Test Monitoring Center
6555 Penn Avenue
Pittsburgh, PA 15206-4489
(412) 365-1000

MEMORANDUM: 00-173

DATE: November 30, 2000

TO: Stacy Bond,
Chairman, Single Cylinder Diesel Surveillance Panel

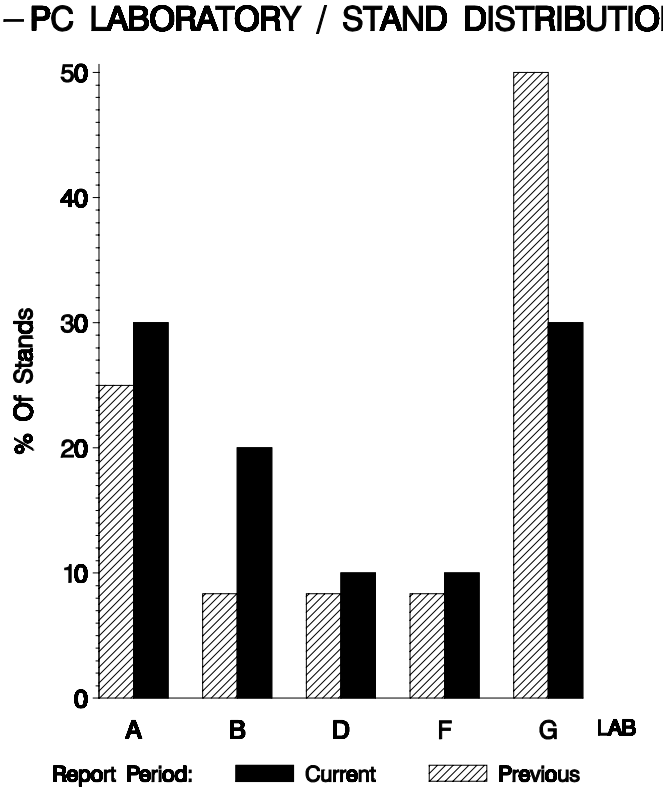
FROM: Scott Parke

SUBJECT: 1M-PC Testing from April 1, 2000 through September 30, 2000

Seventeen calibration tests were reported to the Test Monitoring Center during the period from April 1, 2000 through September 30, 2000. The data from the operationally valid tests is shown on page 8. Following is a summary of testing activity this period.

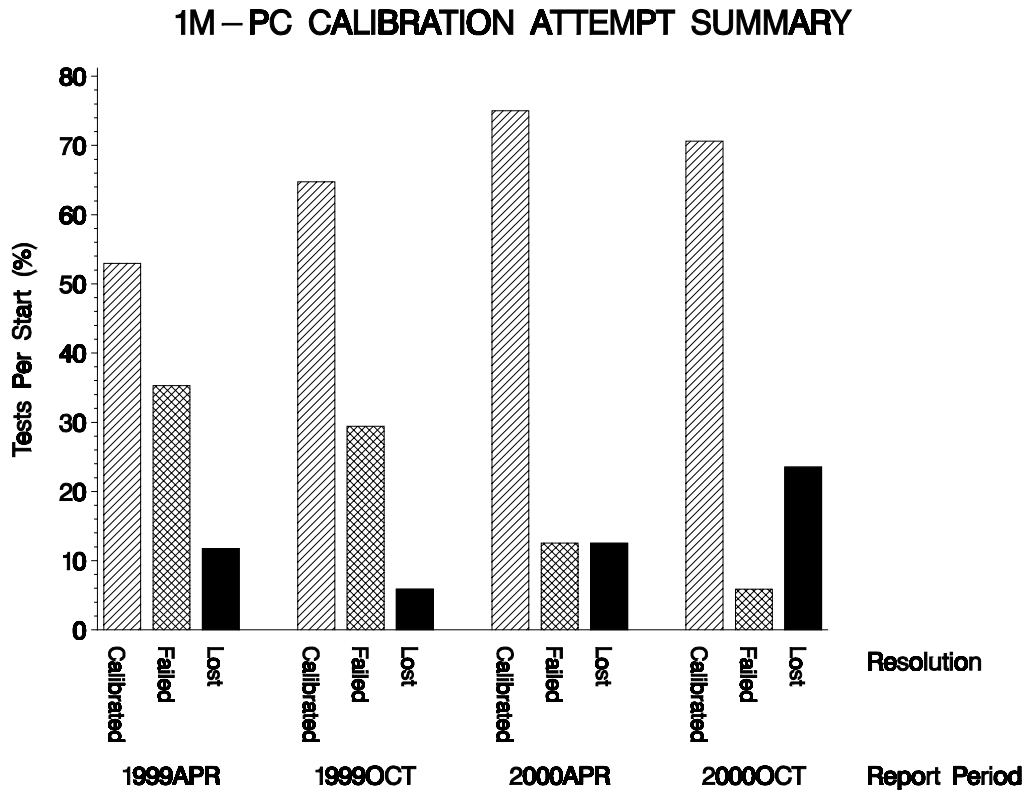
	Reporting Data	Calibrated on 3-31-00
Number of Labs	5	5
Number of Stands	10	10

Stands reporting data this period were distributed as shown below:

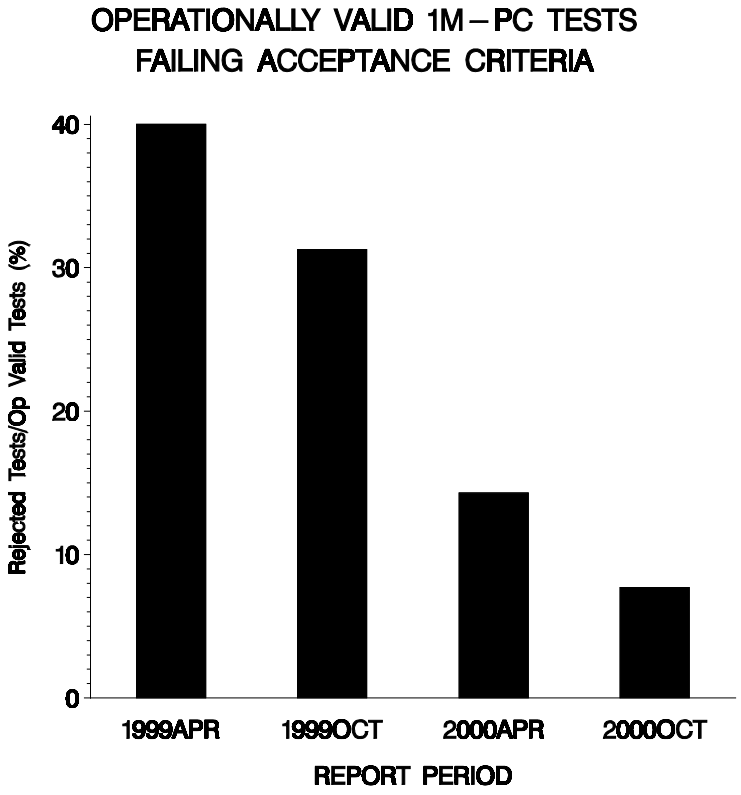


Test Distribution by Oil and Validity

			Totals	
		873-1	Last Period	This Period
Accepted for Calibration	AC	12	12	12
Rejected Mild	OC	0	0	0
Rejected Severe	OC	1	2	1
Rejected for EWMA Precision	OC	0	0	0
Rejected for Shewhart Precision	OC	0	0	0
Operationally Invalid (lab)	LC	1	1	1
Operationally Invalid (lab/TMC)	RC	0	0	0
Aborted Calibration	XC	3	1	3
Total		17	16	17

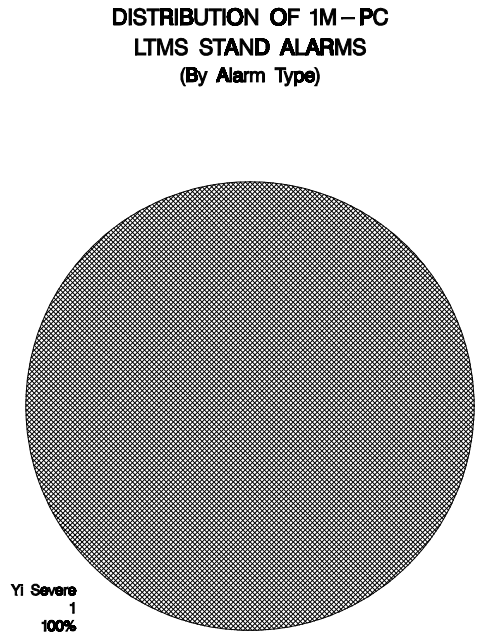


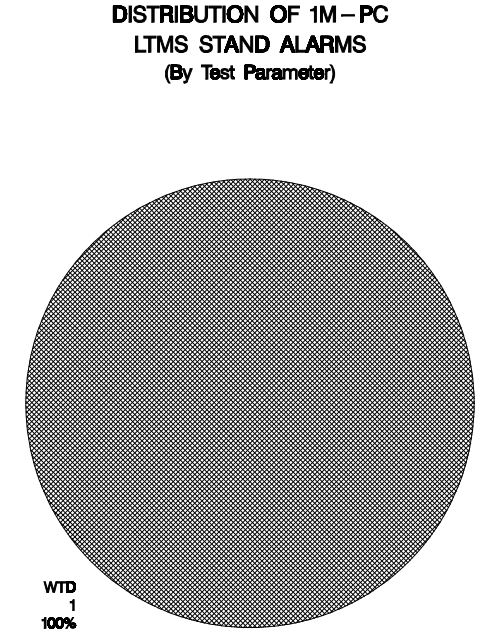
The test-per-start ratio for calibrated, failed, and lost tests is shown above.



No LTMS deviations were written this period (only one has ever been written for 1M-PC).

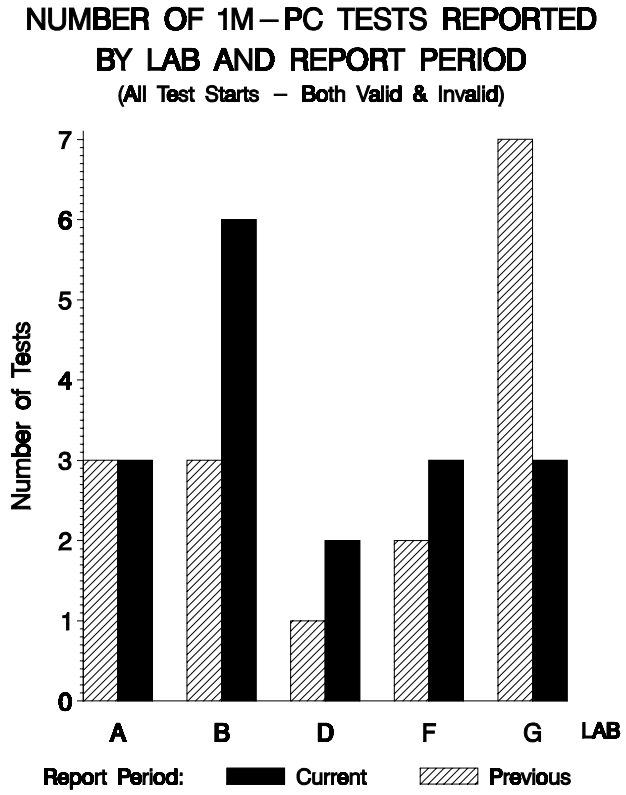
Shown below is the distribution by type and parameter of the alarms causing the failures for this period.



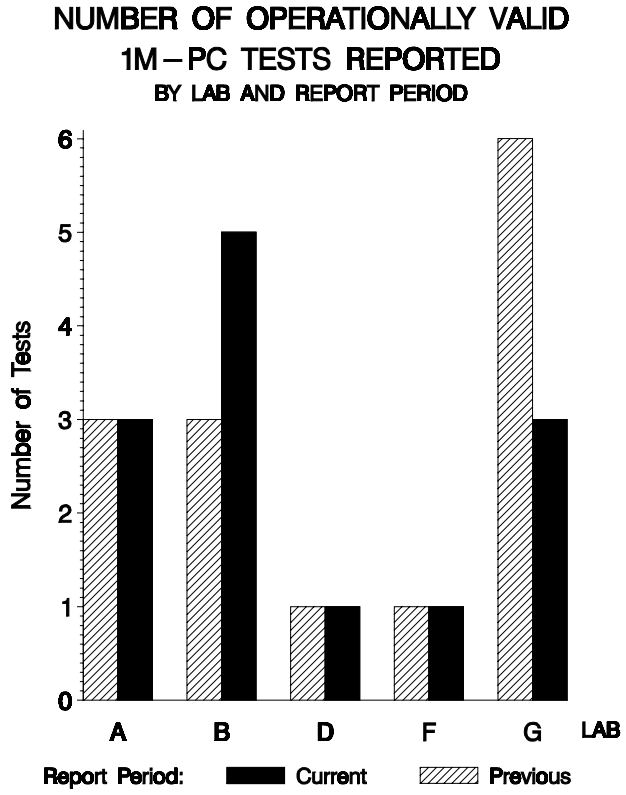


One test failed. It was severe on WTD.

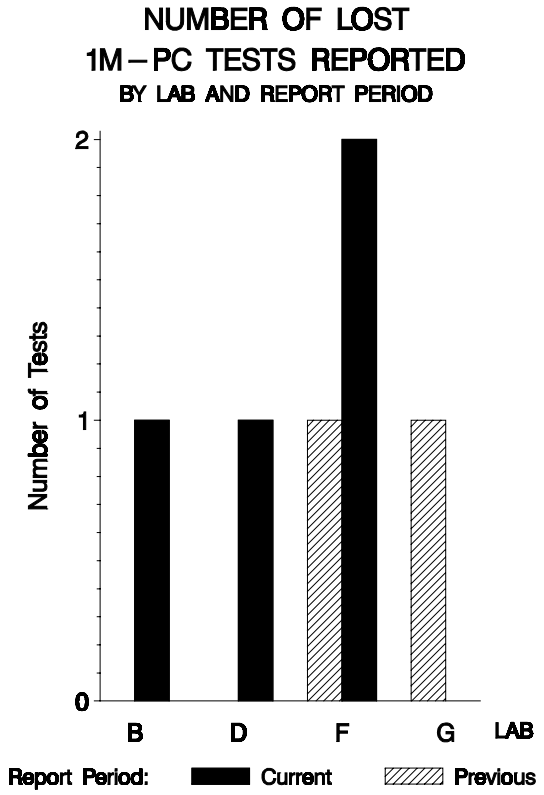
By lab, the tests run this report period were distributed as shown below:



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:

	873-1			Total		
Lab	Lost	Starts	%	Lost	Starts	%
A	0	3	0	0	3	0
B	1	6	17	1	6	17
D	1	2	50	1	2	50
F	2	3	67	2	3	67
G	0	3	0	0	3	0
Total	4	17	24	4	17	24

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

Causes for Lost Tests:

		Oil	Validity			Loss Rate		
Lab	Cause	873-1	LC	RC	XC	Lost	Starts	%
B	Loss of oil charge due to oil line break @ 96h	●			●	1	6	17%
D	Intake cam lobe failure @ break-in.	●			●	1	2	50%
F	Timing mark on cam gear was incorrect causing numerous start attempts during break-in.	●	●			2	3	67%
	High exhaust temp due to worn intake cam lobe.	●			●			
	Lost	4	1	0	3			
	Starts	17	17	17	17			
	%	24%	6%	0%	18%			

Average Δ/s by Lab			
Lab	n	TGF	WTD
A	3	0.621	0.861
B	5	0.509	0.834
D	1	1.242	0.519
F	1	0.994	0.077
G	3	-0.559	0.634
Industry	13	0.382	0.711

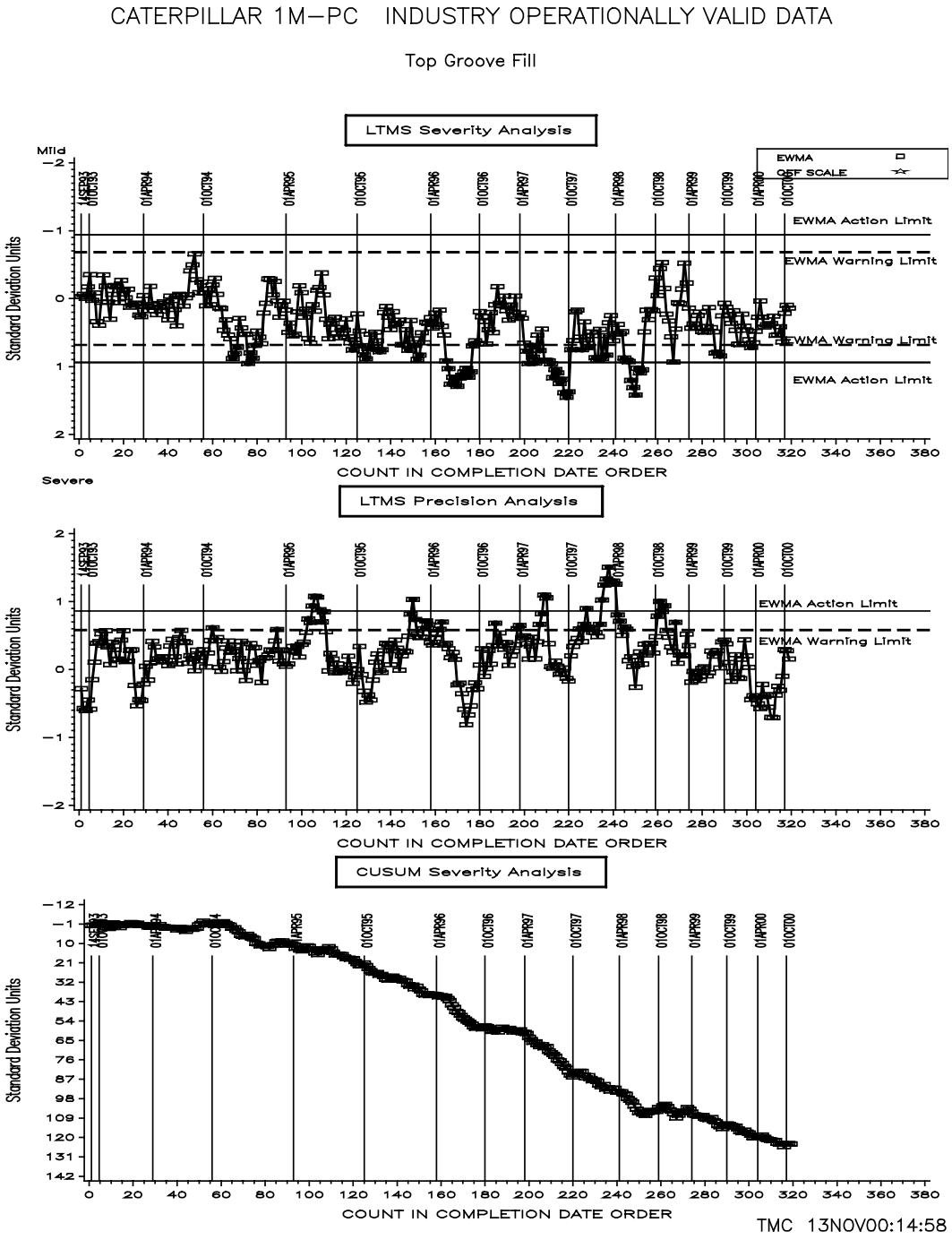
DATA FROM ALL OPERATIONALLY VALID TESTS REPORTED THIS PERIOD:

LTMS DATE	LAB	STAND	OIL	TG	WD	OC	TGYI	WDYI
20000411	G	11	873-1	38	318.0	0.477	-0.186	1.693
20000423	G	10A	873-1	32	221.4	0.408	-0.559	-0.220
20000510	G	13A	873-1	26	254.1	0.636	-0.932	0.428
20000528	D	2	873-1	61	258.7	0.632	1.242	0.519
20000621	F	2	873-1	57	236.4	0.390	0.994	0.077
20000626	B	7	873-1	45	279.1	0.821	0.248	0.923
20000713	B	7	873-1	48	226.7	0.855	0.435	-0.115
20000730	A	3	873-1	45	215.4	0.651	0.248	-0.339
20000809	B	7	873-1	38	343.0	1.122	-0.186	2.188
20000814	A	1	873-1	68	295.3	0.371	1.677	1.244
20000826	B	8	873-1	49	279.4	0.609	0.497	0.929
20000906	A	2	873-1	40	317.2	0.511	-0.062	1.677
20000912	B	7	873-1	66	244.8	0.668	1.553	0.244

DISCUSSION OF INDUSTRY PERFORMANCE OVER THIS PERIOD

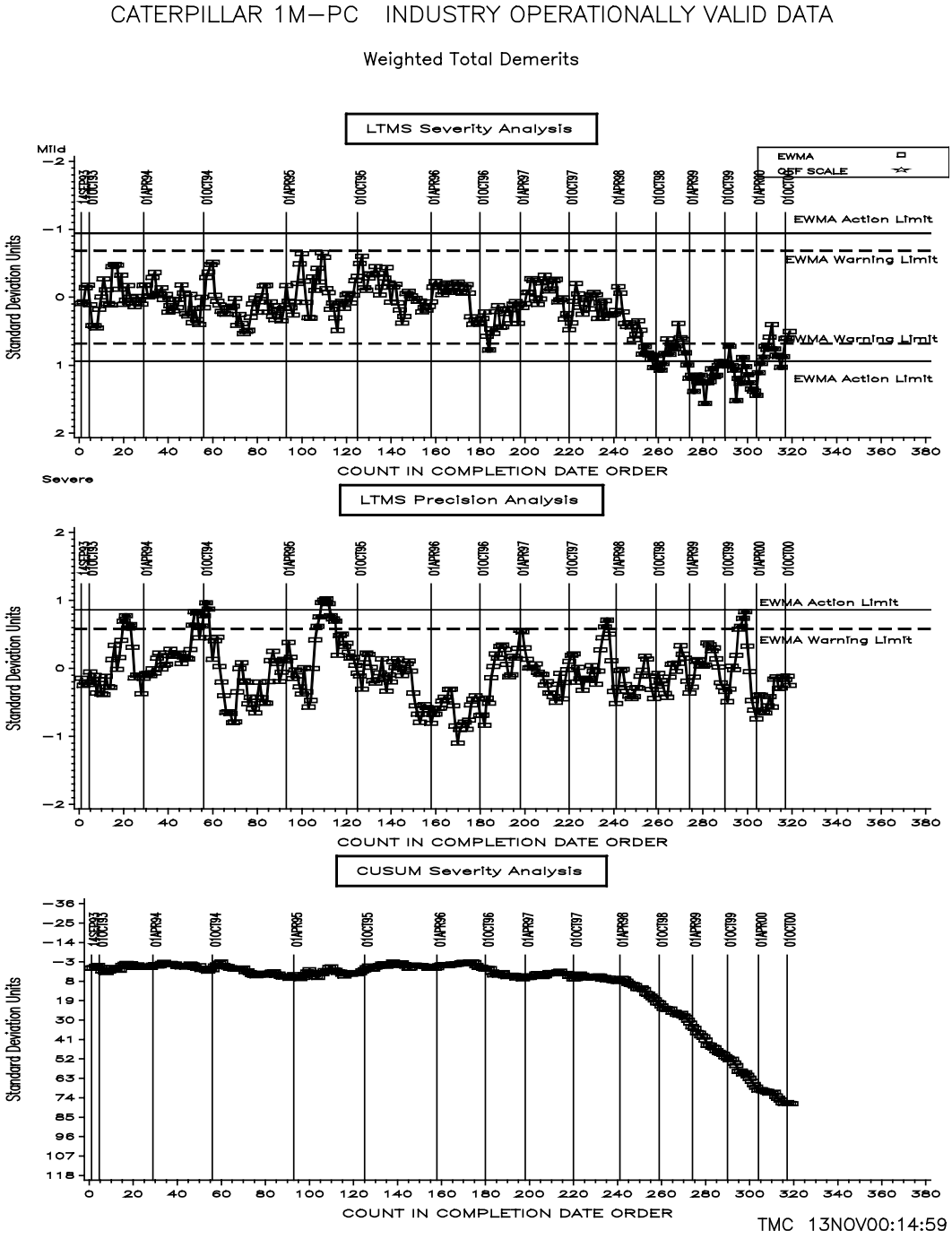
TGF:

TGF over this period was again slightly severe but remained within limits. Industry average TGF Yi was 0.382 (see table on previous page). Using 873-1's test target standard deviation of 16.1 to compute an average Δ yields 6% TGF.



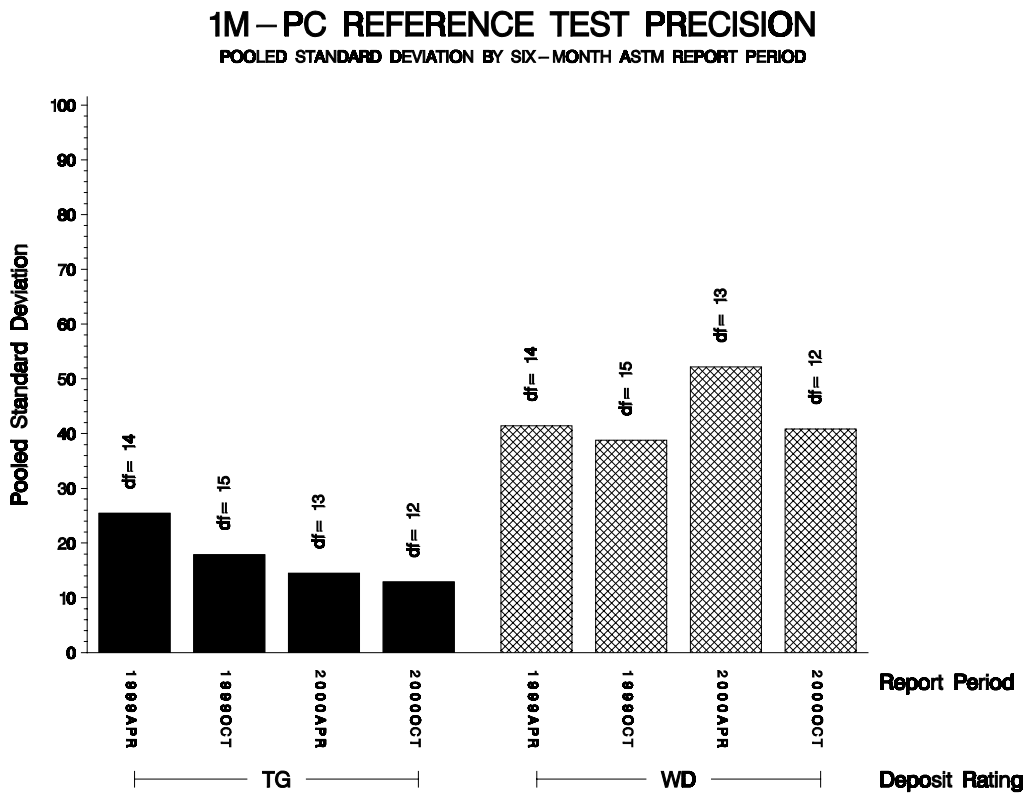
WTD:

The severe WTD trend begun during the April '98 report period showed some signs of improving over this period but industry average WTD Yi was still 0.711 (equivalent to 35.9 demerits severe when multiplied by 873-1's standard deviation of 50.5). Precision remained within acceptable limits this period.



POOLED S:

Shown below is a bar chart comparing the pooled s values for the 1M-PC test parameters over the last four report periods. Precision for both parameters, as measured by pooled s, is comparable to previous periods.



STATUS OF REFERENCE OIL SUPPLY:

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

		@ TMC	
Oil	Cans @ Labs	Cans	Gallons
873-1	21	41	411
Total	21	41	411

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

TIMELINE OF SIGNIFICANT EVENTS IN THE LIFE OF THE 1M-PC TEST:

Effective Date	Info Letter	
19940419		FIRST USE OF 873-1
19940927		FIRST EXHAUST BARREL TEST
19941031		LAST USE OF 873
19941225		LAST NON-EXHAUST BARREL TEST
19950401		LTMS INTRODUCTION
19950728	95-1	REWRITTEN PROCEDURE ISSUED ALONG WITH INFORMATION LETTER 95-1
19950728	95-1	LINER WEAR STEP MEASUREMENT TECHNIQUE CHANGED TO CONFORM TO 1K/1N
19950728	95-1	REMOVAL OF MAXIMUM ALLOWABLE LSC SPECIFICATION
19950728	95-1	ADOPTION OF THE STANDARDIZED TEST REPORT COVER SHEET
19950728	95-1	EXHAUST BACKPRESSURE SPECIFICATION CHANGED TO ABSOLUTE PRESSURE
19950728	95-1	EXHAUST TEMPERATURE SPECIFICATION LOWERED
19950926	95-1	IMPLEMENTATION OF DATA DICTIONARY AND REPORT FORMS (VERSION=19950607)
19960315	96-1	FUEL FLOW MEASUREMENT DEVICE SPECIFICATION CLARIFIED
19960315	96-1	HUMIDITY CALIBRATION SCHEDULING REQUIREMENT CHANGED
19960315	96-1	EDITORIAL CHANGES
19960414	96-1	FORMS CHANGES
19980209	98-1	REVISED WARRANTY PROCEDURE & FORMS
19980209	98-1	FUEL SUPPLIER NAME CHANGE
19980209	98-1	COOLANT ADDITIVE NAME CHANGE(PENCOOL 2000)
19980209	98-1	TMC FAX NUMBER CHANGE
19980430	98-2	ADD FUEL LTMS AND OTHER 1K/1N-TYPE FORMS & EXAMPLES TO TEST REPORT
19980824	98-3	ADD RATING WORKSHEET (FORM 4A) TO TEST REPORT
19981109	98-4	ADD AREAS FOR CLEAN TO RATING SHEETS 5 & 5A
19981109	98-5	CORRECTION TYPO IN 98-2 TO FUEL AND COOLANT SUPPLIER NAMES
19990419	99-1	UPDATED INTAKE AIR FILTER REQUIREMENTS
19990419	99-1	RE-CALIBRATION REQUIREMENTS WHEN CRANK IS REMOVED
19990419	99-1	VISUAL INSPECTION OF INTAKE AIR BARRELS
19990419	99-1	COOLANT SYSTEM FLUSHING REQUIREMENTS
19990419	99-1	TEST STAND INSTRUMENTATION CALIBRATION REQUIREMENTS
19990419	99-1	USE OF MOBIL EF-411 AS BUILD-UP/FLUSHING OIL
19990419	99-1	TIME ZONE FOR USE IN EOT REPORTING
19990419	99-1	FUEL INJECTION PUMP REPLACEMENT
19990419	99-1	EDITORIAL

RATING:

During this report period, second referee ratings were requested on 1 test. Upon review of all ratings made for this test, the test lab submitted rating corrections as tabulated below:

Rating Re-rate Summary

Total number of re-rates requested	1
Number of tests where lab rating was changed	0
Number of tests where referee rating was changed	1
Number of tests where no changes were made	0

LAB VISITS:

No 1M-PC lab visits were completed during this period.

INFORMATION LETTERS:

No information letters were issued during this period.

FUEL BATCH APPROVAL:

During this period, the following fuel batches were approved for testing: 0004270, 0005354, 0006441, 0008540, and 0009620.

SUMMARY

- Over the course of this report period, industry TGF was slightly severe but remained within limits. The WTD severe trend begun during the April ’98 lessened somewhat and is currently within limits.

- Precision for both TGF and WTD remained within limits throughout the period.

SDP/sdp/astm1000.doc/m00-173.sdp.doc
c: J. L. Zalar
F. M. Farber
A. C. Hahn
Single Cylinder Diesel Surveillance Panel