



Test Monitoring Center

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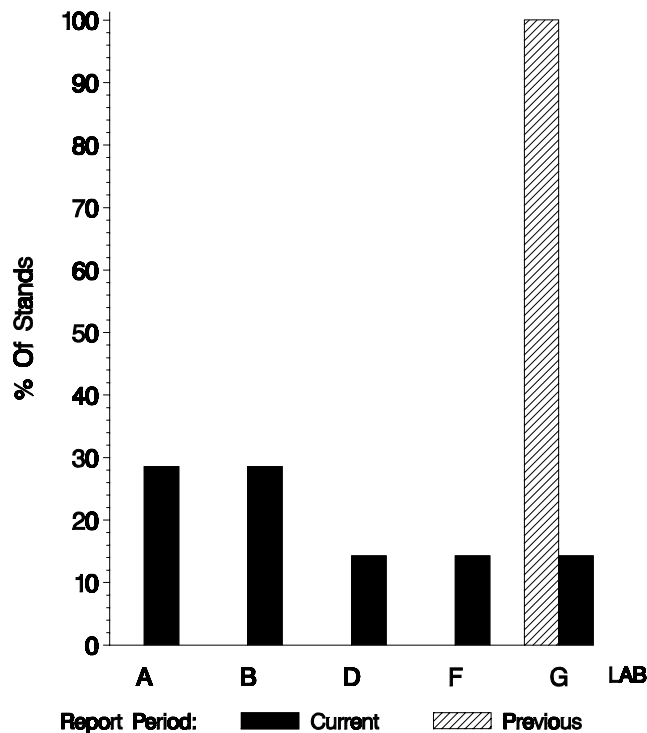
MEMORANDUM: 02-045
DATE: April 23, 2003
TO: Jim McCord,
Chairman, Single Cylinder Diesel Surveillance Panel
FROM: Scott Parke
SUBJECT: 1R Testing from October 1, 2002 through March 31, 2003

Nine calibration tests were reported to the Test Monitoring Center during the period from October 1, 2002 through March 31, 2003. The data from the operationally valid tests is shown on page 7. Following is a summary of testing activity this period.

	Reporting Data	Calibrated on 3-31-03
Number of Labs	5	5
Number of Stands	7	10

Stands reporting data this period were distributed as shown below:

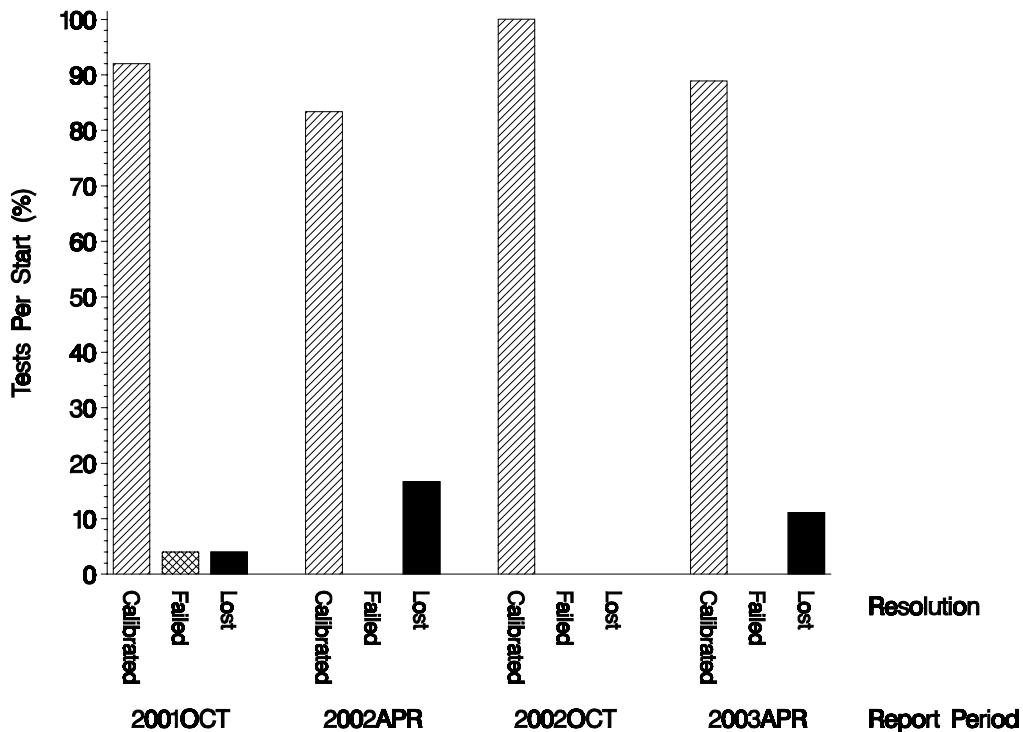
1R LABORATORY / STAND DISTRIBUTION



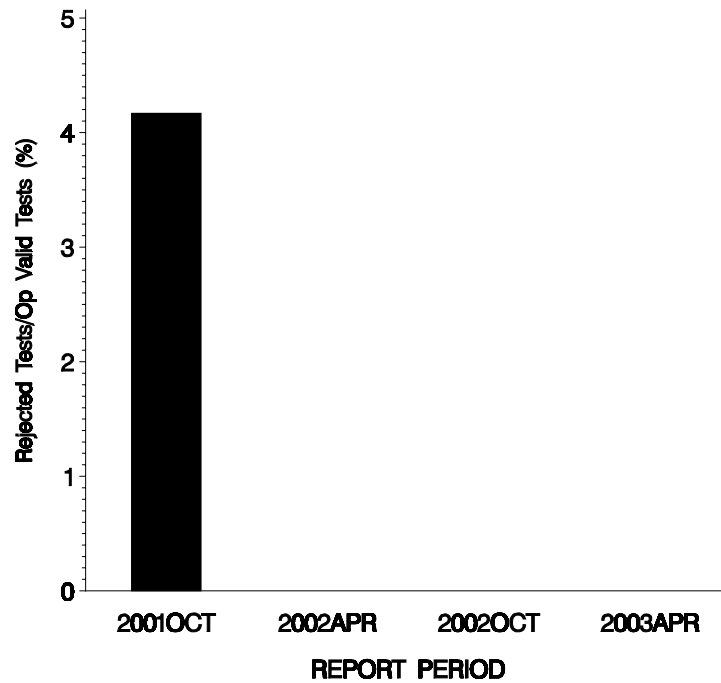
Test Distribution by Oil and Validity

					Totals	
		PC-9A	820-2	1005-1	Last Period	This Period
Accepted for Calibration	AC	1	2	5	3	8
Rejected Mild	OC	0	0	0	0	0
Rejected Severe	OC	0	0	0	0	0
Rejected for EWMA Precision	OC	0	0	0	0	0
Rejected for Shewhart Precision	OC	0	0	0	0	0
Operationally Invalid (lab)	LC	0	0	1	0	1
Operationally Invalid (lab/TMC)	RC	0	0	0	0	0
Aborted Calibration	XC	0	0	0	0	0
Total		1	2	6	3	9

1R CALIBRATION ATTEMPT SUMMARY



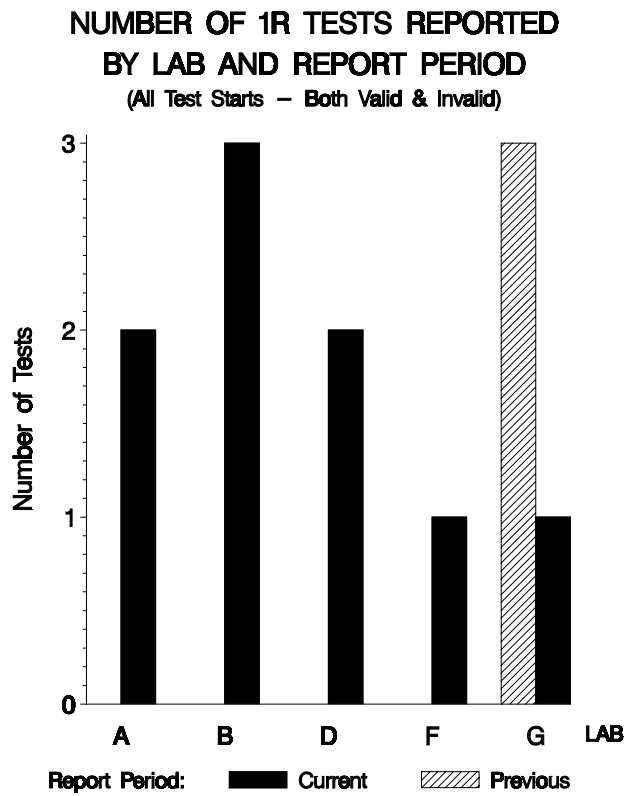
**OPERATIONALLY VALID 1R TESTS
FAILING ACCEPTANCE CRITERIA**



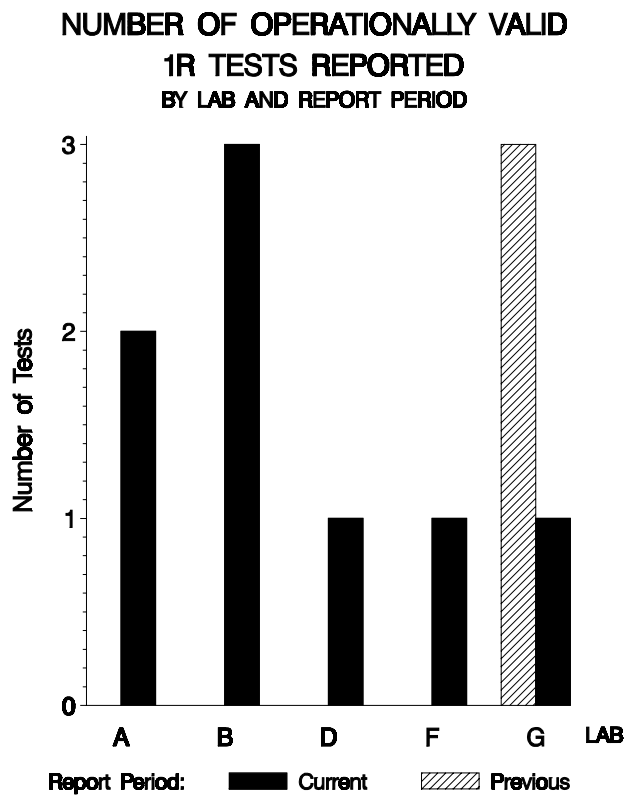
The above chart shows the percentage of failed but operationally valid tests. There were no failing tests for this report period.

No LTMS deviations were written this period (none have ever been written for this test).

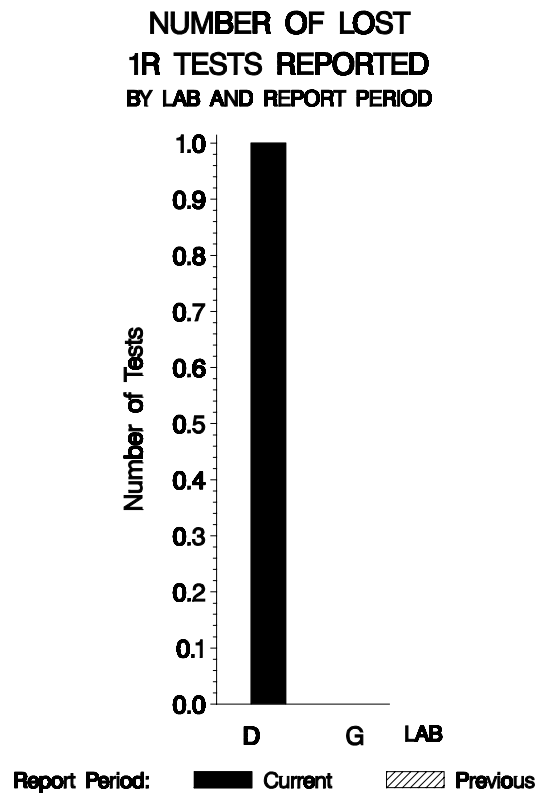
By lab, the tests run this report period were distributed as shown below:



With all operationally invalid tests removed, the distribution looks like this:



And the by-lab distribution of lost tests:



Lost Tests per Start by Oil and Lab

Lab	PC-9A			820-2			1005-1			Total		
	Lost	Starts	%	Lost	Starts	%	Lost	Starts	%	Lost	Starts	%
A	0	1	0				0	1	0	0	2	0
B				0	1	0	0	2	0	0	3	0
D							1	2	50	1	2	50
F				0	1	0				0	1	0
G							0	1	0	0	1	0
Total	0	1	0	0	2	0	0	6	0	1	9	11

Lost tests are those that were either aborted, rejected by lab, or operationally invalid.

Causes for Lost Tests

Lab	Cause	Oil			Validity			Loss Rate		
		1005-1	PC-9A	820-2	LC	RC	XC	Lost	Starts	%
D	Post-test inspection of severe test revealed bearing failure resulting in debris in the engine.	●			●			1	2	50%
	Lost	1	0	0	1	0	0			
	Starts	6	1	2	9	9	9			
	%	17%	0%	0%	11%	0%	0%			

Average Δ /s by Lab						
Lab	n	TGC	WDP	TLC	BTOC	EOTOC
A	2	0.529	-0.912	-0.301	-0.078	-0.104
B	3	-0.349	0.091	-0.554	0.904	0.054
D	1	1.349	1.758	-0.685	-0.182	1.300
F	1	0.986	0.077	-0.054	0.353	-0.269
G	1	-0.461	-0.632	0.732	1.091	1.600
Industry	8	0.236	-0.044	-0.409	0.477	0.323

DATA FROM ALL OPERATIONALLY VALID TESTS REPORTED THIS PERIOD:

LTMS

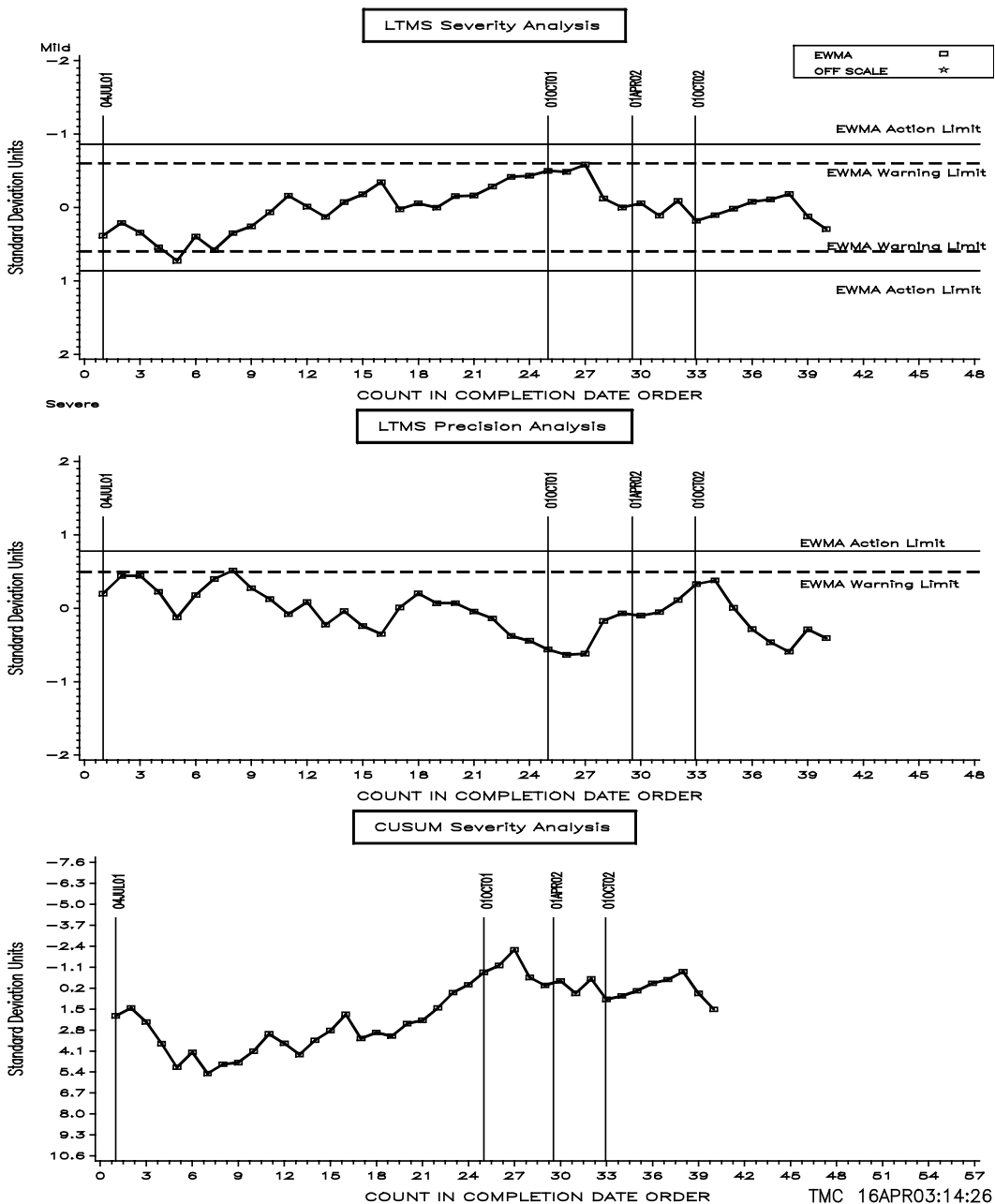
DATE	LAB	STAND	OIL	TG	WD	TL	BTOC	ETOC	TGYI	WDYI	TLYI	BTOCYI	ETOCYI
20021003	A	4	1005-1	45.50	289.9	17.75	10.8	8.4	1.263	-1.645	-0.143	0.727	0.100
20021004	A	2	PC-9A	32.00	334.7	18.00	6.8	7.1	-0.205	-0.180	-0.459	-0.882	-0.308
20021122	B	1	820-2	30.75	332.9	14.50	9.2	7.8	-0.327	-0.229	-0.792	0.529	-0.038
20021129	G	6	1005-1	30.50	313.3	23.00	11.2	9.9	-0.461	-0.632	0.732	1.091	1.600
20030103	B	2	1005-1	32.50	339.4	17.00	10.9	8.5	-0.231	0.498	-0.268	0.818	0.200
20030213	B	2	1005-1	30.25	328.0	15.00	11.5	8.3	-0.490	0.004	-0.602	1.364	0.000
20030221	D	1	1005-1	46.25	368.5	8.50	9.8	9.6	1.349	1.758	-1.685	-0.182	1.300
20030308	F	1	820-2	44.25	344.0	22.25	8.9	7.2	0.986	0.077	-0.054	0.353	-0.269

DISCUSSION OF INDUSTRY PERFORMANCE OVER THIS PERIOD

TGC:

The average TGC Yi reported this period was 0.236 (see table on previous page). Using the value 9.70 (which is the root mean square error of the matrix data and the value used to generate lab severity adjustments) to compute an average delta yields 2.29 demerits severe. Severity and precision remained within acceptable limits throughout this period.

CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA
FINAL TOP GROOVE CARBON (DEMERITS)

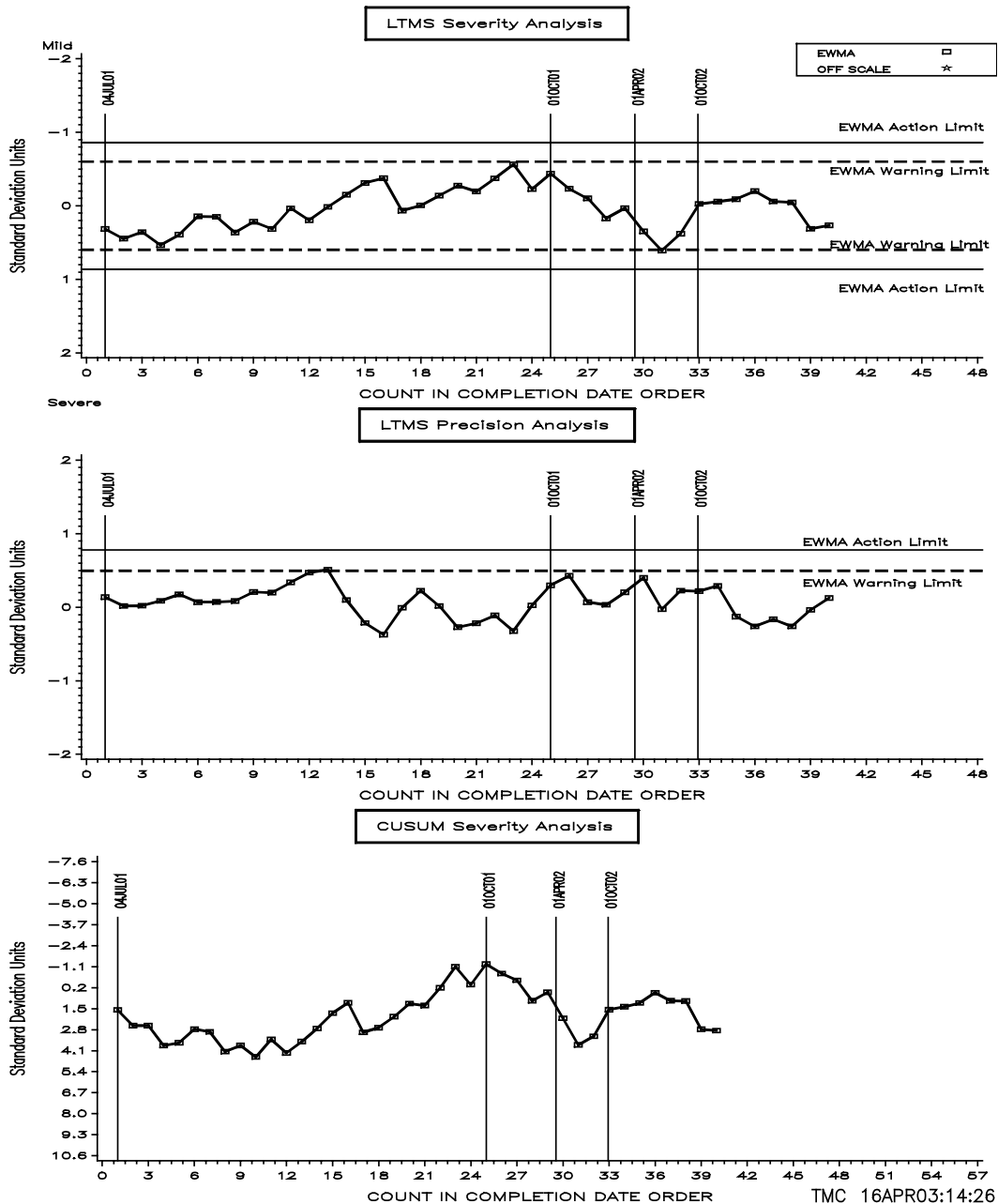


WD:

The average WD Y_i reported this period was -0.044 (see table on page 7). Using the value 29.0 (which is the root mean square error of the matrix data and the value used to generate lab severity adjustments) to compute an average delta yields 1.28 demerits mild. Severity and precision remained within acceptable limits throughout this period.

CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA

FINAL WEIGHTED TOTAL DEMERITS (DEMERITS)

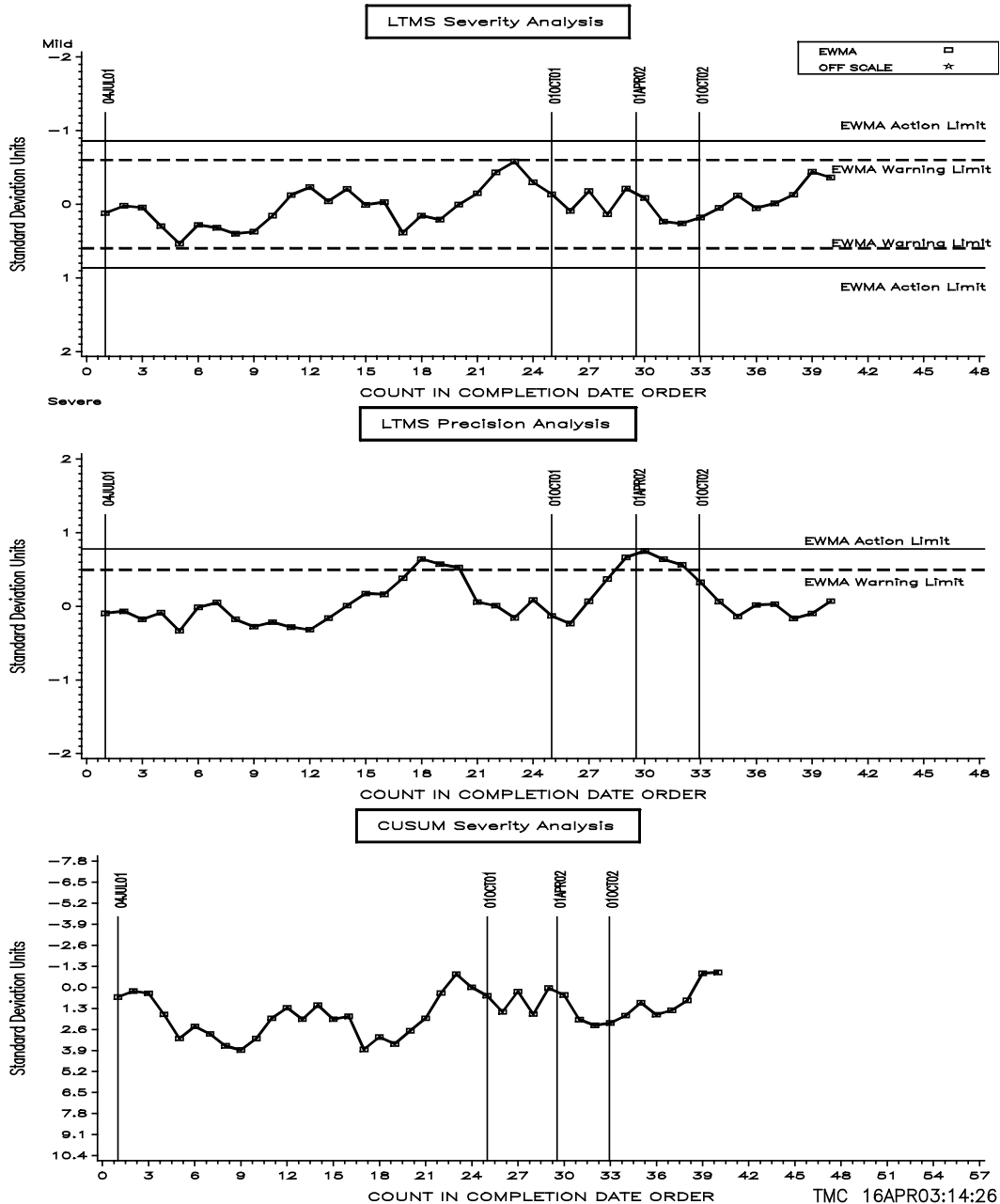


TLC:

The average TLC Y_i reported this period was -0.409 (see table on page 7). Using the value 7.84 (which is the root mean square error of the matrix data and the value used to generate lab severity adjustments) to compute an average delta yields 3.21 demerits mild. Severity remained within acceptable limits throughout this period. Precision is no longer exceeding the EWMA warning limit.

CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA

FINAL TOP LAND CARBON (DEMERITS)

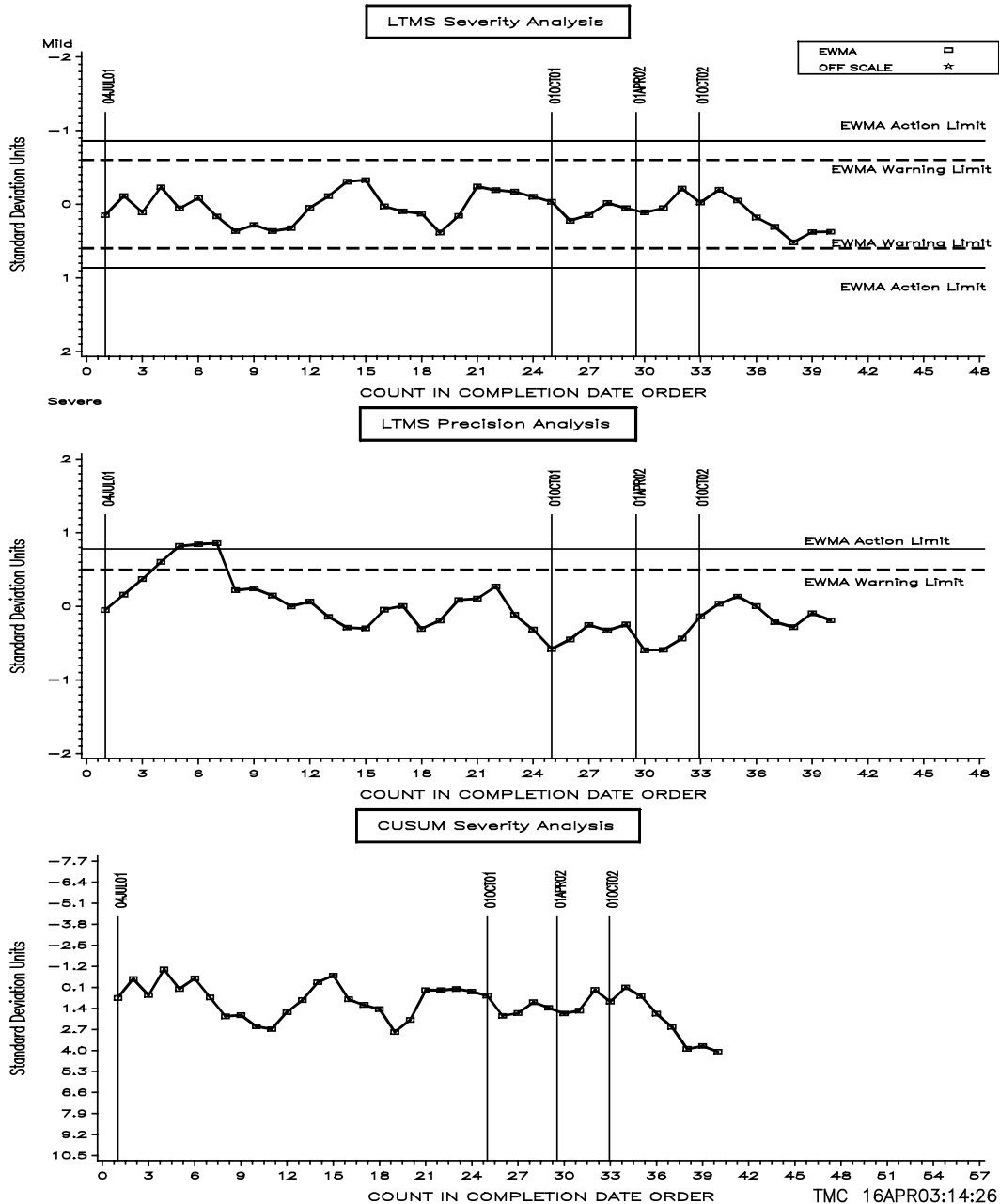


Beginning of Test Oil Consumption (BTOC):

The average BTOC Y_i reported this period was 0.477 (see table on page 7). Using the value 1.32 (which is the root mean square error of the matrix data and the value used to generate lab severity adjustments) to compute an average delta yields 0.63g/h severe. Severity and precision remained within acceptable limits throughout this period.

CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA

FINAL BTOC

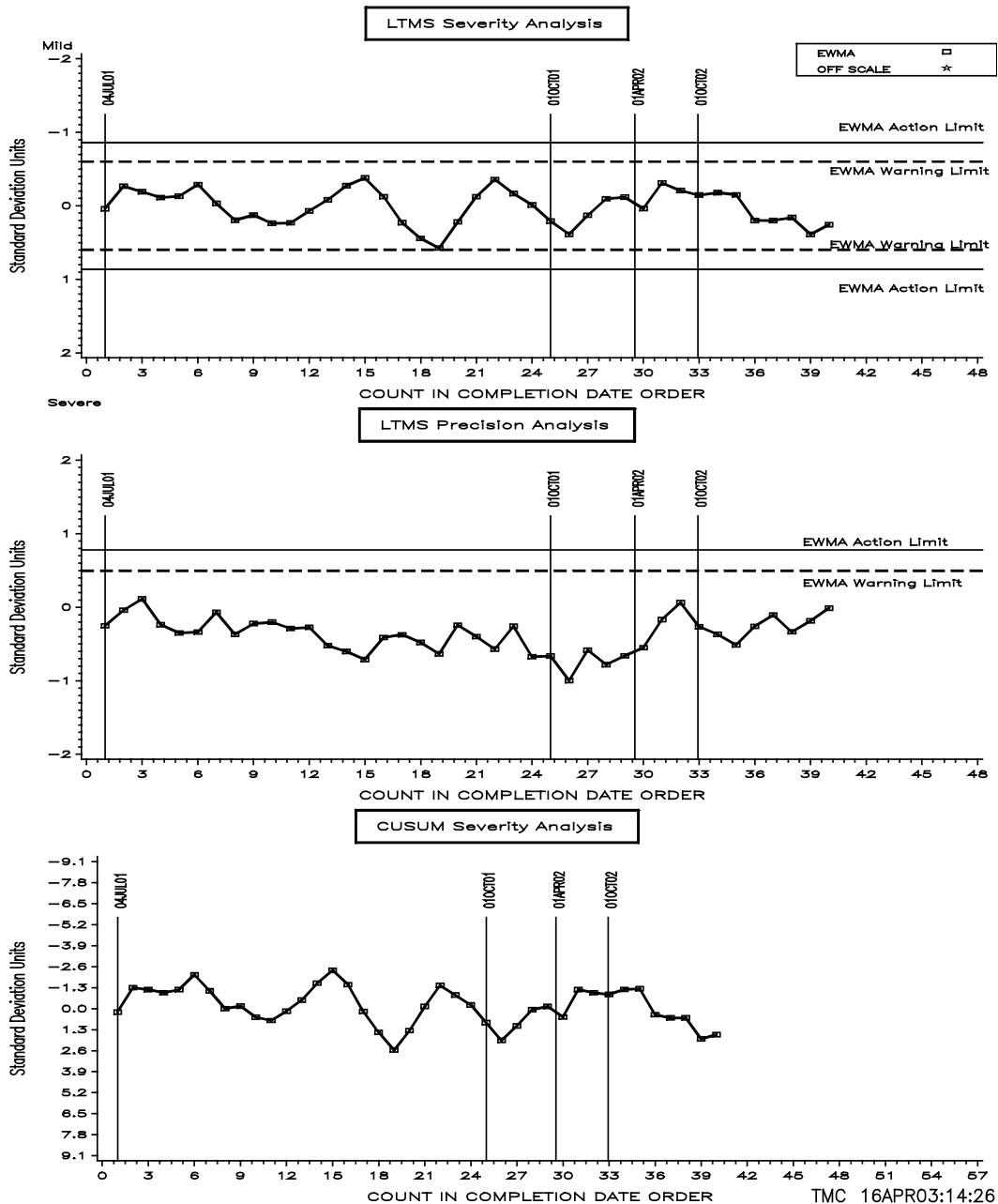


EOT Oil Consumption (ETOC):

The average ETOC Y_i reported this period was 0.323 (see table on page 7). Using the value 1.35 (which is the root mean square error of the matrix data and the value used to generate lab severity adjustments) to compute an average delta yields 0.44g/h severe. Severity and precision remained within acceptable limits throughout this period.

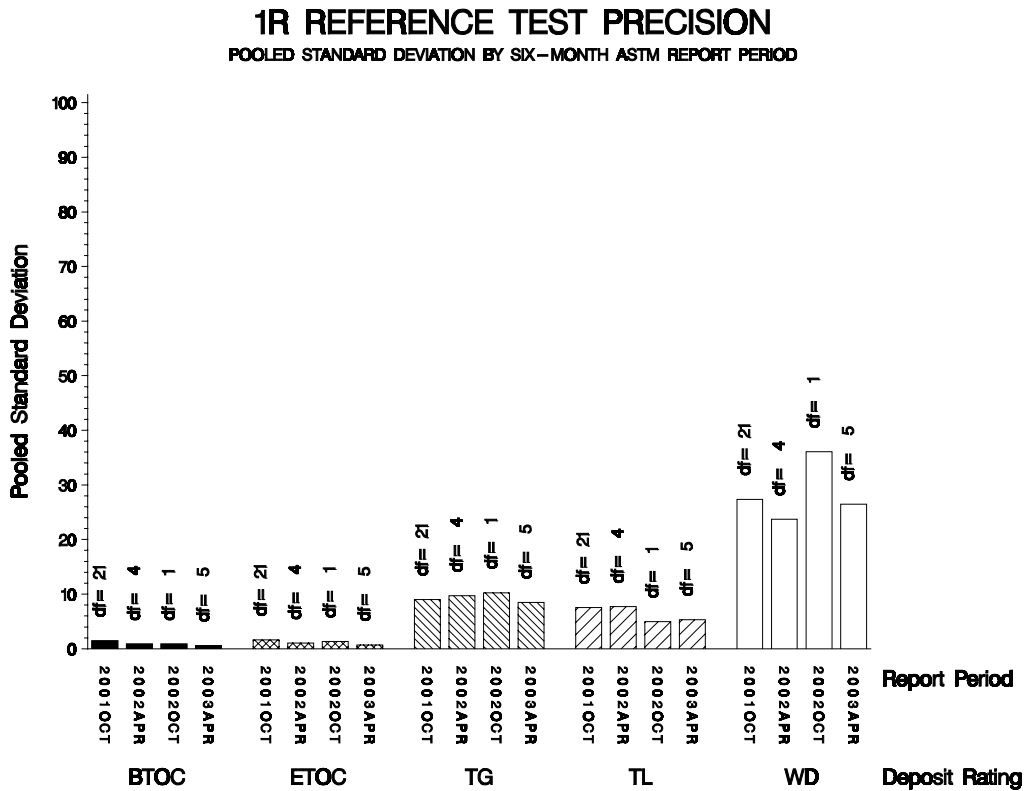
CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA

FINAL EOTOC (g/h)



POOLED S:

Shown below is a bar chart comparing the pooled s values for the 1R test parameters over the last four report periods.



STATUS OF REFERENCE OIL SUPPLY:

At the end of this report period, the testing oil supply stood as outlined in the following table:

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
820-2	12	285	4280
1005-1	13	4	67
Total	25	289	4347

* Future reblends of oils marked with an asterisk are not obtainable by TMC.

Be aware that this table presumes that *all* of each of these oils is dedicated to the 1R test area. All of these oils are also used in the other diesel test areas. TMC is currently in the process of procuring a reblend of 1005.

TIMELINE OF SIGNIFICANT EVENTS IN THE LIFE OF THE 1R TEST:

Effective Date	Info Letter	
20010612		START OF FIRST 1R MATRIX TEST
20010902		END OF LAST 1R MATRIX TEST
20011001		BEGIN REGISTERED TESTING
20030101	03-1	FIRST ISSUE OF PROCEDURE DRAFT
20030101	03-1	QUALITY INDEX CALCULATION CONSTANTS FINALIZED

RATING:

During this report period, no 1R tests required re-rating. The table below summarizes the re-rates for this report period:

Rating Re-rate Summary	
Total number of re-rates requested	<u>0</u>
Number of tests where lab rating was changed	0
Number of tests where referee rating was changed	0
Number of tests where no changes were made	0

LAB VISITS:

No 1R lab visits were completed during this report period.

INFORMATION LETTERS/REPORT PACKET REVISION NOTICES:

Information Letter 03-1 was issued to finalize the calculation constants necessary for QI monitoring. It included a draft of the 1R standard as well.

SUMMARY

- Over the course of this report period, TGC, WD, TLC, BTOC, and ETOC all remained within acceptable severity limits.
- Precision for all parameters remained within acceptable limits throughout this report period.

SDP/sdp/astm0403.doc/mem03-045.sdp.doc

c: J. L. Zalar
F. M. Farber
Abdul Cassim
Single Cylinder Diesel Surveillance Panel
<ftp://ftp.astmtmc.cmu.edu/docs/diesel/scote/semiannualreports/1r-04-2003.pdf>

Distribution: internet