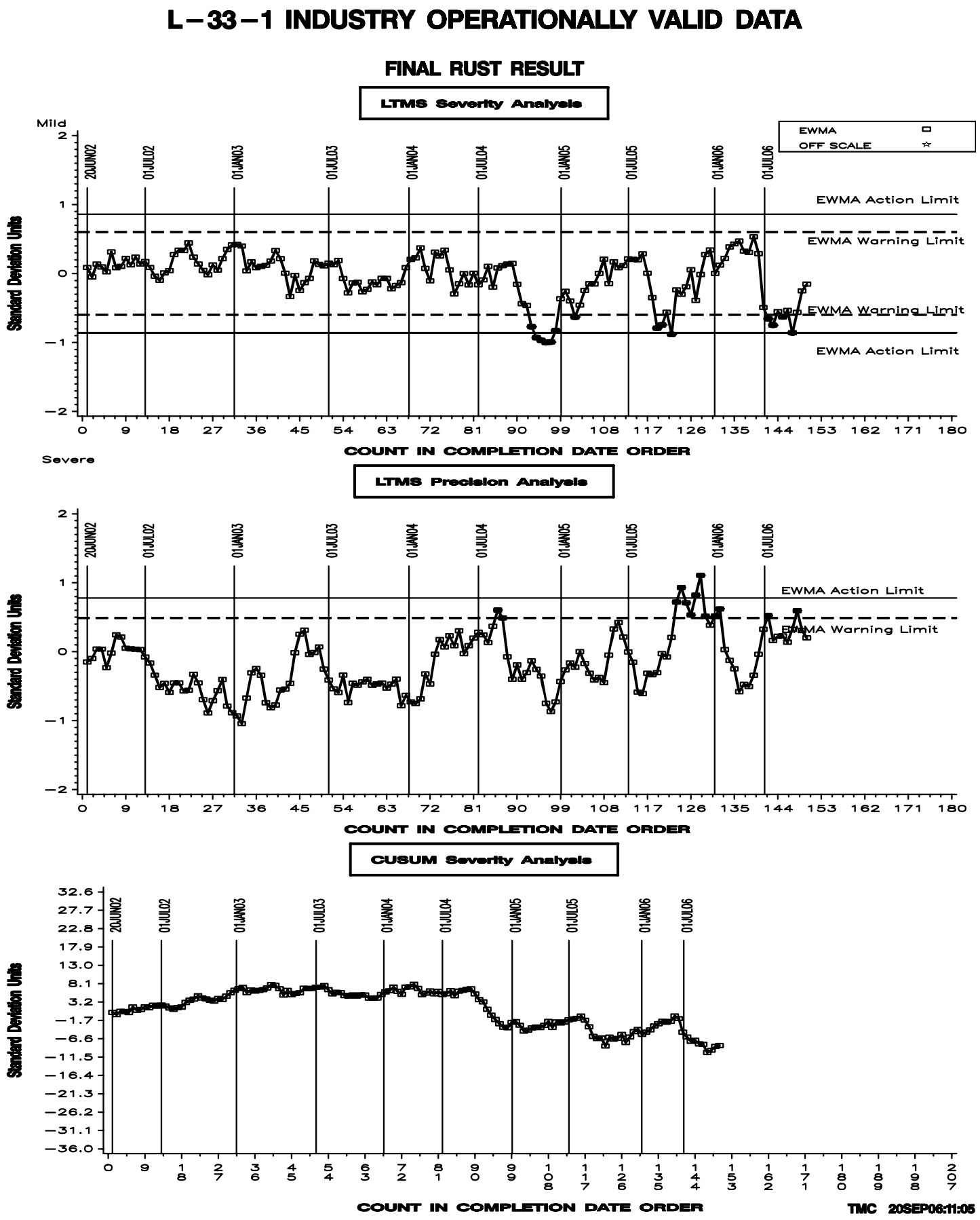
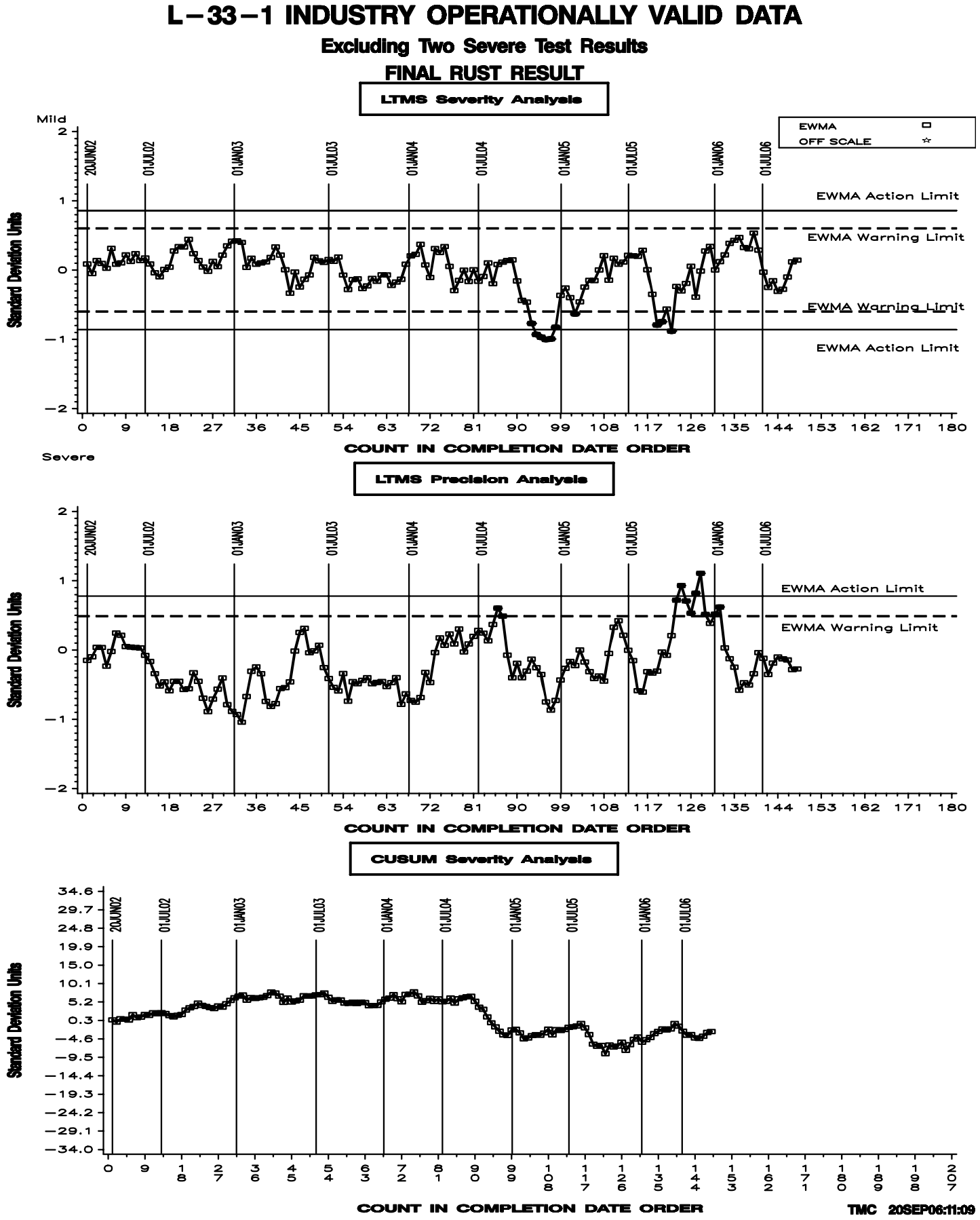

L−33−1 INDUSTRY OPERATIONALLY VALID DATA
FINAL RUST RESULT
LTMS Severity Analysis
Mild
Severe
EWMA
OFF SCALE
EWMA Action Limit
EWMA Warning Limit
EWMA Warning Limit
EWMA Action Limit
Standard Deviation Units
20JUN02
01JUL02
01JAN03
01JUL03
01JAN04
01JUL04
01JAN05
01JUL05
01JAN06
01JUL06
COUNT IN COMPLETION DATE ORDER
LTMS Precision Analysis
EWMA Action Limit
EWMA Warning Limit
CUSUM Severity Analysis
TMC 20SEP06:11:05

FIGURE 2


L−33−1 INDUSTRY OPERATIONALLY VALID DATA
Excluding Two Severe Test Results
FINAL RUST RESULT
LTMS Severity Analysis
Mild
EWMA
OFF SCALE
20JUN02
01JUL02
01JAN03
01JUL03
01JAN04
01JUL04
01JAN05
01JUL05
01JAN06
01JUL06
EWMA Action Limit
EWMA Warning Limit
EWMA Warning Limit
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
Severe
LTMS Precision Analysis
CUSUM Severity Analysis
TMC 20SEP06:11:09