A Program of ASTM International

**Test Monitoring Center**

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412-365-1000

MEMORANDUM: 09-011

DATE: April 7, 2009

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

FROM: Donald Lind

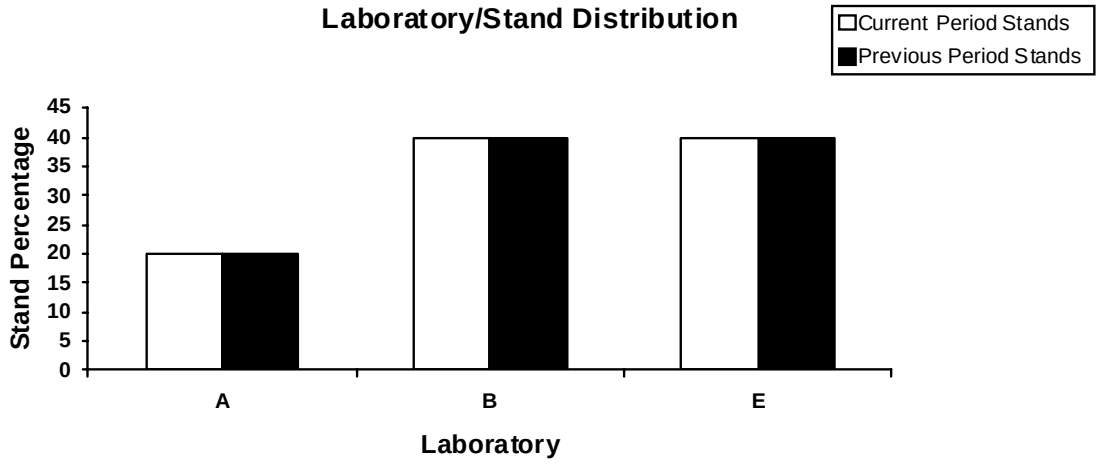
SUBJECT: L-33-1 Reference Test Status from October 1, 2008 through March 31, 2009

The following is a summary of the L-33-1 reference oil tests that were reported to the Test Monitoring Center during the period October 1, 2008 through March 31, 2009.

Lab and Stand Summary

| | Reporting Data | Calibrated as of 3/31/09 |
|---|---|---|
| Number of Laboratories | 3 | 2 |
| Number of Storage Boxes | 5 | 4 |

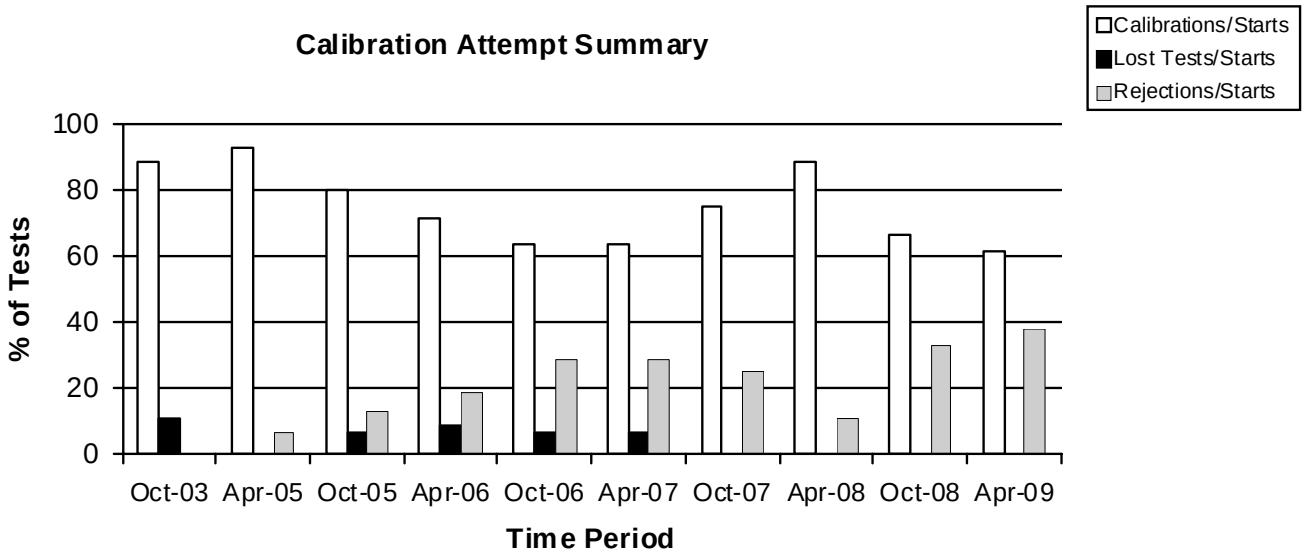
The following chart shows the laboratory/stand distribution:



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

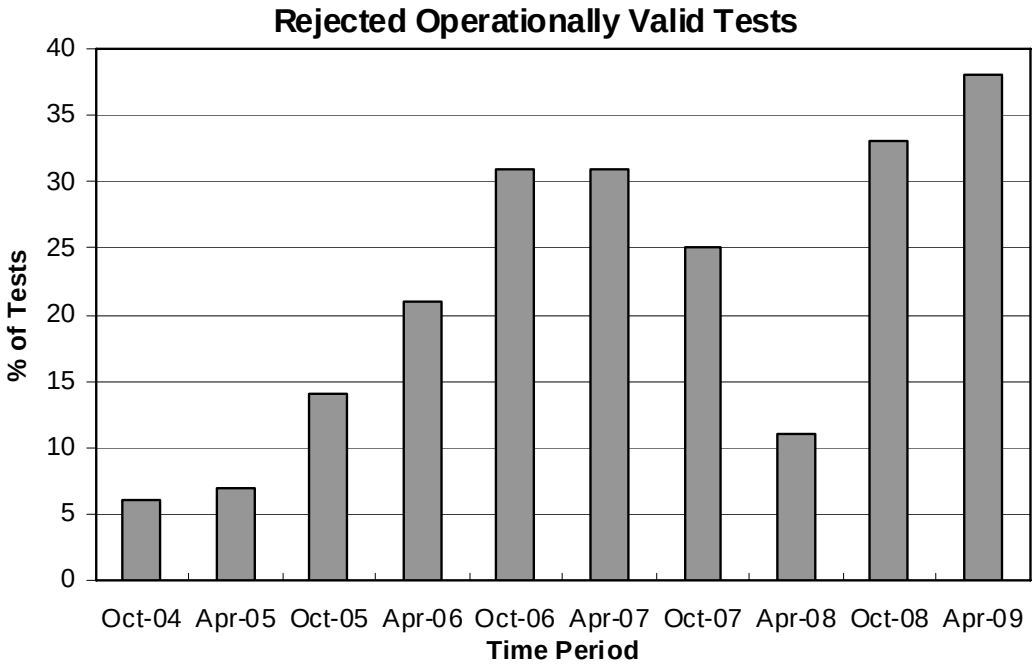
| | TMC Validity Codes | No. of Tests |
|---|---|---|
| Operationally and Statistically Acceptable | AC | 8 |
| Failed Acceptance Criteria | OC | 5 |
| Operationally Invalid (Lab Judgement) | LC | 0 |
| Operationally Invalid (Lab / TMC Judgement) | RC | 0 |
| Aborted | XC | 0 |
| Total | | 13 |

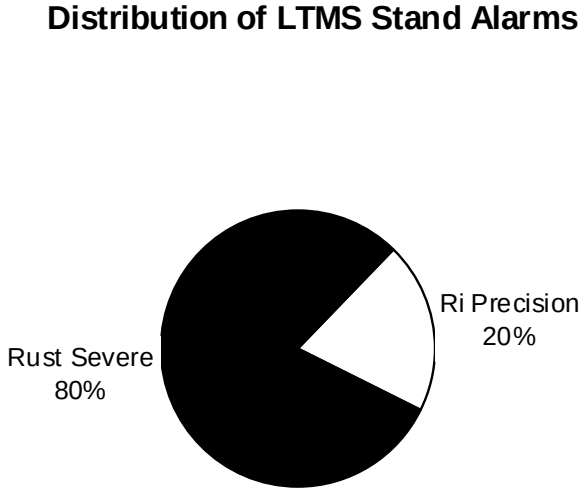
Calibrations per start, lost tests per start and rejection per start rates are summarized below:




The calibration per start rate has decreased with respect to the previous period. The rejected per start rate has increased with respect to the previous period and the lost test per start rate has remained the same with respect to the previous period.

There were five statistically rejected operationally valid tests reported this report period. The statistically rejected operationally valid test rate has increased with respect to the previous report period.

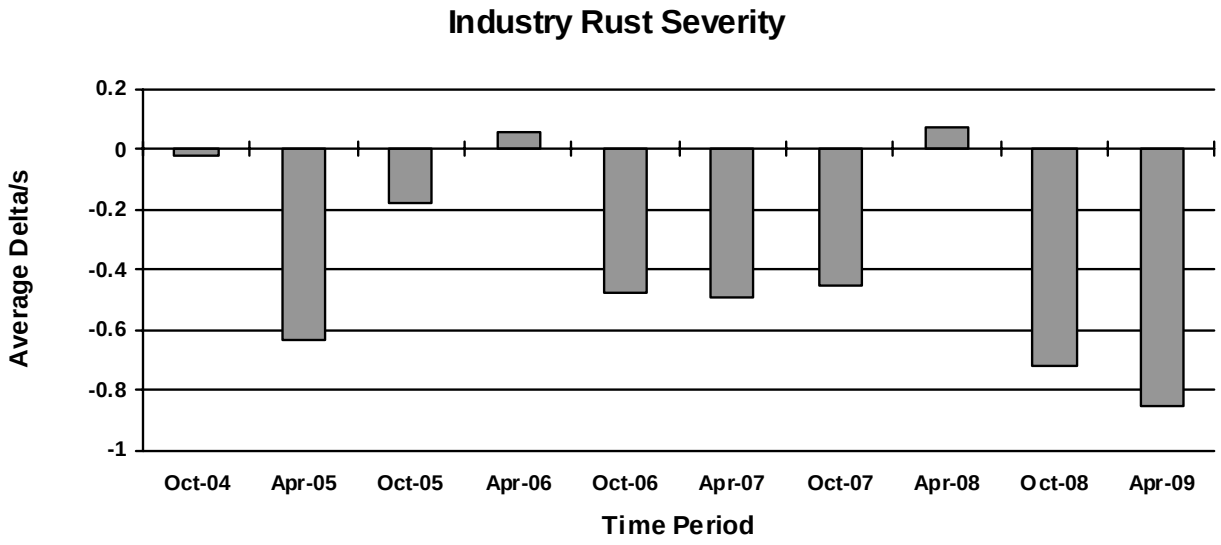


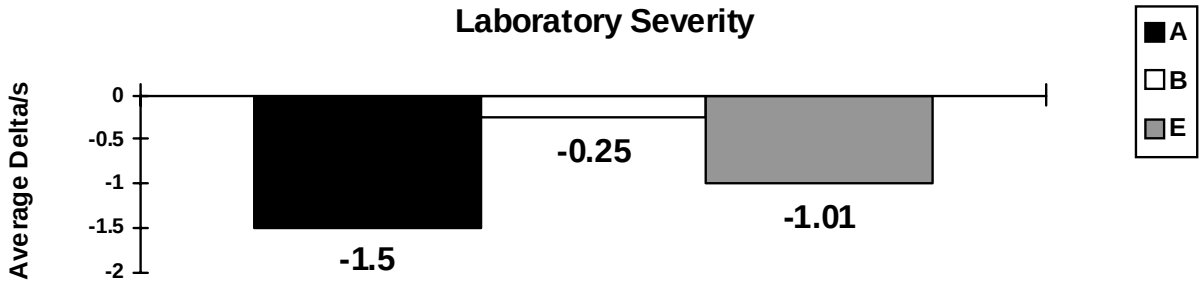

Four tests failed the acceptance criteria severe and one test failed the shewhart precision (Ri) acceptance criteria this report period.

Severity and Precision

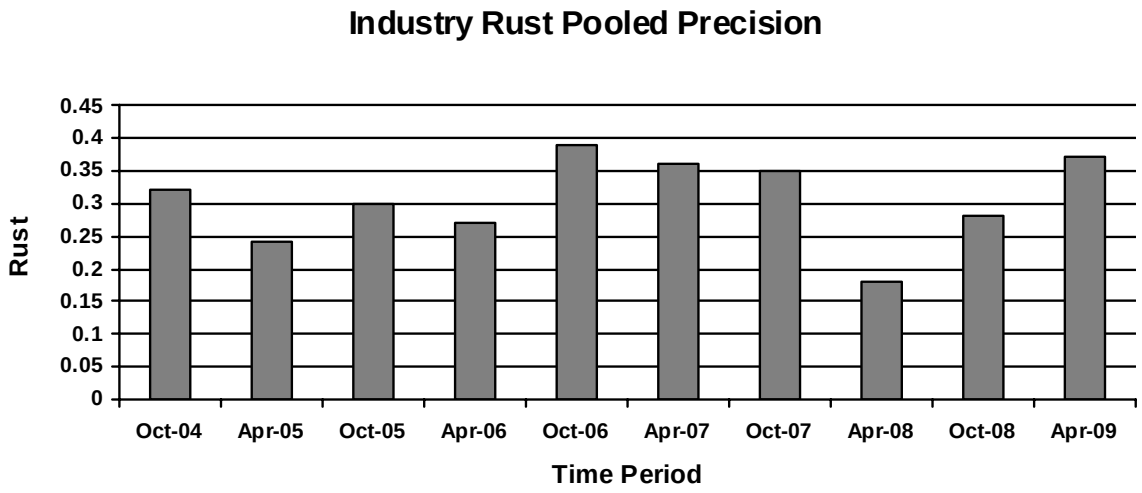
A total of 13 operationally valid test results were reported this period. The mean delta/s for this period is -0.85 severe, which equates to -0.31 merits. All of the 13 operationally valid tests reported this period were conducted on V01.1 hardware. Severity for the 13 operationally valid test results is severe of target as indicated in the chart below and Figure 1.




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 0.37 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 charts of tests completed through March 31, 2009. Figure 2 is the Industry EWMA severity and precision charts of the last 30 tests completed through March 31, 2009. There were 10 (seven action and three warning) industry EWMA severity alarms and seven (five action and two warning) industry EWMA precision alarms triggered this report period. The alarms were not caused by any one lab, stand or oil.

TMC Lab Visits

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

Information Letters

There was one information letter issued this report period. Information Letter 09-01, Sequence Number 13 was issued on February 19, 2009. 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 E | TMC |
|---|---|---|---|---|
| 123-2 | 2 | 4 | 3 | 208 |
| 151-3 | 5 | 0 | 0 | * |
| 155 | 3 | 4 | 3 | ** |

* 0 Gallons (Multiple test area usage)
** 282 Gallons (Multiple test area usage)

Attachments

c: L-33-1 Surveillance Panel
ftp://ftp.astmtmc.cmu.edu/docs/gear/l331/semiannualreports/l331-04-2009.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.

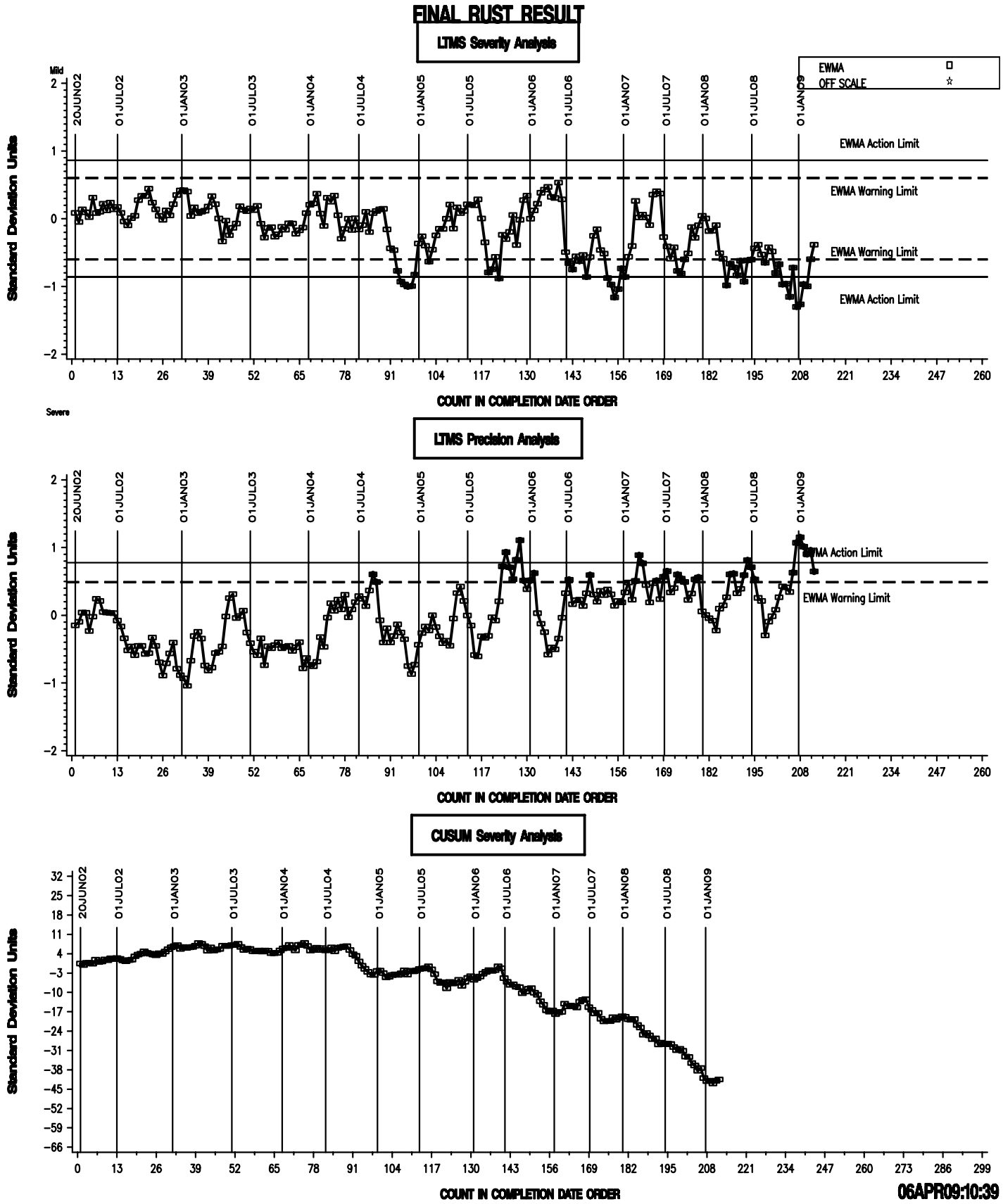
Figure 2 is the Industry Control Chart of the last 30 test results for L-33-1 Rust.

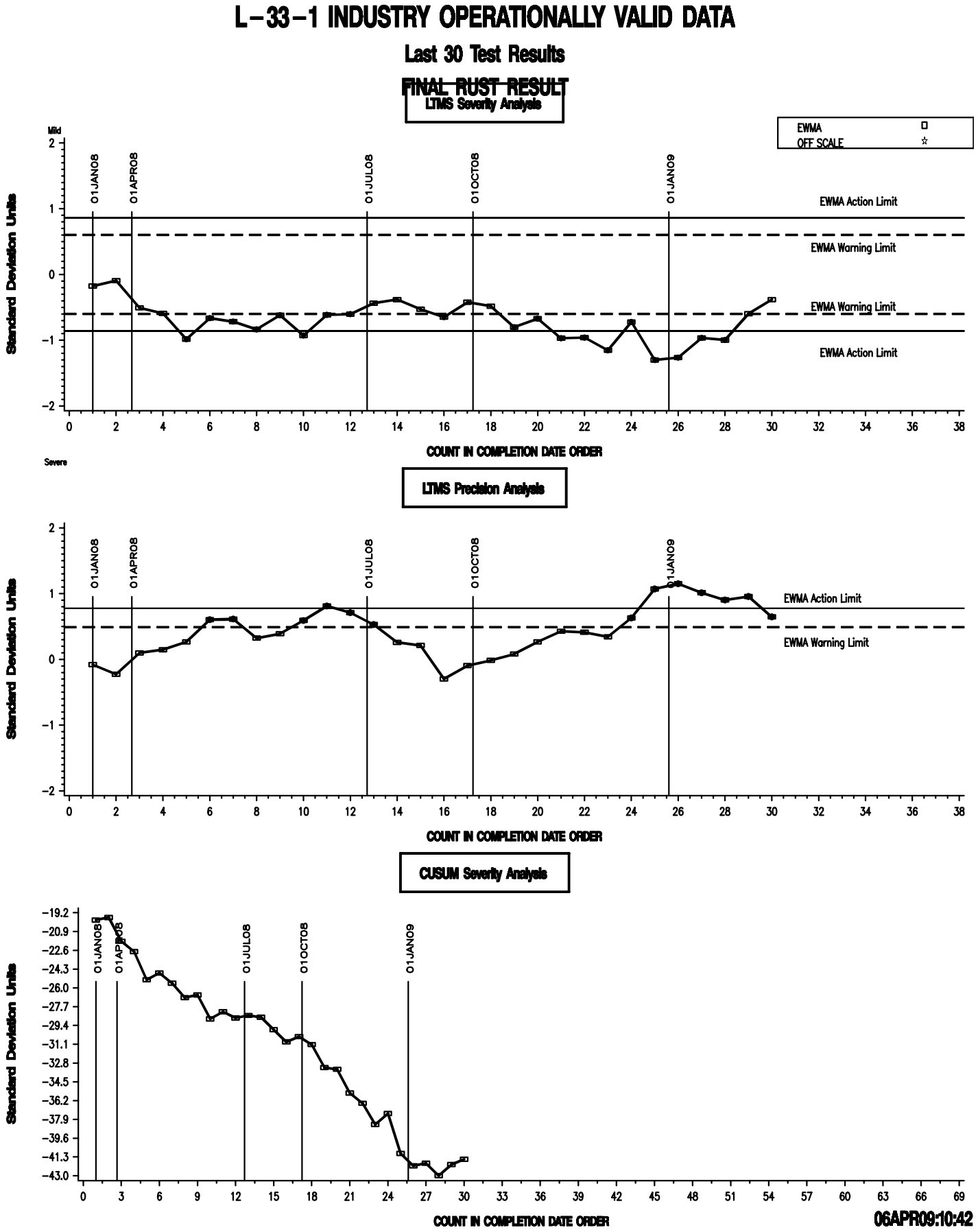
**Table 1**
**L-33-1 Industry Timeline**

| 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 |
| 20061009 | Aluminum Differential Case, Area 2, Hub Inside Diameter Rating Template | 06-3 |
| 20061009 | Editorial changes | 06-3 |
| 20070214 | Revised Area 1 Rating Surface Description | 07-1 |
| 20070214 | Editorial Changes to Figures A1.8, A1.14, and A1.15 | 07-1 |
| 20070411 | Revised Wording for Downtime Occurrences | 07-2 |
| 20070411 | Editorial Changes to Sections A2.2.1 and A2.2.2 | 07-2 |
| 20070525 | Rating Procedure Using Aluminum Differential Case, Area 2, Hub Inside Diameter Rating Template | 07-3 |
| 20071114 | Revised Start-up Procedure | 07-4 |
| 20080114 | Revised Section 11.1.6.1 | 08-1 |
| 20090323 | Revision to Percent Deviation Calculation | 09-1 |

FIGURE 1

# L-33-1 INDUSTRY OPERATIONALLY VALID DATA




L-33-1 INDUSTRY OPERATIONALLY VALID DATA
Last 30 Test Results
FINAL RUST RESULT
LTMS Severity Analysis
Mild
EWMA
OFF SCALE
01JAN08
01APR08
01JUL08
01OCT08
01JAN09
EWMA Action Limit
EWMA Warning Limit
EWMA Warning Limit
EWMA Action Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
Severe
LTMS Precision Analysis
EWMA Action Limit
EWMA Warning Limit
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
CUSUM Severity Analysis
Standard Deviation Units
COUNT IN COMPLETION DATE ORDER
06APR09:10:42