



Test Monitoring Center

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412-365-1000

MEMORANDUM: 11-024

DATE: June 8, 2011

TO: Jim McCord, Chairman, SCOTE Surveillance Panel

FROM: Jeff Clark

SUBJECT: SCOTE Calibration Testing for the April 2011 ASTM Report Period

The following is a summary of 1K, 1N, 1M-PC, 1P, and 1R reference oil tests completed during the April 2011 ASTM report period, which began on October 1, 2010 and ended on March 31, 2011.

Test Status	TMC Validity Code	Number of Tests				
		1K	1N	1M-PC	1P	1R
Acceptable Calibration Test	AC	1	2	2	0	1
Failed Calibration Test (LTMS Criteria)	OC	0	0	0	0	0
Operationally Invalid Test	RC or LC	0	1	0	0	0
Aborted	XC or XI	0	0	0	1	0
Total		1	3	2	1	1

The invalid 1N test was due to boost pressure loss caused by a building compressor failure. The aborted 1P was a non-blind information run on a liner that did not meet the surface finish specification. The test was aborted due to high oil consumption.

Severity and Precision:

1K:

Weighted Demerits (WDK), Top Land Heavy Carbon (TLHC), and End of Test Oil Consumption (ETOC) are currently within control chart limits. While Top Groove Fill (TGF) is within chart limits, it is showing evidence of a long-term mild trend. Brake Specific Oil Consumption (BSOC) is currently in a severity warning alarm, in the mild direction; this is a continuation of a long-term trend. Figures 1 through 5, show the current industry EWMA severity, EWMA precision, and cusum charts for TGF, WDK, TLHC, BSOC, and ETOC respectively.

1N:

Top Groove Fill (TGF) and Top Land Heavy Carbon (TLHC) are currently in industry severity alarms, in the mild direction; though not in alarm, Brake Specific Oil Consumption (BSOC) and Weighted Demerits (WDN) are both showing signs of trending mild. Figures 6 through 9 show the current industry EWMA severity, EWMA precision, and cusum charts for TGF, WDK, TLHC, and BSOC respectively.

1M-PC:

Top Groove Fill (TGF) and Weighted Deposits (WTD) are both currently within control chart limits. Figures 10 and 11 show the current industry EWMA severity and cusum charts for TGF and WTD, respectively.

1P:

The SCOTE panel, along with Caterpillar, is working to obtain a new batch of liners. Stand calibrations have been extended until testing on the new batch is ready to commence, at which time the industry will run reference tests to prove out the new batch of liners. Once a new batch is approved, stand calibration periods will be reduced by the same amount of time and runs that were granted in the extensions.

Top Groove Carbon (TGC), Weighted Deposits (WD), and Top Land Carbon (TLC) are currently within control chart limits are not exhibiting any pronounced severity trends. Both Oil Consumption (OC) and End of Test Oil Consumption (ETOC) are in industry alarms in the severe direction and both have been in these trends for much of the test history. Figures 12 through 16 show the current industry EWMA severity, EWMA precision, and cusum charts for TGF, TLC, WD, OC, and ETOC respectively.

1R:

It is important to note that for the past 7 years, 1R reference test activity has been extremely low which restricts the ability to offer meaningful analysis of industry trends. Top Groove Carbon (TGC), Weighted Deposits (WD), Beginning of Test Oil Consumption (BTOC), and End of Test Oil Consumption (ETOC) are currently within control chart limits. Top Land Carbon (TLC) is in an industry warning alarm for severity, in the mild direction. Figures 17 through 21 show the current industry EWMA severity, EWMA precision, and cusum charts for WD, TGF, TLC, BTOC, and ETOC respectively.

Reference Oil Supply:

The following table shows current reference oil inventories. Supply of oils 820-3 and 1005-3 will likely be exhausted within 2 years. The TMC will investigate a re-blend for 820-3 in due course; 1005-3 cannot be re-blended and the surveillance panel will need to start work on finding a suitable replacement oil.

Reference Oil Inventory and Estimated Life

Oil	Tests	Original Blend Amount	Quantity Used in last 6 months	TMC Inventory ^A	Lab Inventory ^B	Estimated Life ^C
809-1	1K, 1N	9134	28	2614	4	5+ years
811-2	1K, 1N	1732	30	1385	4	5+ years
820-3	1R	2750	246	631	0	~1.5 years
873-2	1M-PC	1650	16	248	4	5+ years
1005-3 ^D	1P, 1R	2000	366	1103	4	~1.5 years

^AInventories are expressed in gallons.

^BTest sample count at active laboratories.

^CTime estimate is based on most recent activity levels.

^DOil cannot be resupplied and the surveillance panels will need to find a suitable replacement.

Information Letters:

No SCOTE information letters were issued this period.

TMC Laboratory Visits:

No laboratory visits were conducted this period.

Quality Index:

No Quality Index deviations were issued this period.

Additional Information:

The SCOTE databases and timelines can be accessed from the TMC web site:

<http://www.astmtmc.cmu.edu/>

Please contact the TMC if you have any questions accessing this site.

JAC/jac/mem11-024.jac.doc

Attachments

c: F.M. Farber, TMC

SCOTE Surveillance Panel

<ftp://ftp.astmtmc.cmu.edu/docs/diesel/scote/semiannualreports/SCOTE-04-2011.pdf>

Distribution: Email

FIGURE 1
CATERPILLAR 1K INDUSTRY OPERATIONALLY VALID DATA

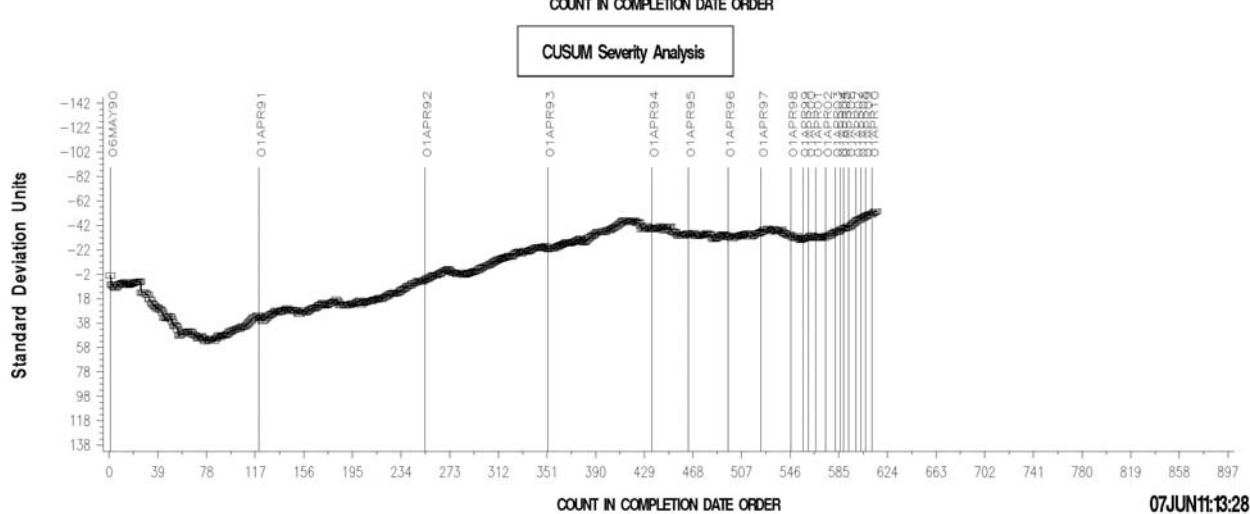
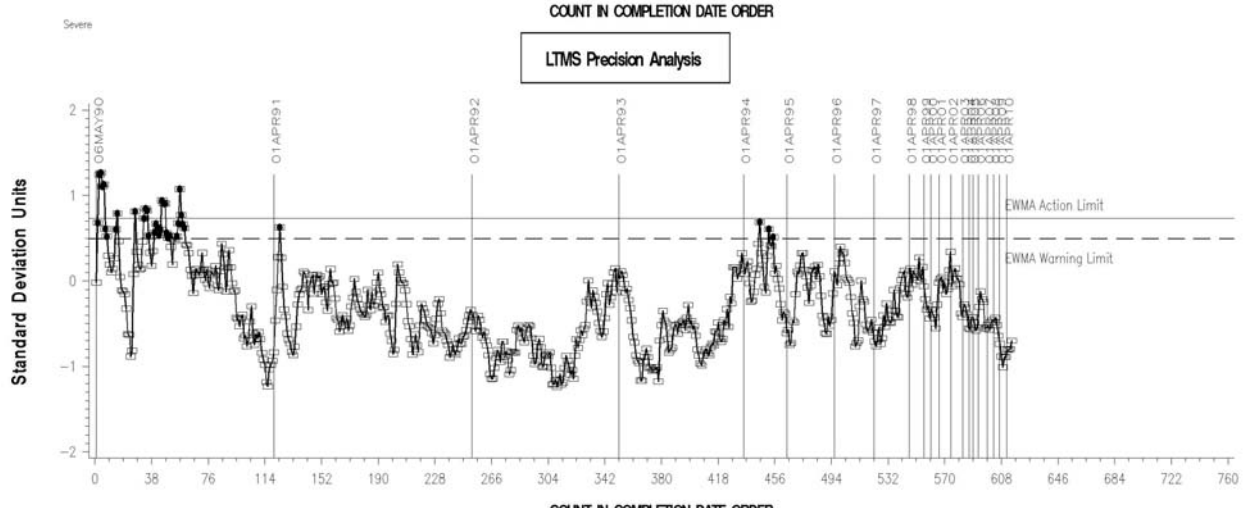
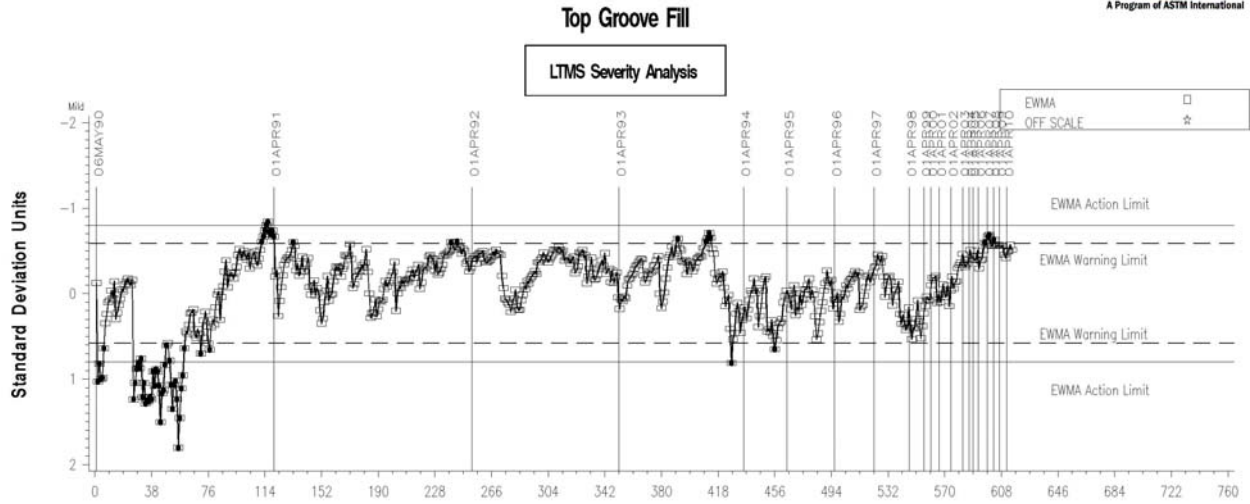


FIGURE 2
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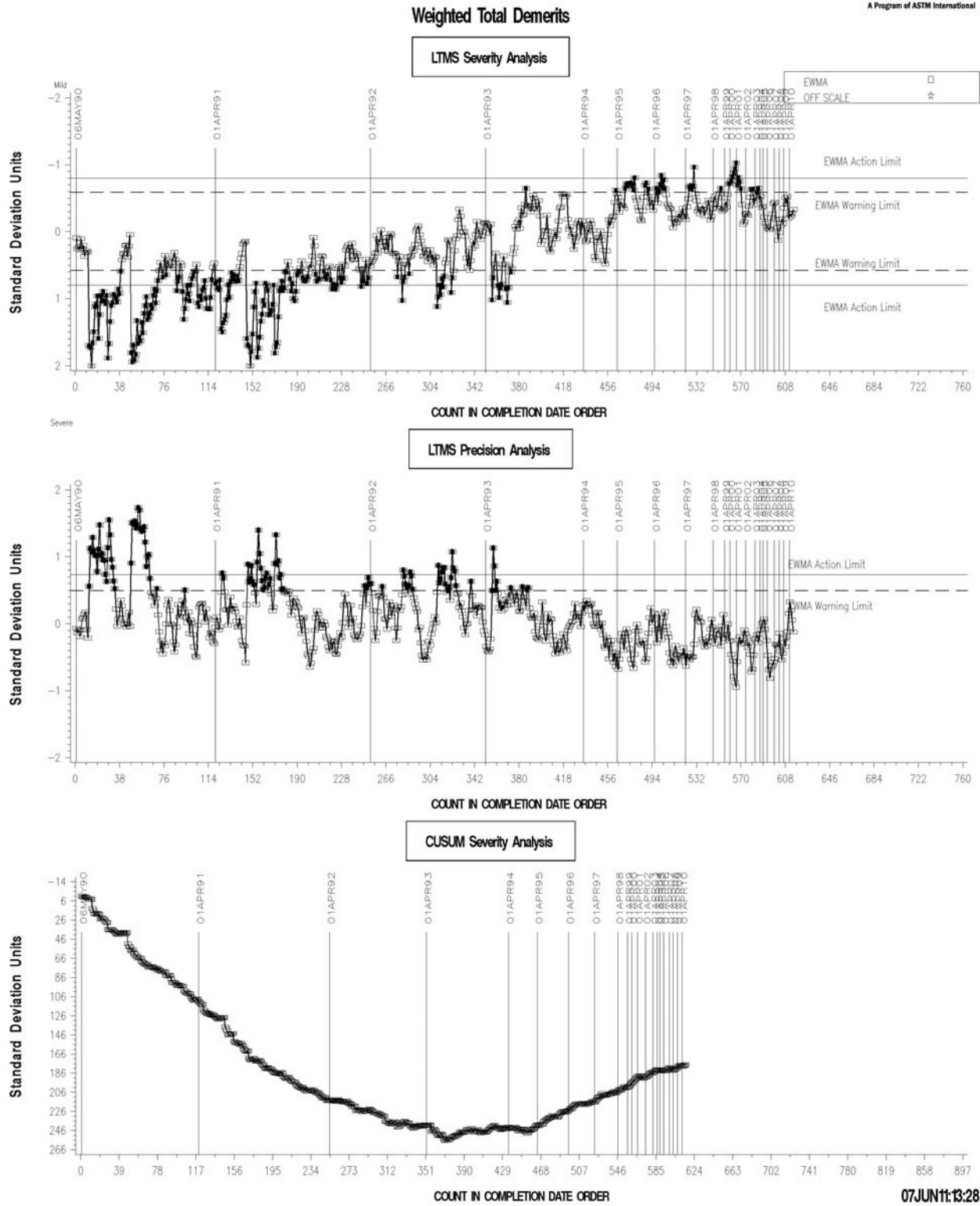


FIGURE 3
CATERPILLAR 1K INDUSTRY OPERATIONALLY VALID DATA



FINAL TRANSFORMED TOP LAND HEAVY CARBON

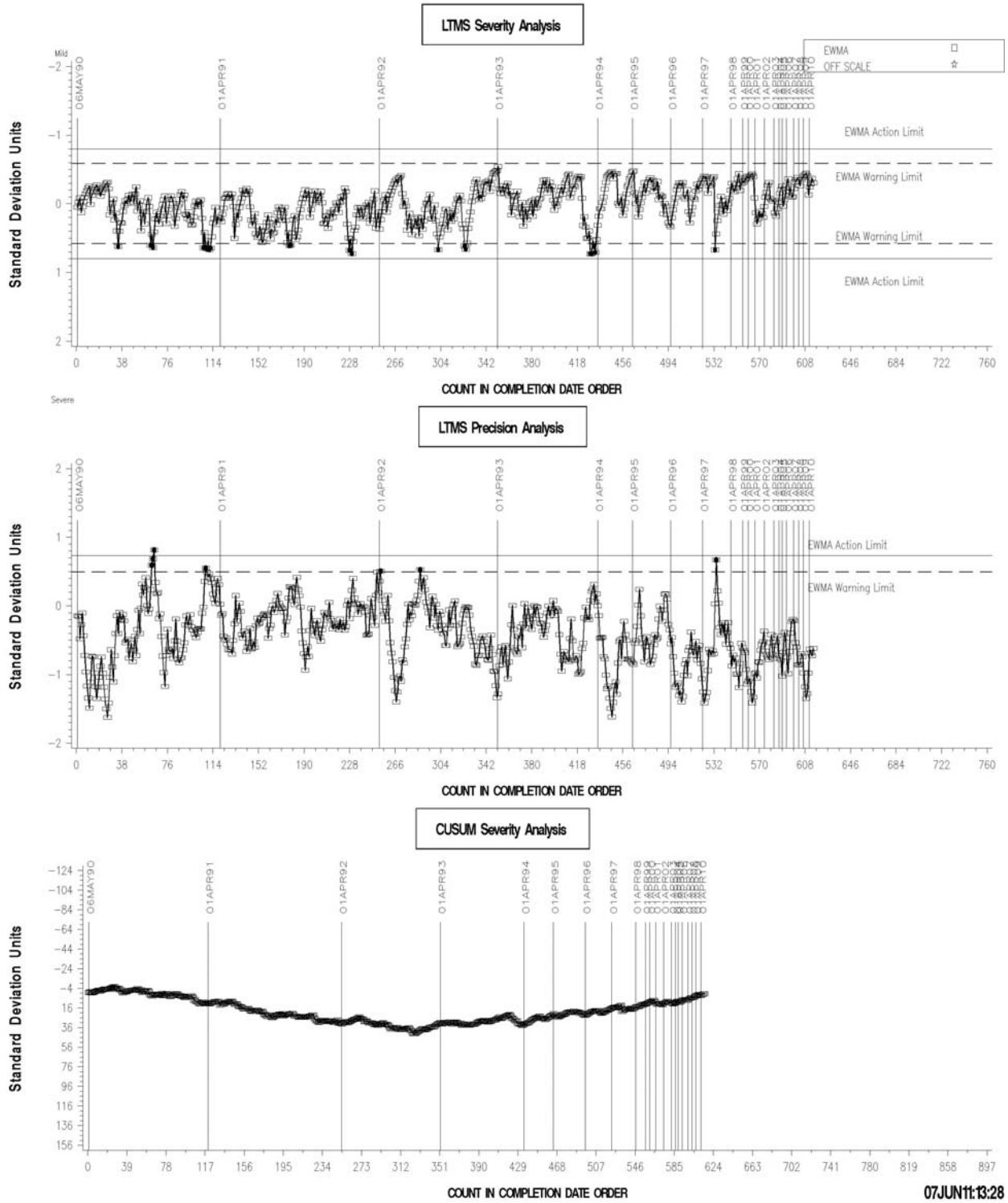


FIGURE 4
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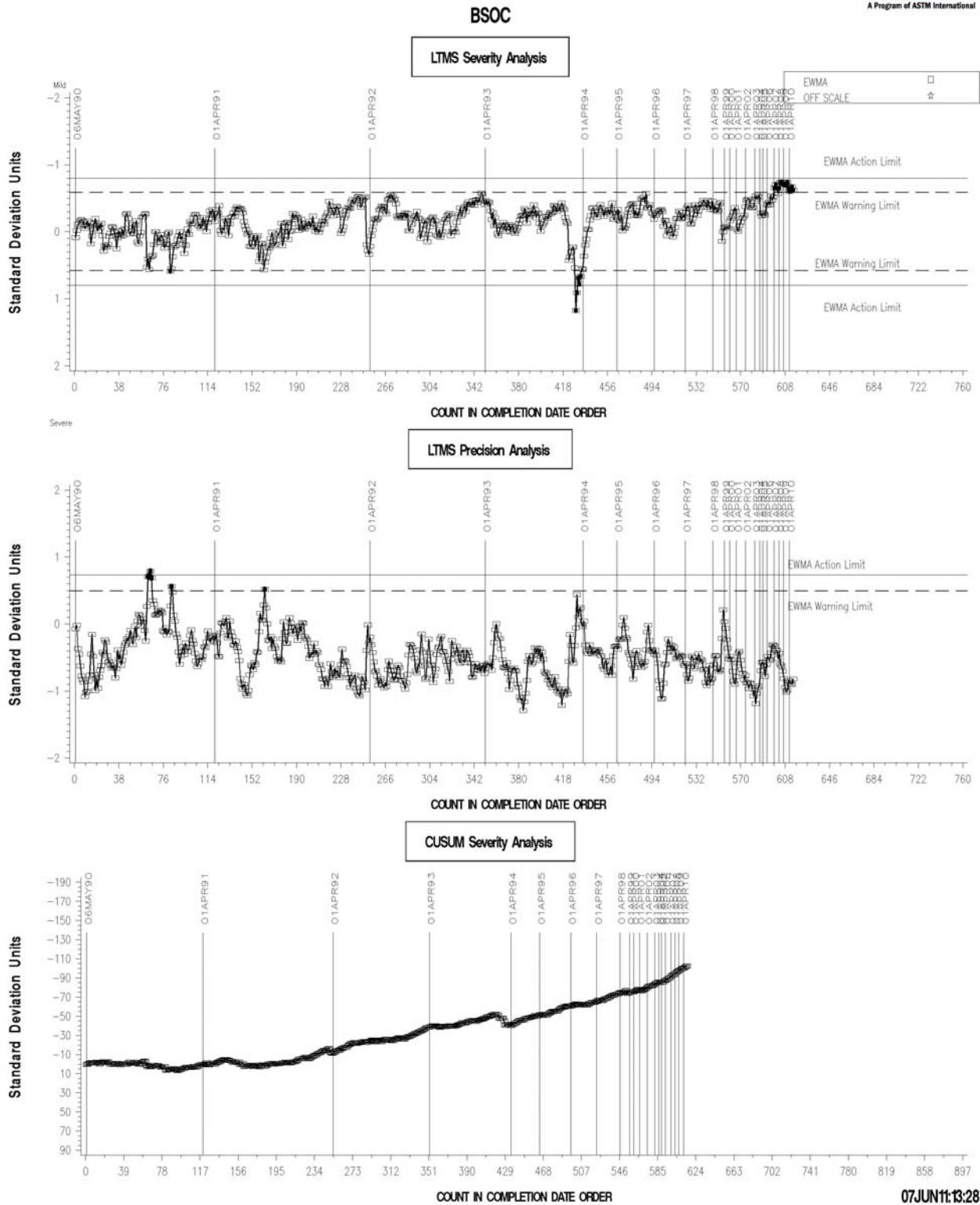


FIGURE 5
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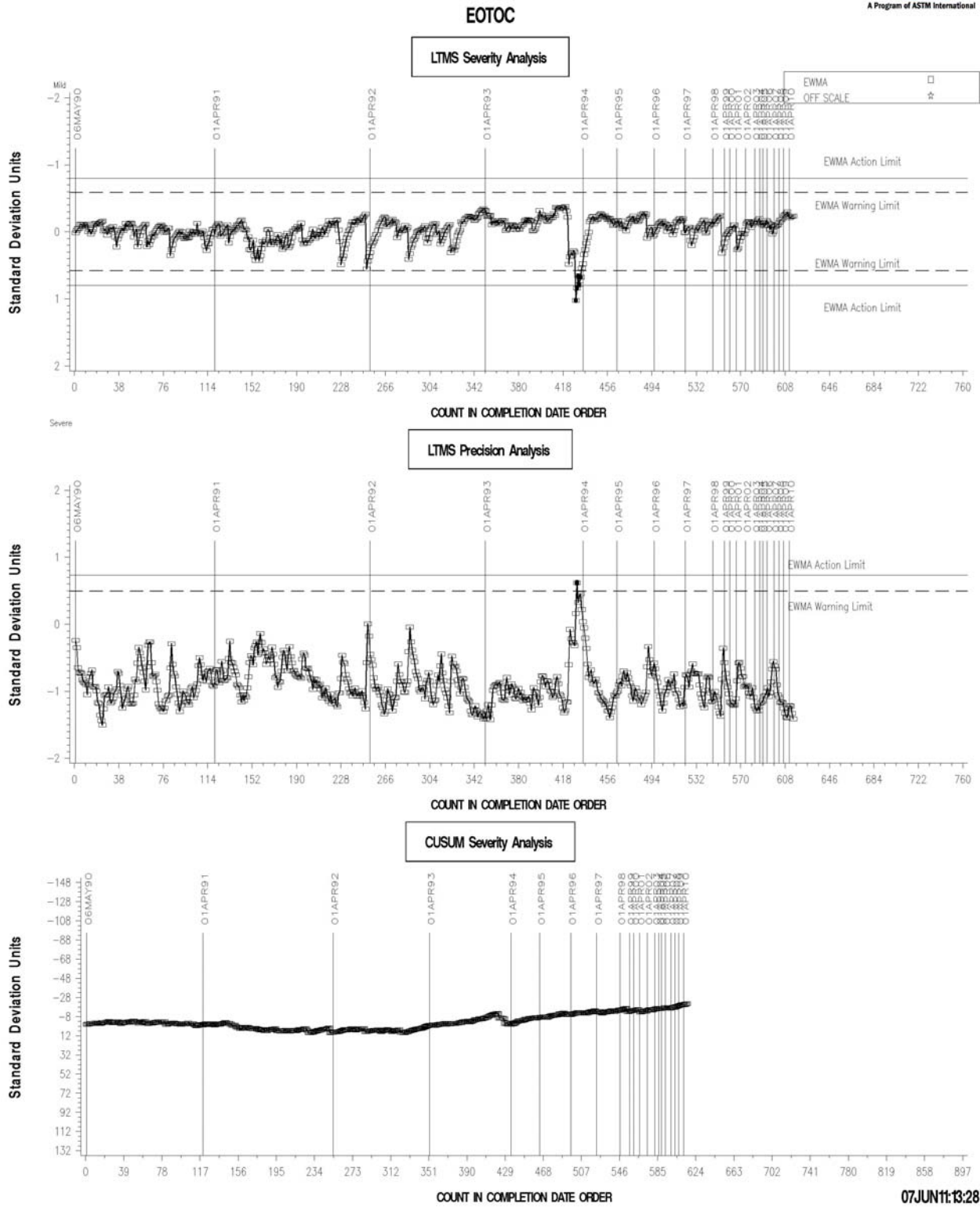


FIGURE 6
CATERPILLAR 1N INDUSTRY OPERATIONALLY VALID DATA

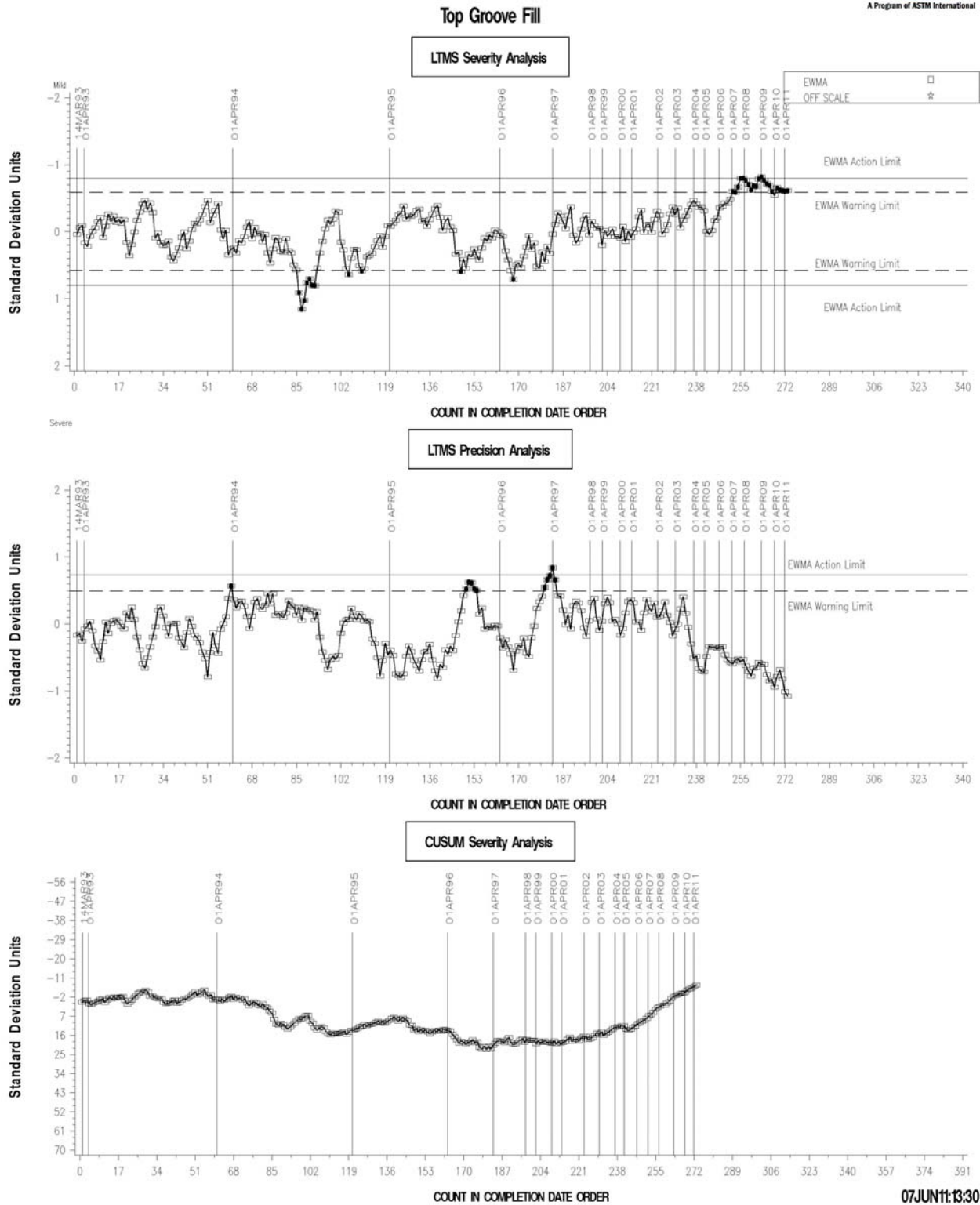


FIGURE 7
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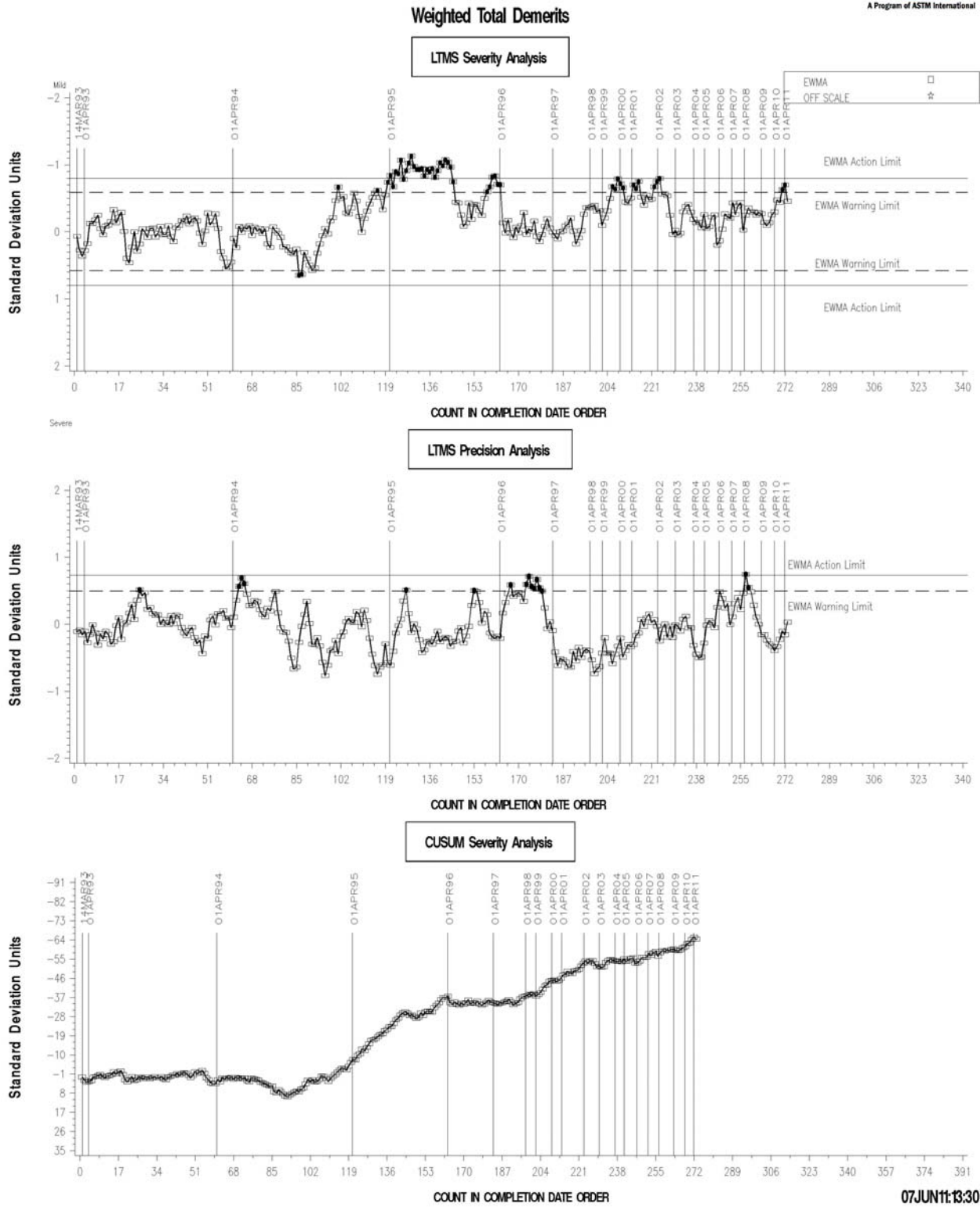


FIGURE 8
CATERPILLAR 1N INDUSTRY OPERATIONALLY VALID DATA



FINAL TRANS. TOP LAND HEAVY CARBON

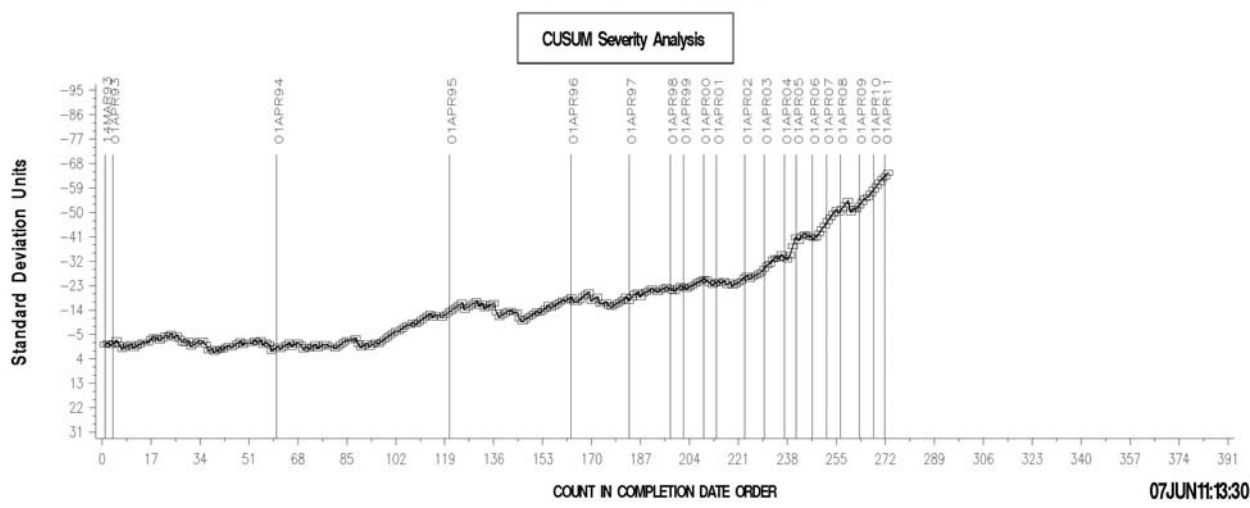
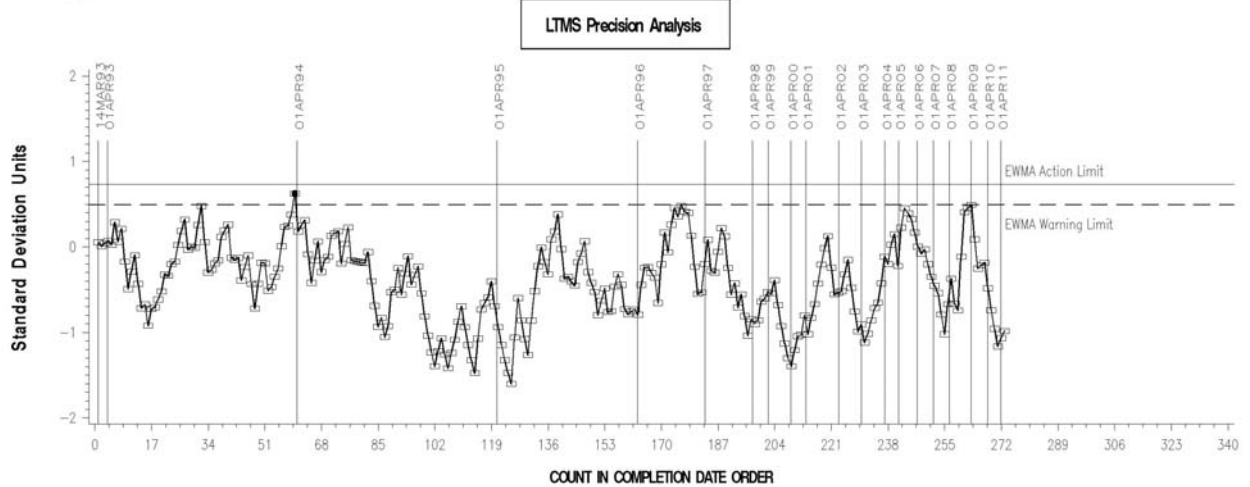
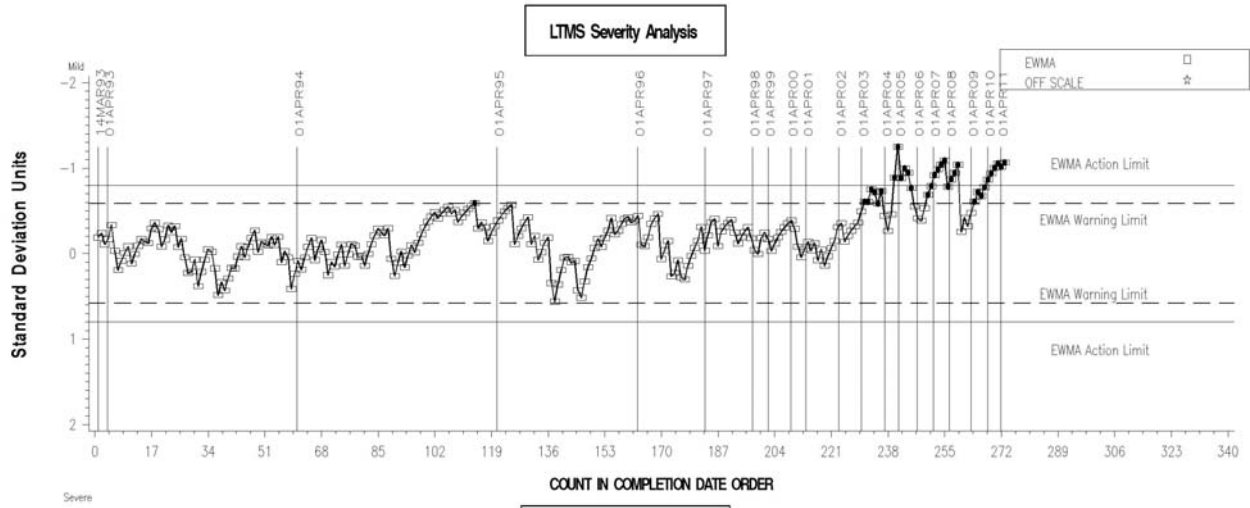


FIGURE 9
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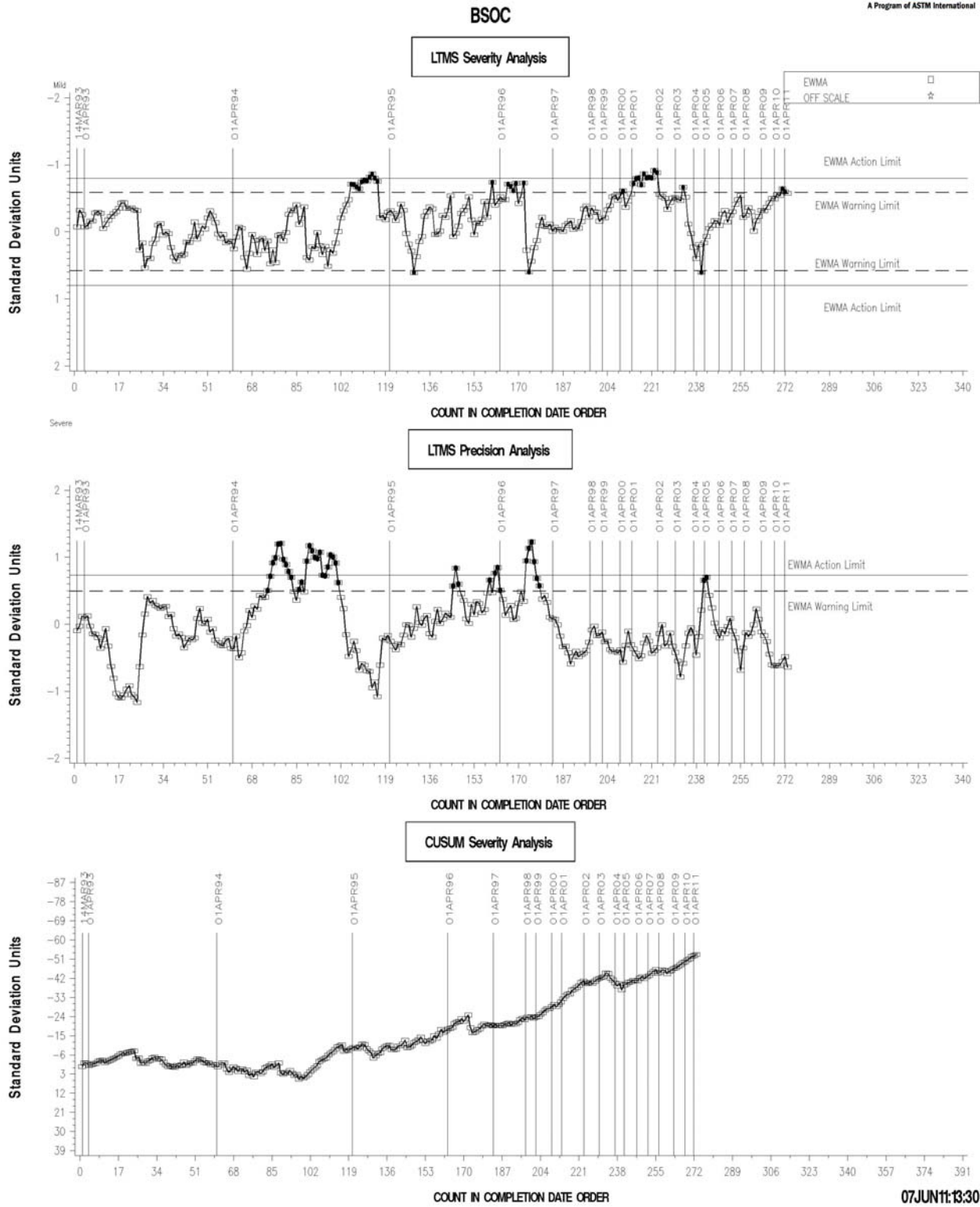


FIGURE 10
CATERPILLAR 1M-PC INDUSTRY OPERATIONALLY VALID DATA



FINAL TOP GROOVE FILLING

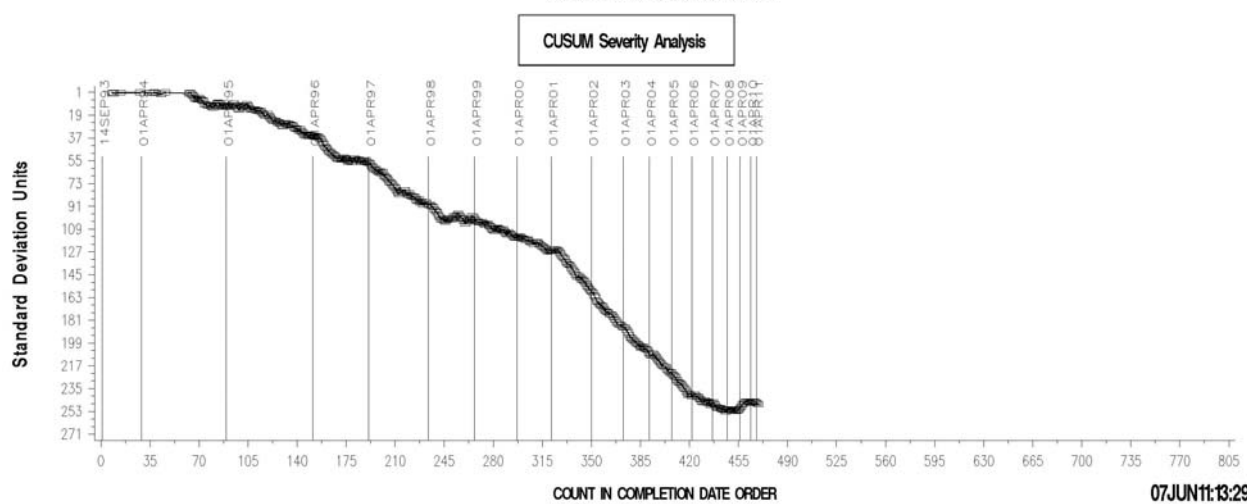
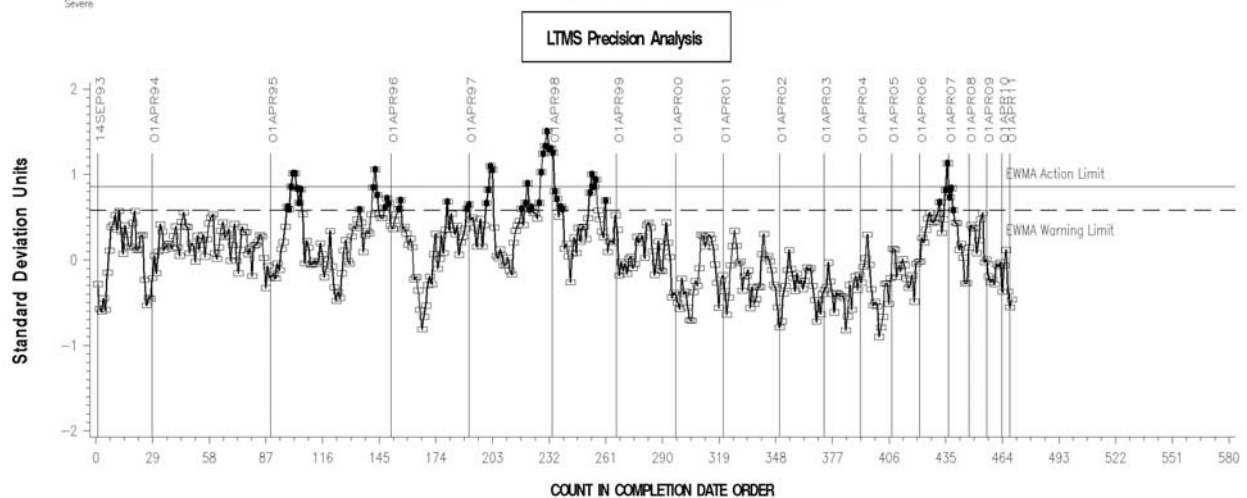
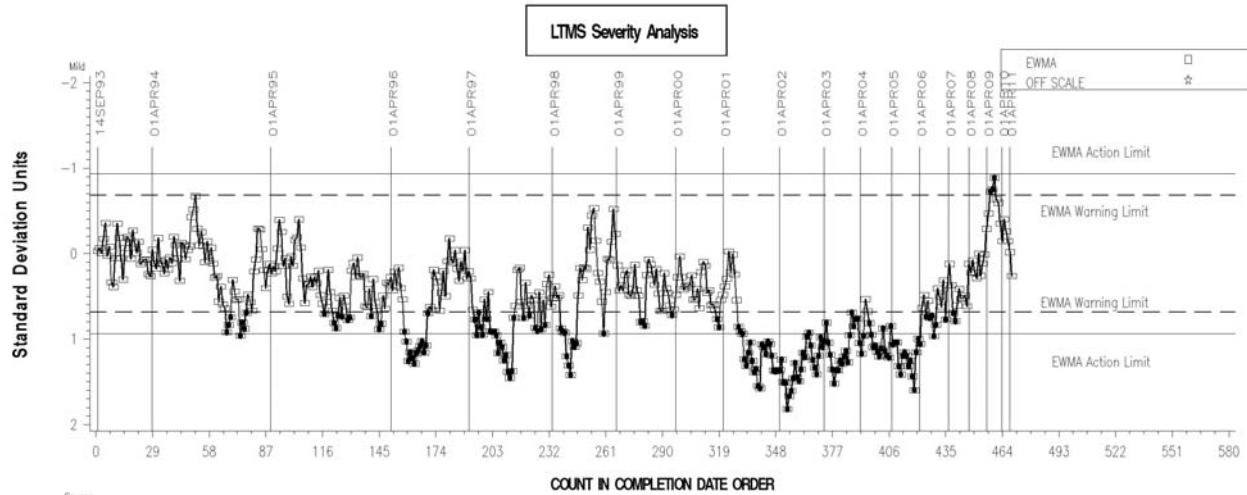


FIGURE 11
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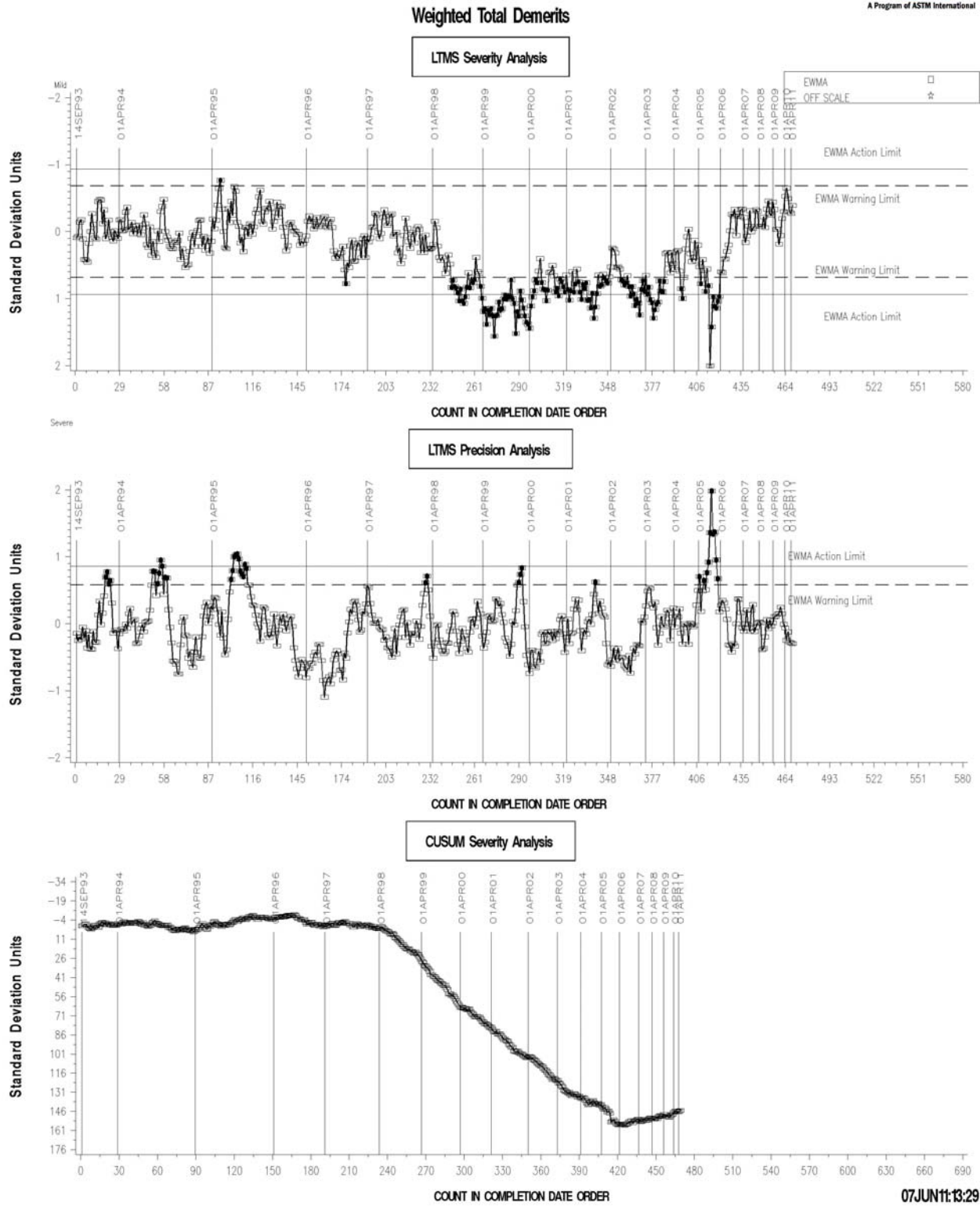
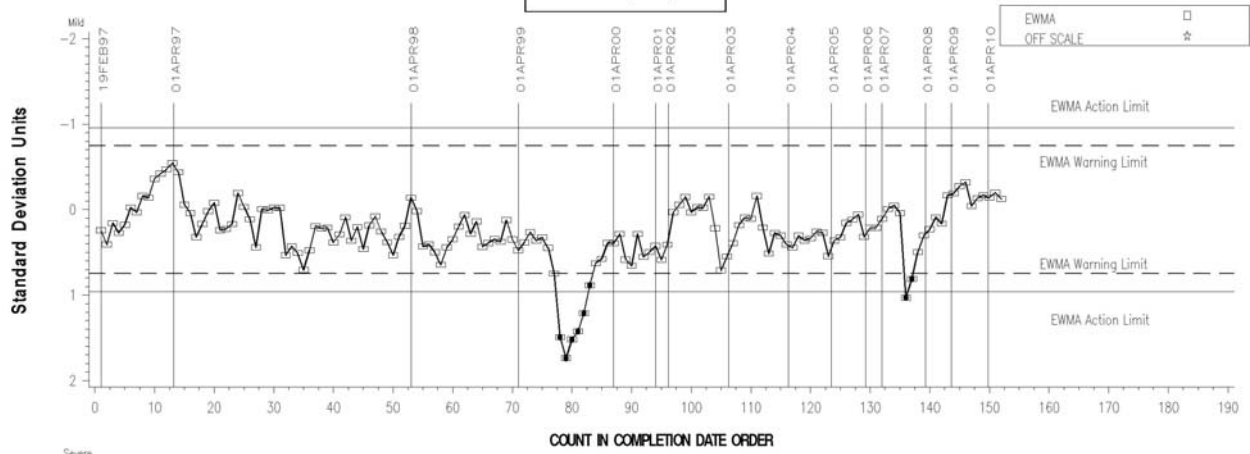


FIGURE 12
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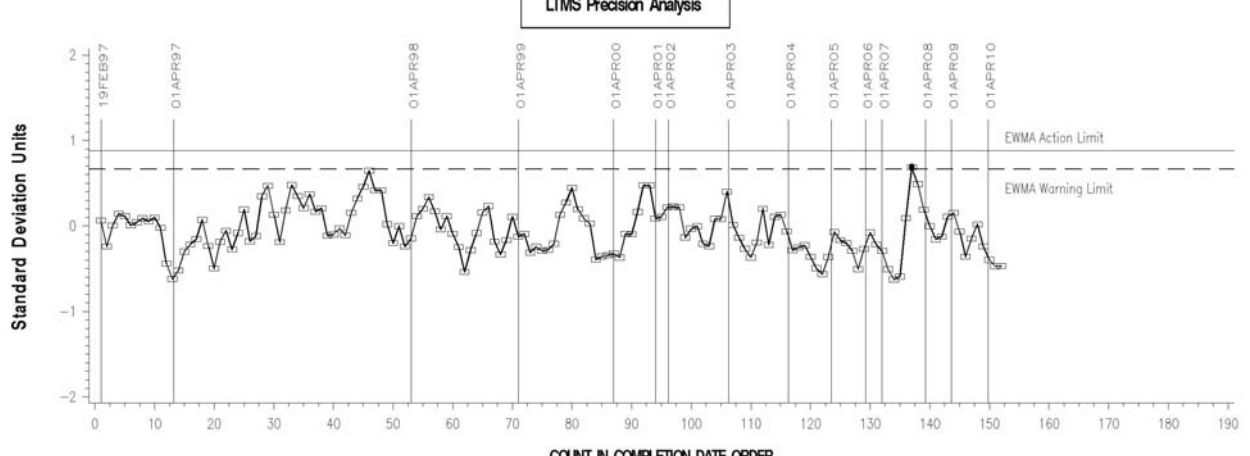


TOP GROOVE CARBON

LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

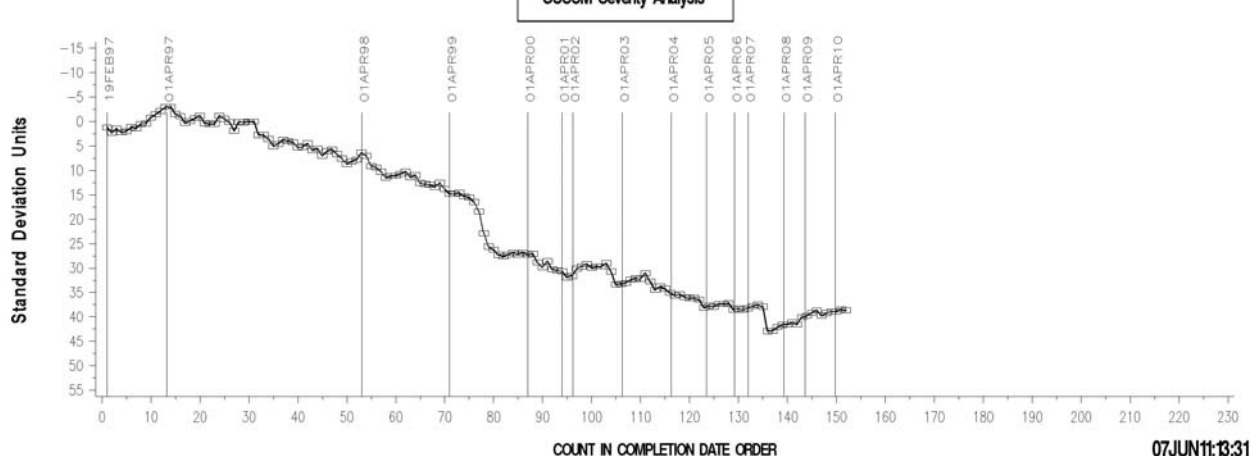


FIGURE 13
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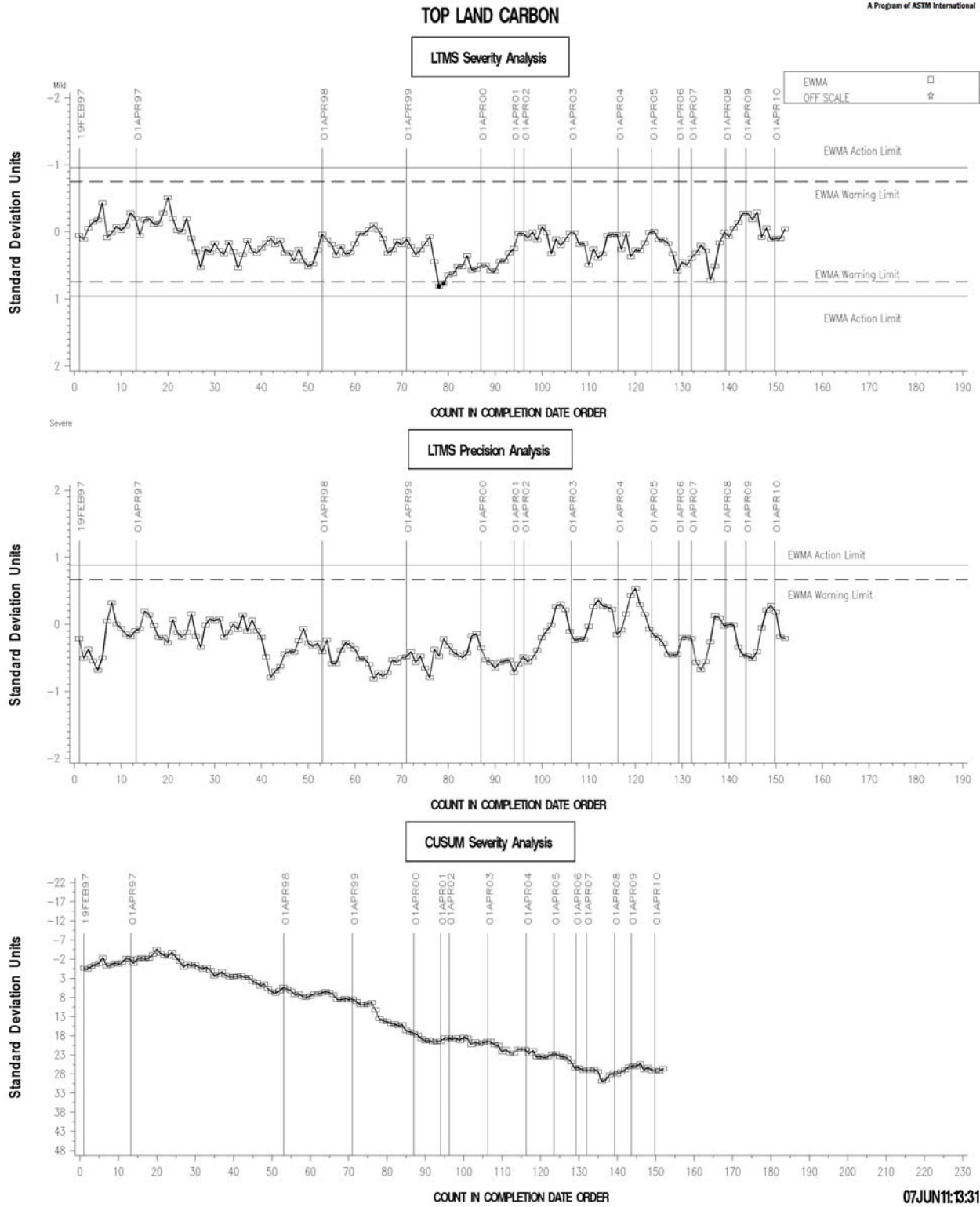


FIGURE 14
CATERPILLAR 1P INDUSTRY OPERATIONALLY VALID DATA



WEIGHTED TOTAL DEMERITS

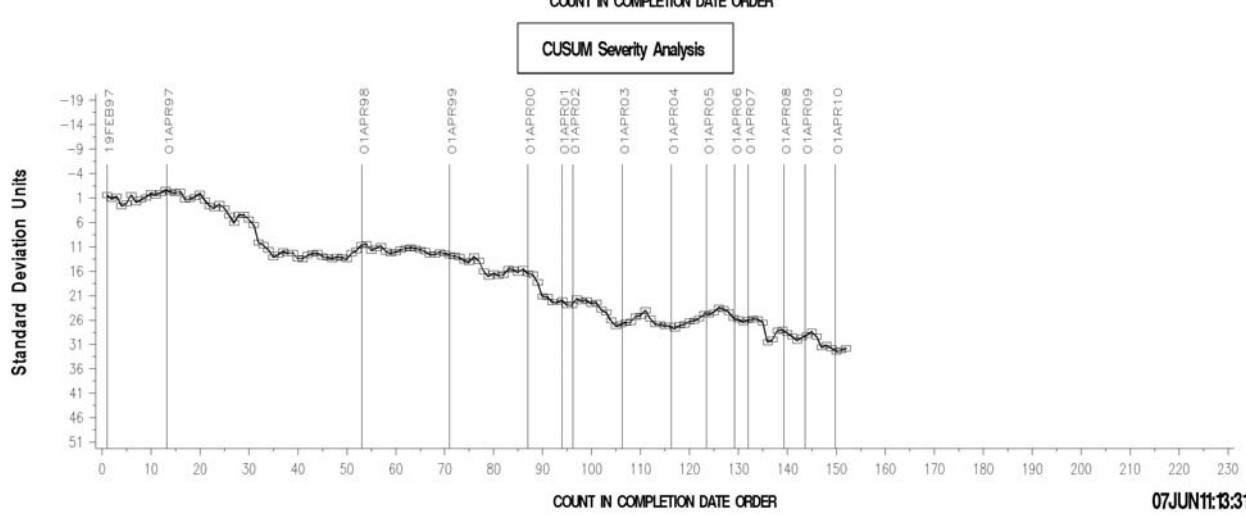
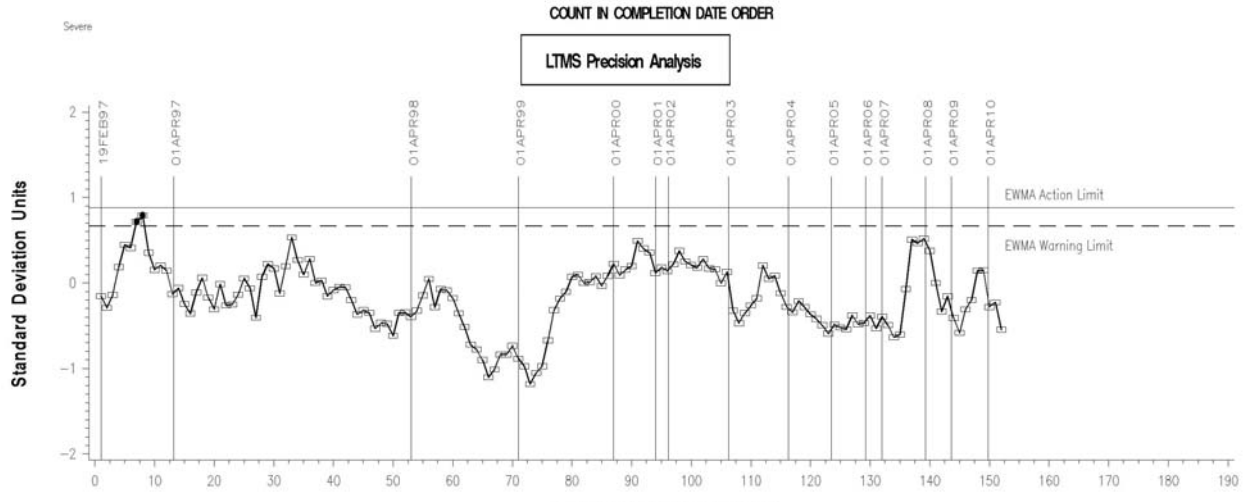
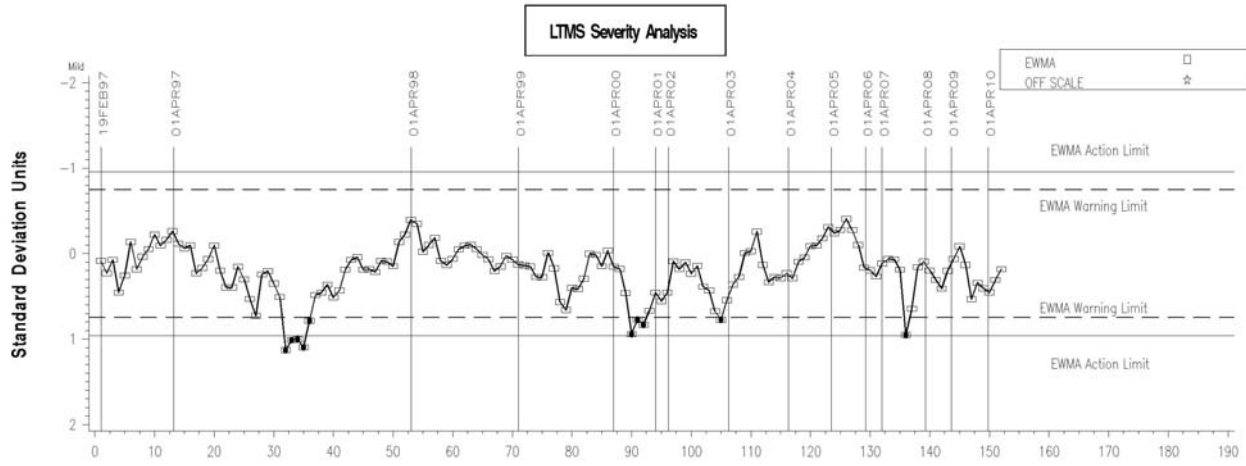


FIGURE 15
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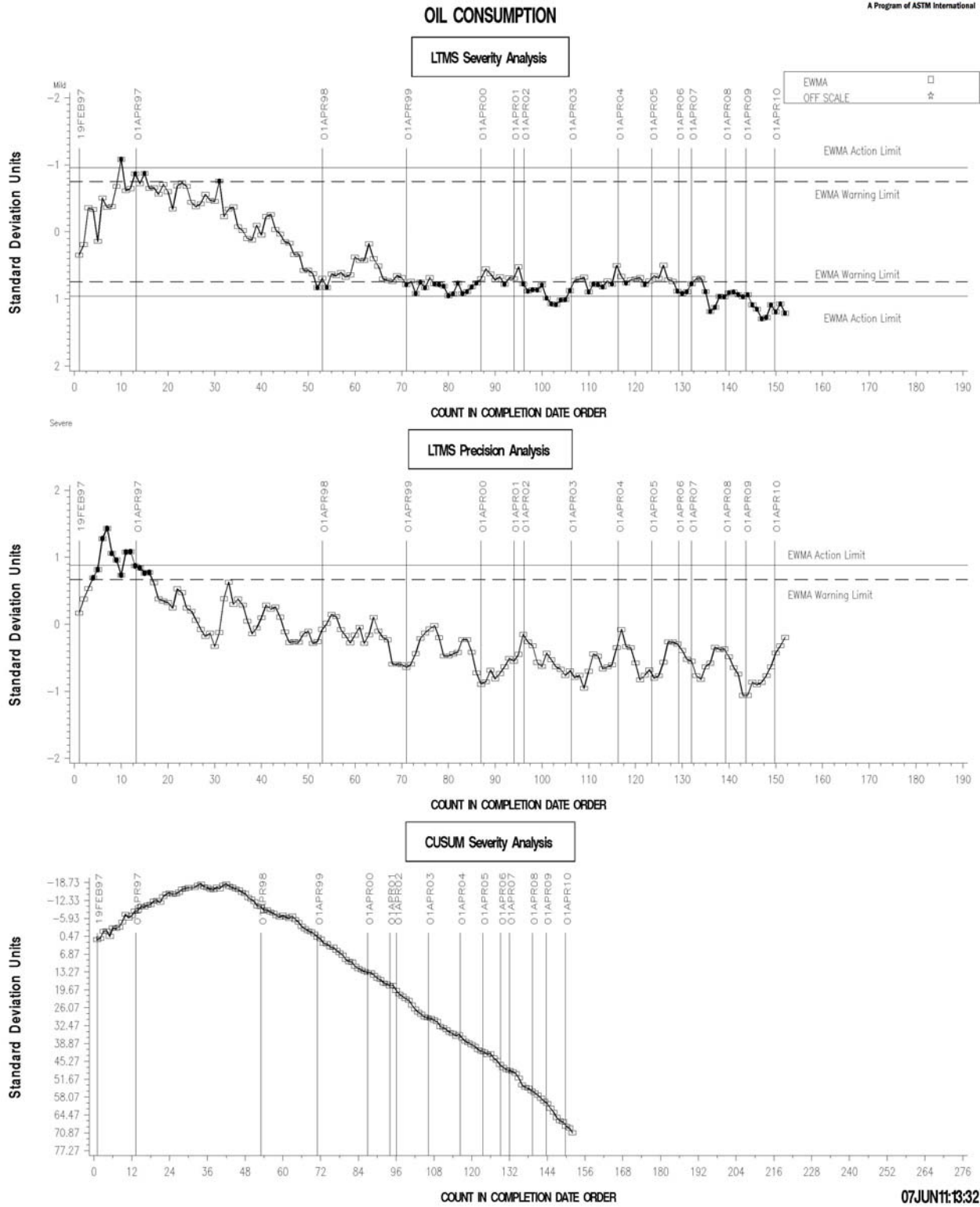


FIGURE 16
CATERPILLAR 1P INDUSTRY OPERATIONALLY VALID DATA



EOTOC

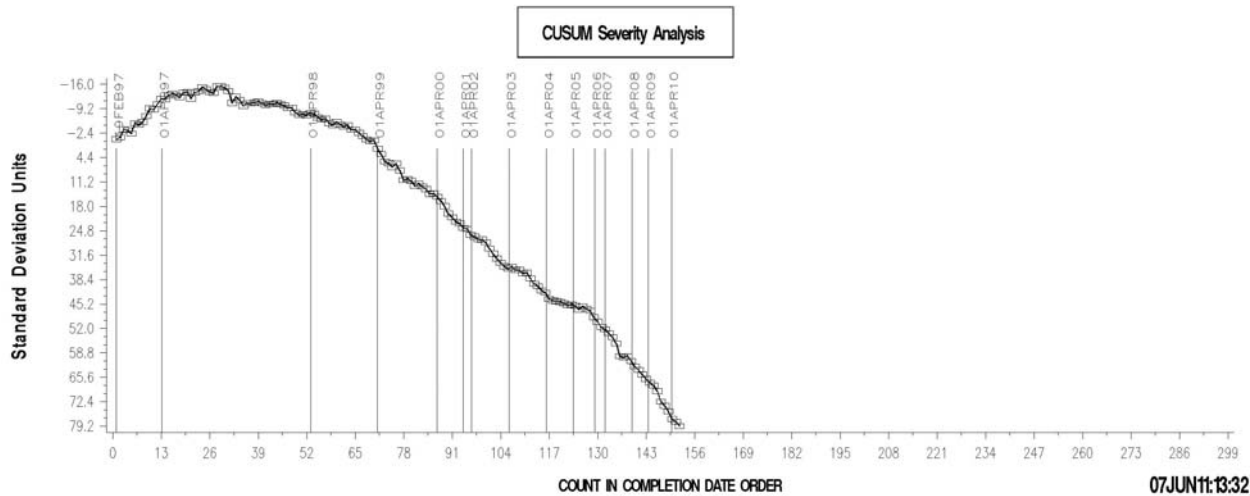
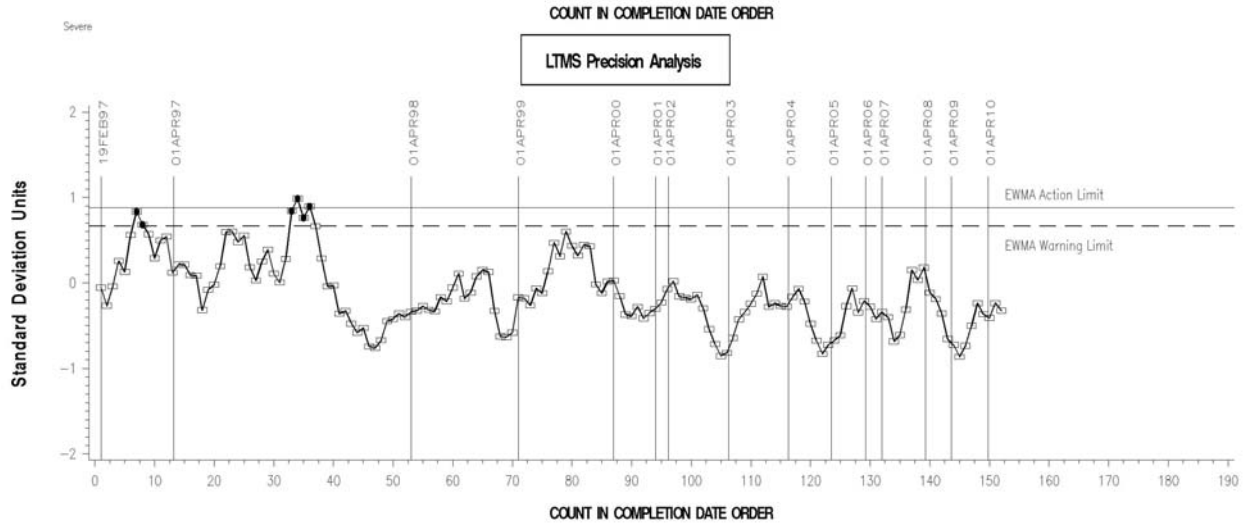
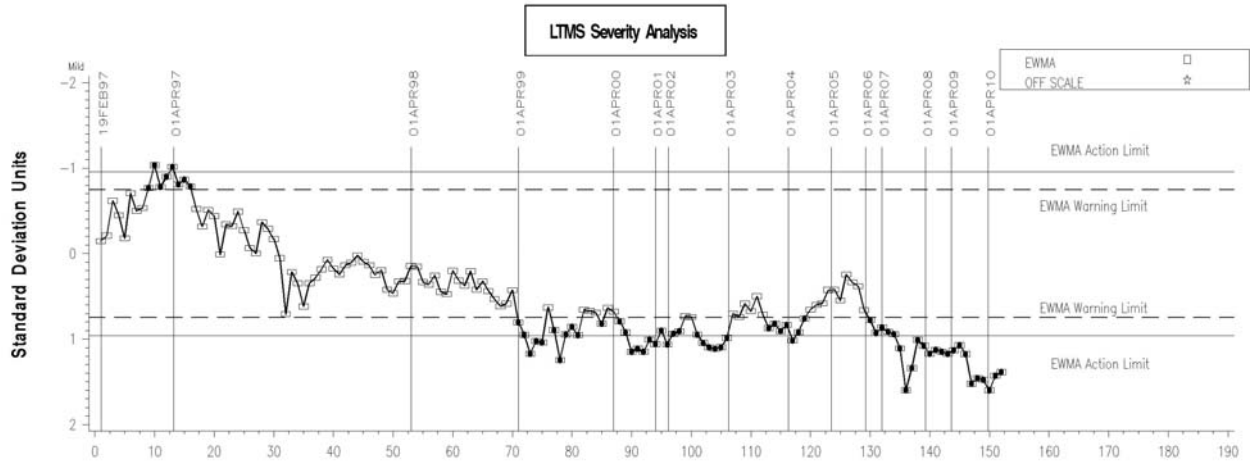


FIGURE 17
CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA



FINAL WEIGHTED TOTAL DEMERITS (DEMERITS)

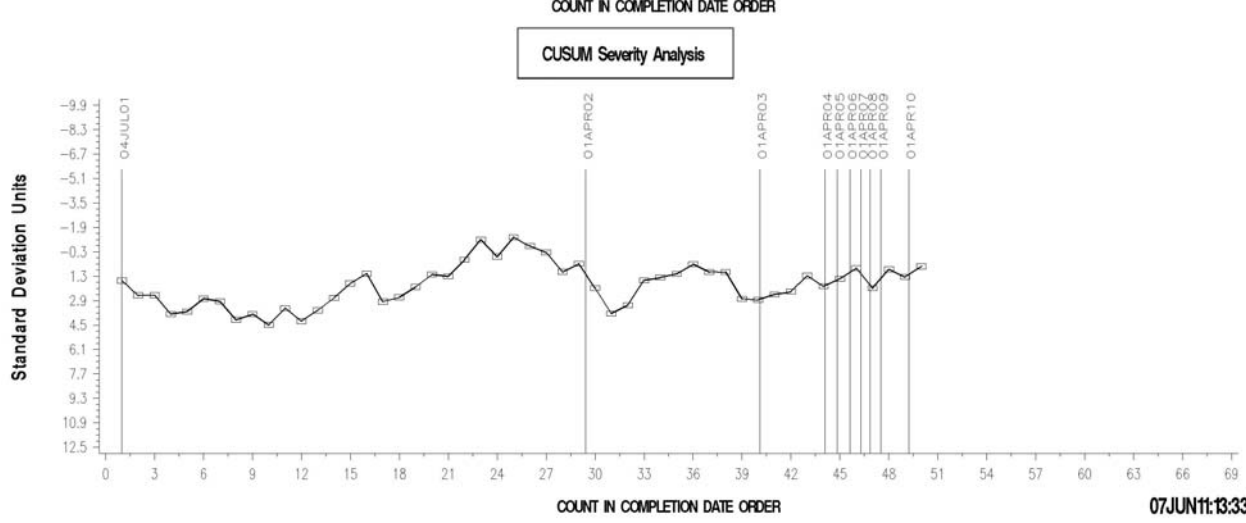
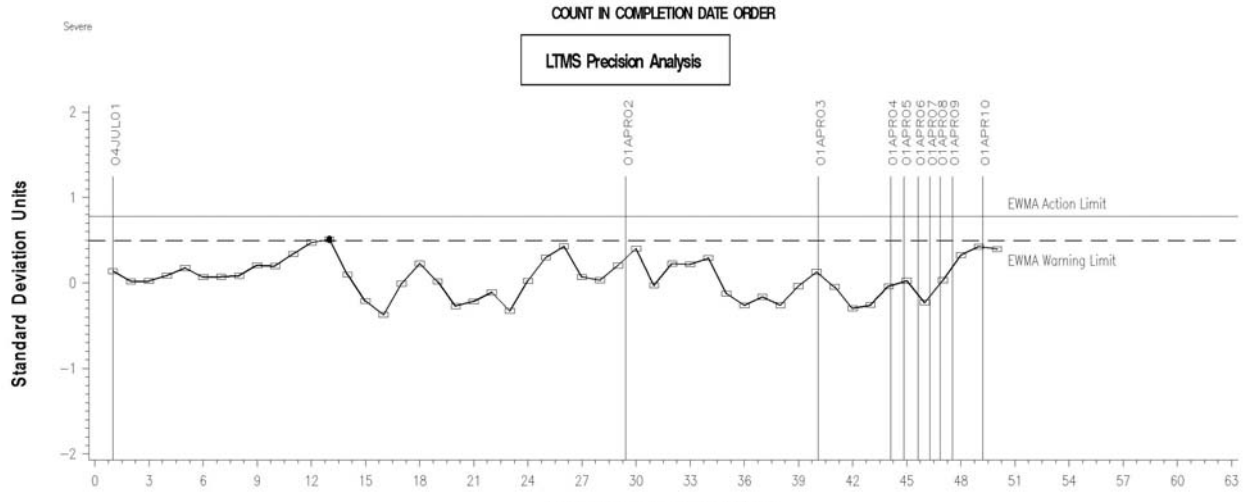
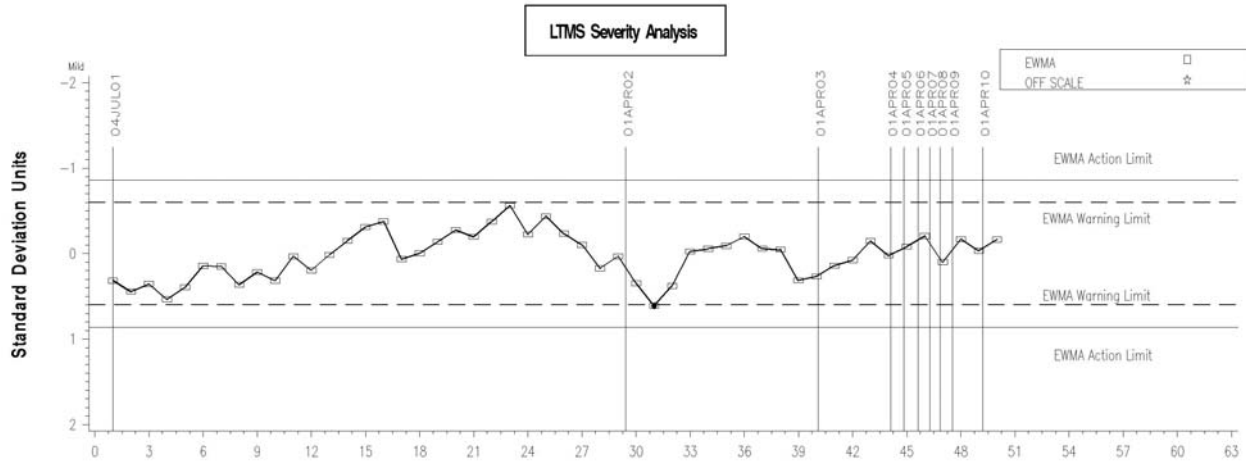


FIGURE 18 CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA



FINAL TOP GROOVE CARBON (DEMERITS)

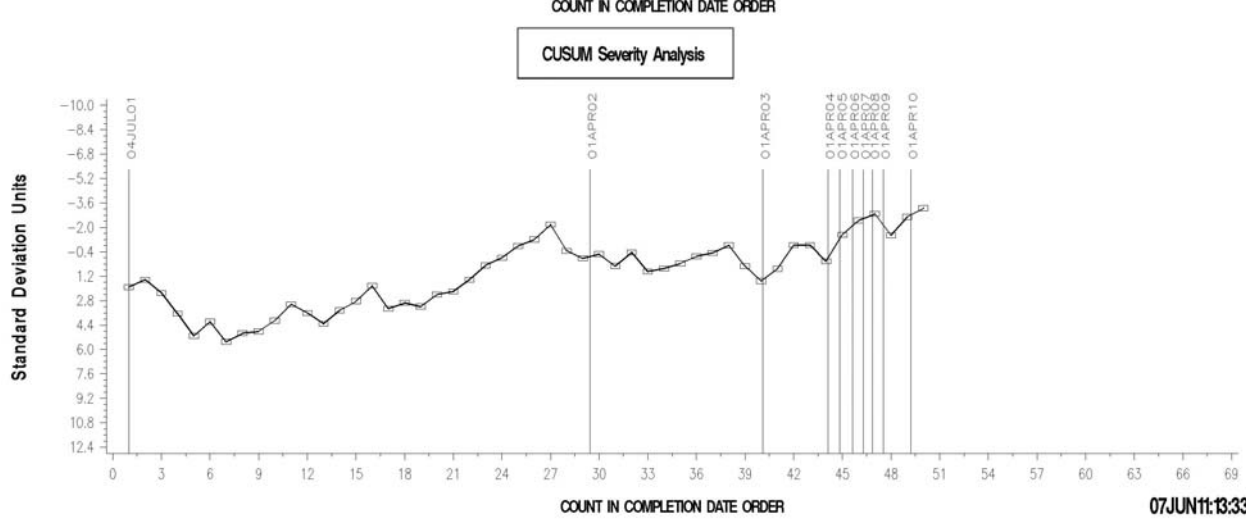
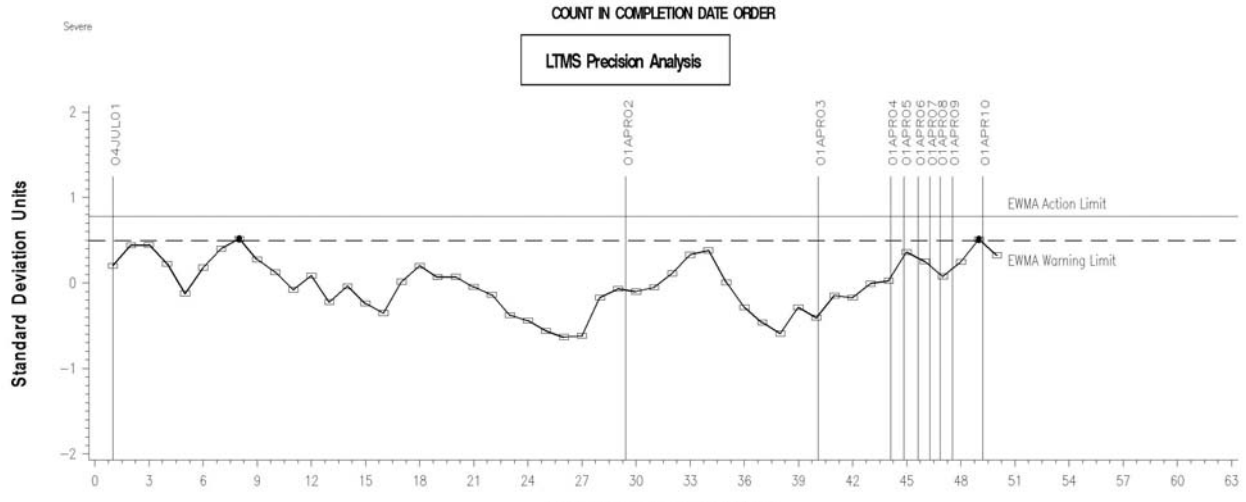
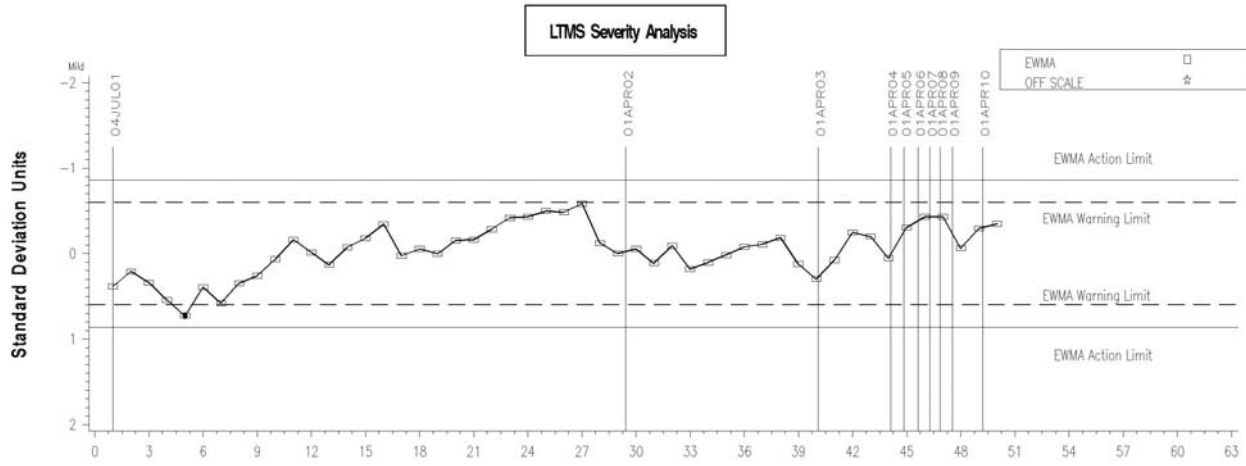


FIGURE 19 CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA



FINAL TOP LAND CARBON (DEMERITS)

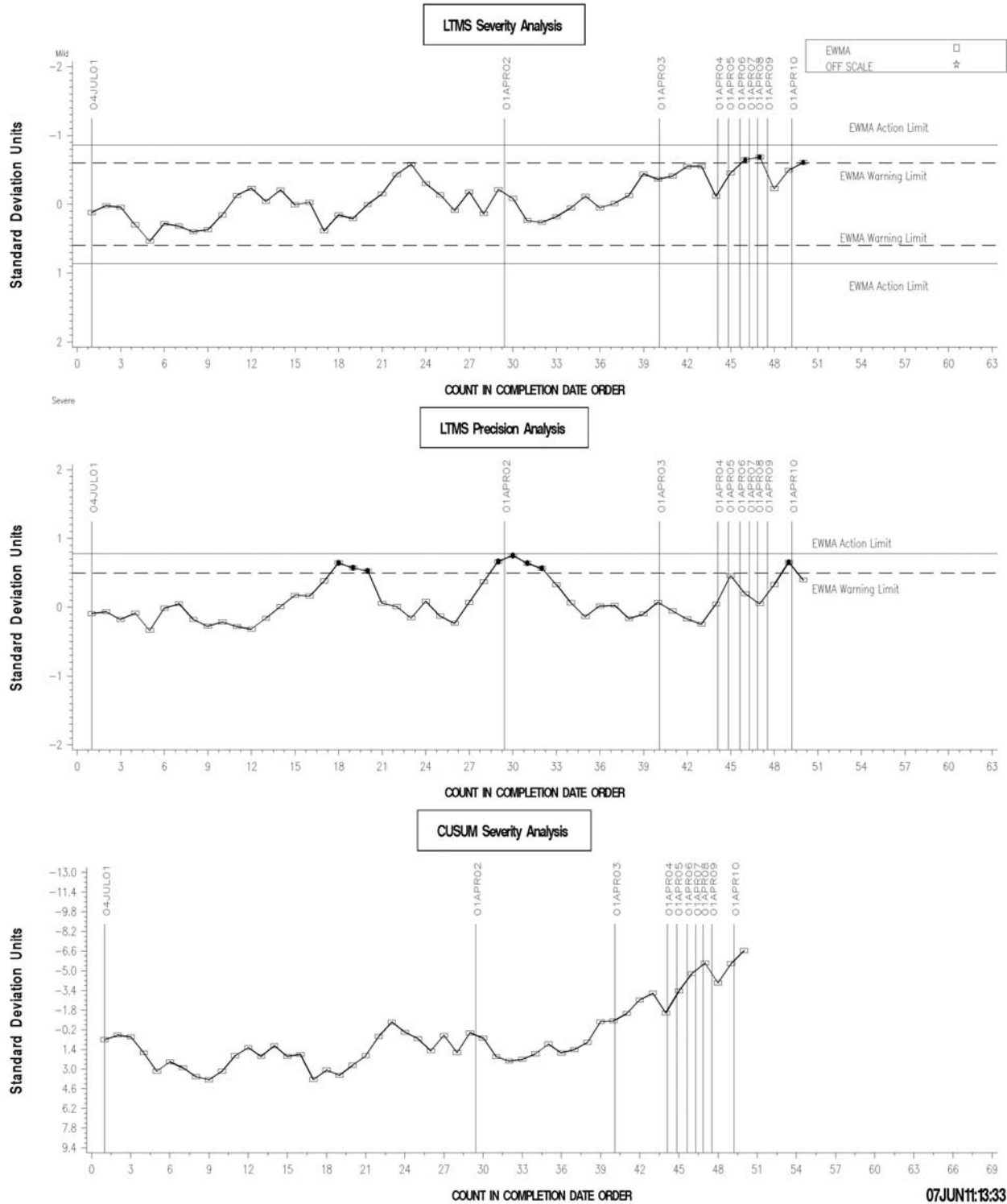
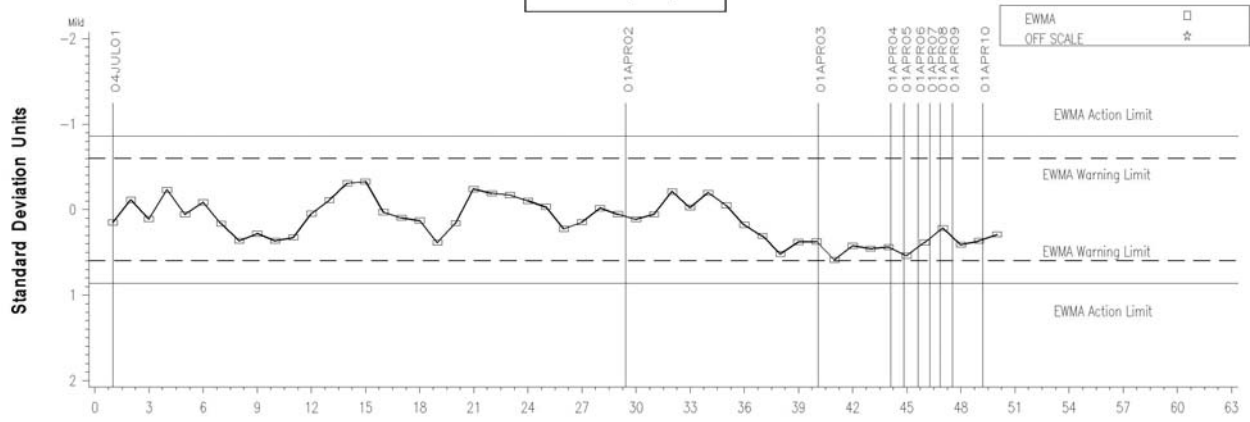


FIGURE 20
CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA

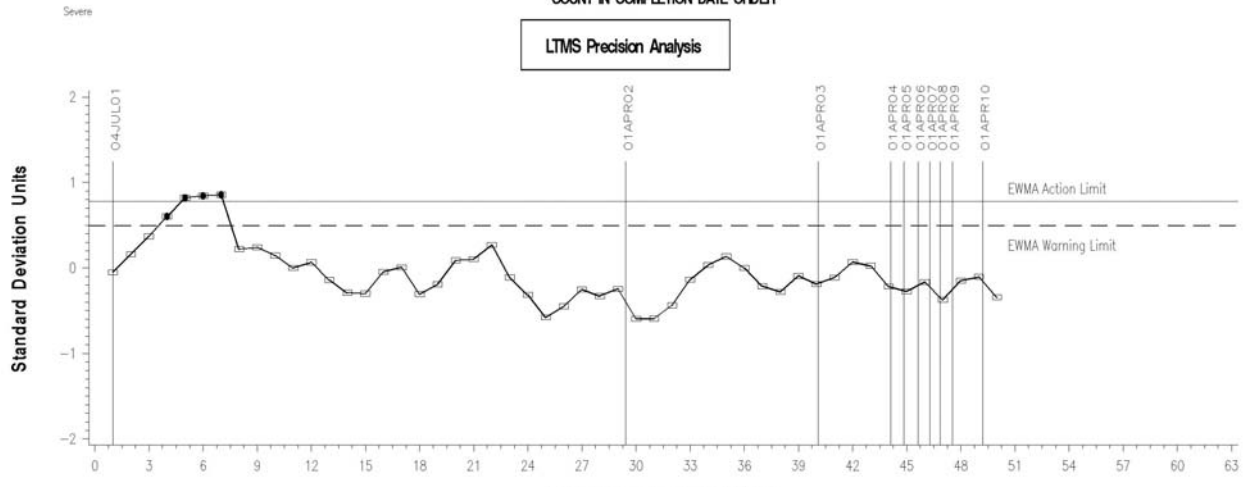


FINAL BOTOC

LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

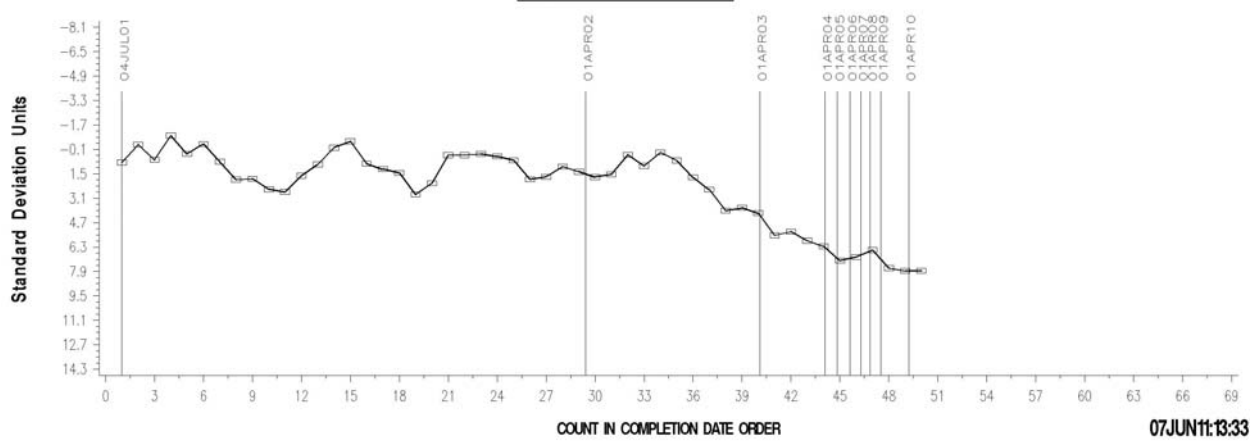


FIGURE 21
CATERPILLAR 1R INDUSTRY OPERATIONALLY VALID DATA

