



Test Monitoring Center

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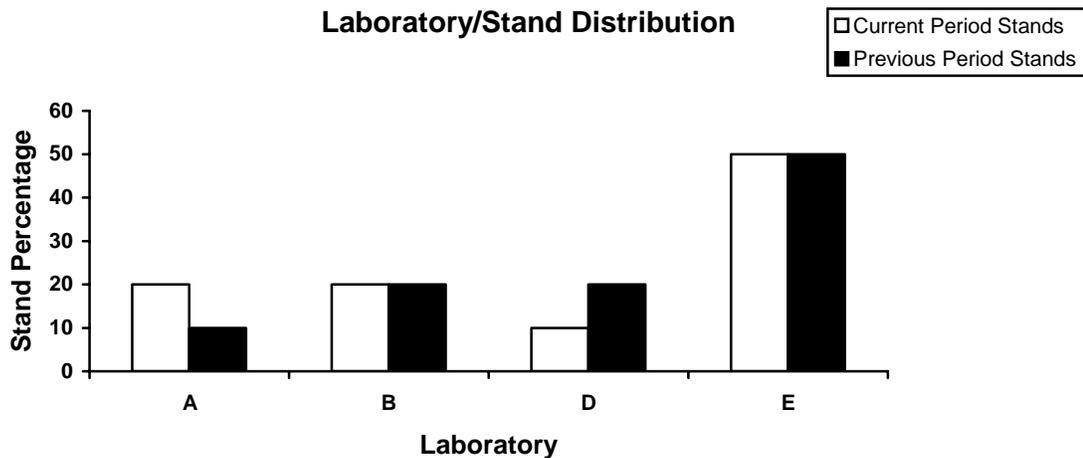
MEMORANDUM: 06-019
DATE: April 11, 2006
TO: Dale Smith, Chairman, L-33-1 Surveillance Panel
FROM: Donald Lind
SUBJECT: L-33-1 Reference Test Status from October 1, 2005 through March 31, 2006

The following is a summary of the L-33-1 reference oil tests that were reported to the Test Monitoring Center during the period October 1, 2006 through March 31, 2006.

Lab and Stand Summary

	Reporting Data	Calibrated as of 3/31/06
Number of Laboratories	4	4
Number of Storage Boxes	10	6

The following chart shows the laboratory/stand distribution:

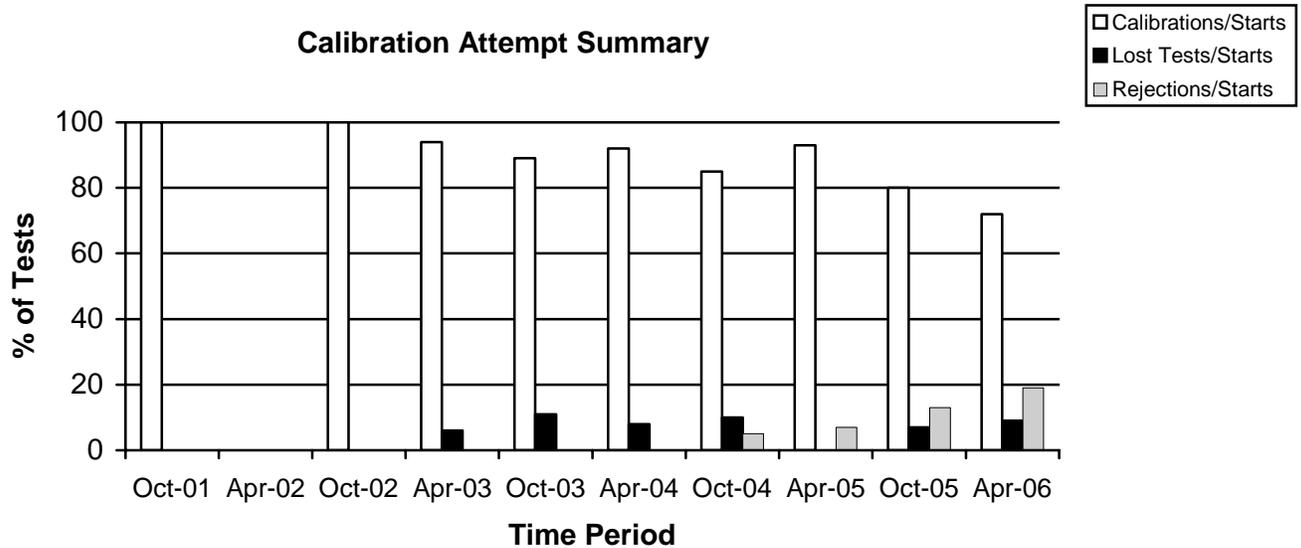


The following summarizes the status of the reference oil tests reported to the TMC:

	TMC Validity Codes	No. of Tests
Operationally and Statistically Acceptable	AC	15
Failed Acceptance Criteria	OC	4
Operationally Invalid (Lab Judgement)	LC	0
Operationally Invalid (Lab / TMC Judgement)	RC	2
Aborted	XC	0
Total		21

There were four additional tests conducted this report period to evaluate a replacement reference oil.

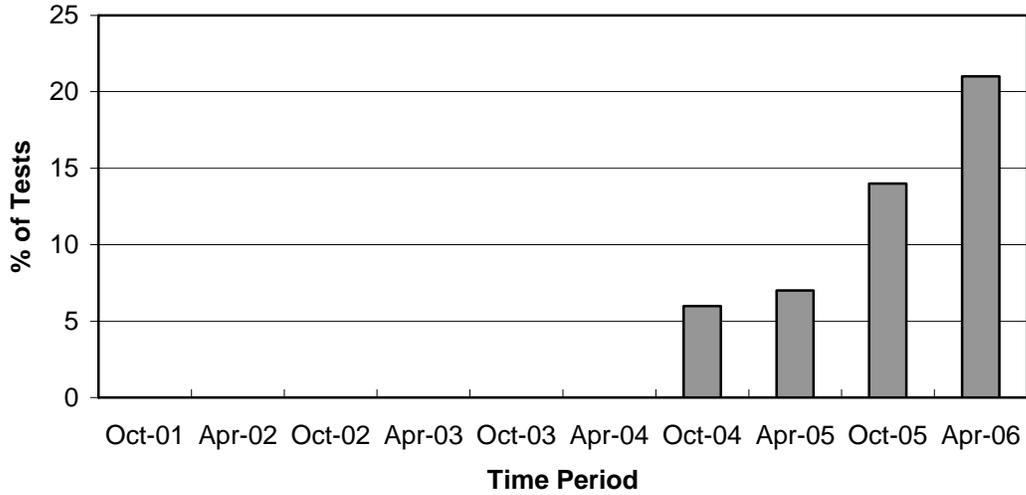
Calibrations per start, lost tests per start and rejection per start rates are summarized below:



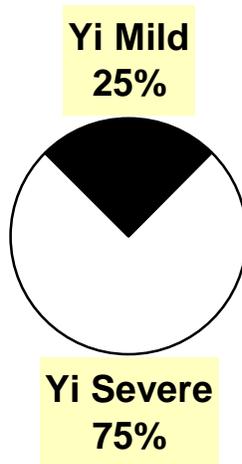
The calibration per start rate has decreased when compared to the previous period. The rejected per start rate and lost test per start rate have increased with respect to the previous period.

There were four statistically rejected operationally valid tests reported this report period. All four tests were from the same lab (E).

Rejected Operationally Valid Tests



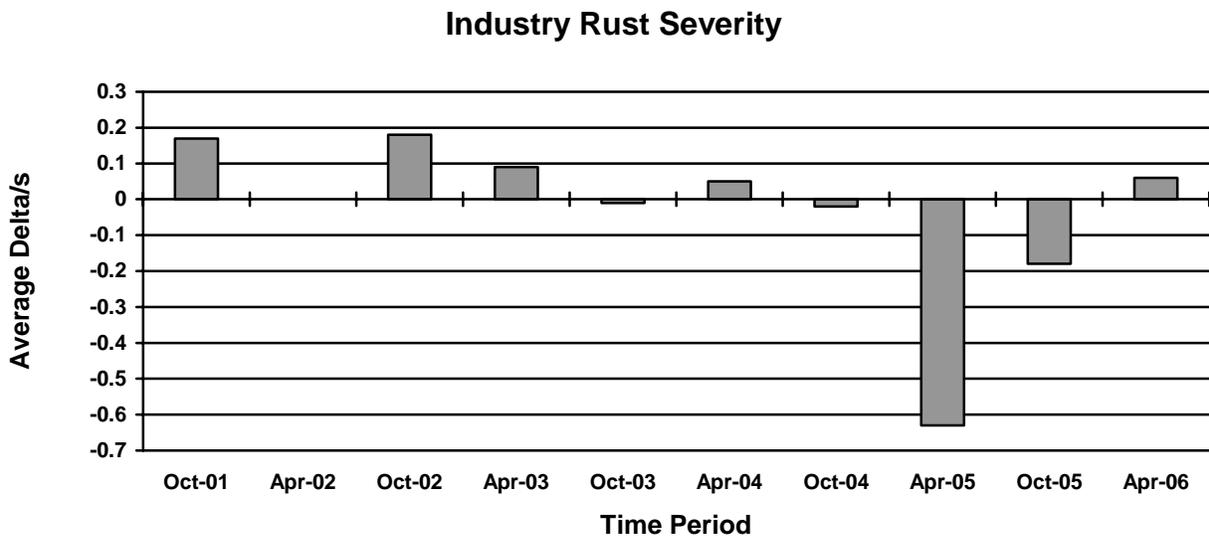
Distribution of LTMS Stand Alarms



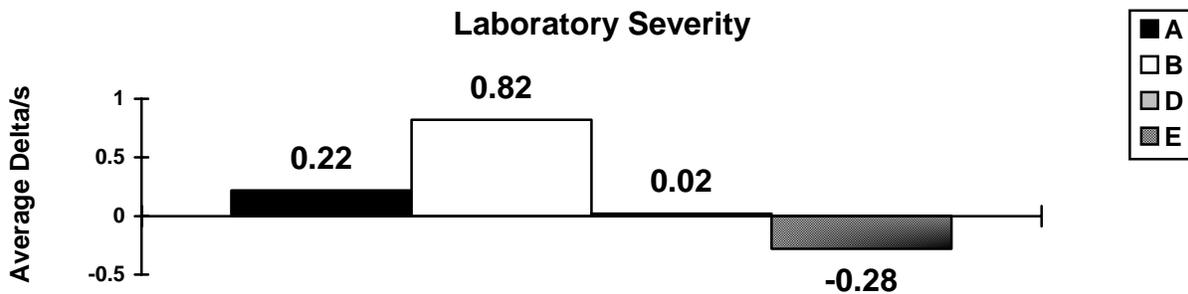
Three tests failed the acceptance criteria severe and one test failed mild this report period.

Severity and Precision

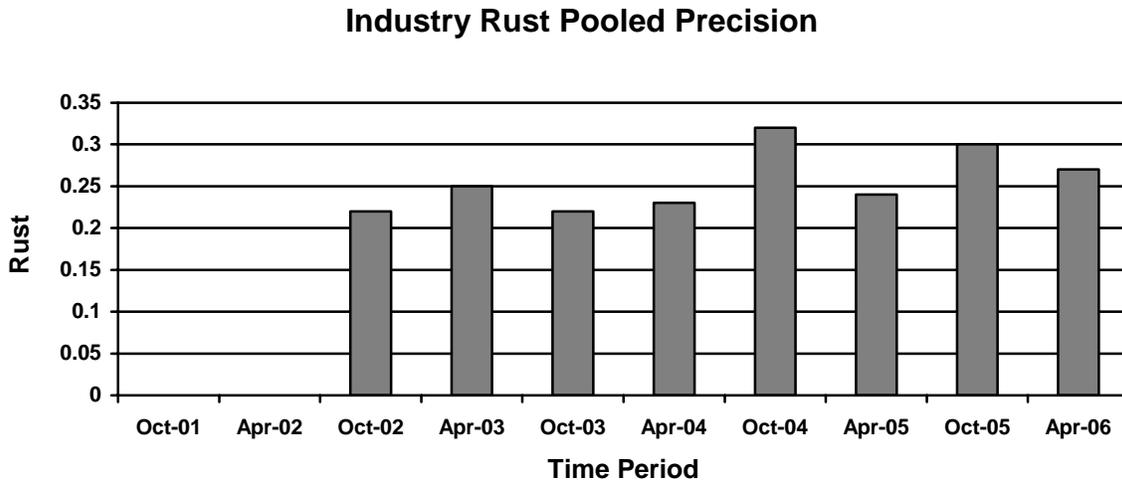
A total of 19 operationally valid test results were reported this period. The mean delta/s for this period is 0.06 mild, which equates to 0.02 merits. All of the 19 operationally valid tests reported this period were conducted on V01.1 hardware. Severity for the 19 operationally valid test results is slightly mild 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, respectively. The mean delta/s for reference oil 123 and 123-2 is 0.83 mild for this report period. The trend is related to reference oil 123-2 which was 0.90 delta/s mild. Reference oil 123-2 was introduced using reference oil 123 targets. The reblend appears to be milder than the original blend of oil. The mean delta/s for reference oil 151-3 is -0.78 severe. This trend is related to one lab (E). Lab E had five test results on reference oil 151-3 this report period with the mean delta/s equal to -1.60.



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 0.27 merits (pooled s). Precision this report period has improved 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 March 31, 2006. There were three industry EWMA severity alarms (one warning and two action) and nine industry EWMA precision alarms (six warning and three action) triggered this report period. The alarms were caused by one lab (E).

TMC Lab Visits

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

Information Letters

There was one information letter issued this report period. Information Letter 06-01, Sequence Number 5 was issued on February 27, 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	3	0	0
123-2	10	9	6	6	228
151-3	11	11	12	7	*
155	4	4	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/1331/semiannualreports/1331-04-2006.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, 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

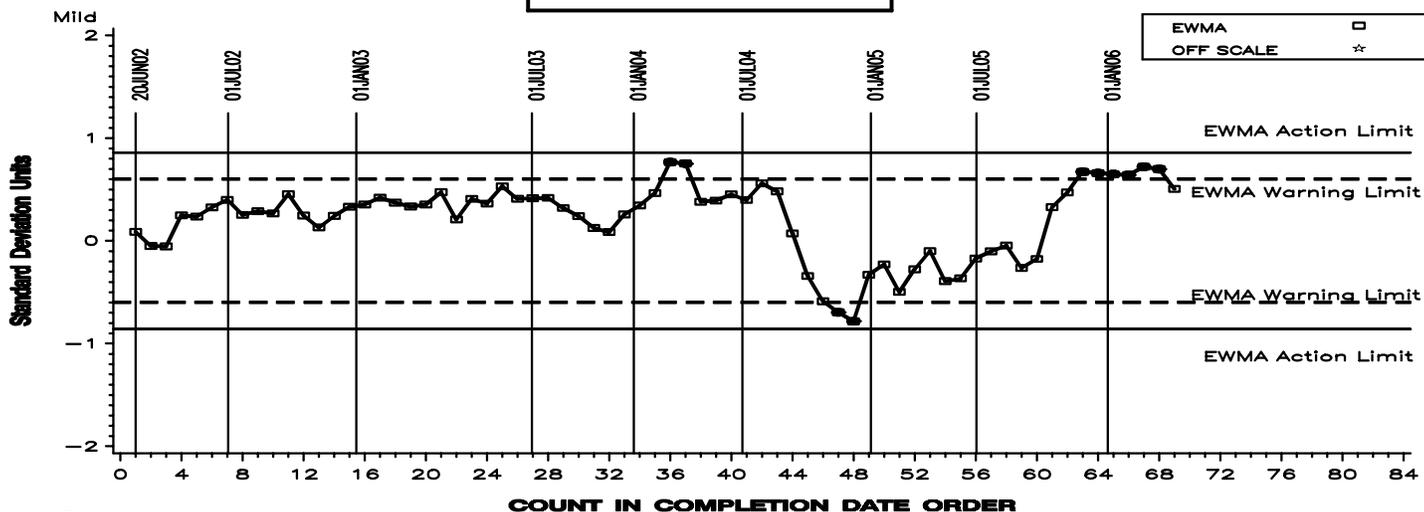
Effective Date	Topic	Information Letter Number
20030106	New L-33-1 test procedure	02-1
20030507	Revised test unit assembly procedure	03-1
20030507	Revised specification for the abrasive blasting cabinet regulator	03-1
20030507	Revised electric fan motor RPM specification	03-1
20030507	Tests run on non-calibrated 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
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

L-33-1 INDUSTRY OPERATIONALLY VALID DATA

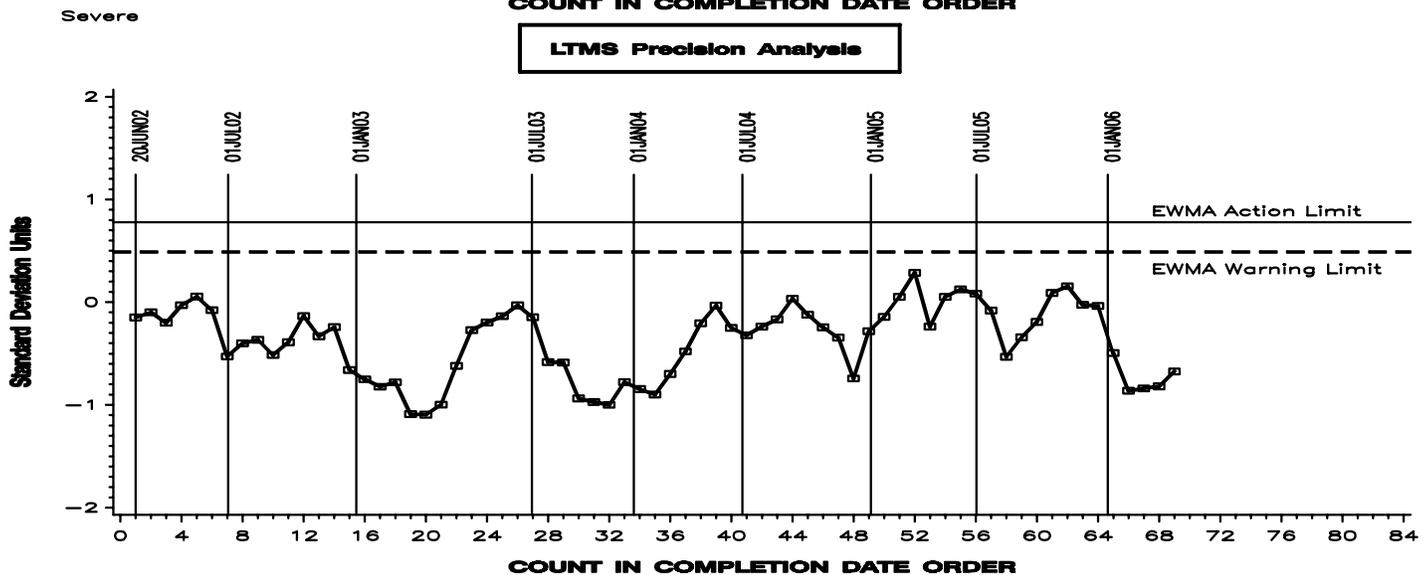
Reference Oil 123

FINAL RUST RESULT

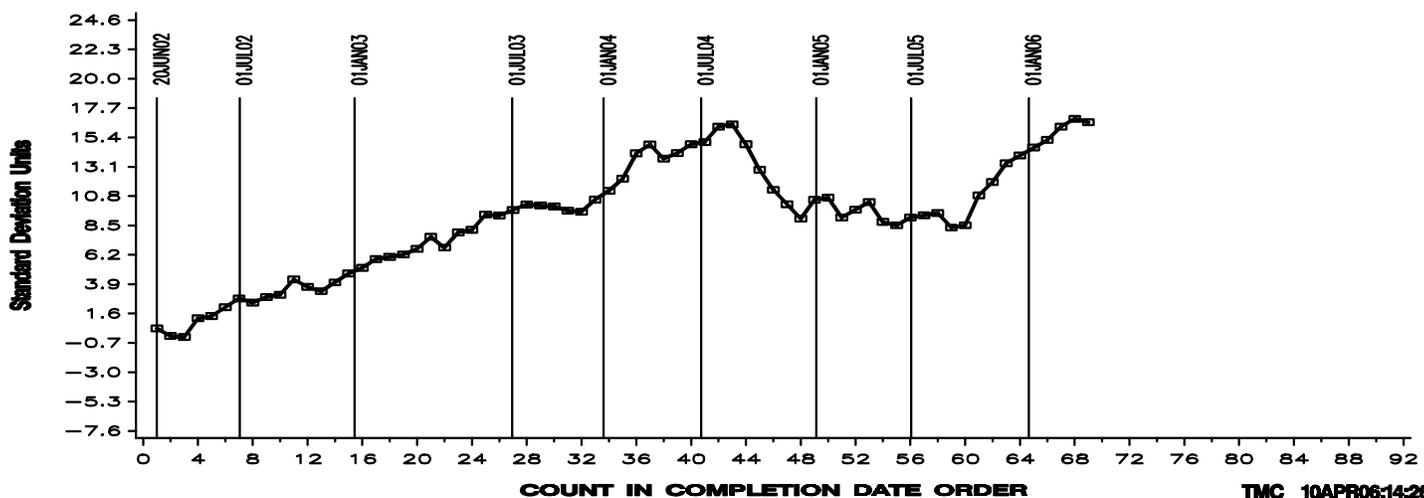
LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

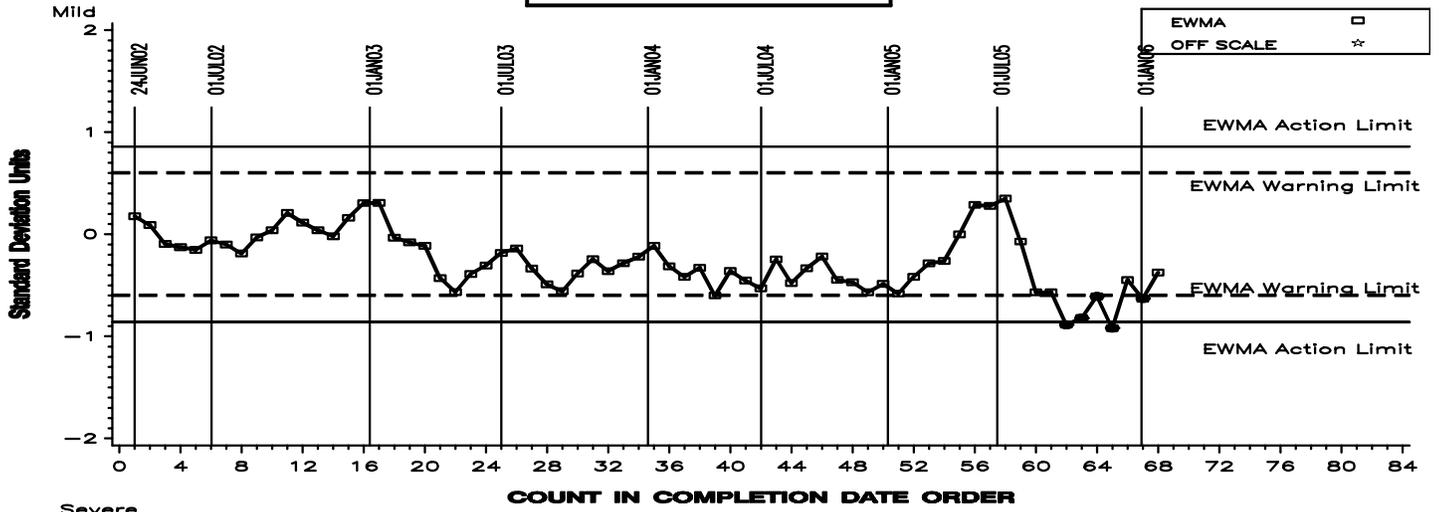


L-33-1 INDUSTRY OPERATIONALLY VALID DATA

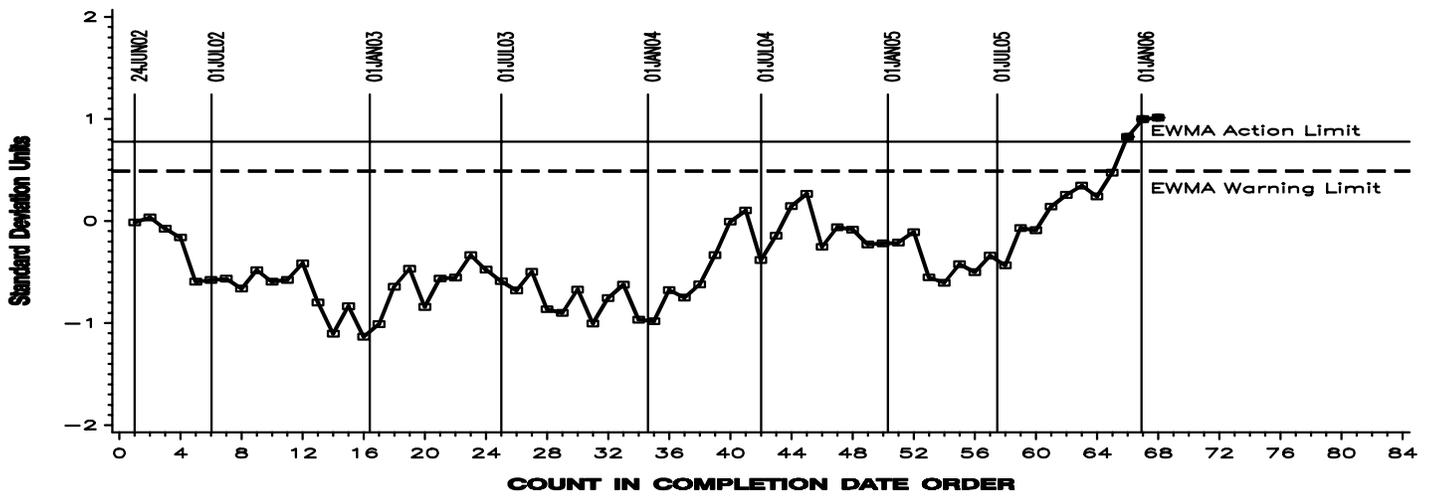
Reference Oil 151-3

FINAL RUST RESULT

LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

