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

MEMORANDUM: 06-087

DATE: November 3, 2006

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

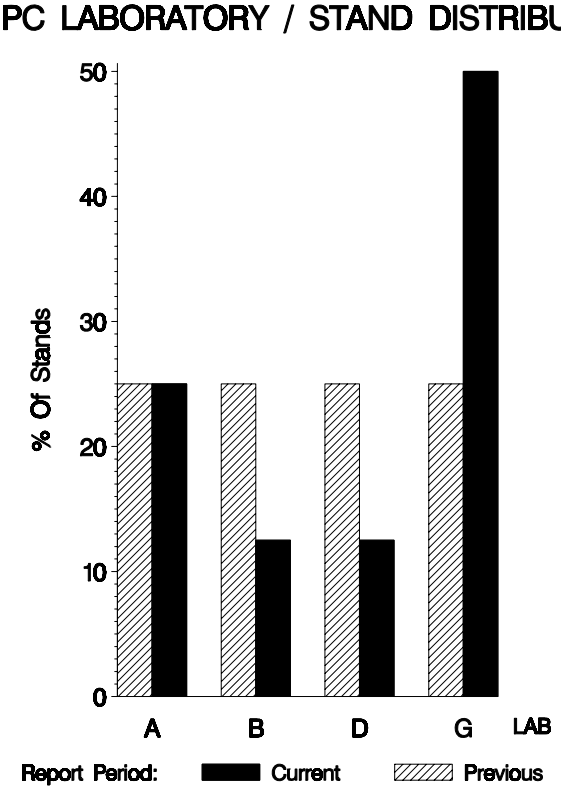
FROM: Scott Parke

SUBJECT: 1M-PC Testing from April 1, 2006 through September 30, 2006

Ten calibration tests were reported to the Test Monitoring Center during the period from April 1, 2006 through September 30, 2006. The data from the operationally valid tests is shown on page 6. Following is a summary of testing activity this period.

	Reporting Data	Calibrated on 9-30-06
Number of Labs	4	4
Number of Stands	8	6

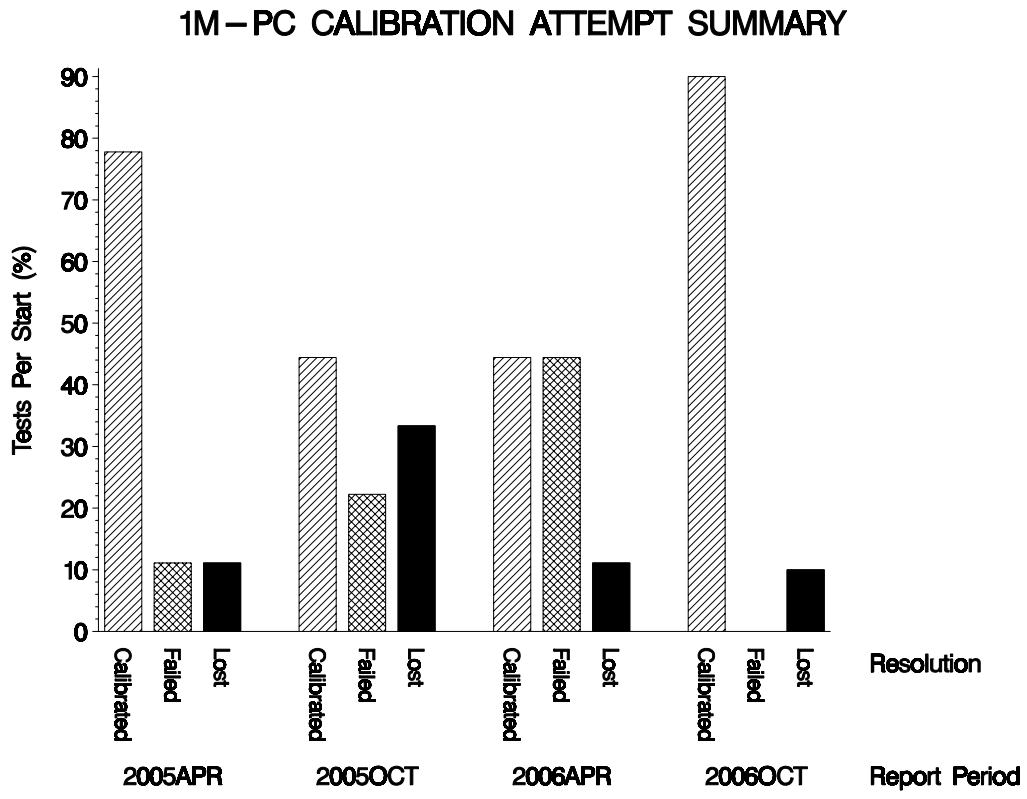
Stands reporting data this period were distributed as shown below:



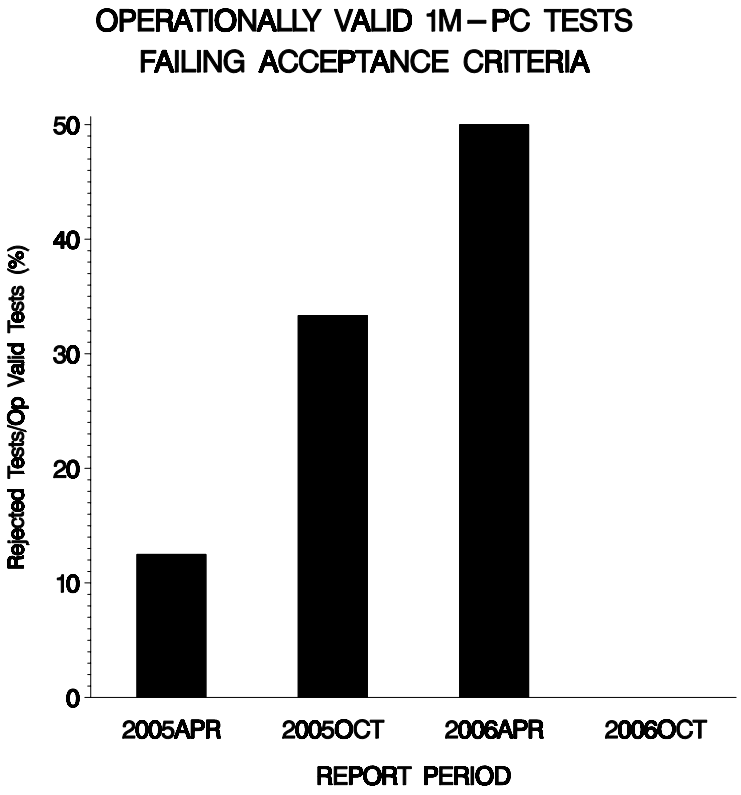
Test Distribution by Oil and Validity

				Totals	
		873-1	**873-2**	Last Period	This Period
Accepted for Calibration	AC	0	9	4	9
Rejected Mild	OC	0	0	0	0
Rejected Severe	OC	0	0	2	0
*Rejected for EWMA Precision	OC	0	0	1	0
*Rejected for Shewhart Precision	OC	0	0	1	0
Operationally Invalid (lab)	LC	0	0	0	0
Operationally Invalid (lab/TMC)	RC	0	0	0	0
Aborted Calibration	XC	0	1	1	1
Total		0	10	9	10

*During a January 23, 2006 teleconference, the Surveillance Panel elected to remove precision as a rejection criteria. Instead, the test report will now include a checkbox for use in instances where a candidate test was run in a stand that produced a precision alarm on its reference run.

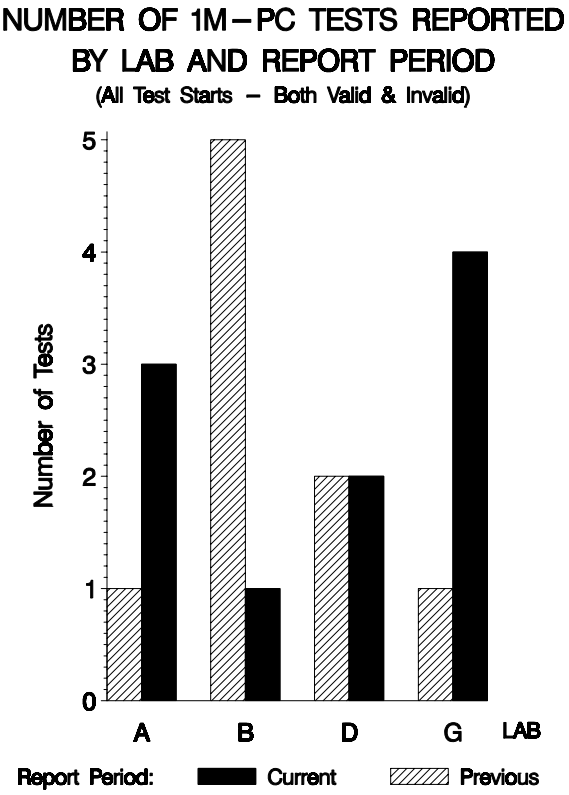


The test-per-start ratio for calibrated, failed, and lost tests is shown above.

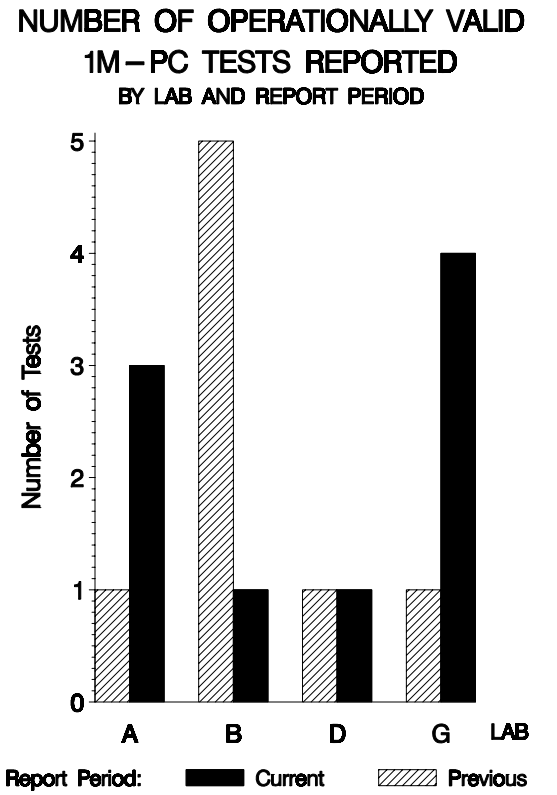


No LTMS deviations were written this period. A total of two deviations have been written over the life of this test. No tests failed this period.

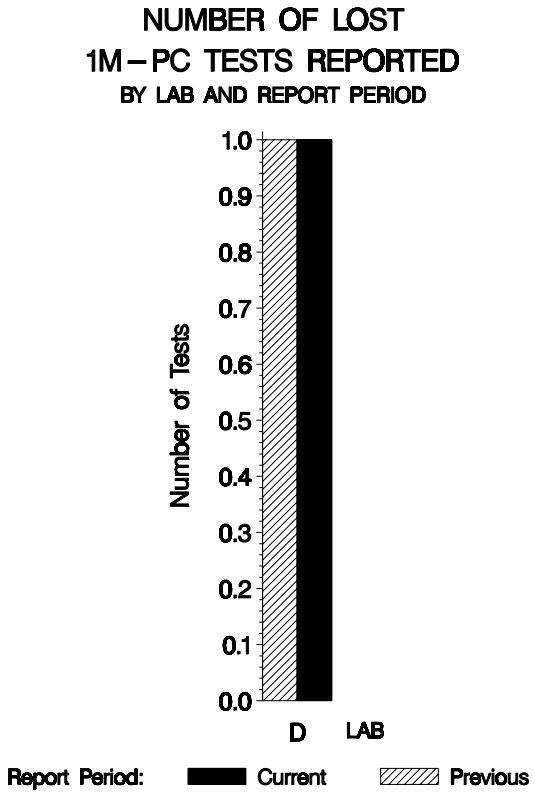
By lab, the tests run this report period were distributed as shown below:



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				0	3	0	0	3	0
B				0	1	0	0	1	0
D				1	2	50	1	2	50
G				0	4	0	0	4	0
Total				1	10	10	1	10	10

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	%
D	Cam and lifter failure at 17 hours.		●			●	1	2	50%
	Lost	0	1	0	0	1			
	Starts	0	10	10	10	10			
	%	0%	10%	0%	0%	10%			

Average Δ/s by Lab			
Lab	n	TGF	WTD
A	3	0.124	0.021
B	1	0.621	-0.853
D	1	1.304	-0.869
G	4	0.947	-0.284
Industry	9	0.676	-0.311

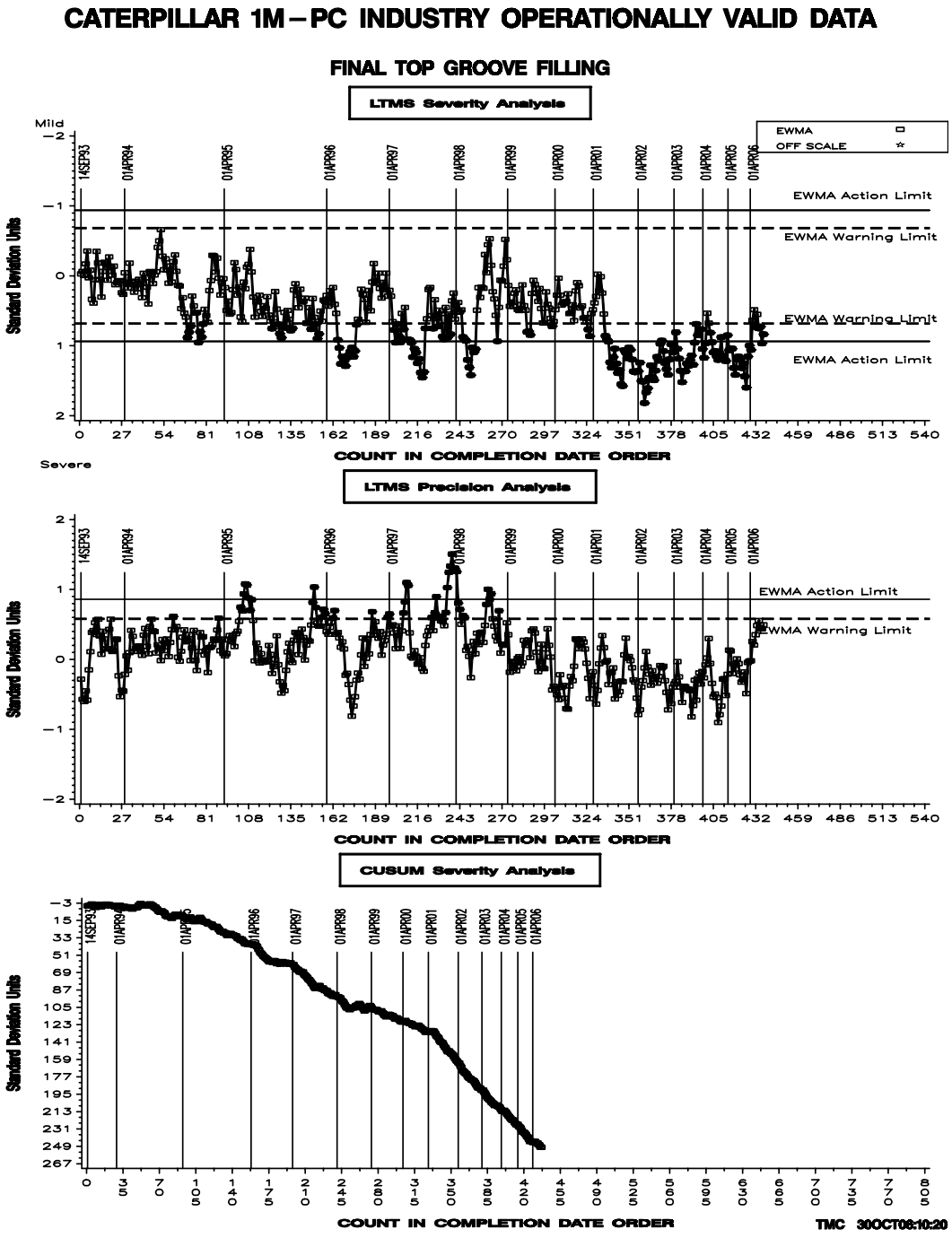
DATA FROM ALL OPERATIONALLY VALID TESTS REPORTED THIS PERIOD:

LTMS DATE	LAB	STAND	OIL	TG	WD	TGYI	WDYI
20060620	D	2	873-2	62	188.6	1.304	-0.869
20060622	A	9	873-2	24	266.2	-1.056	0.667
20060622	A	10	873-2	39	211.9	-0.124	-0.408
20060622	G	13A	873-2	69	252.9	1.739	0.404
20060622	G	10A	873-2	38	224.7	-0.186	-0.154
20060622	A	10	873-2	66	222.6	1.553	-0.196
20060626	B	8A	873-2	51	189.4	0.621	-0.853
20060829	G	13A	873-2	72	169.2	1.925	-1.253
20060903	G	8A	873-2	46	225.8	0.311	-0.133

DISCUSSION OF INDUSTRY PERFORMANCE OVER THIS PERIOD

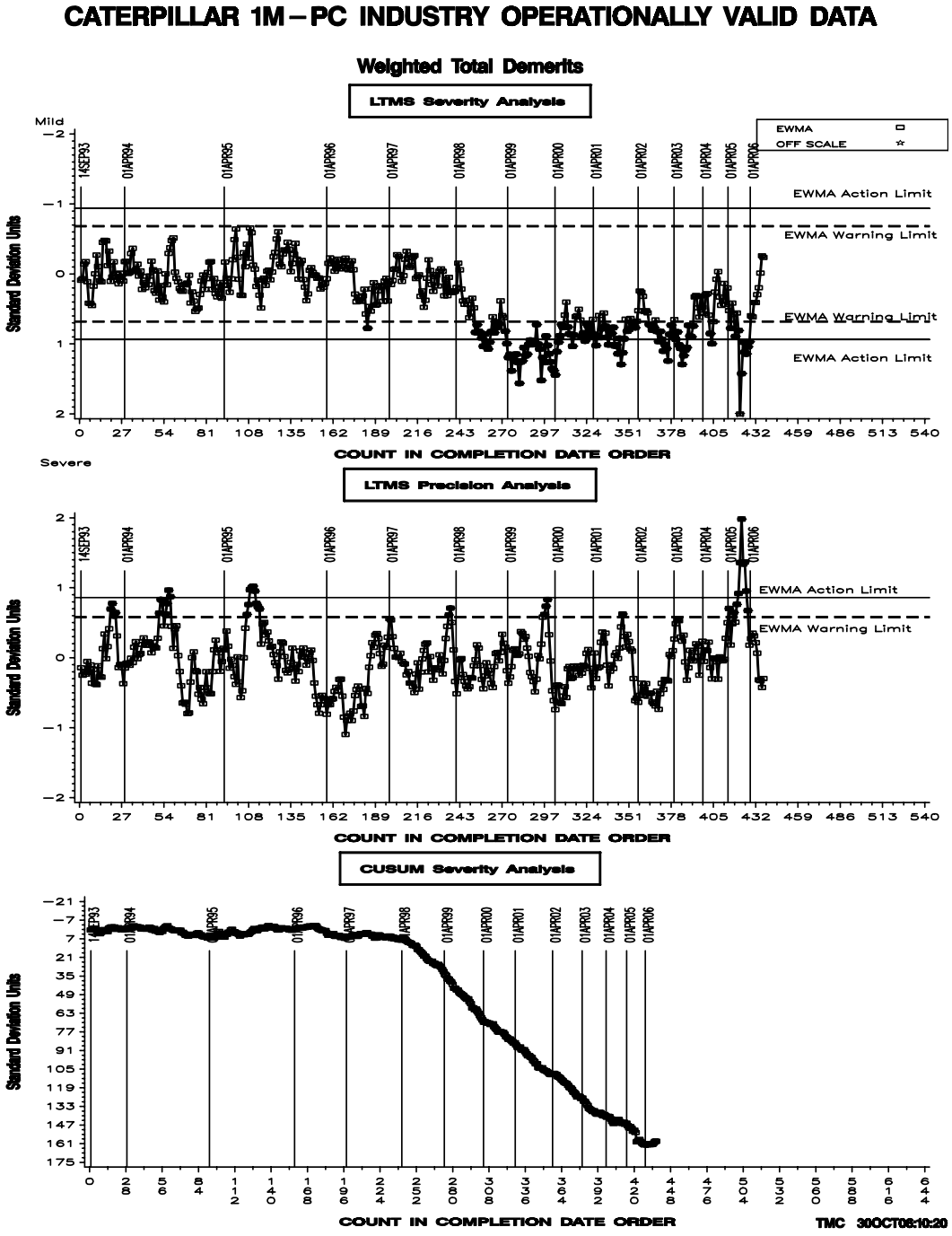
TGF:

TGF continues to be severe of target. However, results have been milder since the introduction of 5H5657 liners and SDTF2 fuel. Industry average TGF Yi this period was 0.676 (see table on previous page). Using 873-1's test target standard deviation of 16.1 to compute an average Δ yields 11% severe.

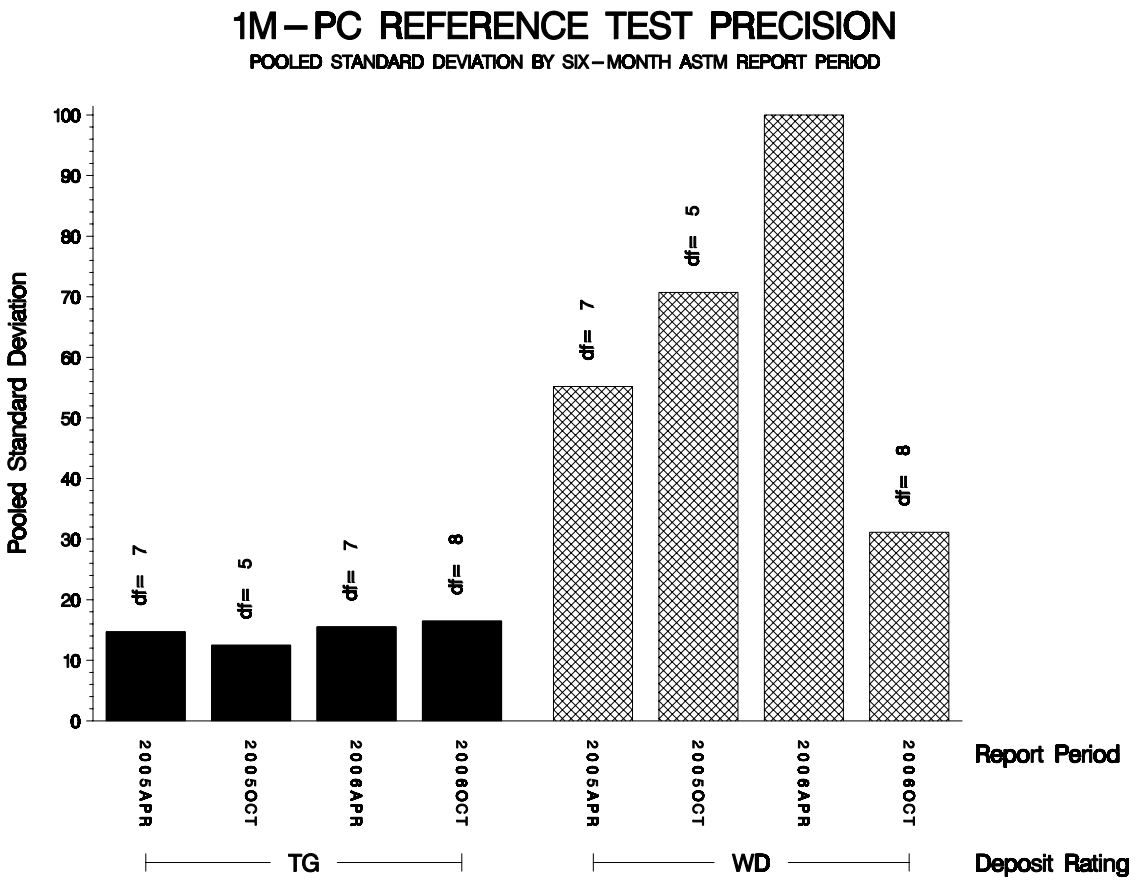


WTD:

As is the case with TGF, WTD results have been milder since the liner and fuel changes. Industry average WTD Yi was –0.311 mild (equivalent to 15.7 demerits when multiplied by 873-1's standard deviation of 50.5). Both severity and precision for this parameter are currently within limits.



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	10	60	607
Total	13	62	632

* 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
20050321		FIRST 5H5657 PRODUCTION LINER TEST
20050321	05-1	EDITORIAL (SOLVENT SPEC, PRECISION STMNT, CAL FREQ ADJUSTMENT)
20060620		FIRST SDTF2 TEST

RATING:

One referee re-rate was requested this report period. After review of all ratings, the lab used the second referee rating for the final test report.

Rating Re-rate Summary

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
Total number of re-rates requested	1

LAB VISITS:

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

INFORMATION LETTERS:
No information letters were issued during this report period.

FUEL BATCH APPROVAL:
During its June 1, 2006 teleconference, the surveillance panel voted to transfer responsibility for fuel batch approval from the TMC to each of the testing labs. Consequently, fuel batch approval will no longer be a part of this report.

SUMMARY

- Over the course of this report period, TGF and WTD reported results closer to target than they have in some time. This may be attributable to either the introduction of 5H5657 liners or SDTF2 fuel or some combination of the two. TGF is still skirting limits for severity but WTD currently within limits.

- Precision for both TGF and WTD are currently within the EWMA action limit.

SDP/sdp/astm1006.doc/mem06-087.sdp.doc
c: J. L. Zalar
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Hind Abi-Akar, Caterpillar
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Single Cylinder Diesel Surveillance Panel
ftp://ftp.astmtmc.cmu.edu/docs/diesel/scote/semiannualreports/1mpc-10-2006.pdf

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