Test Monitoring Center
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(412) 365-1000

MEMORANDUM: 07-025

DATE: May 18, 2007

TO: Mark Cooper, Chairman, Mack Test Surveillance Panel

FROM: Jeff Clark

SUBJECT: T-12 Calibration Testing for the April 2007 ASTM Report Period

The following is a summary of T-12 reference oil tests completed during the April 2007 ASTM report period, which began on October 1, 2006 and ended on March 31, 2007.

Test Status	TMC Validity Code	Number of Tests
Acceptable Calibration Test	AC	2
Failed Calibration Test (LTMS Criteria)	OC	0
Operationally Invalid Test	LC	1
Aborted Test	XC	1
Total		4

One test was operationally invalid (LC validity) due to a faulty cooling system controller. One test was aborted due to a cracked oil filter.

Severity and Precision:

Please note that the following statements regarding severity are based on only two data points. Great care should be taken accordingly when drawing any conclusions regarding test severity.

Figure 1 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Delta PB at EOT (PB). PB is currently within control chart limits. However, for this period, PB is trending an average of 0.59 Δ/s mild. This is equivalent to 0.170 natural log units or approximately 3.9 ppm at the CJ-4 Mack Merit Anchor of 25 ppm.

Figure 2 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Cylinder Liner Wear (CLW). CLW is currently within control chart limits. For this period, CLW is trending and average of 1.03 Δ/s severe. This is equivalent to 3.5 microns.

Figure 3 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Top Ring Weight Loss (TRWL). TRWL is currently within control chart limits. For this period, TRWL is trending an average of 1.04 Δ/s mild. This is equivalent to 25.9 mg.

Figure 4 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Oil Consumption (OC). OC is within control chart limits. For this period, OC is trending an average of 0.88 Δ/s mild. This is equivalent to 0.054 natural log units or approximately 3.4 g/h at the CJ-4 Mack Merit Anchor of 65 g/h.

Figure 5 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Delta PB 250 – 300 Hours (PB2). PB2 is currently within control chart limits. For this period, PB2 is trending an average of 0.71 Δ/s mild. This is equivalent to 0.258 natural log units or approximately 2.3 ppm at the CJ-4 Mack Merit Anchor of 10 ppm.

Precision estimates will be presented on an annual basis, in the table below. The precision estimate for 2005 was primarily generated from PC-10 Matrix or concurrent reference test results. The preliminary estimates for 2006 are comparable to 2005, with the exception of PB precision which shows some improvement. No precision estimate is yet available for 2007.

T-12 Precision Estimates

Parameter	2005	2006	2007	2008
Df	21	12		
PB (ln units)	0.259	0.203		
CLW	3.87	3.78		
TRWL	28.4	28.6		
OC (ln units)	0.080	0.084		
PB2 (ln units)	0.344	0.321		

Reference Oils:

The current reference oil test targets are shown below:

Oils	N	Parameter	Mean (cSt)	S
821 (PC10E)	6	PB	3.259	0.288
		CLW	15.1	3.4
		TRWL	66.4	24.9
		OC	4.083	0.061
		PB2	2.251	0.363

To date, 22 tests have been completed on TMC oil 821, which includes 16 tests since the intake manifold pressure specification was implemented.

Information Letters:

Information Letter 07-1, Sequence No. 1, was issued February 1, 2007. Topics covered included fuel sulfur measurement test method, removal of piston deposit measurements, updated valve guide reaming procedure, and Quality Index.

TMC Laboratory Visits:

Two TMC laboratory visits were conducted this ASTM period. A total of two deficiencies, one at each lab, were noted:

CO2 Measurement Calibration – the CO2 measurement was being calibrated every 8 hours instead of every 4 hours as specified.

Oil Sump Temperature Sensor – the oil sump temperature thermocouple was located 5" from the front of the oil pan instead of 7" as specified.

Additional Information:

The T-12 database, timeline, and alarm logs can be accessed on the TMC's homepage. If you have any questions on how to access this information, contact the TMC.

JAC/jac/mem07-025.jac.doc

Attachments

c: J.L. Zalar, TMC
F.M. Farber, TMC
Mack Test Surveillance Panel
ftp://ftp.astmtmc.cmu.edu/docs/diesel/mack/semiannualreports/T-12/T12-04-2007.pdf

Distribution: Email

FIGURE 1

MACK T−12 INDUSTRY OPERATIONALLY VALID DATA

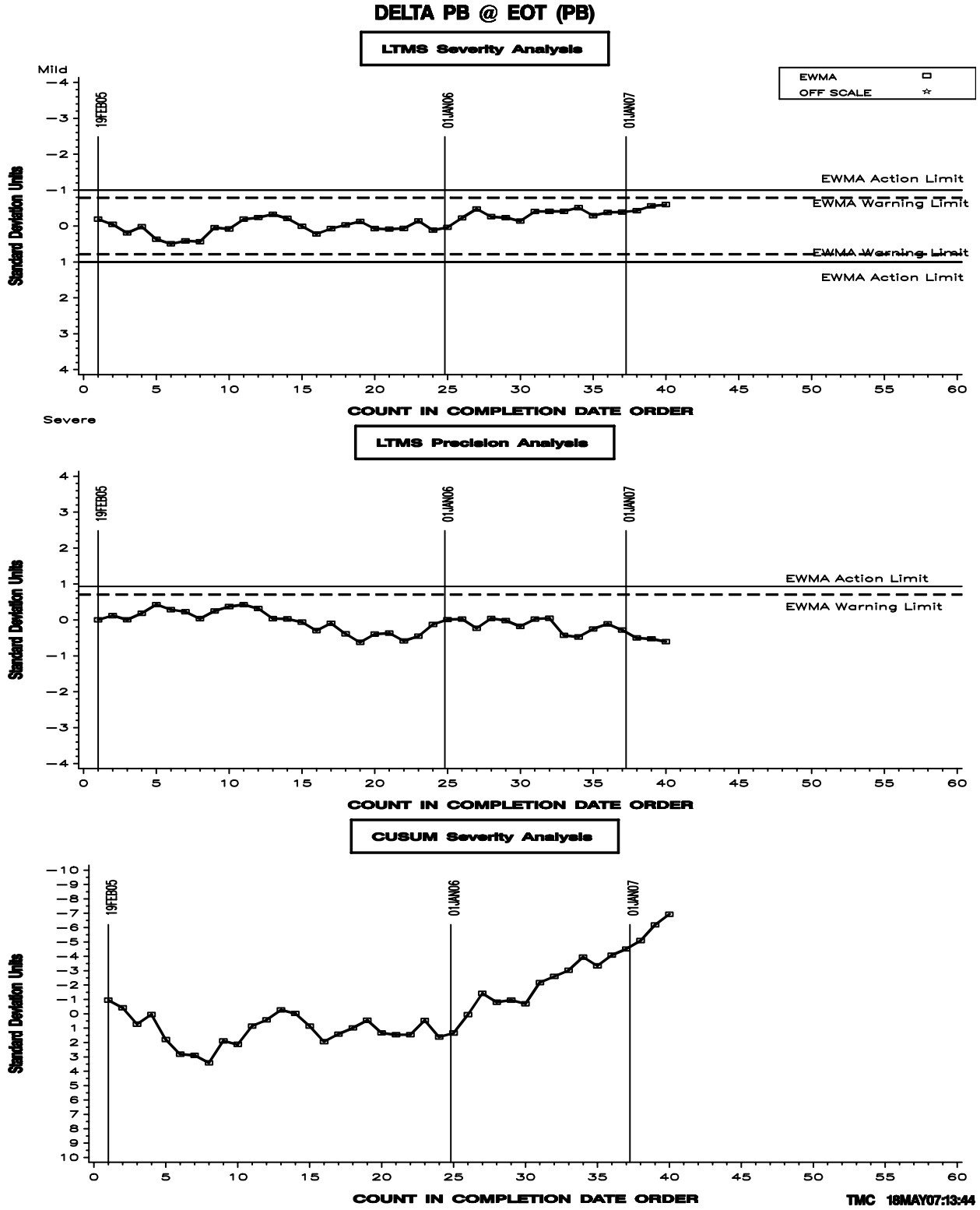

FIGURE 2

MACK T−12 INDUSTRY OPERATIONALLY VALID DATA

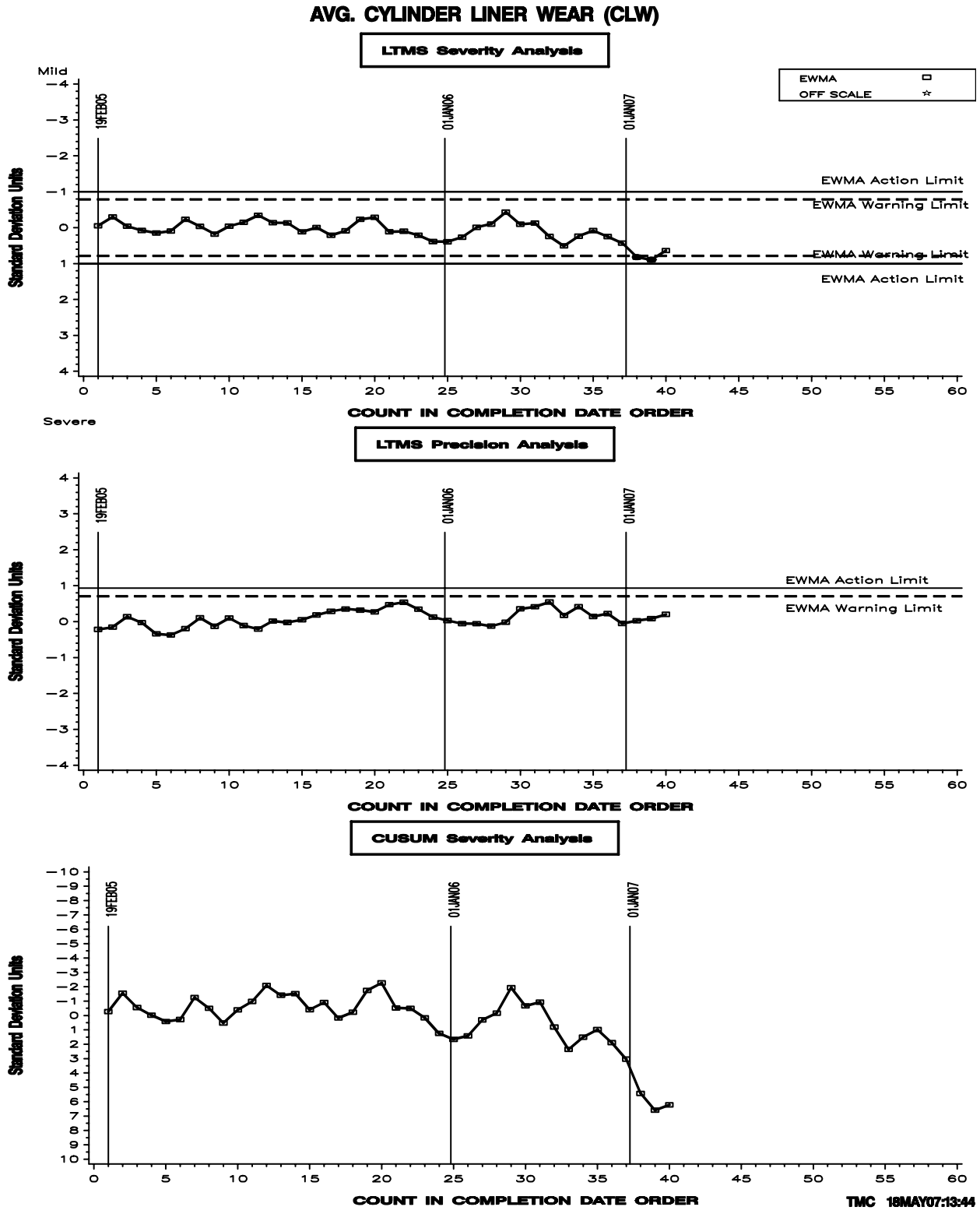

FIGURE 3

MACK T−12 INDUSTRY OPERATIONALLY VALID DATA

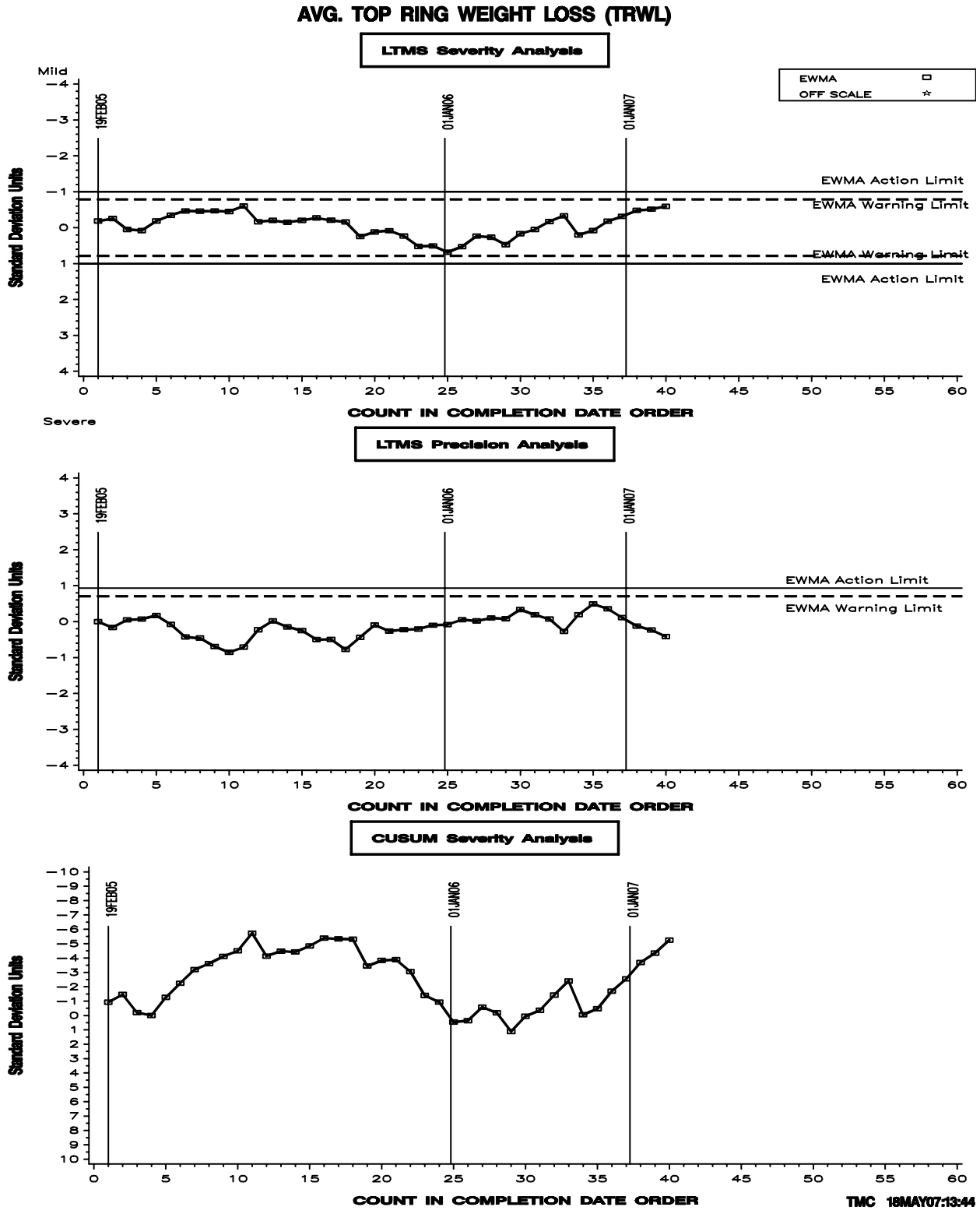

FIGURE 4

MACK T−12 INDUSTRY OPERATIONALLY VALID DATA

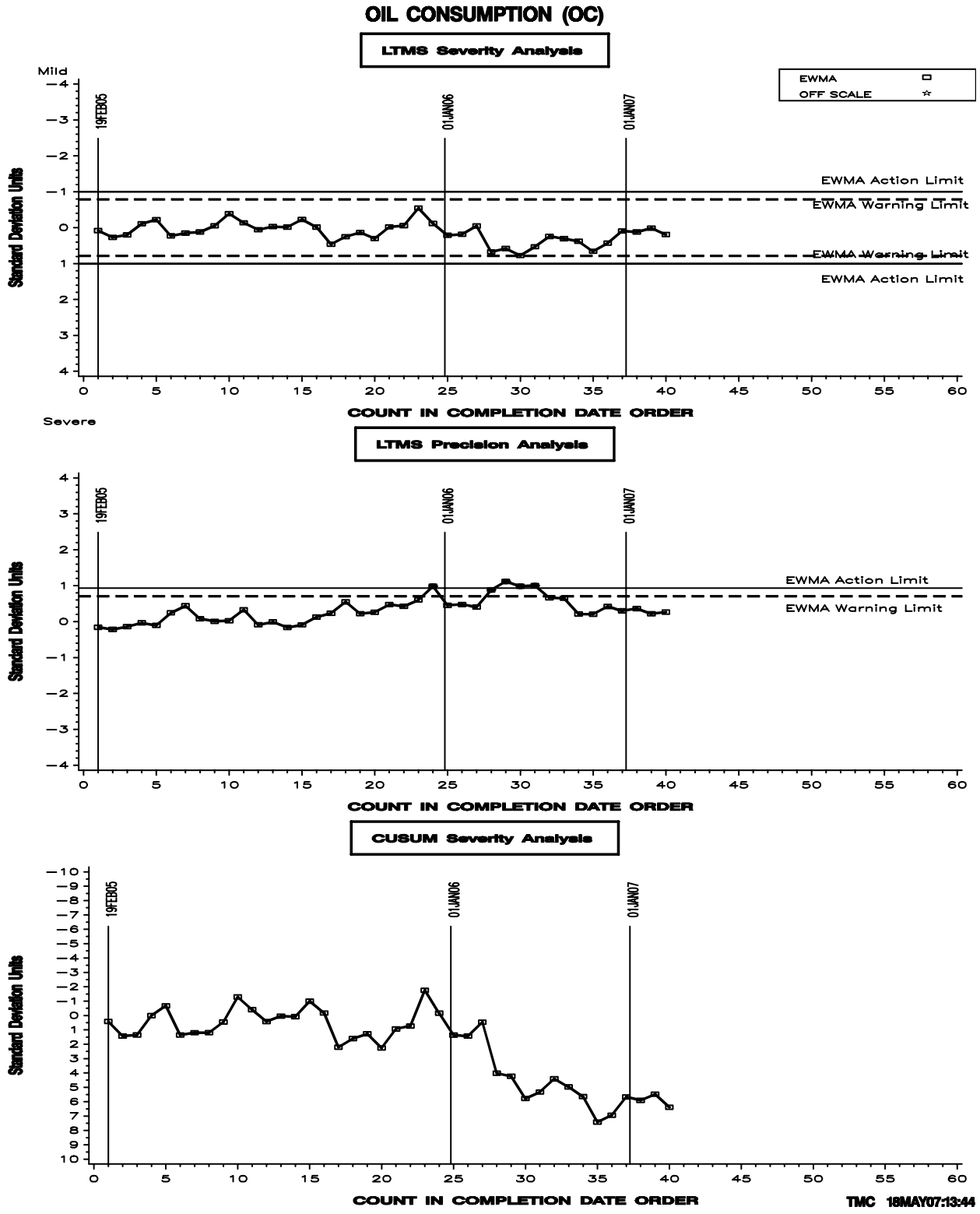

FIGURE 5

MACK T−12 INDUSTRY OPERATIONALLY VALID DATA