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

MEMORANDUM: 04-081

DATE: October 11, 2004

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

FROM: Donald Lind

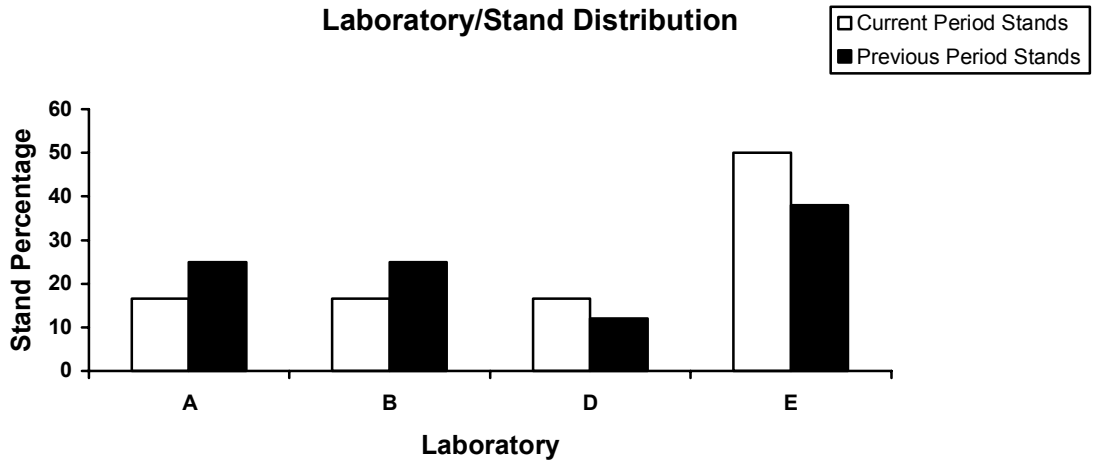
SUBJECT: L-33-1 Reference Test Status from April 1, 2004 through September 30, 2004

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, 2004 through September 30, 2004.

Lab and Stand Summary

	Reporting Data	Calibrated as of 9/30/04
Number of Laboratories	4	4
Number of Storage Boxes	12	9

The following chart shows the laboratory/stand distribution:

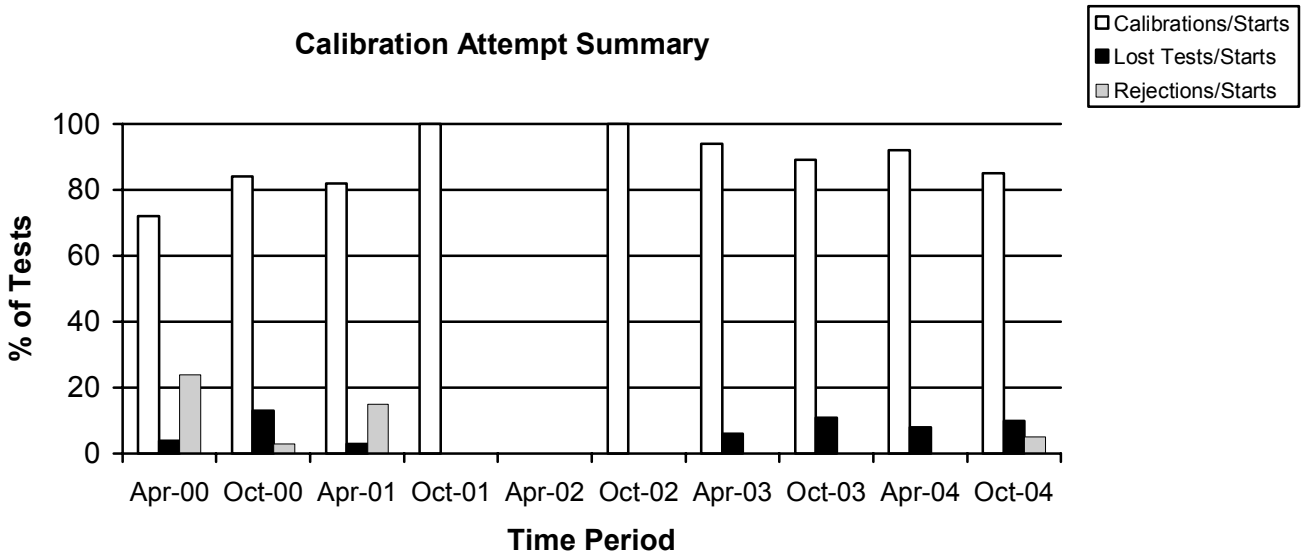


The following summarizes the status of the reference oil tests reported to the TMC:

	TMC Validity Codes	No. of Tests
Operationally and Statistically Acceptable	AC	17
Failed Acceptance Criteria	OC	1
Operationally Invalid (Lab Judgement)	LC	1
Operationally Invalid (Lab / TMC Judgement)	RC	0
Aborted	XC	1
Total		20

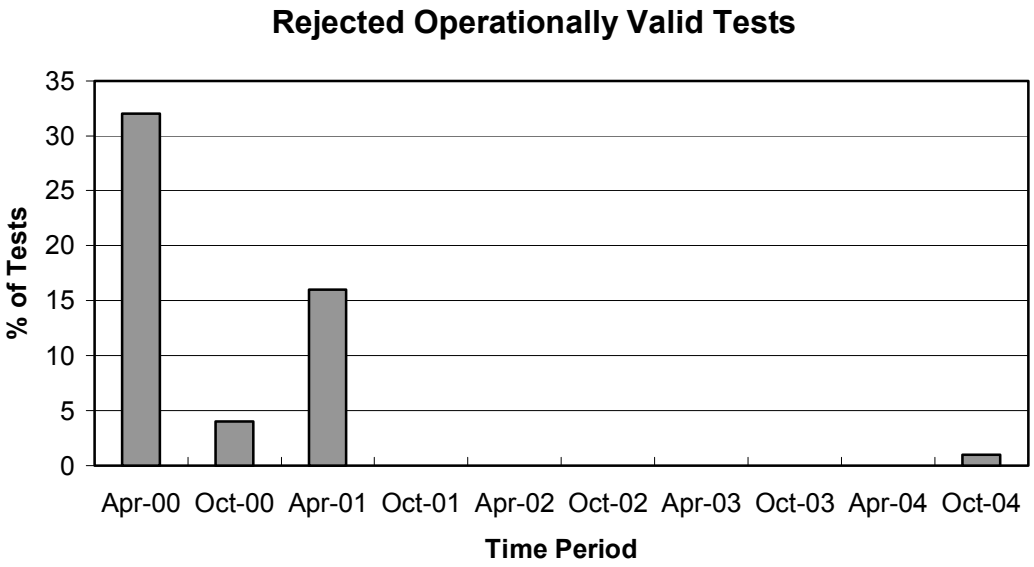
There were no additional tests conducted this report period.

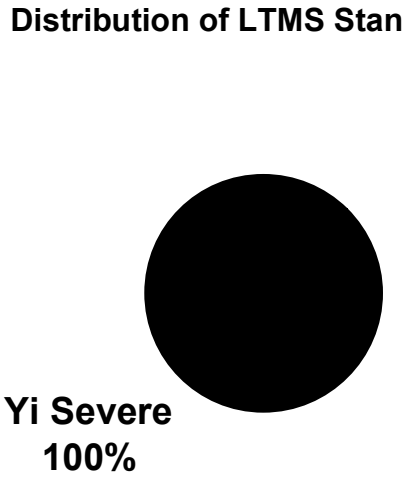
Calibrations per start, lost tests per start and rejection per start rates are summarized below:



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

One statistically rejected operationally valid test was reported this report period.

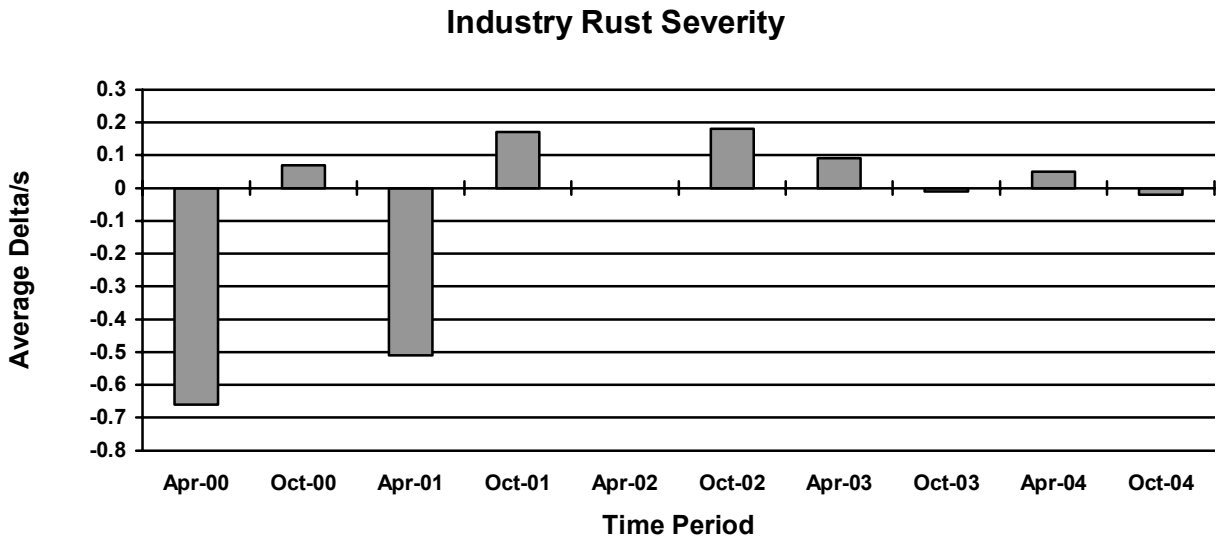




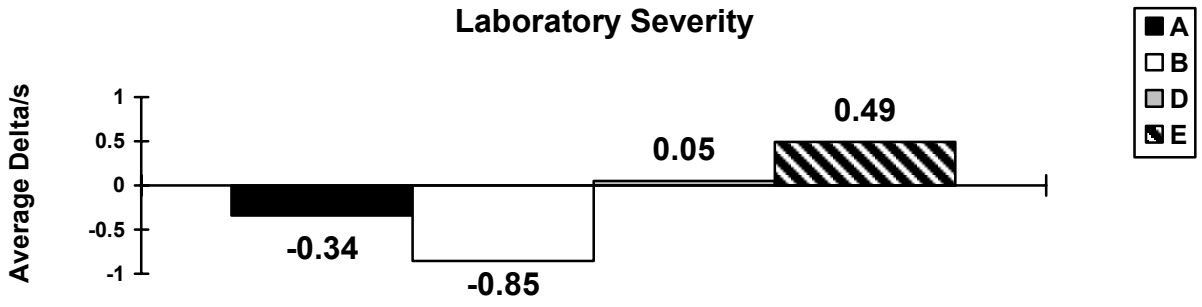
There was one test that failed the acceptance criteria severe this report period.

Severity and Precision

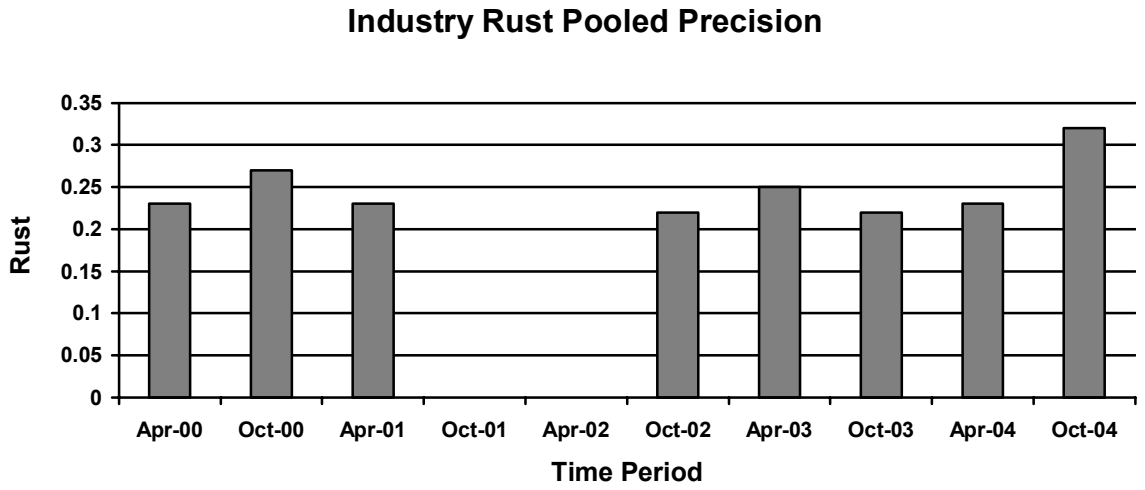
A total of 18 operationally valid test results were reported this period. The mean delta/s for this period is -0.02 severe, which equates to -0.01 merits. Of the 18 operationally valid tests reported this period, two were conducted on V99.1 hardware (-0.34 severe) and 16 on V01.1 (0.02 mild). The two tests on V99.1 hardware were run at the same lab. Severity for the 18 operationally valid test results is slightly severe of target as indicated in the chart below and Figure 1. Figure 2 and Figure 3 are the Industry EWMA severity and cusum plots for reference oils 123 and 151-3. Reference oil 123 is trending slightly mild while reference 151-3 is trending slightly severe.



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 0.32 merits (pooled s). Precision this report period has degraded slightly 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, 2004. There was one EWMA or precision warning alarm triggered this report period. The alarm does not appear to be related to any one oil, lab, or hardware type.

TMC Lab Visits

There were two lab visits conducted this report period. There were no discrepancies to report.

Information Letters

There were no information letters issued this report period.

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	3	6	6	5	0
123-2	9	9	5	5	241
151-3	8	7	6	5	*

* 143 Gallons (Multiple test area usage)

Attachments

c: L-33-1 Surveillance Panel
ftp://ftp.astmtmc.cmu.edu/docs/gears/l331/semiannualreports/l331-10-2004.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, Reference Oils 123 and 151-3.

Figure 2 is the Industry Control Chart for L-33-1 Rust, Reference Oil 123 Only.

Figure 3 is the Industry Control Chart for L-33-1 Rust, Reference Oil 151-3 Only.

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

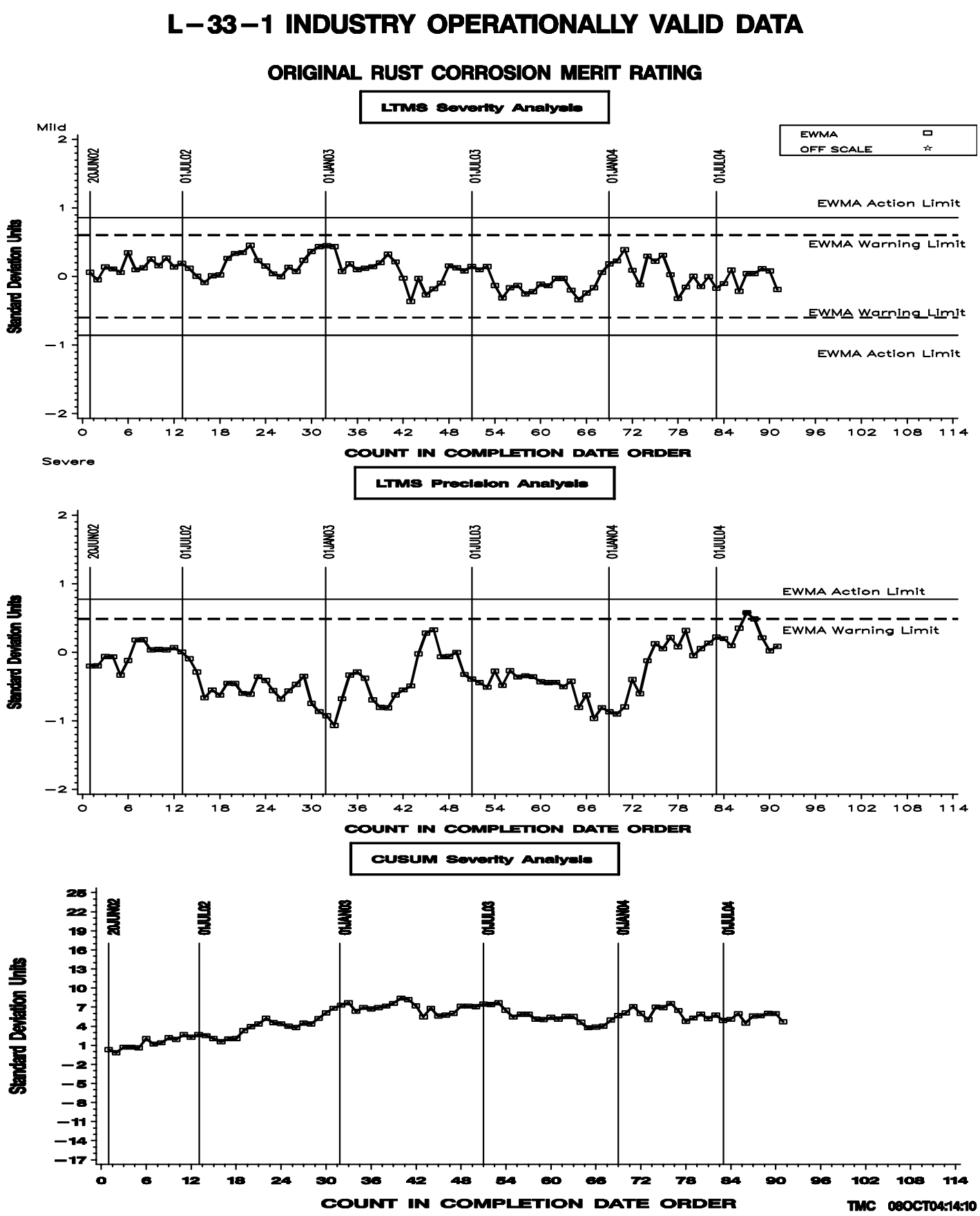
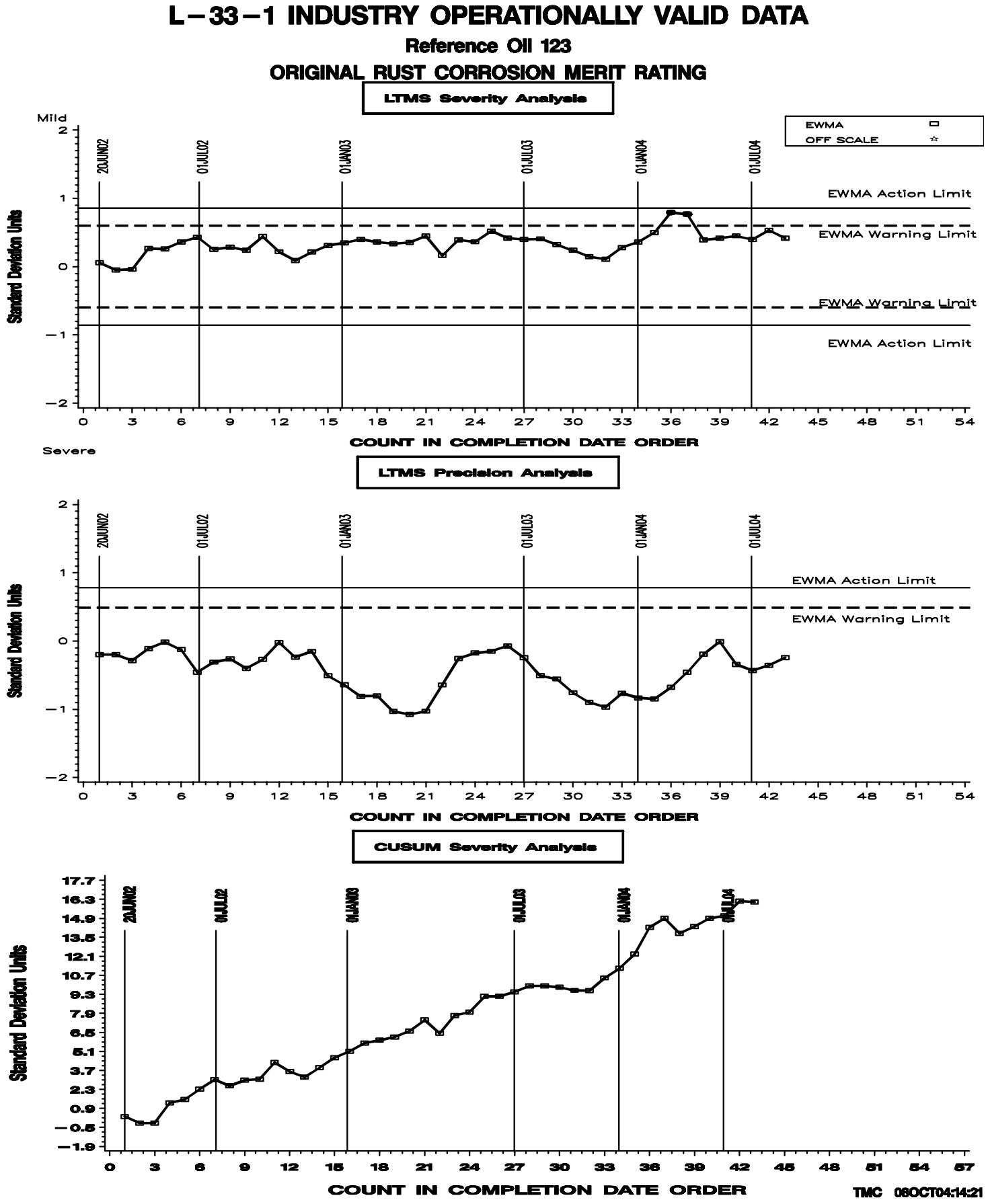
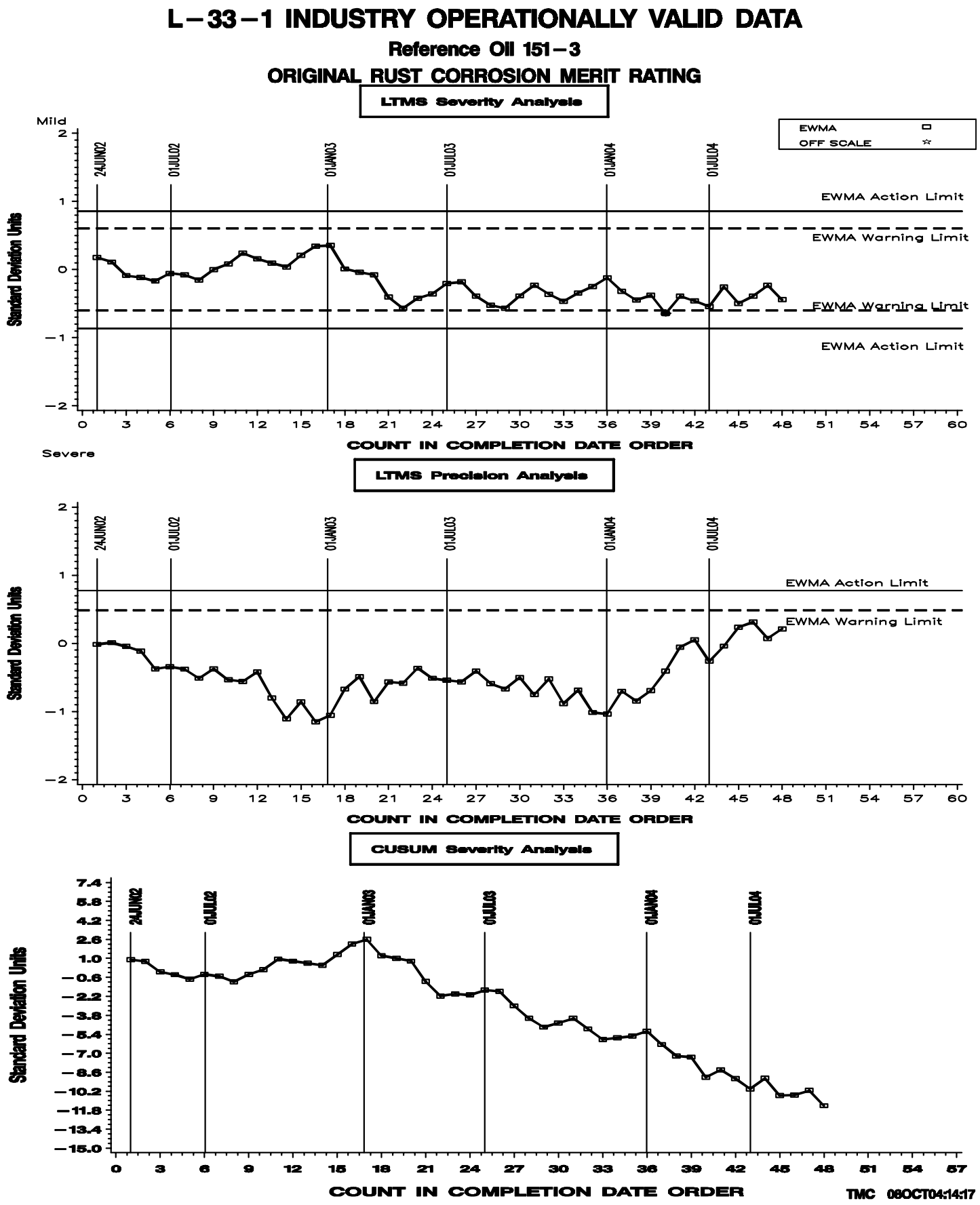

L−33−1 INDUSTRY OPERATIONALLY VALID DATA
ORIGINAL RUST CORROSION MERIT RATING
LTMS Severity Analysis
Mild
Severe
Standard Deviation Units
EWMA
OFF SCALE
EWMA Action Limit
EWMA Warning Limit
EWMA Warning Limit
EWMA Action Limit
20JUN02
01JUL02
01JAN03
01JUL03
01JAN04
01JUL04
COUNT IN COMPLETION DATE ORDER
LTMS Precision Analysis
CUSUM Severity Analysis
TMC 08OCT04:14:10

FIGURE 2


L−33−1 INDUSTRY OPERATIONALLY VALID DATA
Reference Oil 123
ORIGINAL RUST CORROSION MERIT RATING
LTMS Severity Analysis
Mild
Severe
EWMA
OFF SCALE
20JUN02
01JUL02
01JAN03
01JUL03
01JAN04
01JUL04
EWMA Action Limit
EWMA Warning Limit
EWMA Warning Limit
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
LTMS Precision Analysis
CUSUM Severity Analysis
TMC 08OCT04:14:21


L−33−1 INDUSTRY OPERATIONALLY VALID DATA
Reference Oil 151−3
ORIGINAL RUST CORROSION MERIT RATING
LTMS Severity Analysis
Mild
Severe
EWMA
OFF SCALE
24JUN02
01JUL02
01JAN03
01JUL03
01JAN04
01JUL04
EWMA Action Limit
EWMA Warning Limit
EWMA Warning Limit
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
LTMS Precision Analysis
Standard Deviation Units
EWMA Action Limit
EWMA Warning Limit
COUNT IN COMPLETION DATE ORDER
CUSUM Severity Analysis
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
TMC 08OCT04:14:17