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

MEMORANDUM: 04-043

DATE: May 24, 2004

TO: James McCord,
Chairman, Single Cylinder Diesel Surveillance Panel

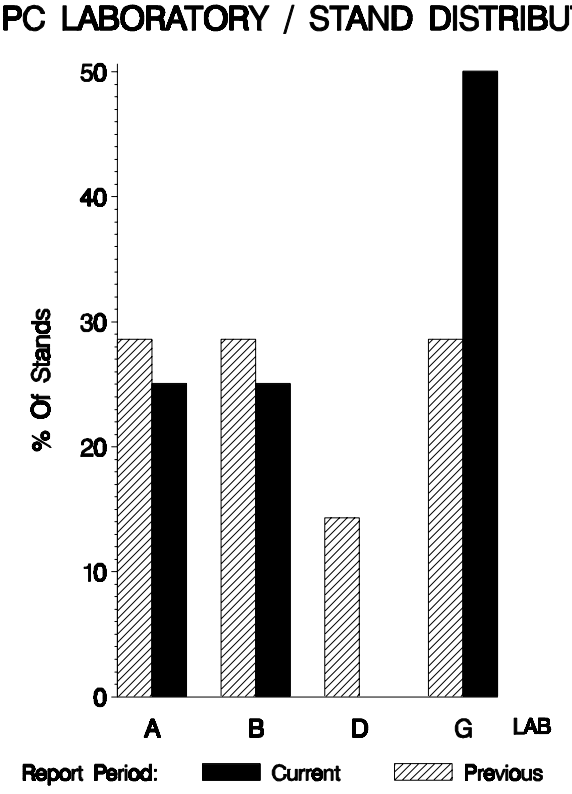
FROM: Scott Parke

SUBJECT: 1M-PC Testing from October 1, 2003 through March 31, 2004

Fourteen calibration tests were reported to the Test Monitoring Center during the period from October 1, 2003 through March 31, 2004. The data from the operationally valid tests is shown on page 7. Following is a summary of testing activity this period.

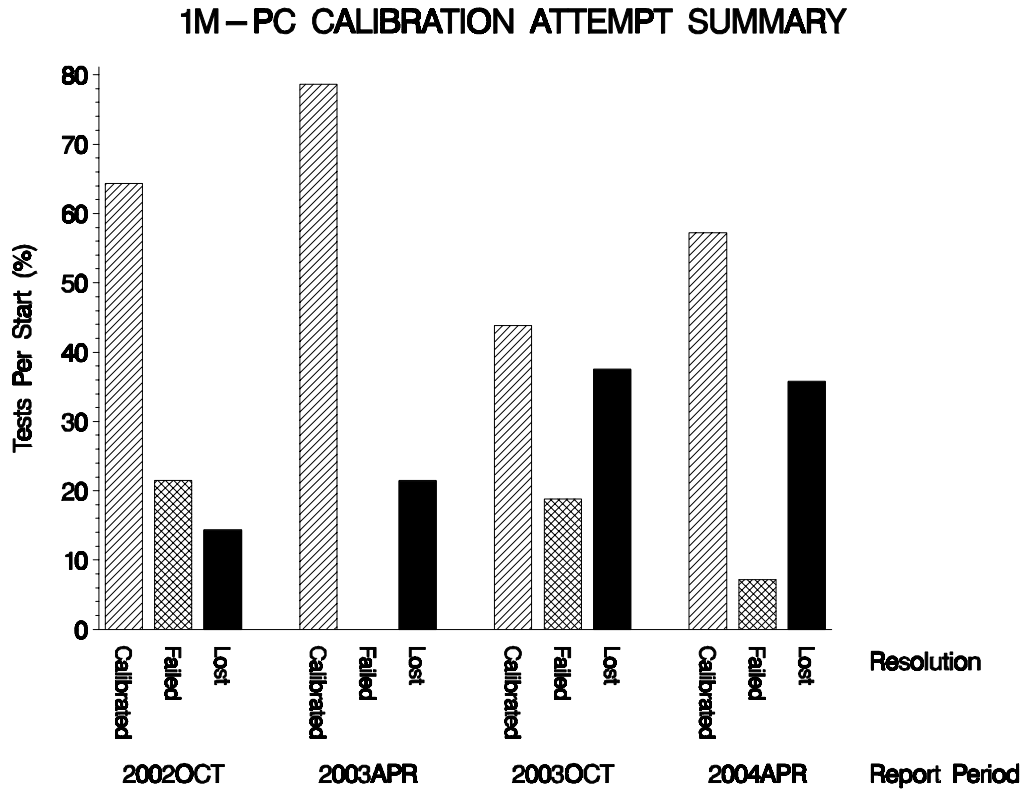
	Reporting Data	Calibrated on 3-31-04
Number of Labs	3	3
Number of Stands	8	5

Stands reporting data this period were distributed as shown below:

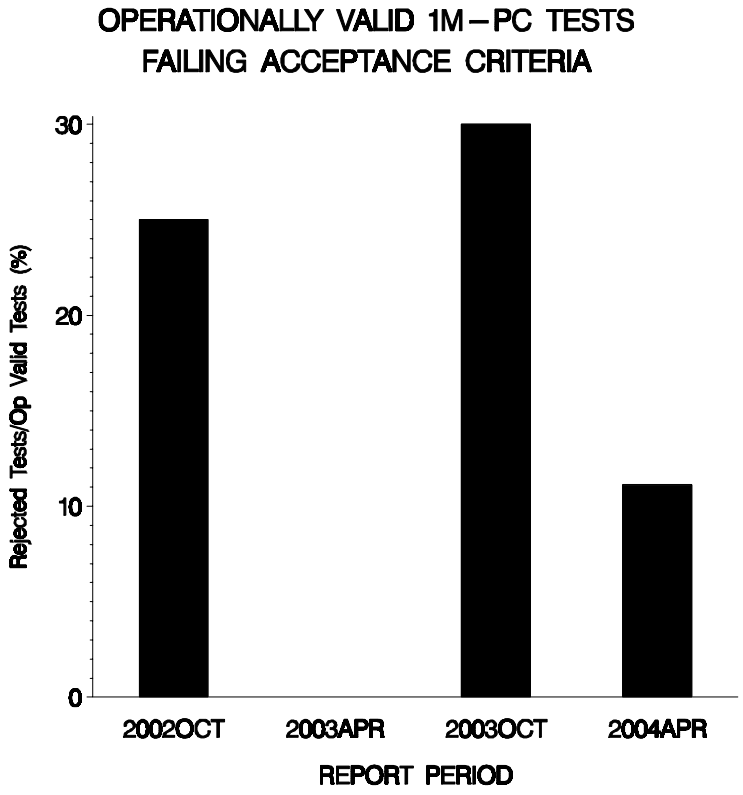


Test Distribution by Oil and Validity

		873-1	873-2	Totals Last Period	Totals This Period
Accepted for Calibration	AC	1	7	7	8
Rejected Mild	OC	0	0	0	0
Rejected Severe	OC	0	1	3	1
Rejected for EWMA Precision	OC	0	0	0	0
Rejected for Shewhart Precision	OC	0	0	0	0
Operationally Invalid (lab)	LC	0	4	0	4
Operationally Invalid (lab/TMC)	RC	0	1	1	1
Aborted Calibration	XC	0	0	5	0
Total		1	13	16	14

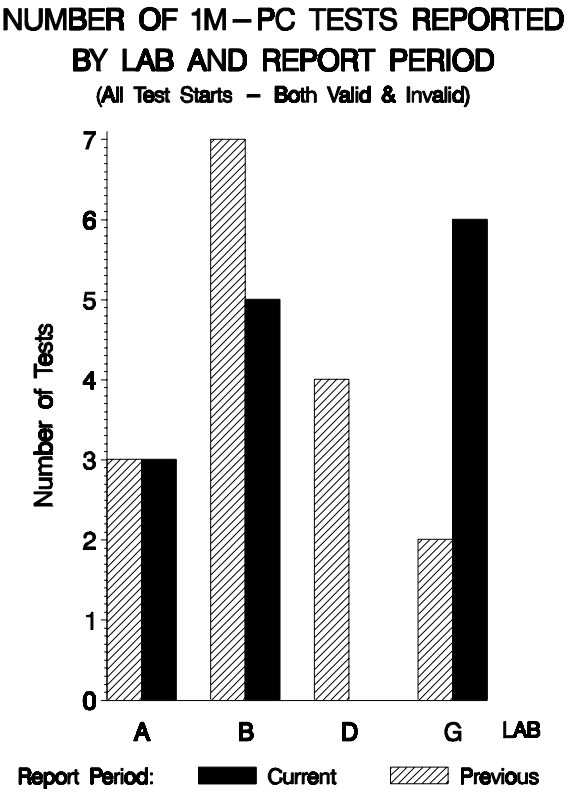


The test-per-start ratio for calibrated, failed, and lost tests is shown above.

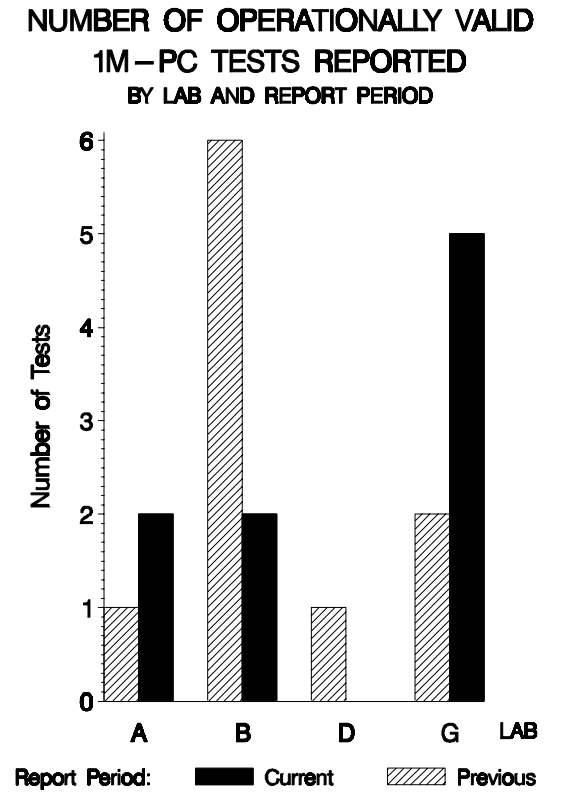


One test failed this period. No LTMS deviations were written this period. A total of two deviations have been written over the life of this test.

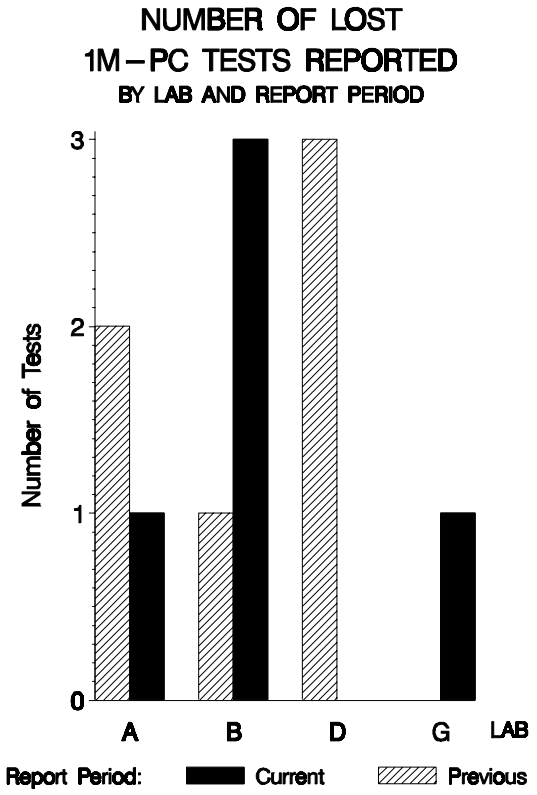
By lab, the tests run this report period were distributed as shown below:



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:

	873-1			873-2			Total		
Lab	Lost	Starts	%	Lost	Starts	%	Lost	Starts	%
A				1	3	33	1	3	33
B				3	5	60	3	5	60
G	0	1	0	1	5	20	1	6	17
Total	0	1	0	5	13	38	5	14	36

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	873-2	LC	RC	XC	Lost	Starts	%
A	Post-test inspection of severe test revealed p-tube misalignment.		●	●			1	3	33%
B	Post-test inspection of severe test found that blowby and crankcase vacuum control were erratic.		●	●			3	5	60%
	Post-test inspection of severe test revealed p-tube misalignment.		●	●					
	Post-test inspection of severe test revealed erratic blowby pressure and flow and a defective coolant pressure cap which resulted in zero coolant jacket pressure and possible localized boiling.		●	●					
G	Uncharacteristically mild test. Lab abandoned attempts to calibrate stand and removed it from the system.		●		●		1	6	17%
	Lost	0	5	4	1	0			
	Starts	1	12	13	13	13			
	%	0%	42%	31%	8%	0%			

Average Δ/s by Lab			
Lab	n	TGF	WTD
A	2	0.248	0.586
B	2	1.832	1.157
G	5	0.708	0.110
Industry	9	0.856	0.448

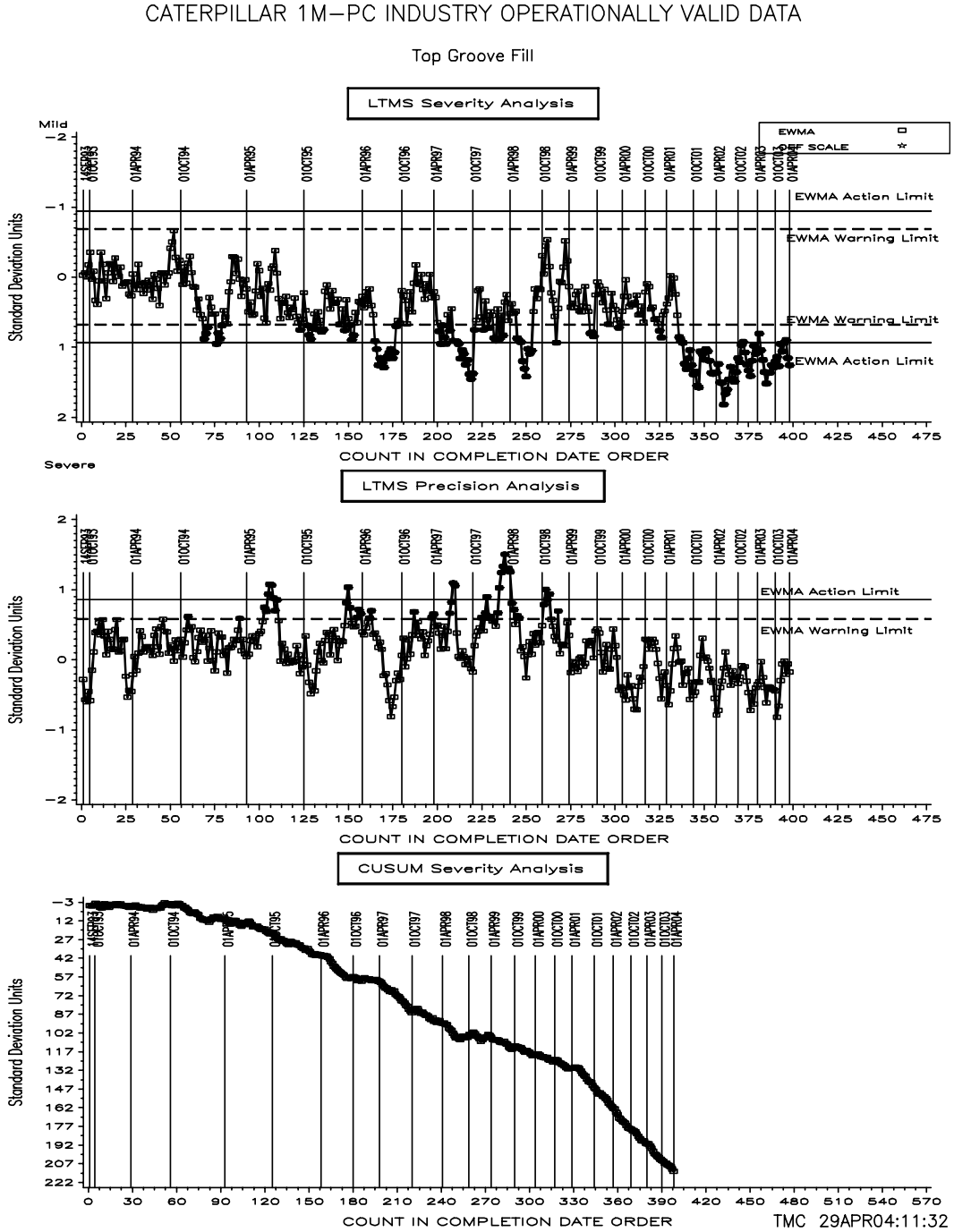
DATA FROM ALL OPERATIONALLY VALID TESTS REPORTED THIS PERIOD:

LTMS DATE	LAB	STAND	OIL	TG	WD	TGYI	WDYI
20031014	G	10A	873-1	55	308.5	0.870	1.505
20031027	A	9	873-2	55	280.0	0.870	0.941
20031103	G	13A	873-2	70	238.8	1.801	0.125
20031112	G	8A	873-2	36	164.8	-0.311	-1.341
20040128	A	6A	873-2	35	244.2	-0.373	0.232
20040226	B	8A	873-2	65	292.4	1.491	1.186
20040315	G	13A	873-2	48	290.8	0.435	1.154
20040322	G	10A	873-2	53	187.3	0.745	-0.895
20040330	B	7	873-2	76	289.5	2.174	1.129

DISCUSSION OF INDUSTRY PERFORMANCE OVER THIS PERIOD

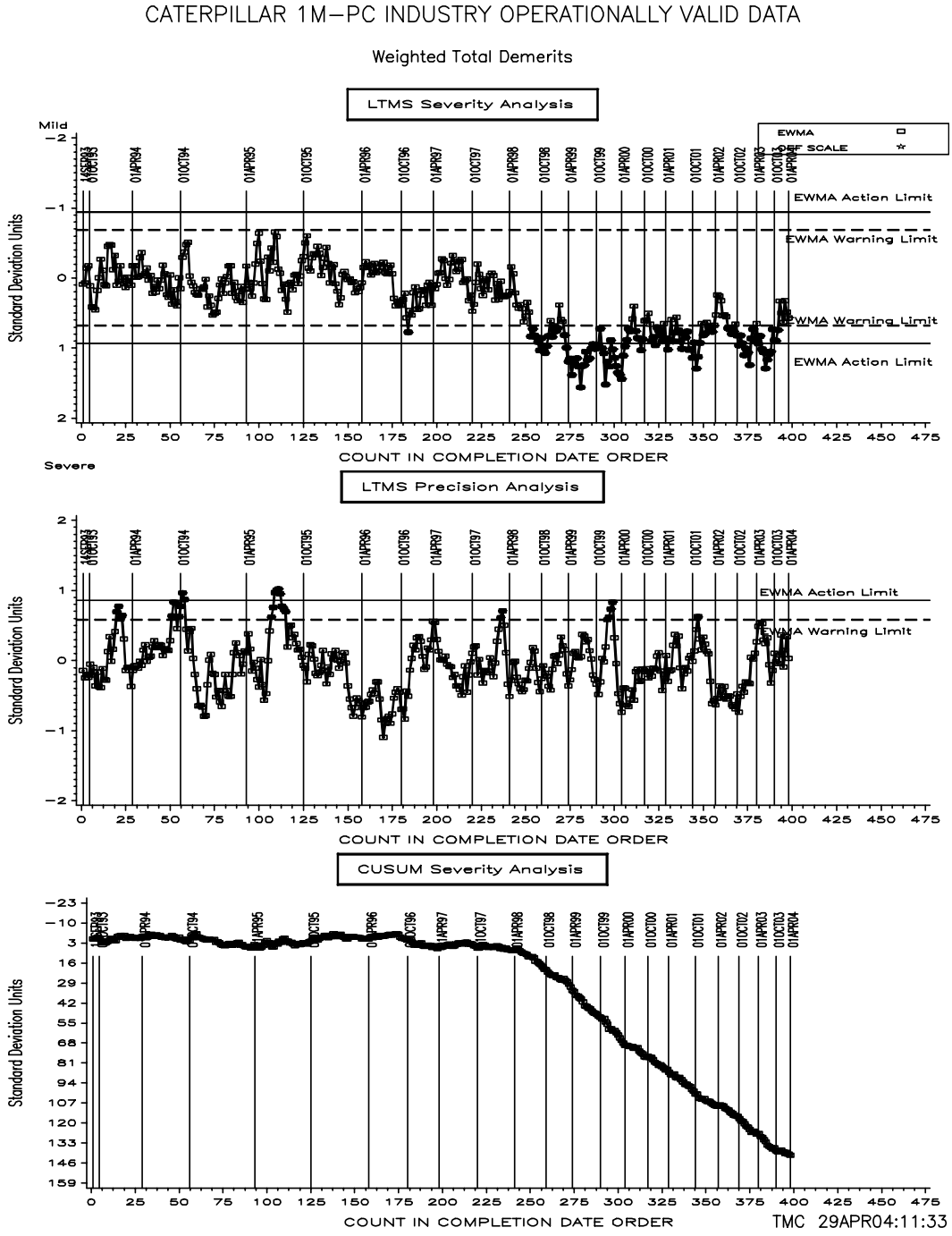
TGF:

TGF over this period was again severe and continues to exceed the EWMA action limit. Industry average TGF Yi was 0.856 (see table on previous page). Using 873-1's test target standard deviation of 16.1 to compute an average Δ yields 14% TGF. Despite repeated attempts, the Single Cylinder Diesel Surveillance Panel has not yet determined a cause. There is some indication that the change in liner suppliers might have contributed to the problem.



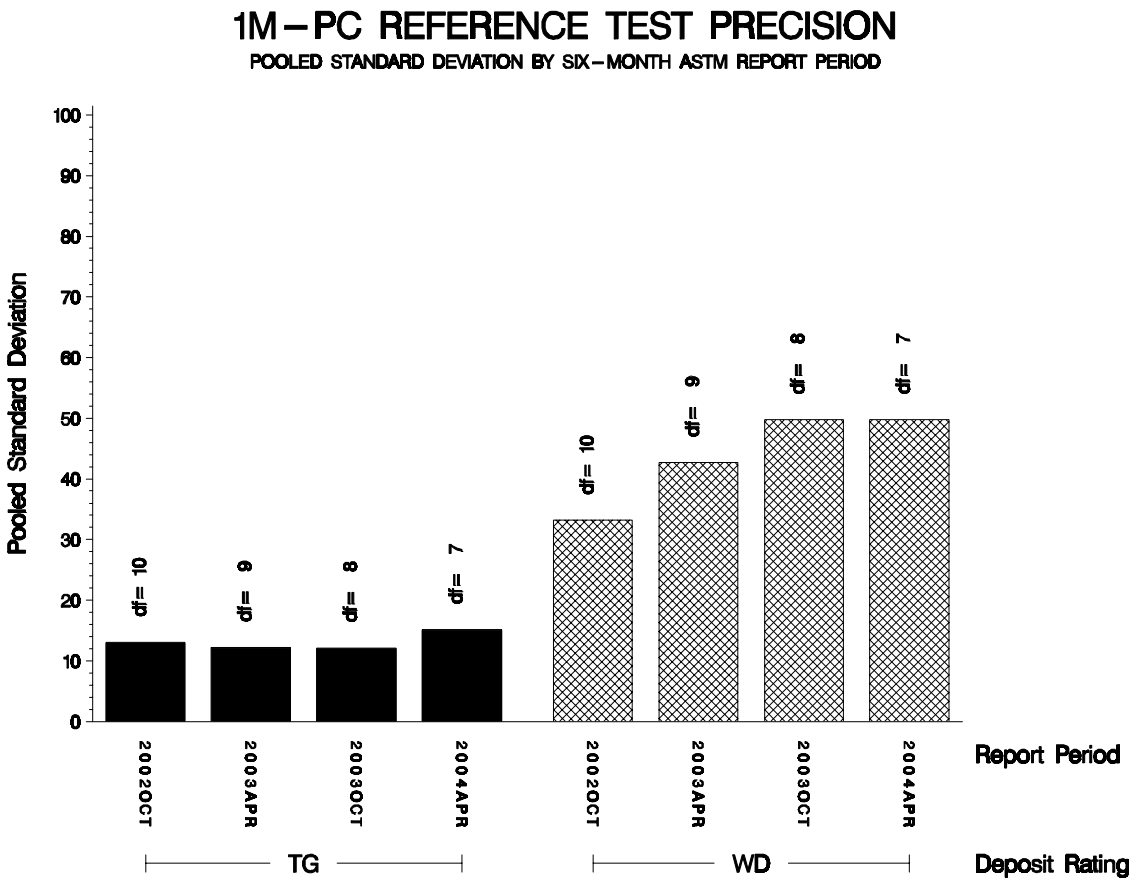
WTD:

WTD also continues to be severe (and has since April '98). Industry average WTD Yi was 0.448 (equivalent to 22.6 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	3	2	25
873-2	12	96	966
Total	13	98	991

* Future reblends of any 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
20010508		FIRST 1Y3995 LINER TEST
20020428		FIRST 873-2 TEST
20031121	03-1	1M-PC DATA DICTIONARY AND REPORT FORMS (VERSION=20031022) SEPARATED FROM THE STANDARD

RATING:

One referee re-rate was requested this report period. The second referee rating more closely agreed with the lab rating and so was used for the test report.

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:

Information Letter 03-1 was issued this report period. This information letter added the ACC conformance statement to the report forms and removed the report forms from the standard. Report form and data dictionary revisions will henceforth be handled using the Report Packet Revision Notice system. Numerous editorial changes were also made.

FUEL BATCH APPROVAL:

During this period, the following fuel batches were approved for testing: RJ1321LS01, RL0521LS01, SA0921LS04, SC1921LS01, and SC2421LS01.

SUMMARY

- Over the course of this report period, industry TGF continued to be severe. The WTD severe trend begun during the April '98 report period also continued.

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

SDP/sdp/astm0404.doc/mem04-043.sdp.doc

c: J. L. Zalar
F. M. Farber
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Single Cylinder Diesel Surveillance Panel
ftp://ftp.astmtmc.cmu.edu/docs/diesel/scote/semiannualreports/1mpc-04-2004.pdf

Distribution: internet