Test Monitoring Center
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(412) 365-1000

MEMORANDUM: 02-113

DATE: November 25, 2002

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

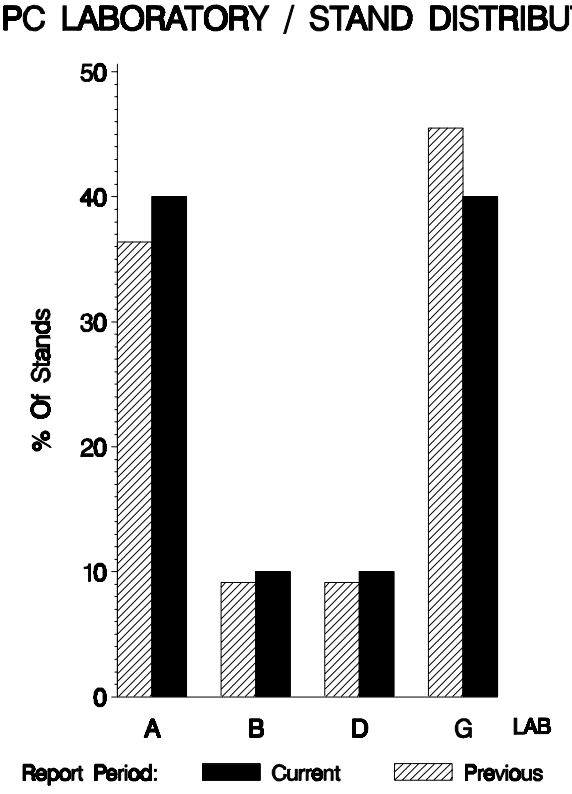
FROM: Scott Parke

SUBJECT: 1M-PC Testing from April 1, 2002 through September 30, 2002

Fourteen calibration tests were reported to the Test Monitoring Center during the period from April 1, 2002 through September 30, 2002. The data from the operationally valid tests is shown on page 7. Following is a summary of testing activity this period.

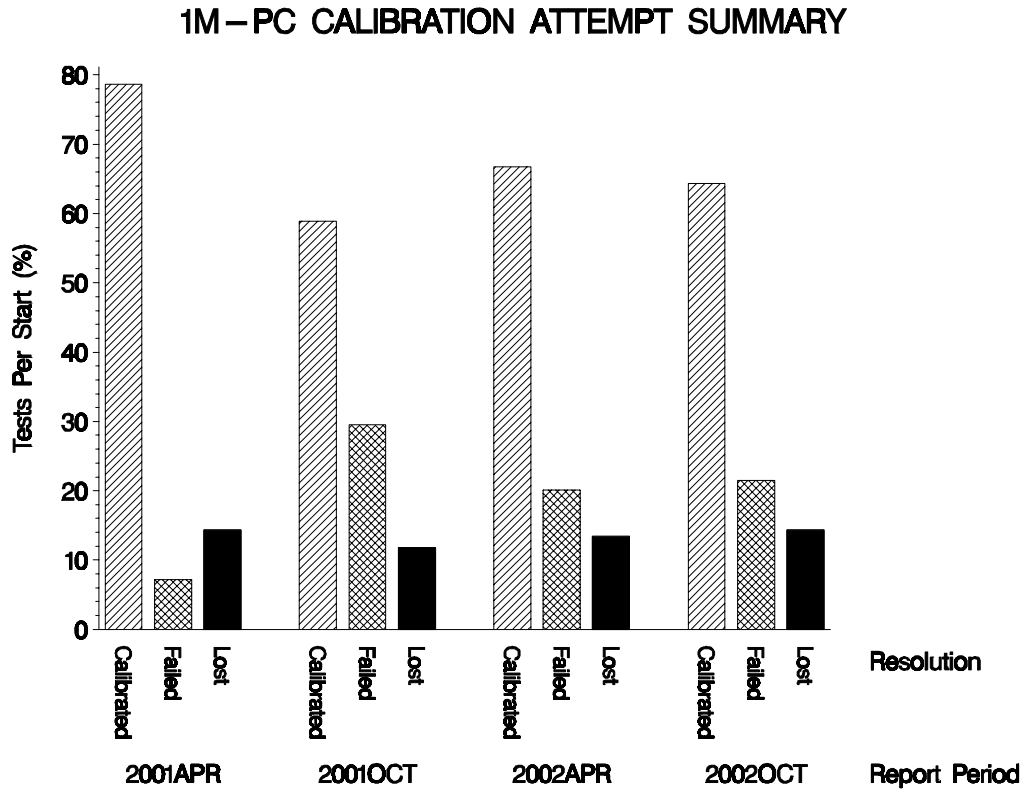
	Reporting Data	Calibrated on 9-30-02
Number of Labs	4	4
Number of Stands	10	8

Stands reporting data this period were distributed as shown below:

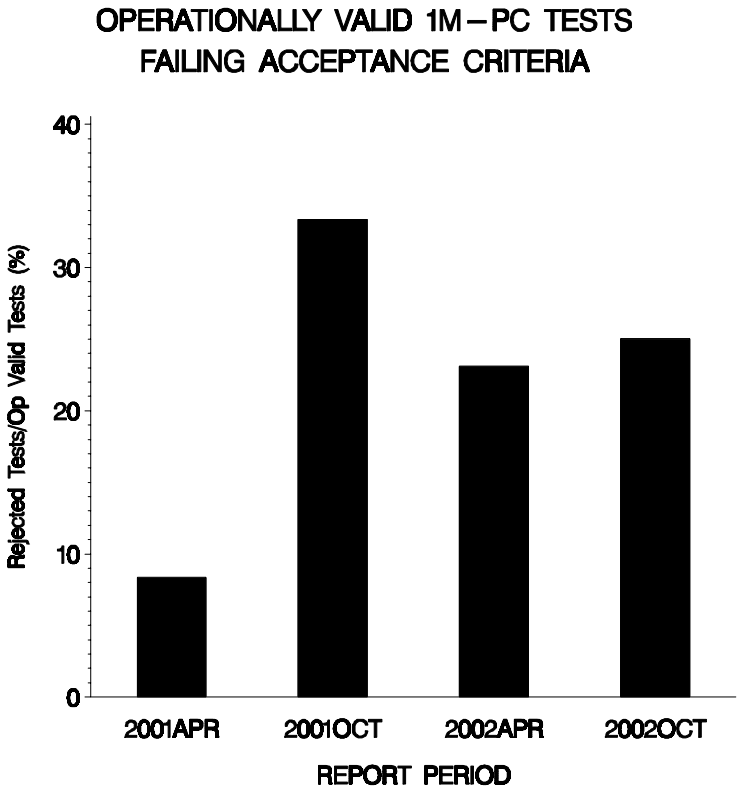


Test Distribution by Oil and Validity

				Totals	
		873-1	**873-2**	Last Period	This Period
Accepted for Calibration	AC	3	6	10	9
Rejected Mild	OC	0	0	0	0
Rejected Severe	OC	1	2	3	3
Rejected for EWMA Precision	OC	0	0	0	0
Rejected for Shewhart Precision	OC	0	0	0	0
Operationally Invalid (lab)	LC	0	0	1	0
Operationally Invalid (lab/TMC)	RC	0	0	1	0
Aborted Calibration	XC	0	2	0	2
Total		4	10	15	14

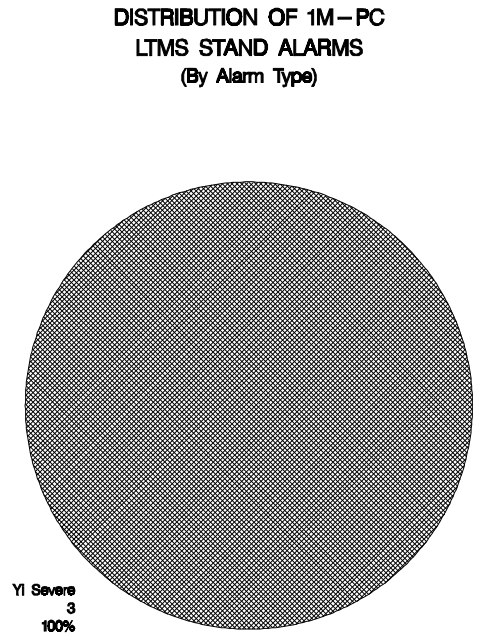


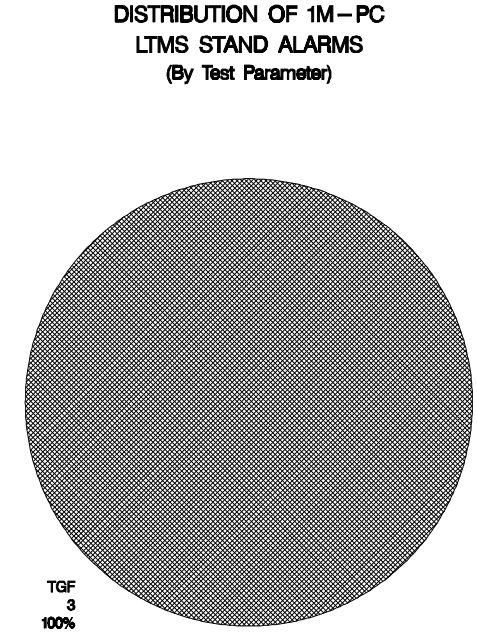
The test-per-start ratio for calibrated, failed, and lost tests is shown above.



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

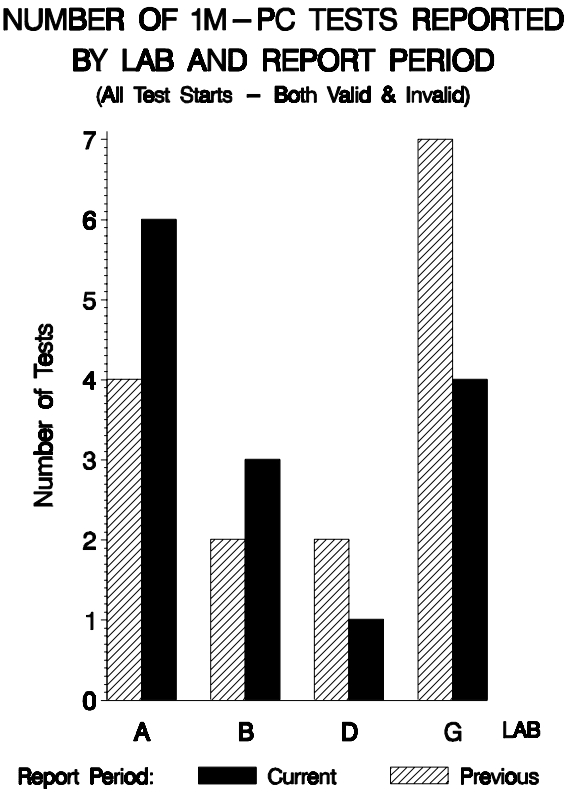
Shown below is the distribution by type and parameter of the alarms causing the failures for this period.



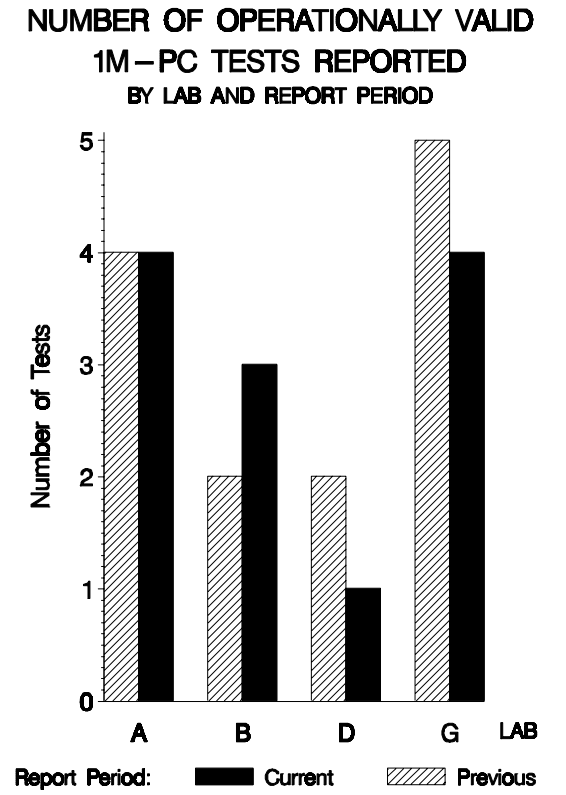


Three tests failed this period (all for severe TGF).

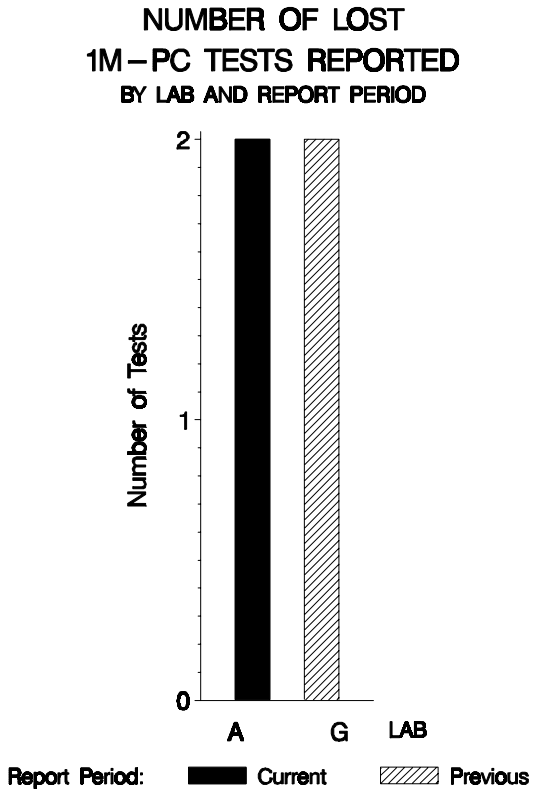
By lab, the tests run this report period were distributed as shown below:



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	1	0	2	5	40	2	6	33
B	0	2	0	0	1	0	0	3	0
D				0	1	0	0	1	0
G	0	1	0	0	3	0	0	4	0
Total	0	4	0	2	10	20	2	14	14

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	Main bearing failure during breakin.		●			●	2	6	33%
	Exhaust cam failed at 45 hours and caused scuffing.		●			●			
	Lost	0	2	0	0	2			
	Starts	4	10	14	14	14			
	%	0%	20%	0%	0%	14%			

Average Δ/s by Lab			
Lab	n	TGF	WTD
A	4	1.040	0.821
B	3	1.988	0.894
D	1	1.553	0.549
G	4	1.506	0.015
Industry	12	1.475	0.548

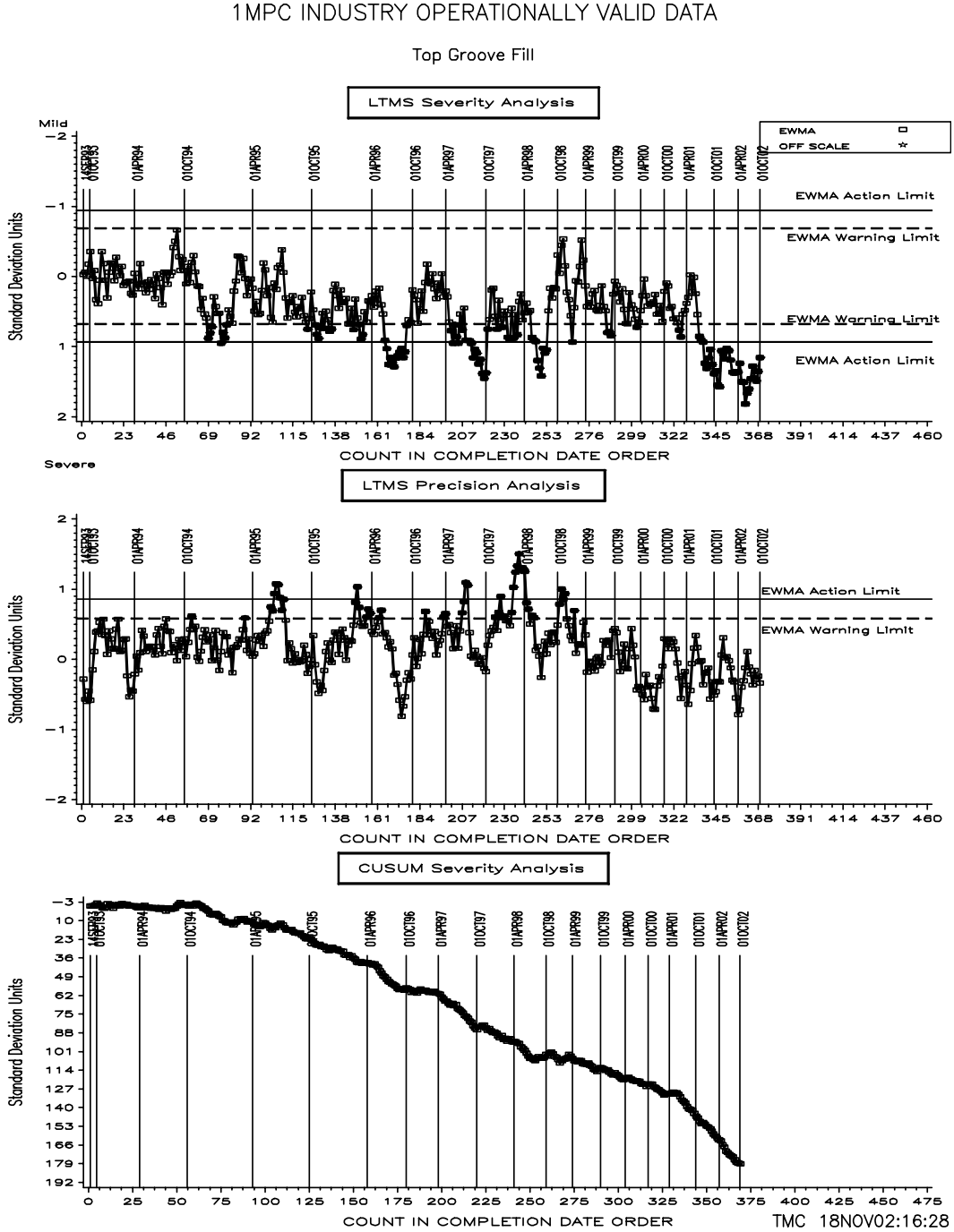
DATA FROM ALL OPERATIONALLY VALID TESTS REPORTED THIS PERIOD:

LTMS DATE	LAB	STAND	OIL	TG	WD	TGYI	WDYI
20020408	G	10A	873-1	63	229.2	1.366	-0.065
20020428	G	13A	873-2	53	187.5	0.745	-0.891
20020507	G	1A	873-2	82	249.7	2.547	0.341
20020512	D	2	873-2	66	260.2	1.553	0.549
20020518	B	7	873-2	90	303.1	3.043	1.398
20020519	A	2	873-2	58	257.1	1.056	0.487
20020521	G	8A	873-2	63	266.7	1.366	0.677
20020521	A	5	873-2	55	301.6	0.870	1.368
20020522	A	3	873-2	50	272.9	0.559	0.800
20020604	B	7	873-1	75	285.8	2.112	1.055
20020618	A	1	873-1	68	264.2	1.677	0.628
20020710	B	7	873-1	54	244.0	0.807	0.228

DISCUSSION OF INDUSTRY PERFORMANCE OVER THIS PERIOD

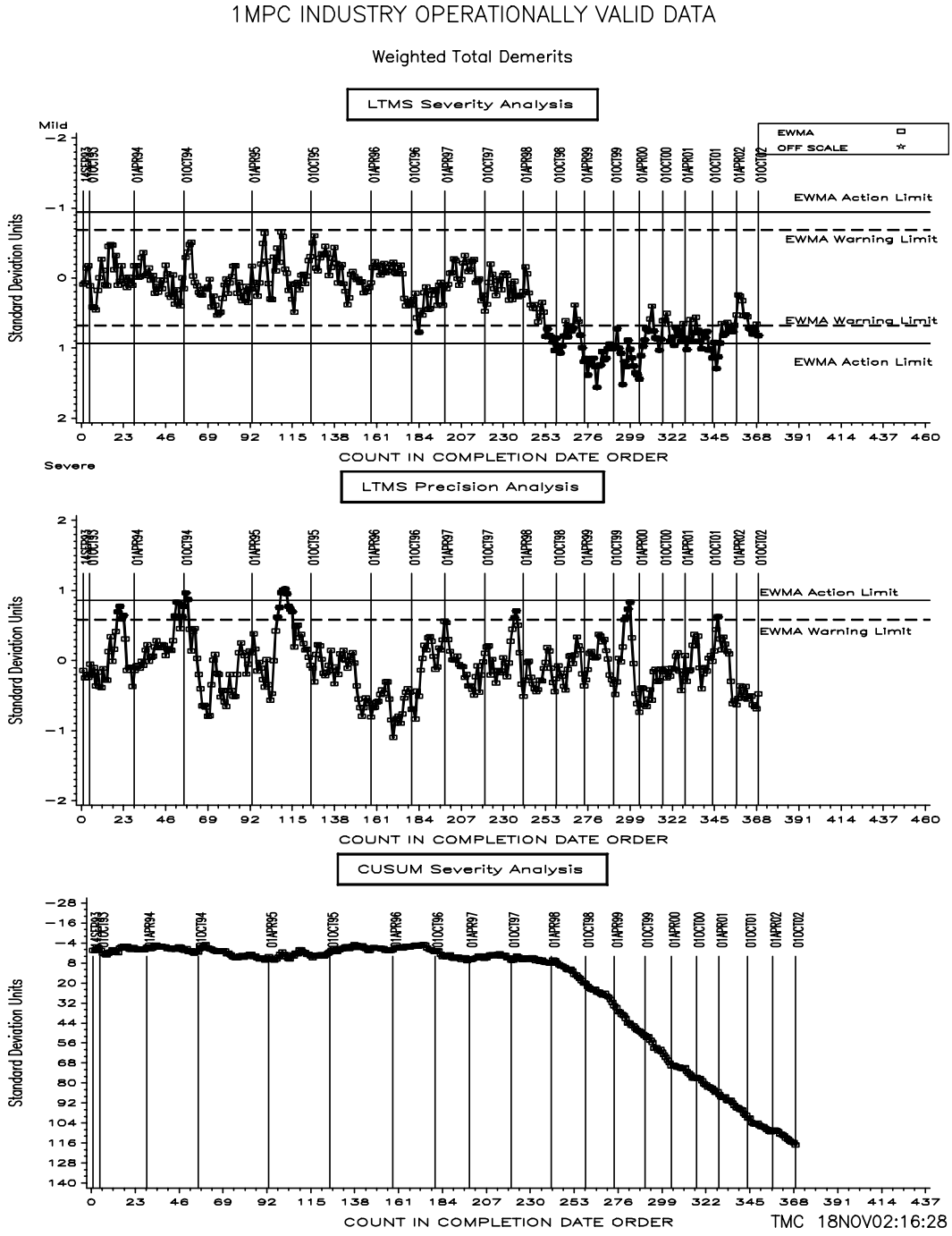
TGF:

TGF over this period was again severe and continues to exceed the EWMA action limit. Industry average TGF Yi was 1.475 (see table on previous page). Using 873-1's test target standard deviation of 16.1 to compute an average Δ yields 24% 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 be contributing to the problem.



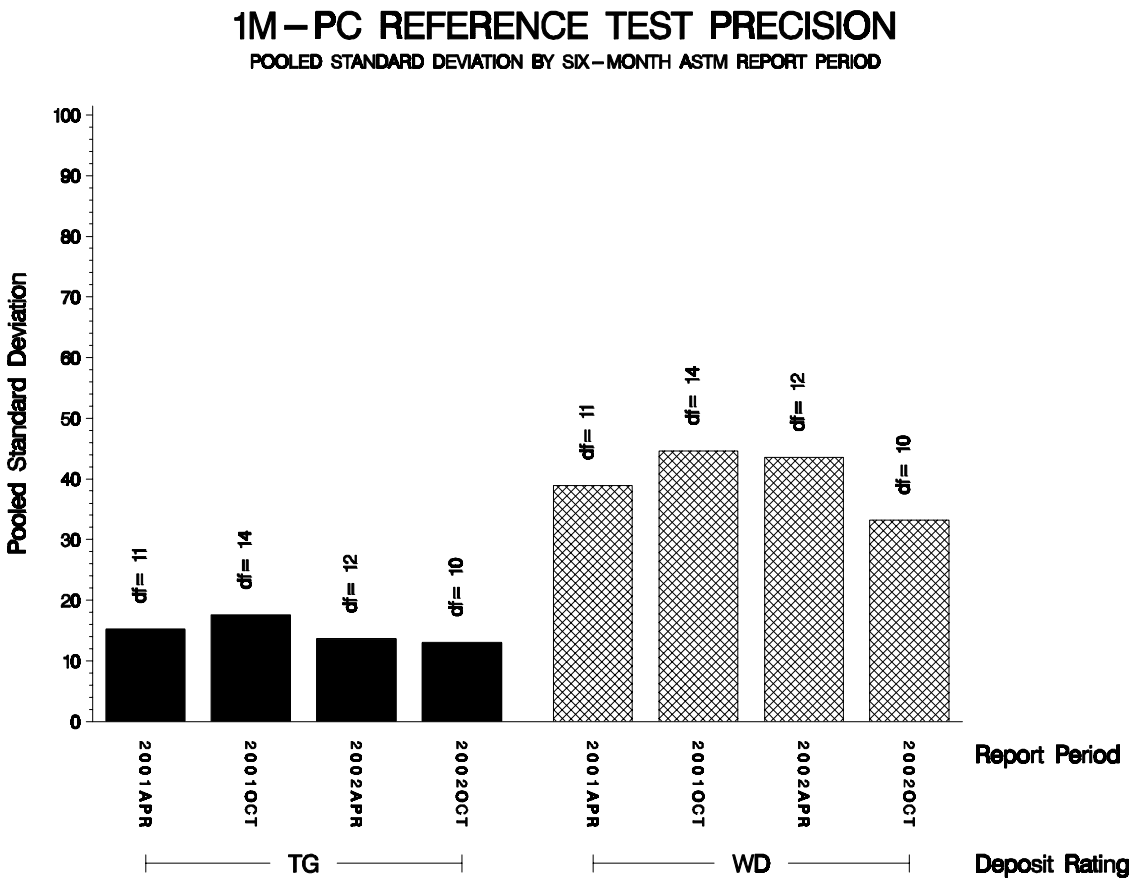
WTD:

WTD also continues to be severe (and has since April '98). Industry average WTD Yi was 0.548 (equivalent to 27.7 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	11	2	25
873-2	9	144	1442
Total	20	146	1467

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

Introduction of oil 873-2 into testing is now complete. There appears to be no performance difference between this blend and 873-1. The surveillance panel has elected to carry over the 873-1 targets for 873-2 rather than calculate targets specific to 873-2.

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

RATING:

No referee re-rates were requested this report period.

Rating Re-rate Summary

Total number of re-rates requested	0
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 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: 0204218, 0205345, 0205382, QG0321LS03, QG2321LS06, QH2321LS05, and Q12421LS05.

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 continues. There seems to be some indication that the new liner supply is exacerbating the problem. 873-2 introduction is complete; performance so far has been comparable to 873-1.

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

SDP/sdp/astm1002.doc/m02-113.sdp.doc

c: J. L. Zalar
F. M. Farber
Dwayne Tharp
Single Cylinder Diesel Surveillance Panel
ftp://ftp.astmtmc.cmu.edu/docs/diesel/scote/semiannualreports/1mpc-10-2002.pdf

Distribution: internet