

Oil Seal Compatibility and Testing (OSCT, ASTM D5662) Surveillance Panel

Meeting Minutes

PRI Warrendale, PA

Don Bell

8/11/2010

Attendees:

Don Lind (TMC)	Galen Greene (Lz)	Jerry Gropp (Lz)	Brian Koehler (SWRI)
Dale Smith (Intertek)	Don Bell (Afton)	Stephen Eliot (XOM)	Cory Koglin (Afton)
Scott Parke (TMC)	Larry Hamilton (Lz)	Donna Mosher (Eaton)	Allen Comfort (Army)
Bridget Dwornick (Army)	Becky Grinfield (SWRI, phone)		
Jennifer Keiter (Lz, phone)	Percy Kanga (XOM)	Thelma Marougy (Eaton, phone)	
Jack Zacharian (Chevron)	John Mattern (Lz, phone)		
Troy Muransky (ArvinMeritor)	Hong Gao (COP, phone)		
Kenny Miller (DANA, L37 only)	Bruce McGlone (ArvinMeritor)		

The OSCT Surveillance Panel meeting was called to order at 1:16 pm on 8/11/2010 by D. Bell

A motion was unanimously approved (6 approvals) that was made by J. Gropp and 2<sup>nd</sup> by A. Comfort to approve the previous OSCT Surveillance Panel meeting minutes from 5/12/2010 and 5/26/2010 that are available on the TMC website.

There are multiple baths available at both Lz and SWRI with no known related "stand" bath problems. Over the past month there have been three D5662 warning alarms that have come to the attention of the OSCT chairman regarding poor precision and severity for % elongation and % volume change for polyacrylate. The data suggests the differences may be lab related and not elastomer batch. TMC will compile the data and send it out to the chairman and both will continue to closely monitor the data and consider lab visits by the TMC prior to the planned end of 2010 if a severity trend continues.

Polyacrylate consisting of ~300 slabs of PA342 was approved 5/2010 (TEI currently has 136 slabs), so a new lot, PA343, also consisting of 300 slabs has been ordered by Test Engineering Institute (TEI) on 8/11/2010 for qualification testing upon receipt. The most recent lot of fluoroelastomer, FL379, has been approved on 7/30/2010 (TEI currently has 58 slabs) and another lot, FL380, consisting of 200 slabs has been ordered from Freudenberg FNOK on 8/2/2010. The new ~300 slabs of nitrile, NI 336, has completed qualification testing at SWRI and is in progress at Lz. Upon completion, the chairman will conduct a Panel teleconference to review the data to determine qualification approval.

The 1000 hour/100C nitrile seal testing that is required per section 2.4.4 of the PRI PD4000 document as part of the field trial has come under question since the seal material is no longer available and thus the guideline limits are not representative of the same elastomers. The current procedure now uses the same elastomers as used for OSCT ASTM D5662 testing. In addition, this test lacks control since limited data exists, no reference oils are used and control charts are not monitored by TMC. A proposal was made to eliminate the 1000 hour seal testing as a requirement or at least revise the 1000 hour/100C nitrile test guideline limits to agree with the wider D5662 240 hour limits. J. Gropp noted that since the 1000 hour seal test is not monitored by or under the jurisdiction of this Panel, that this Panel does not have the authority to make changes to the test or the revise the pass/fail criteria. He suggested that the issue be discussed with the LRI, who are the rightful "owners" of the PD4000 document, during the Open Meeting portion of the LRI meeting on 8/12/2010.

For supply security, we would like to obtain an alternate supplier for elastomers. TEI will confirm the current elastomer batch specification limits for PA, FL, and NI listed below that are used by FNOK for release of each lot. The chairperson will coordinate efforts with B. McGlone of ArvinMeritor and potential alternate seal suppliers (SKF and Federal Mogul) to determine if they have elastomers they are willing to supply for testing.

FNOK releases elastomers based on data from neat slabs, with typical values shown below:

	PA	FL	NI
Hardness Points	79	81	73
% Elongation	83	200	450
Tensile Strength, kg/cm <sup>2</sup>	80	?	145
Sp gravity	1.395	2.11	1.500
Rheometer plot of time vs. torque	Must pass	Must pass	Must pass

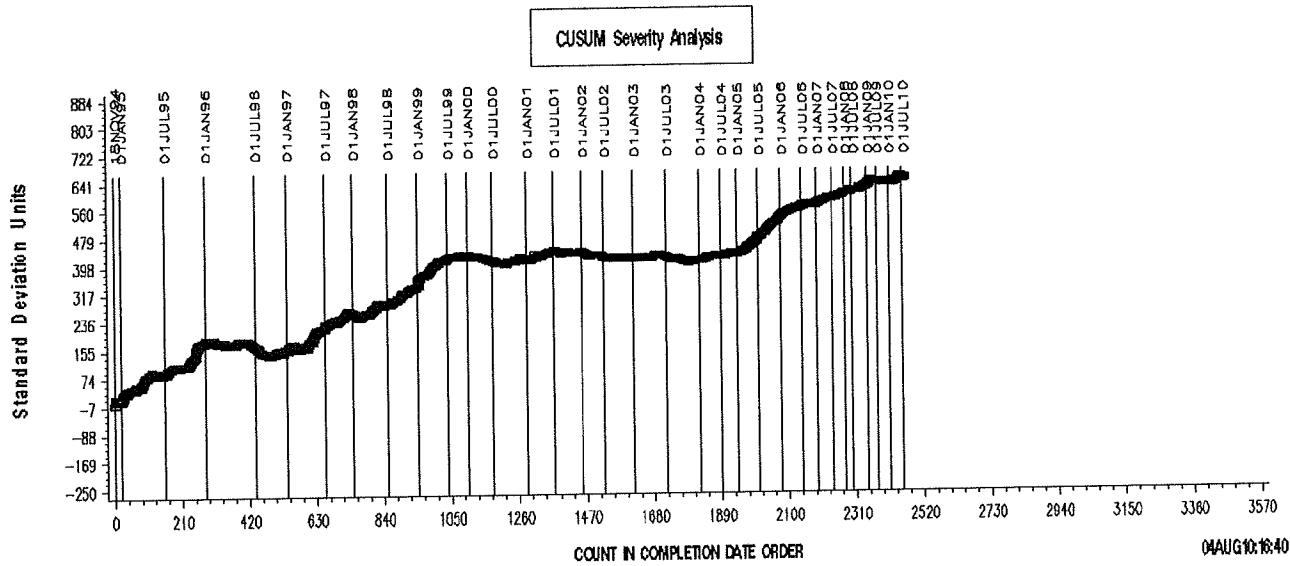
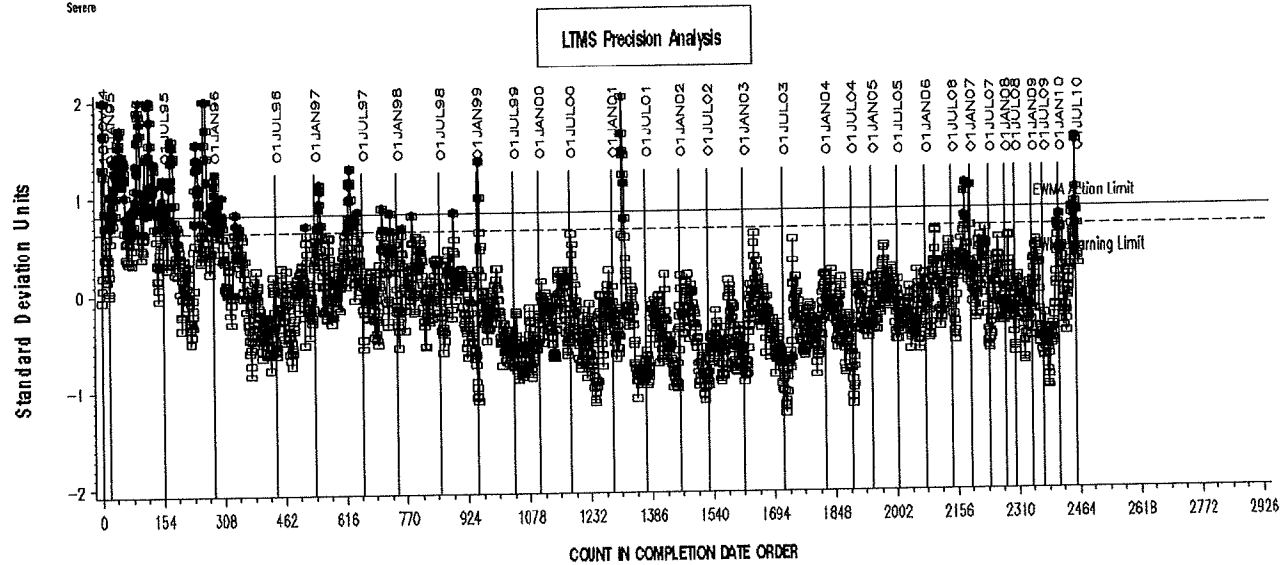
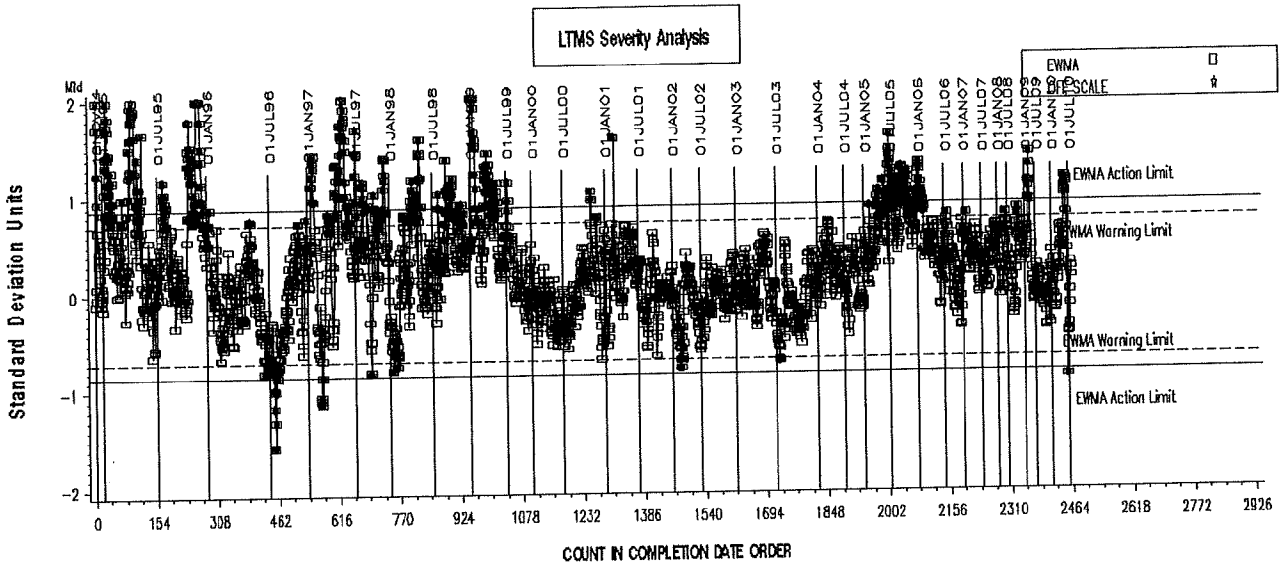
TMC was recently notified by the anonymous suppliers of reference oils, TMC 161-1 and 168, that some of the components used to blend these are no longer available, thus both reference oils will no longer be supplied. The third OSCT reference oil, TMC 160-1, is not affected. In May 2010, the Panel approved the use of an alternate J2360 qualified reference oil from the same supplier as TMC 161 to replace TMC 161, which will be called TMC-169. TMC now has 5 drums of TMC 169 and will send some to both labs to initiate side-by-side testing to gather seal data until the TCM 161 is depleted and then new acceptance bands can be established. TMC 168 was introduced in 2006 following depletion of TMC 162. There is currently ~30 gallons remaining, which may be a sufficient quantity for ~3 years. Afton and Lz have offered potential alternates that will be evaluated on a low priority basis.

A motion made by D. Smith and 2<sup>nd</sup> by B. Grinfield was unanimously approved to adjourn the OSCT SP meeting at 1:58 pm 8/11/2010.

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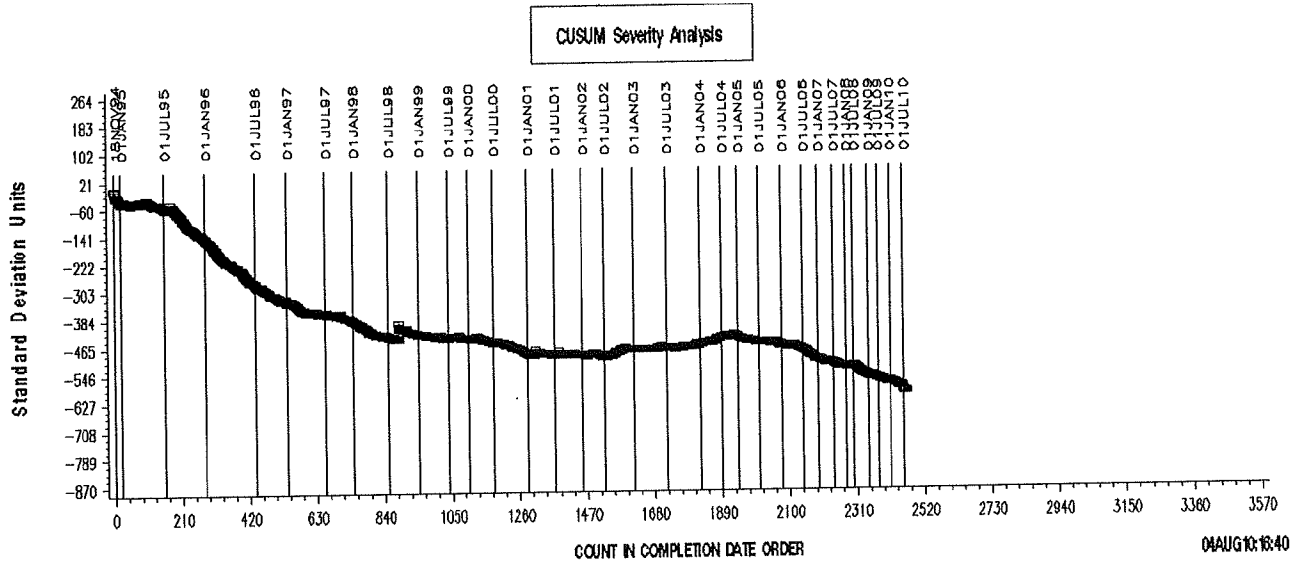
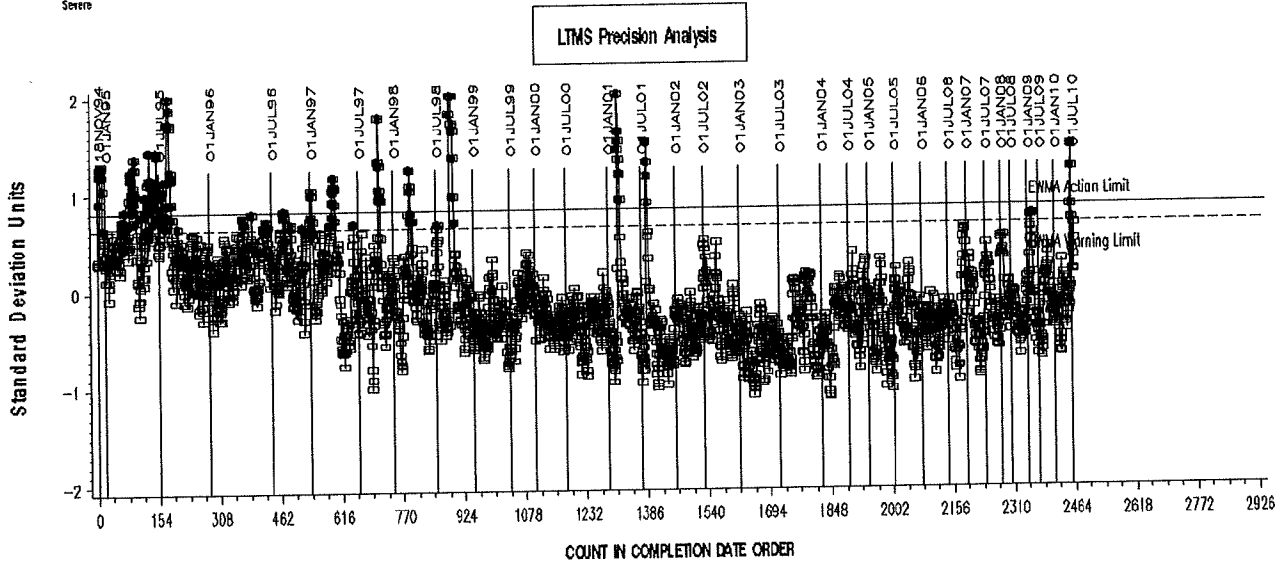
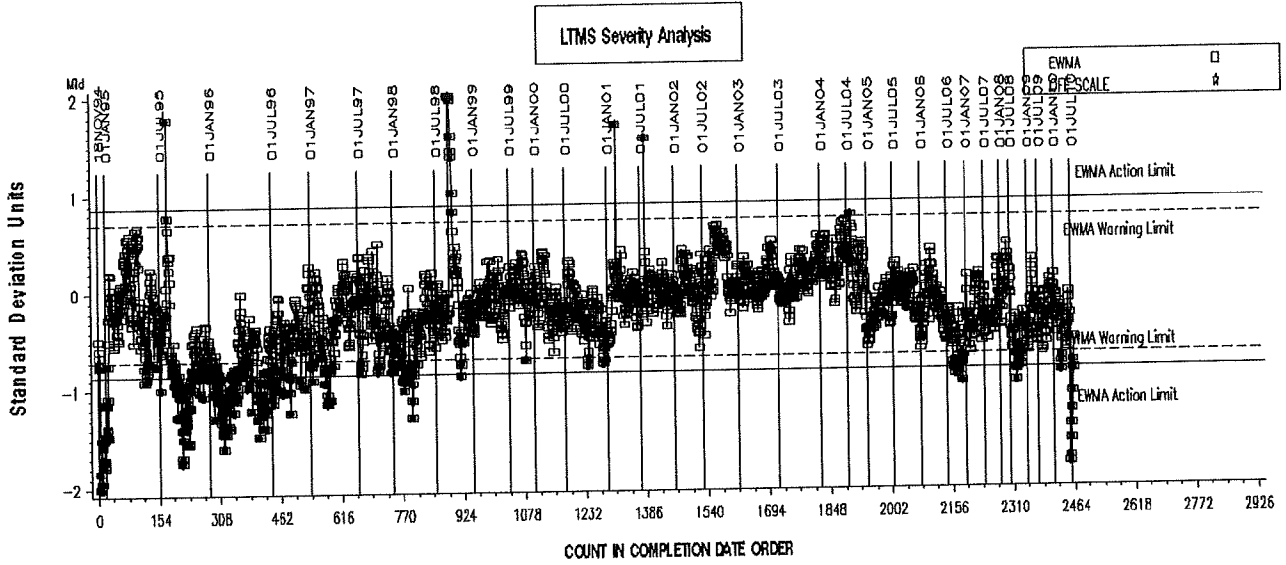


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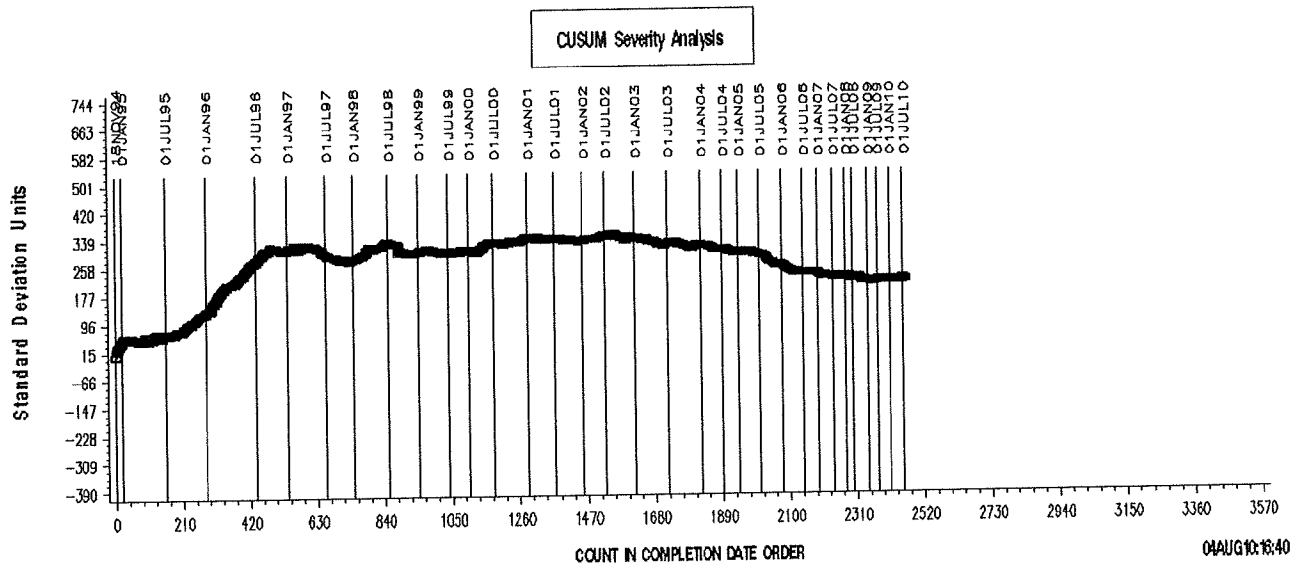
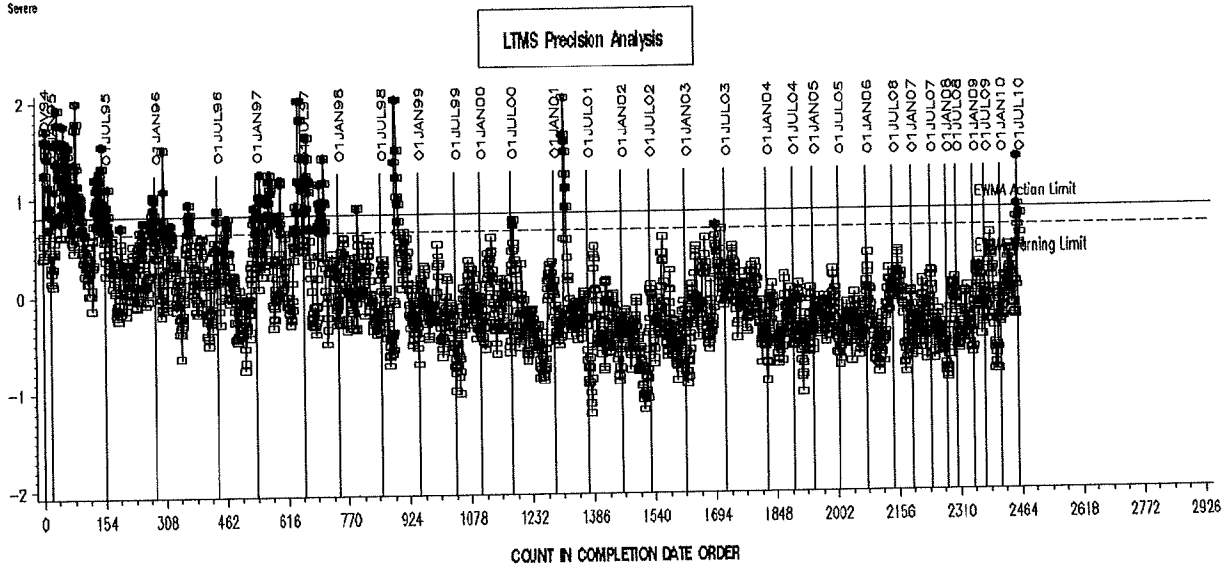
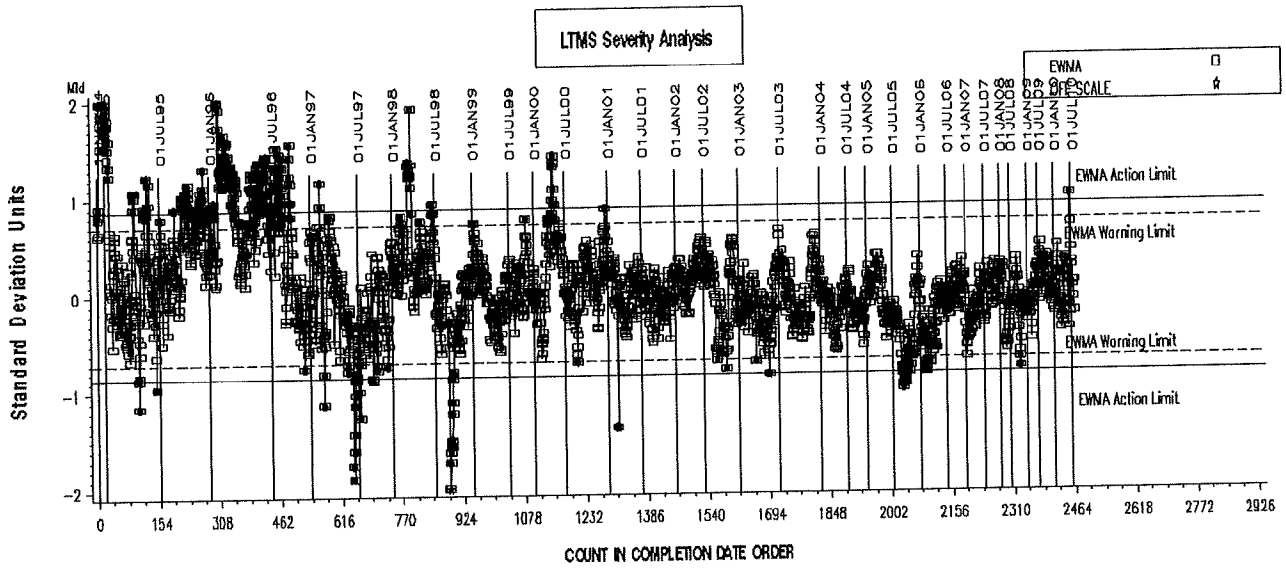
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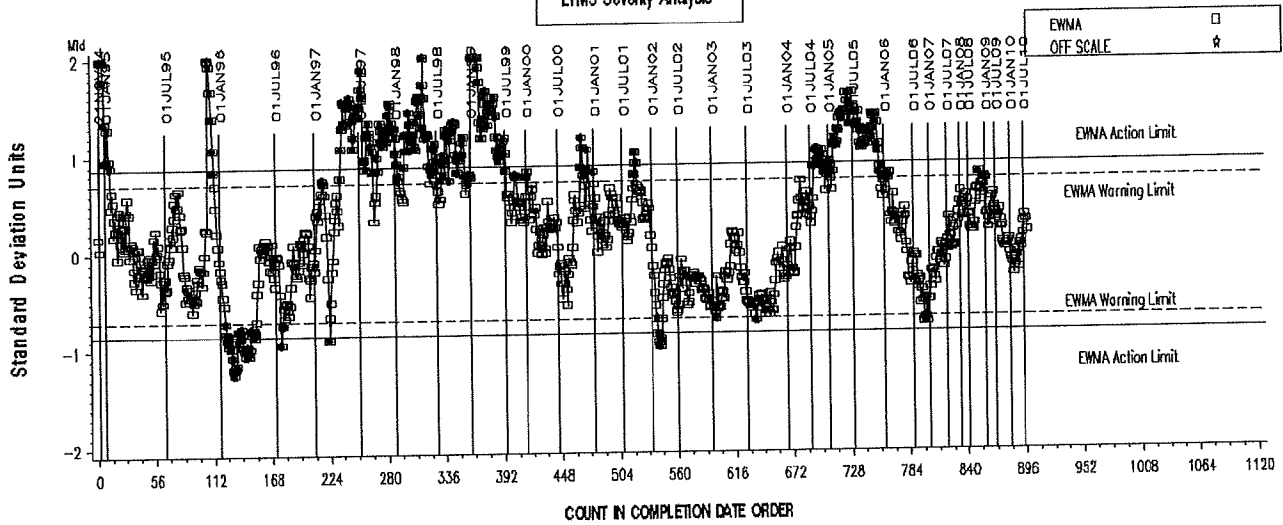
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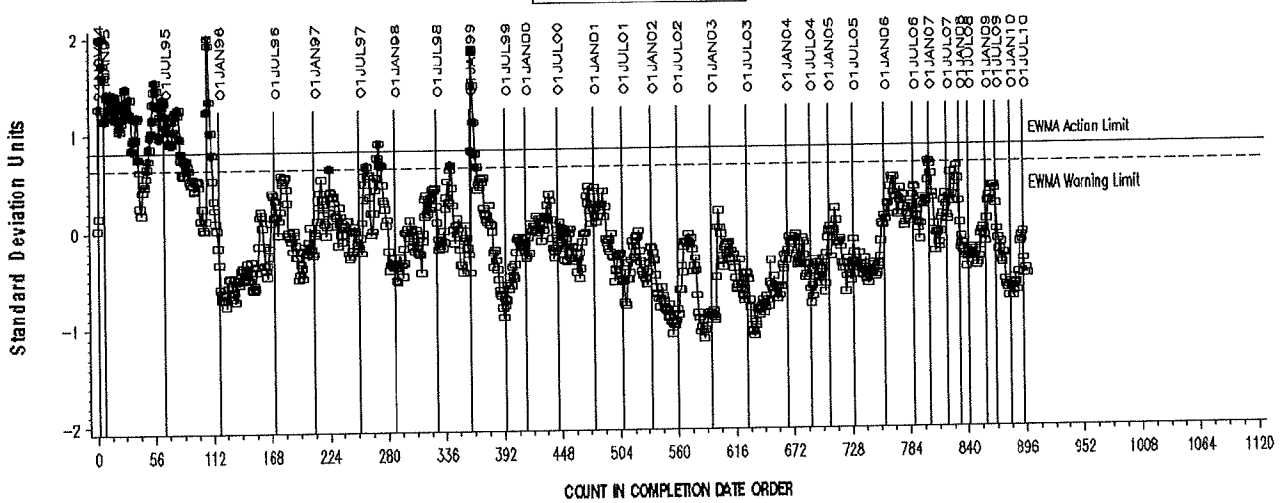
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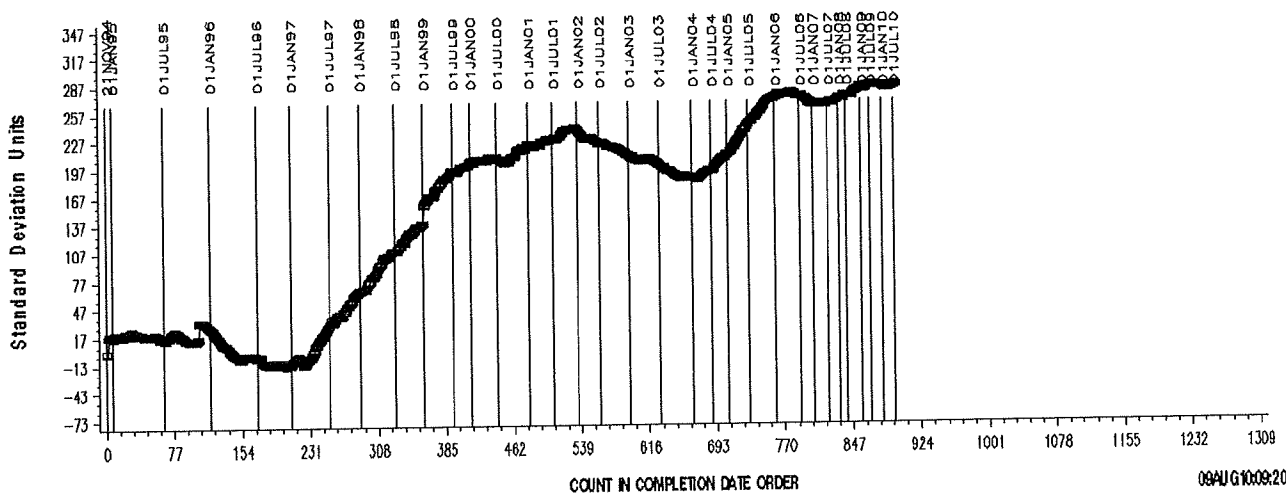
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## LTMS Precision Analysis



## CUSUM Severity Analysis

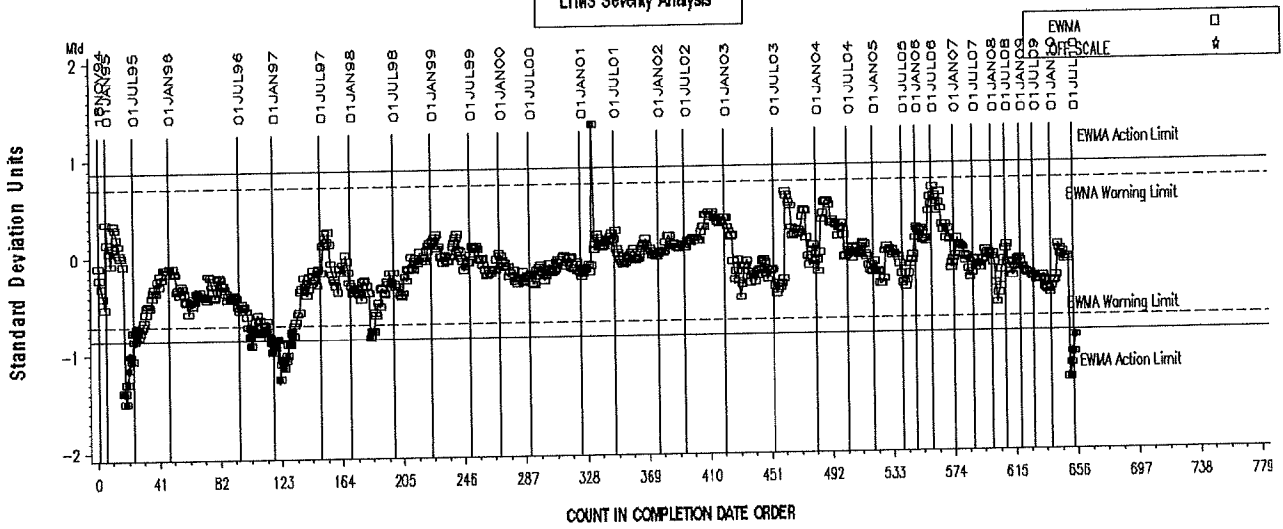


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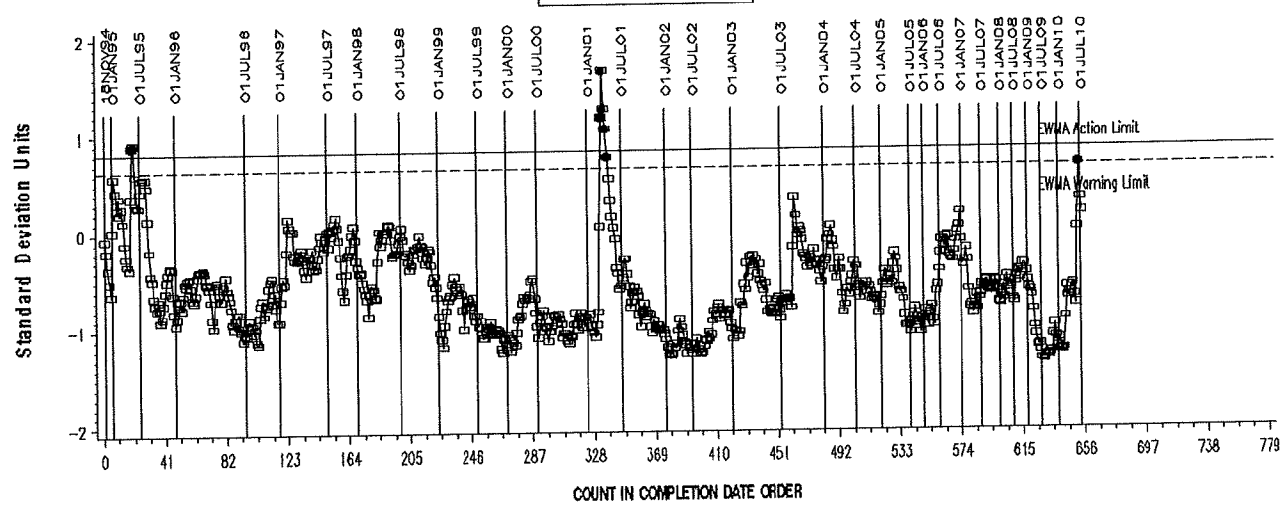
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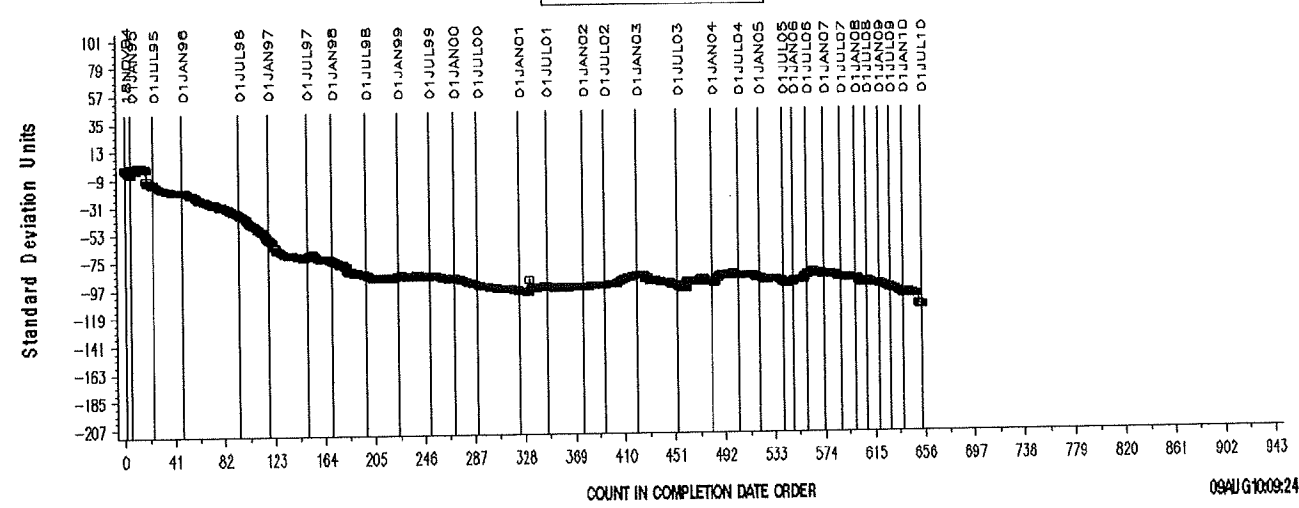
### LTMS Severity Analysis



### LTMS Precision Analysis

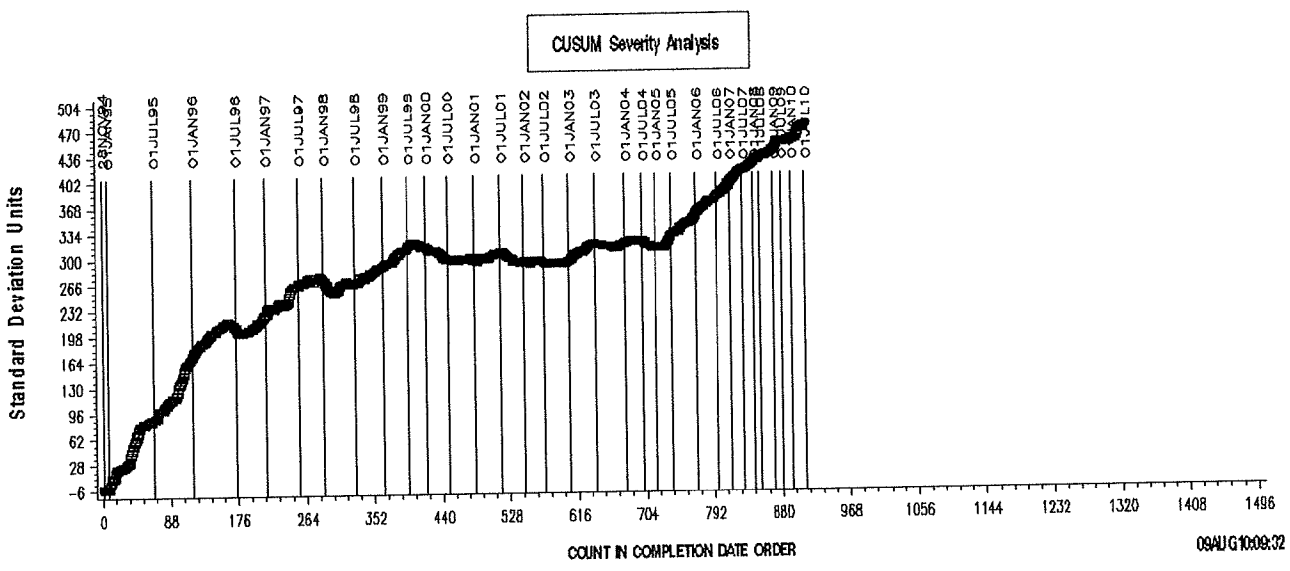
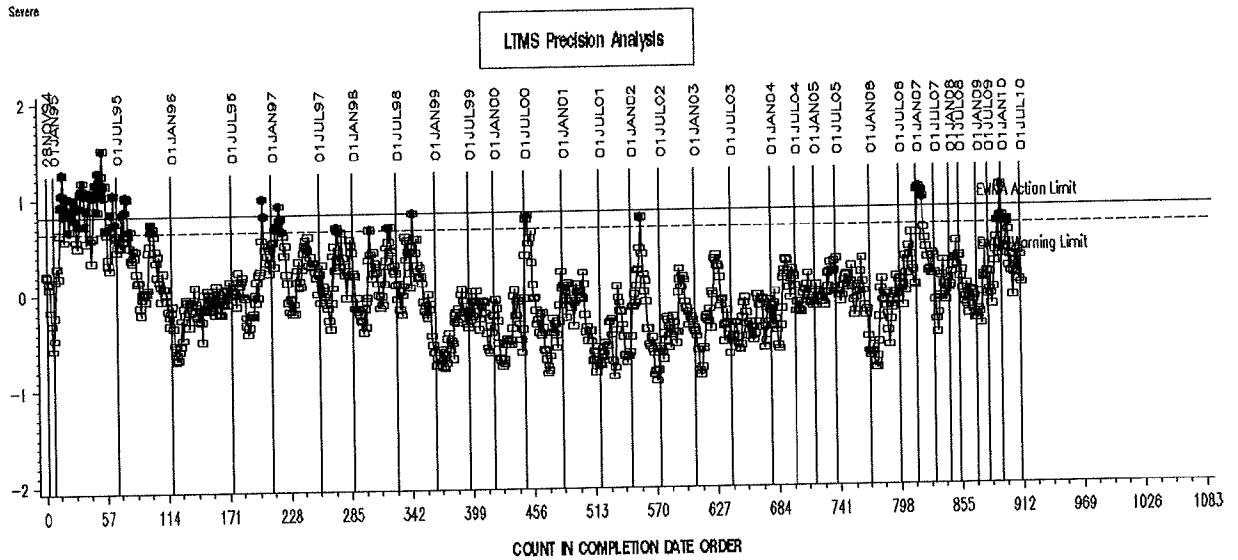
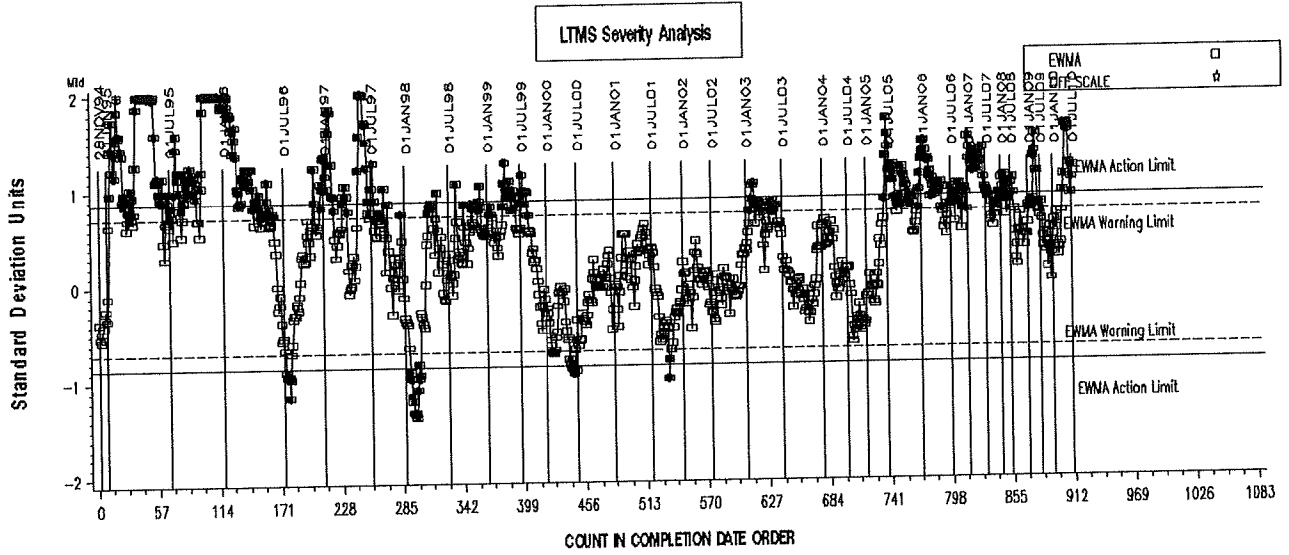


### CUSUM Severity Analysis



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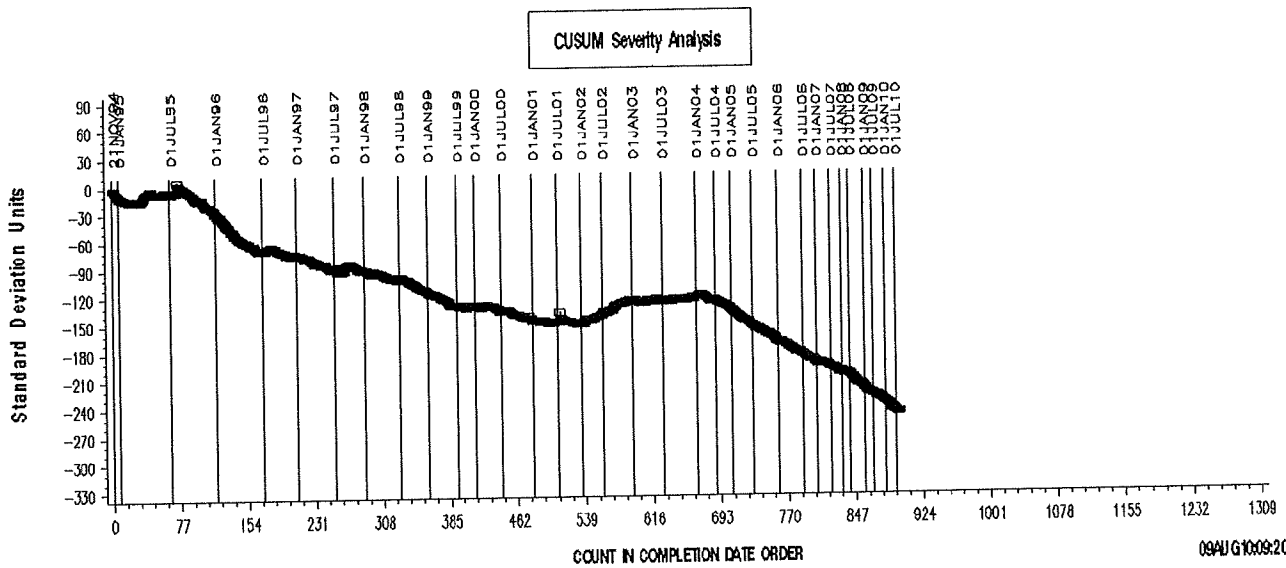
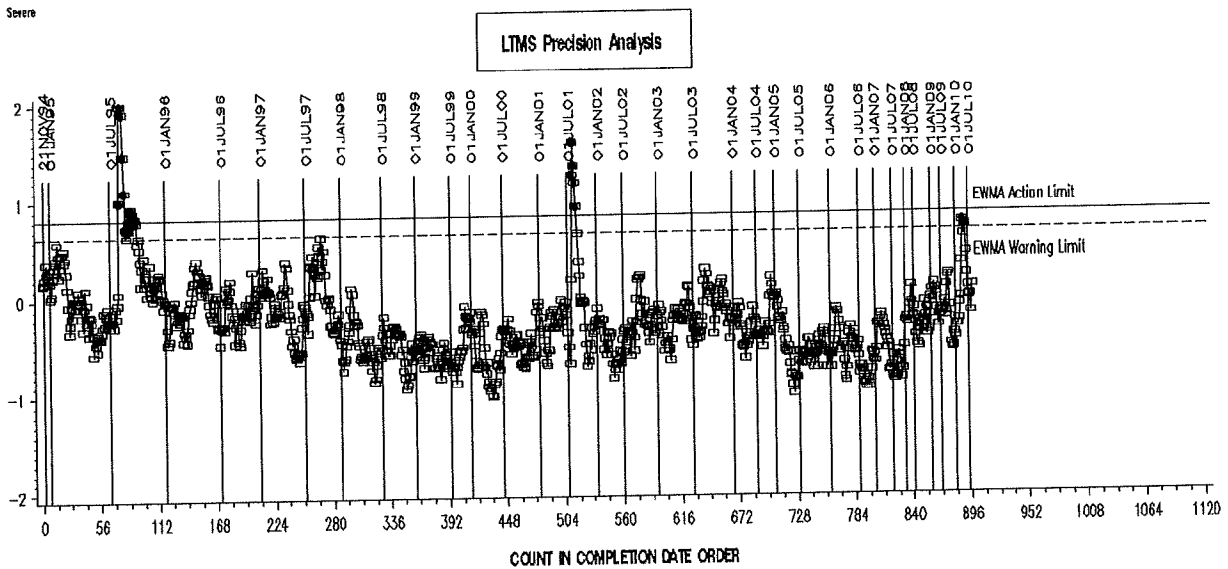
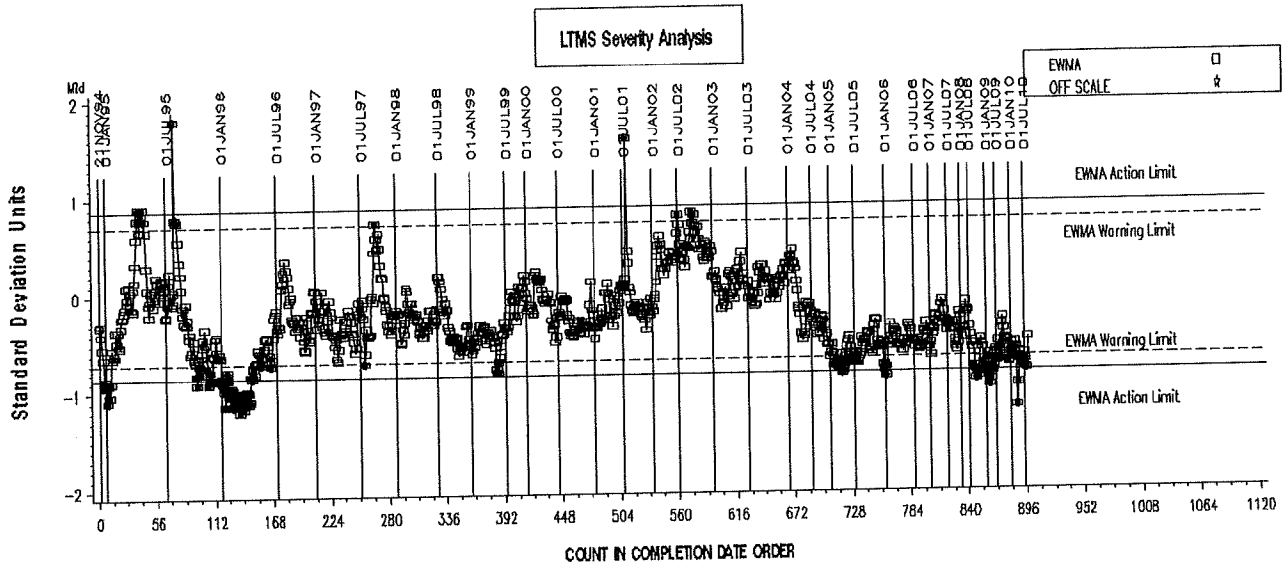




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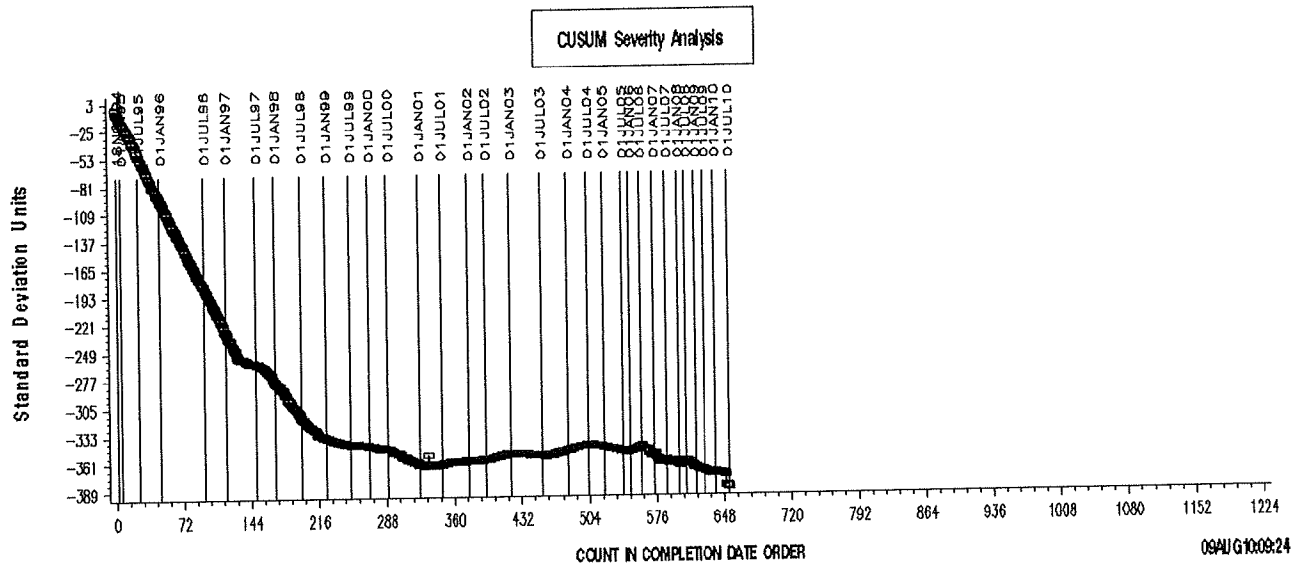
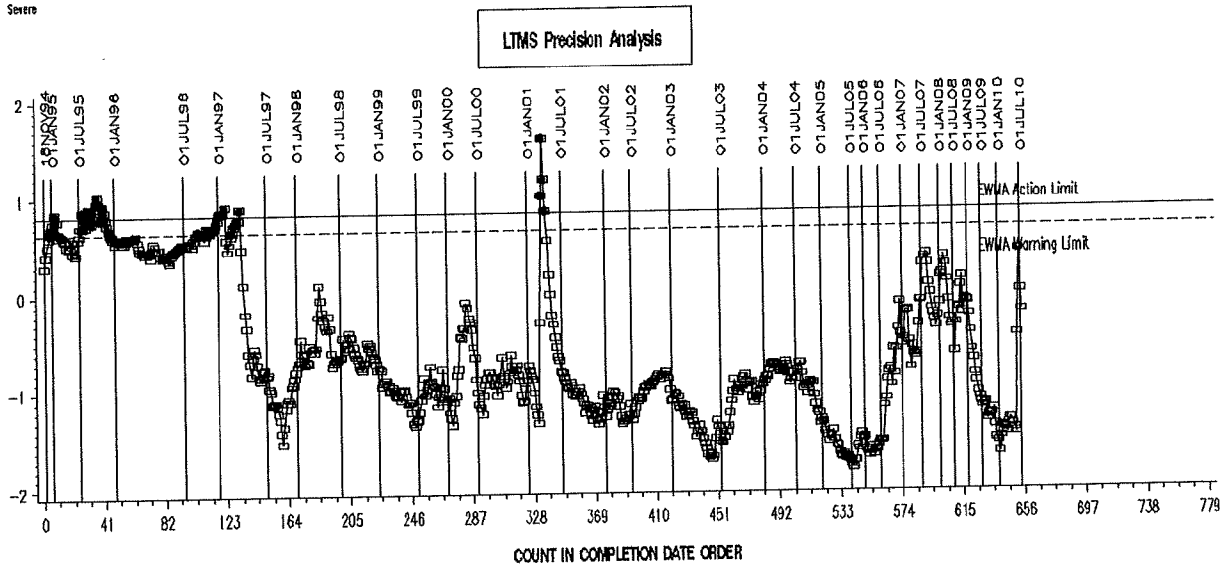
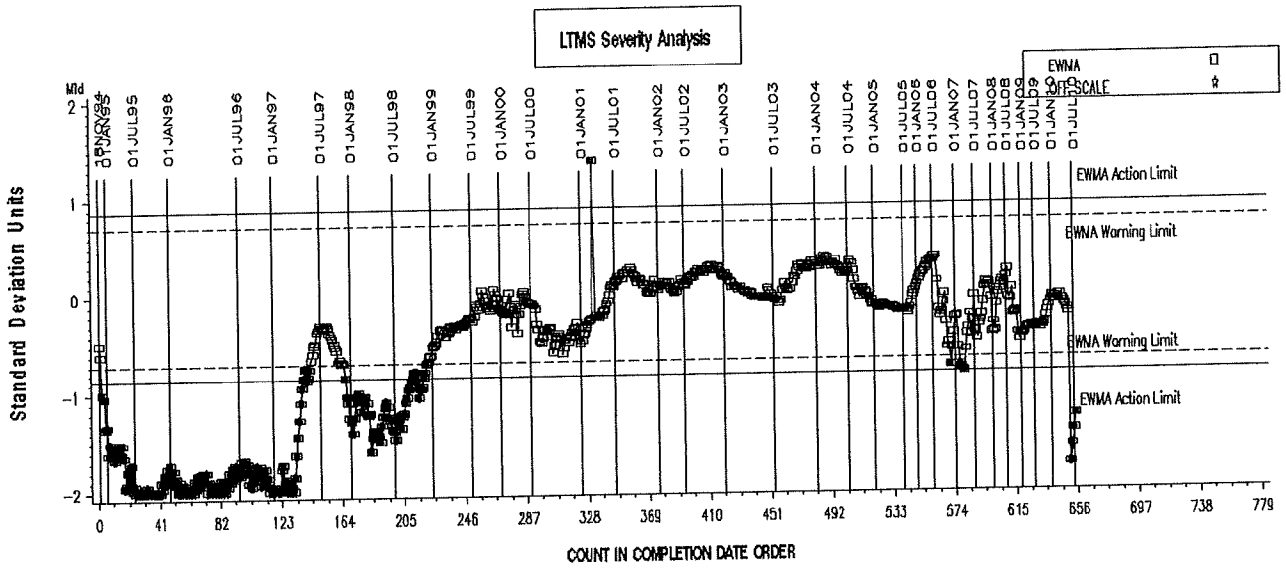
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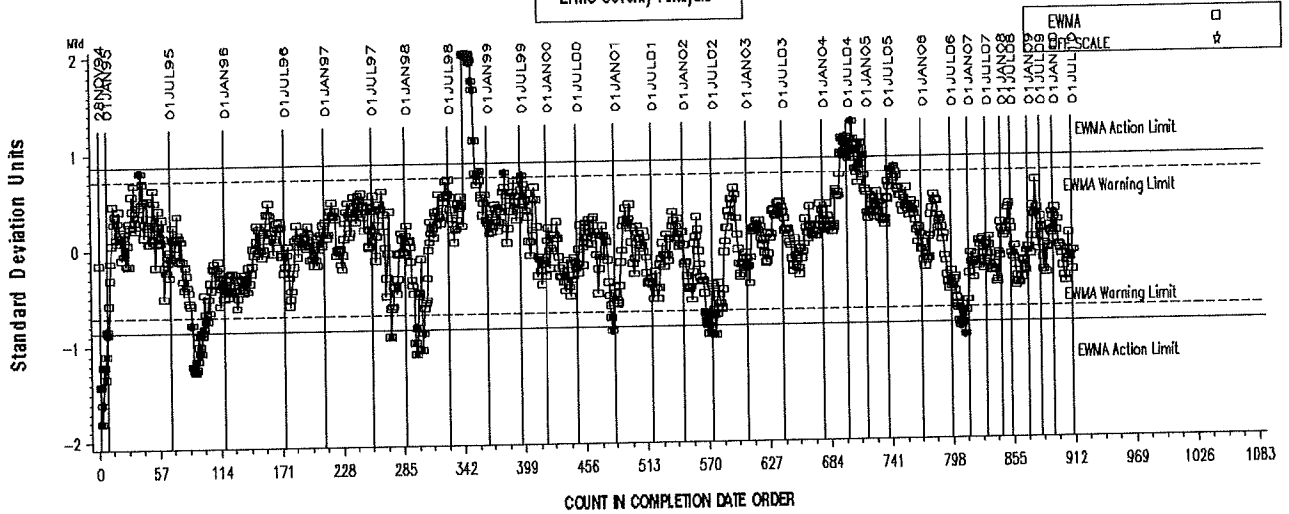


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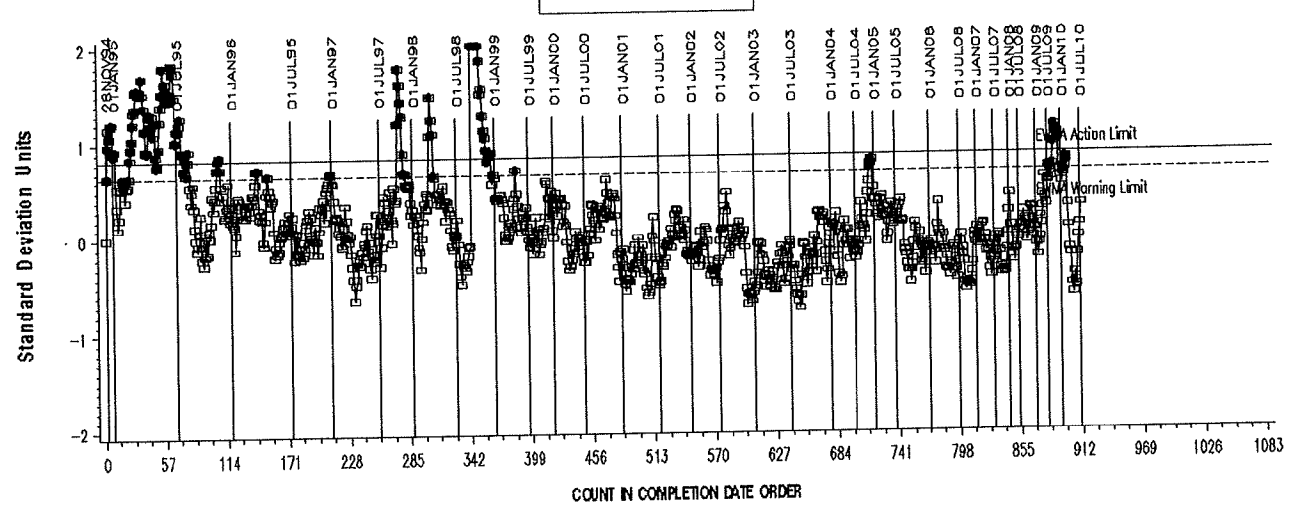
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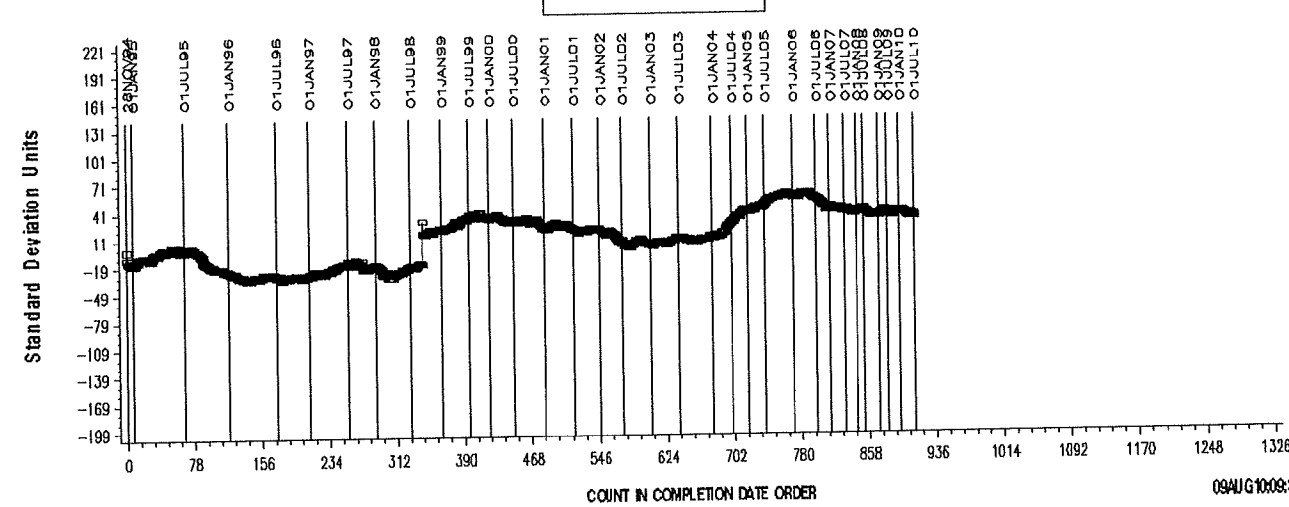
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#### LTMS Precision Analysis



#### CUSUM Severity Analysis



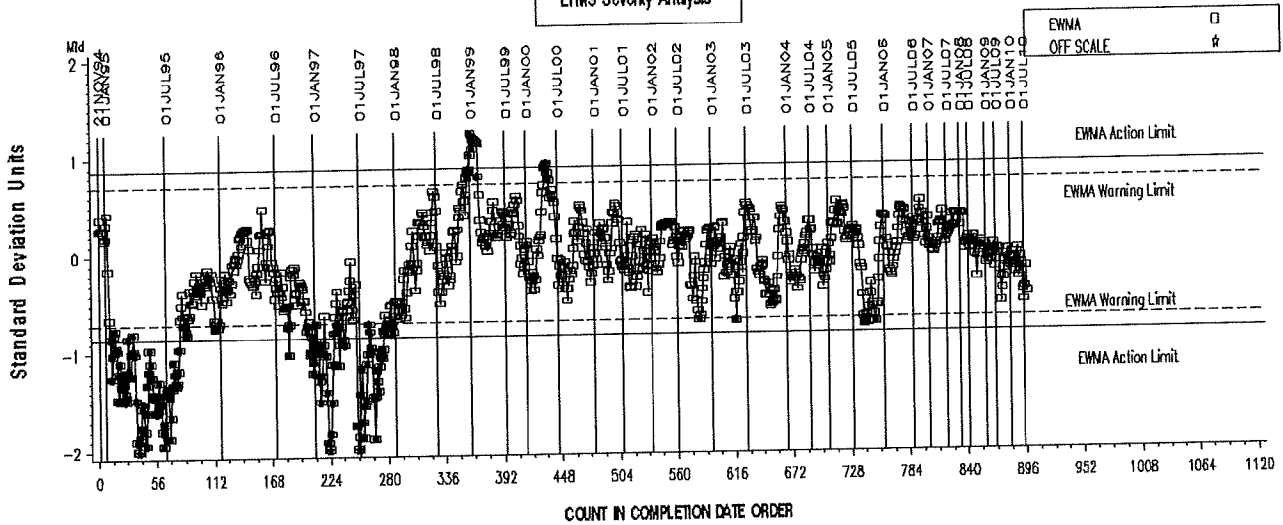
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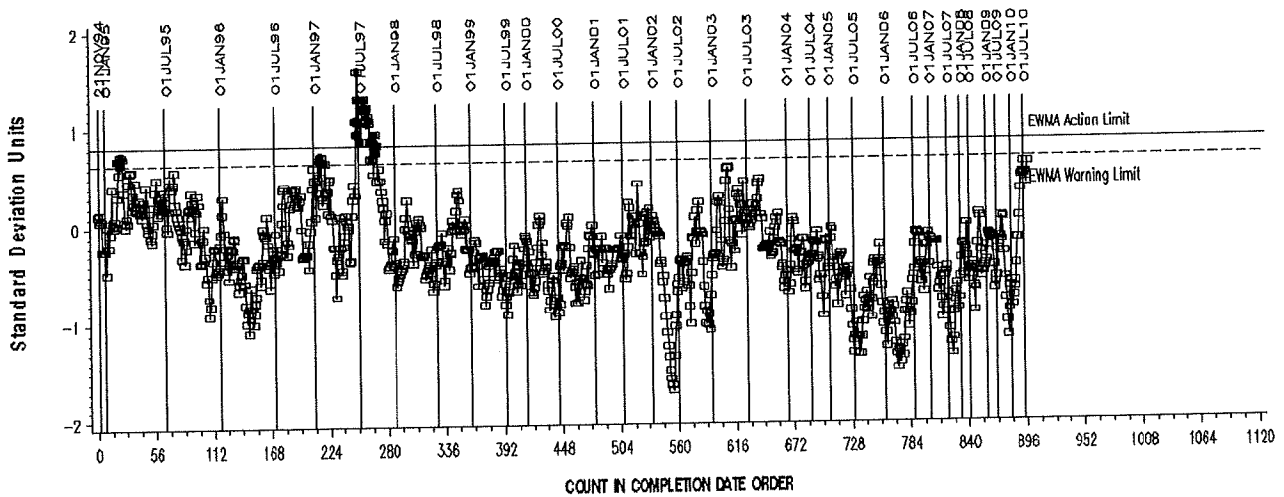
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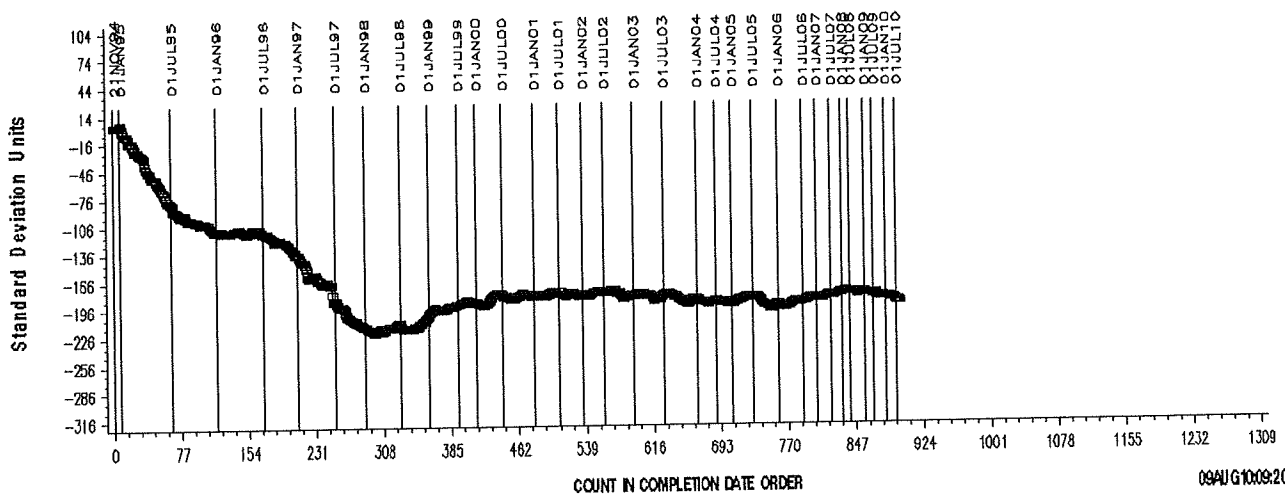
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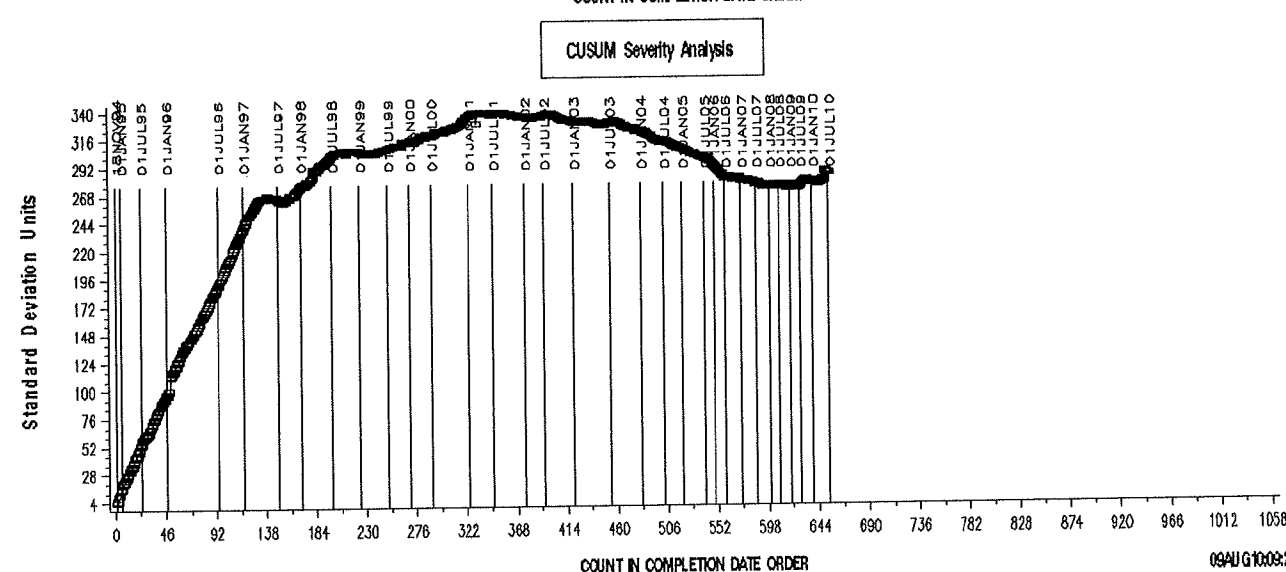
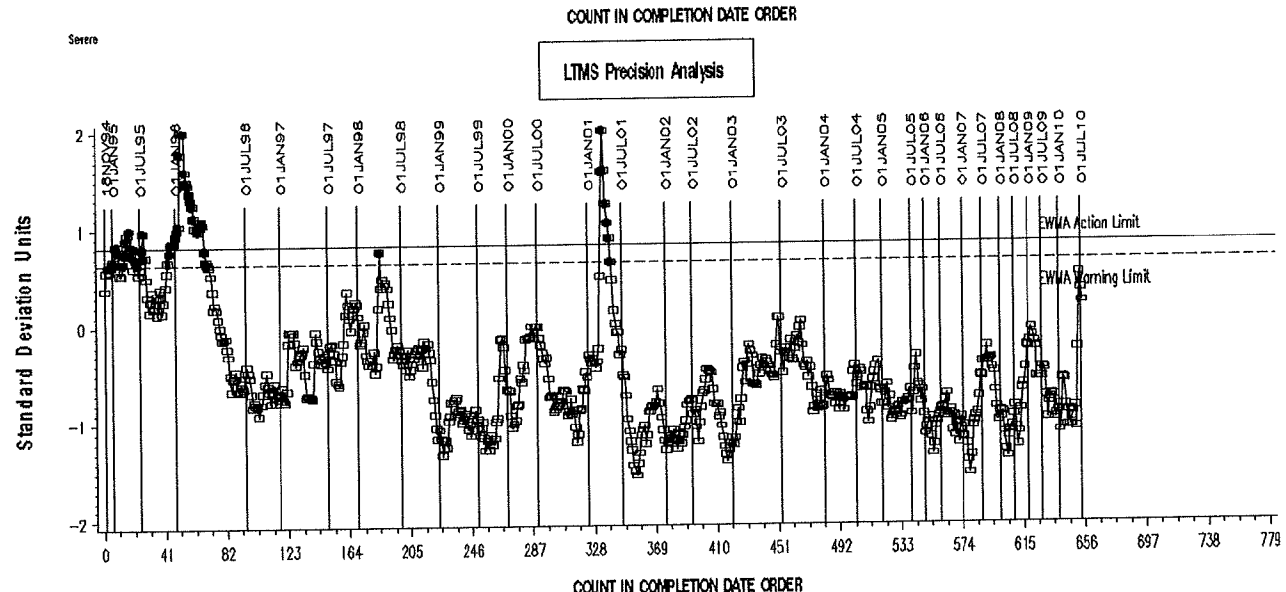
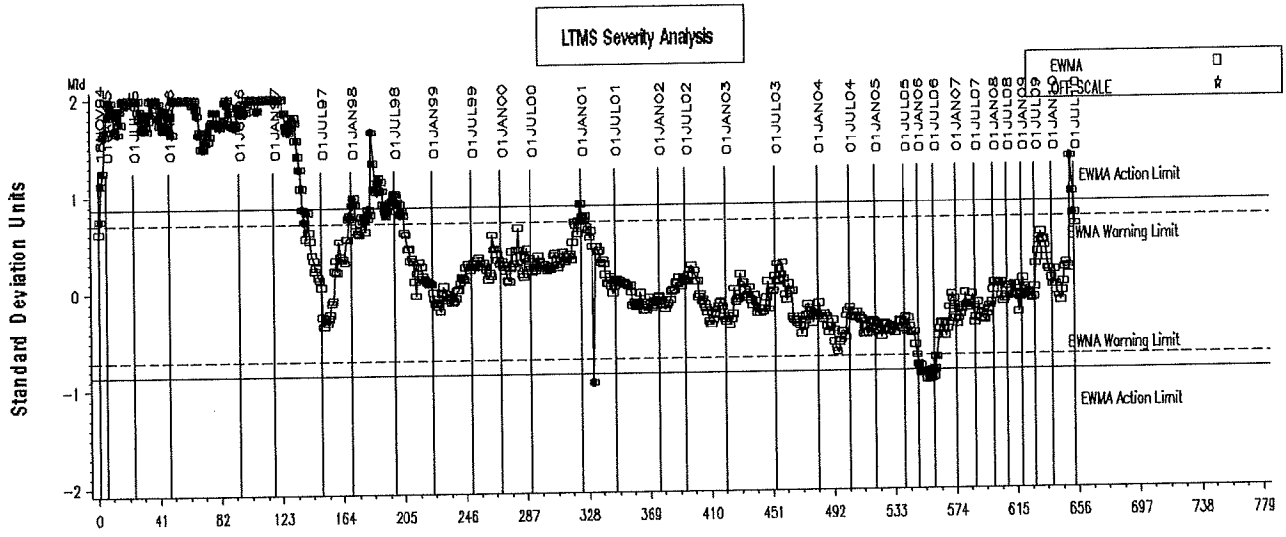
## CUSUM Severity Analysis



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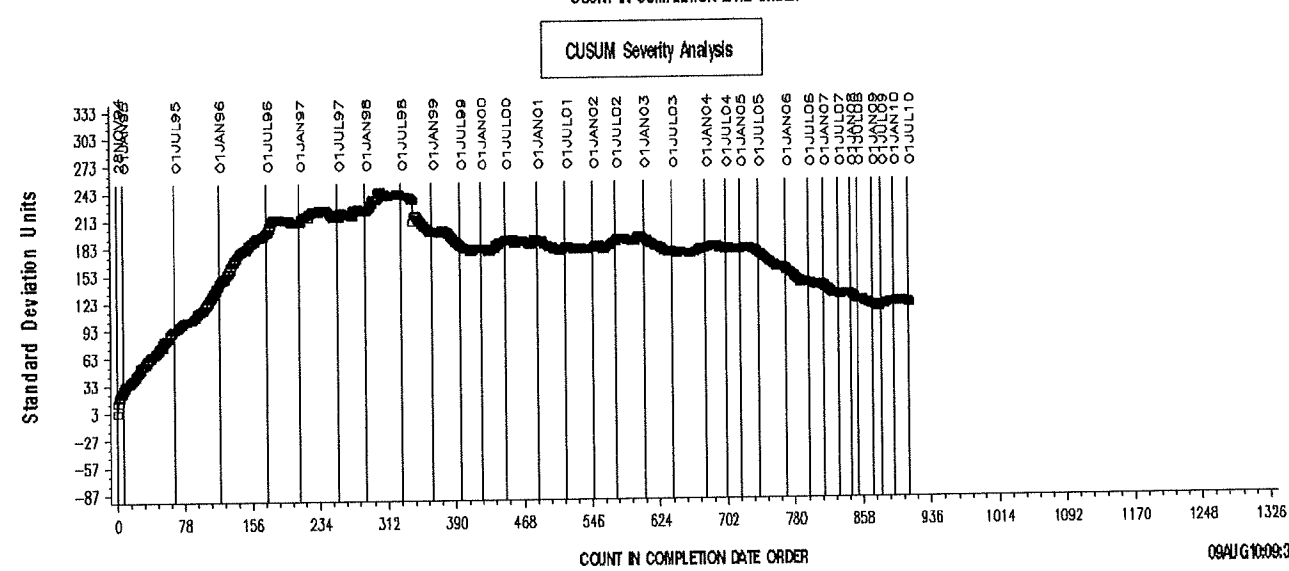
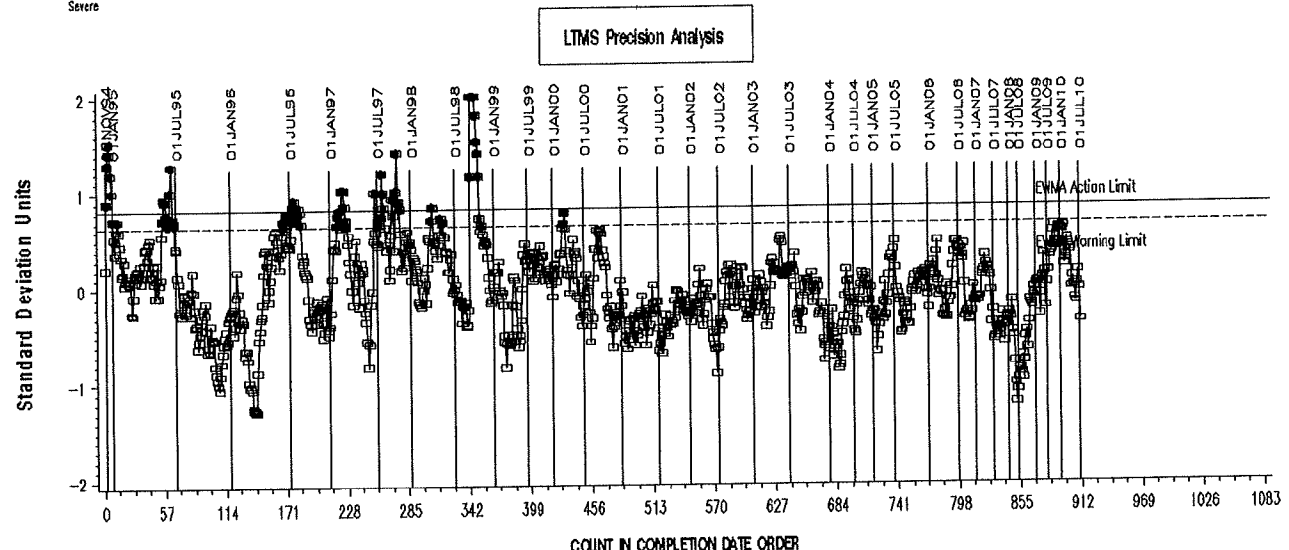
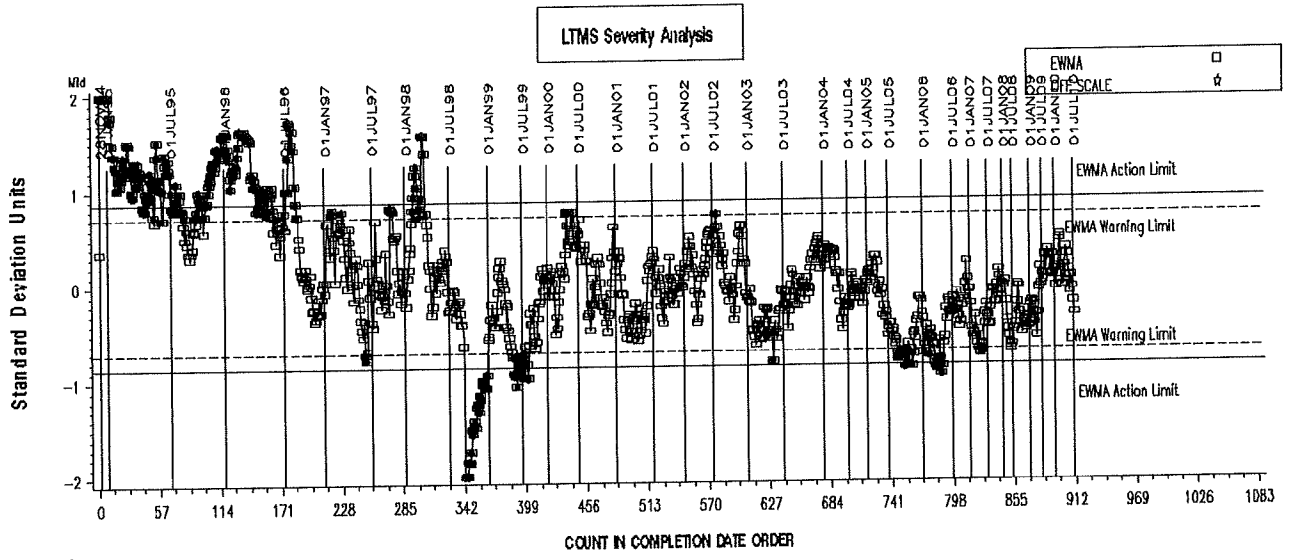
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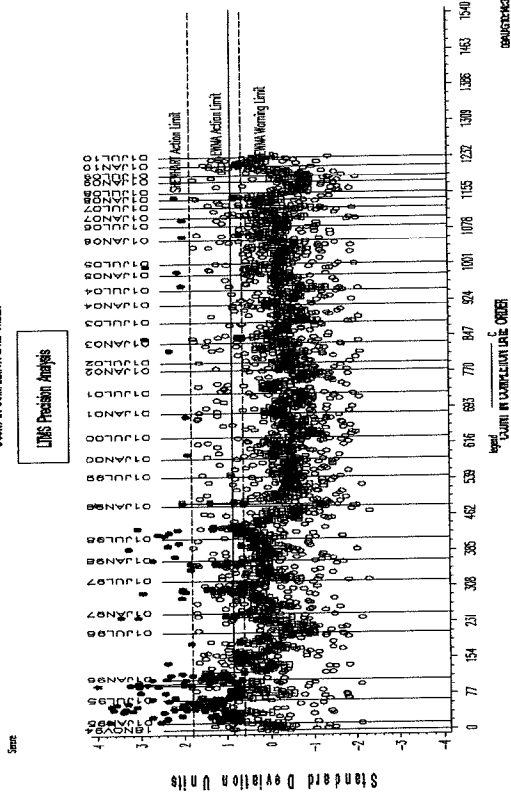
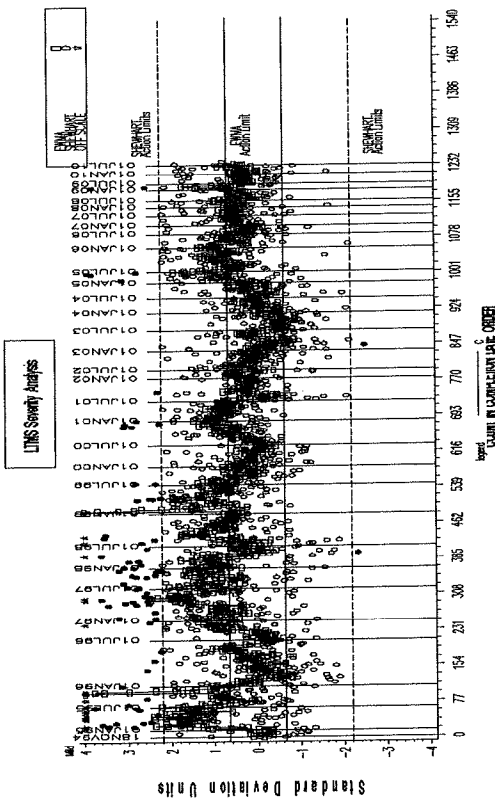
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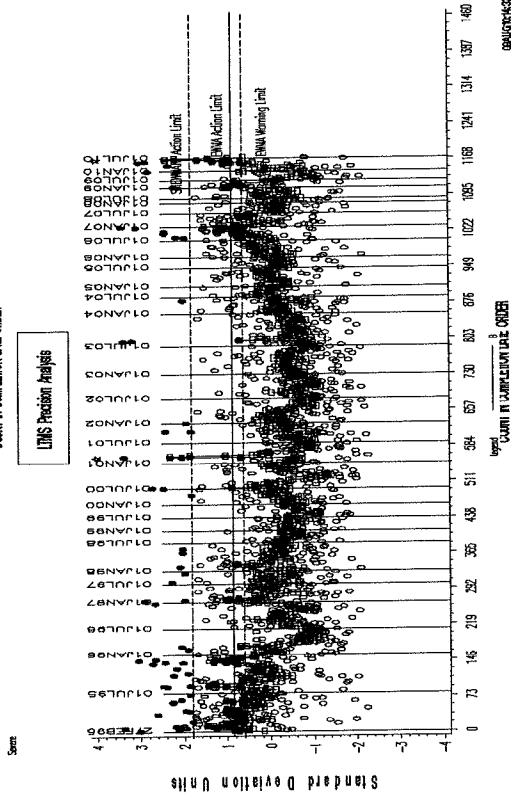
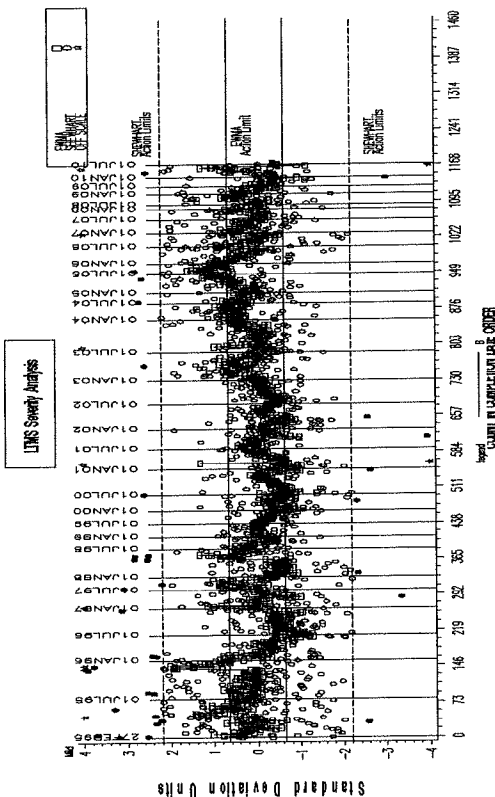
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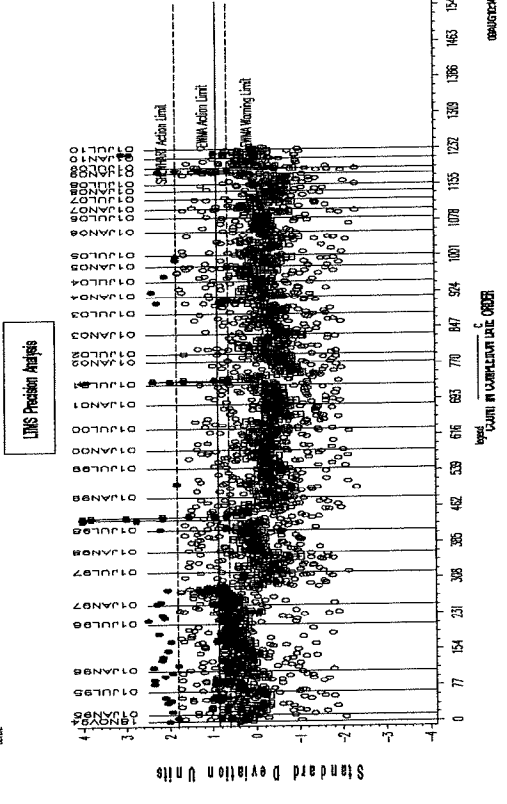
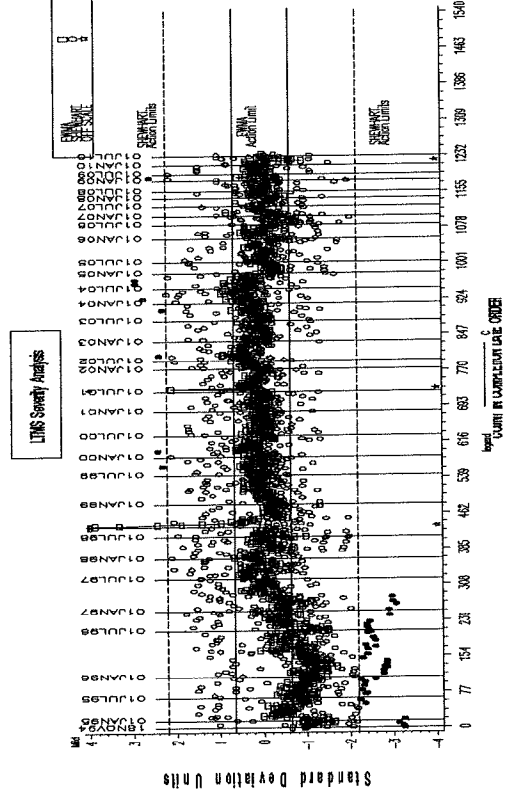
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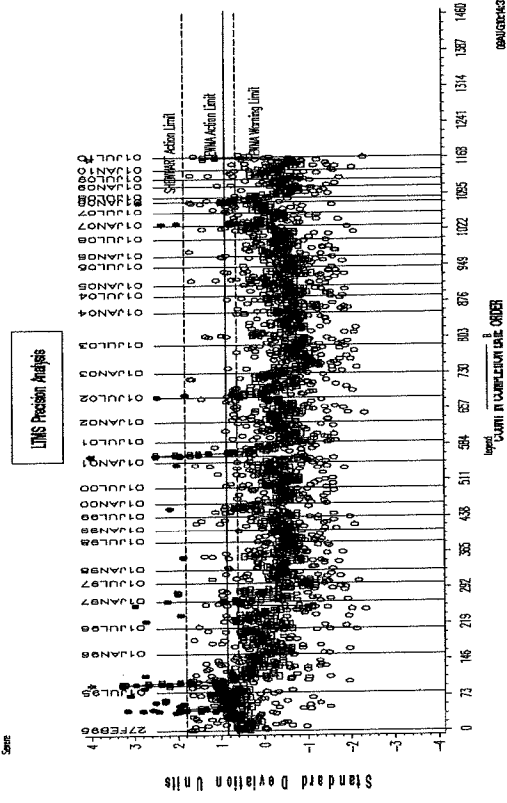
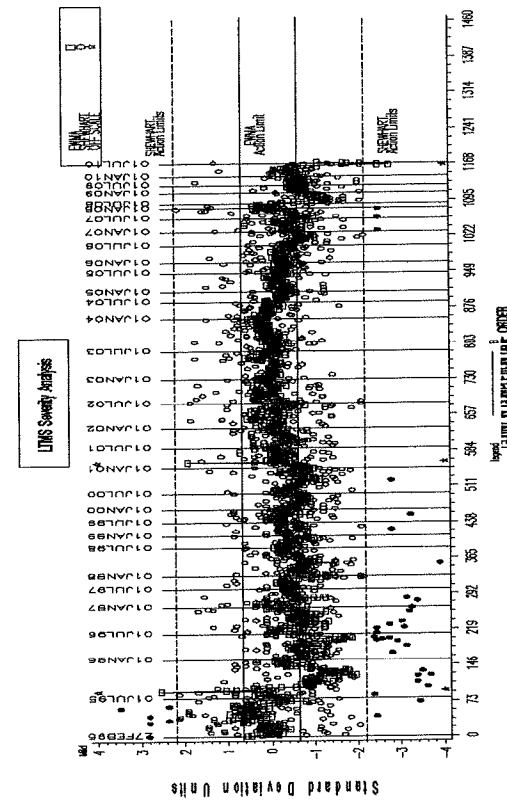




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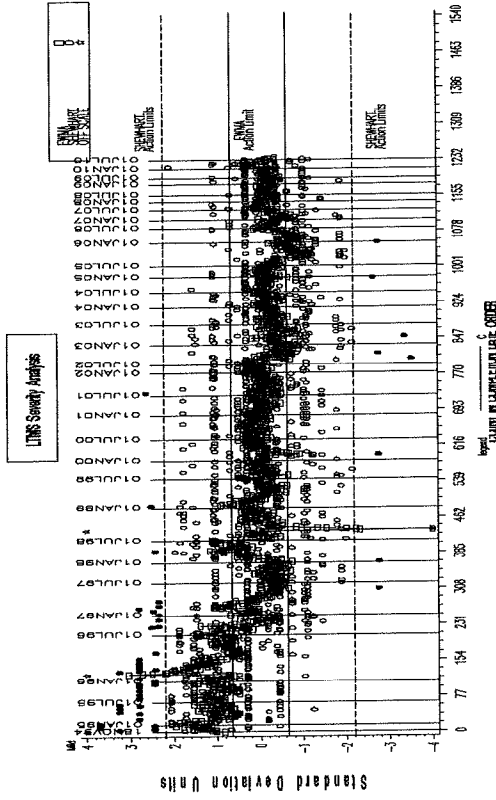
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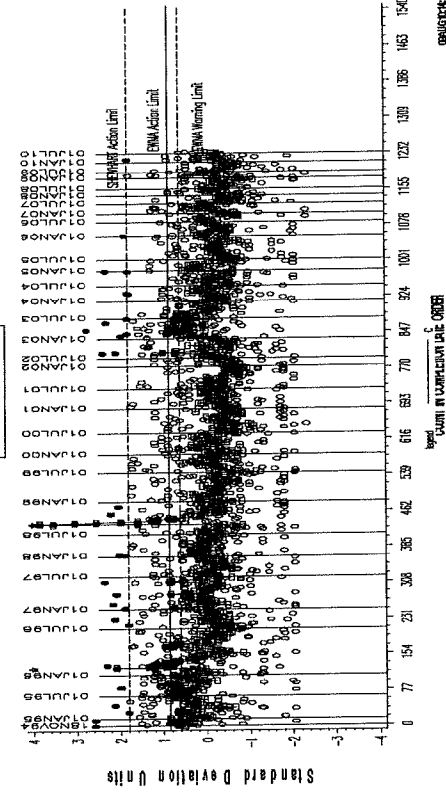
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LIMS Precision Analysis

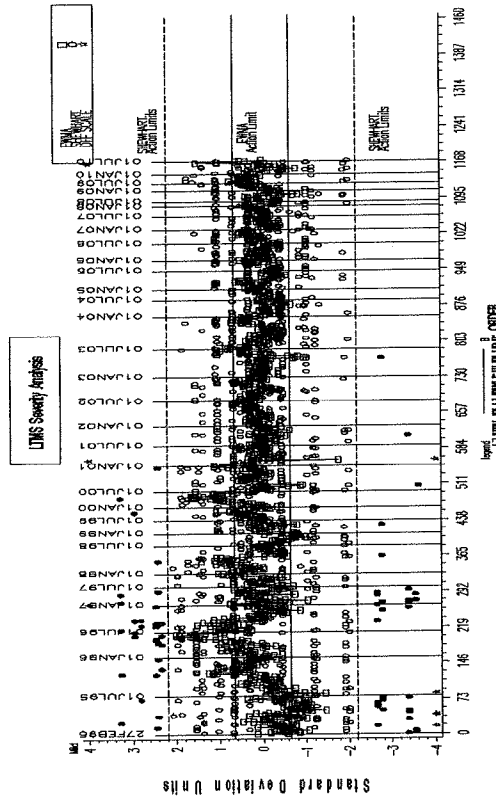


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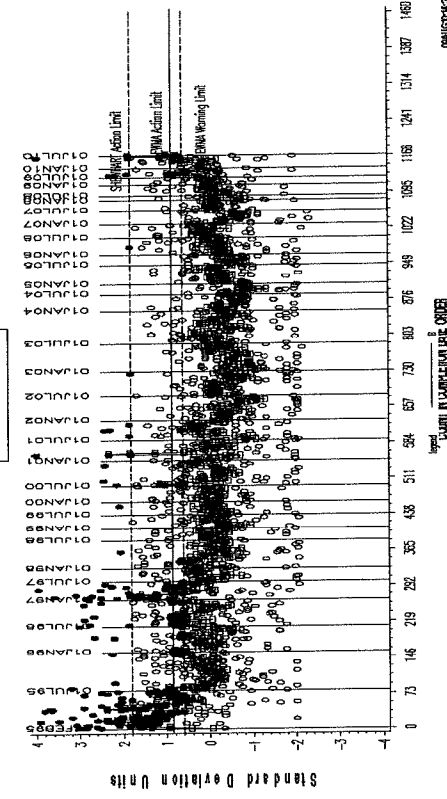
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LIMS Precision Analysis



Sum: 0 73 146 219 292 365 438 511 584 657 730 803 876 949 1022 1095 1168 1241 1314 1387 1460

# OIL SEAL COMPATIBILITY SURVEILLANCE PANEL

Date: August 11, 2010

Initials	V = Voting NV = Non-voting	Name	Company & Address	Phone / FAX / e-Mail
<i>DRB</i>	V	Don Bell <i>Chairperson</i>	Afton Chemical Corp. 500 Spring Street Richmond, VA 23219	Phone: 804-788-6332 FAX: 804-788-6243 e-Mail: don.bell@aftonchemical.com
	NV	Ed Akucewicz	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-2415 FAX: 440-347-4713 e-Mail: Edward.akucewicz@lubrizol.com
	NV	Zack Bishop	TEI	Phone: FAX: zbishop@tei-net.com, e-Mail: zrbj@sbcglobal.net
	NV	Tom Bryson	Volvo Powertrain N.A. Powertrain Division 13302 Pennsylvania Ave. Hagerstown, MD 21742-2675	Phone: 301-790-5454 FAX: e-Mail: Thomas.bryson@volvo.com
<i>A.C.</i>	V	Allen Comfort	US Army TACOM RDTA-DP/M5110 6501 E. 11 Mile Road Warren, MI 48307-5000	Phone: 586-574-4227/5 FAX: 586-574-4244 e-Mail: Allen.s.comfort@us.army.mil
	V	John D'harte	American Axle 1 Dauch Drive Detroit, MI 48211	Phone: 313-758-4687 FAX: 313-758-4237 e-Mail: dhartej@aam.com
<i>BD</i>	NV	Bridget Dwornick	US Army RECOM/TARDEC RDTA-DP/210 MS 110 6501 E 11 Mile Road Warren, MI 48397-5000	Phone: 586-282-4221 FAX: 586-282-4244 e-Mail: Bridget.dwornick@us.army.mil
<i>AWL</i>	NV	Stephen Eliot	ExxonMobil 18486 Lanier Island Square Leesburg, VA 20176	Phone: 703-669-9916 FAX: 703-669-9917 e-Mail: Stephen.w.eliot@exxonmobil.com
	NV	Frank Farber	Test Monitoring Center 6555 Penn Avenue Pittsburgh, PA 15206	Phone: 412-365-1030 FAX: 412-365-1047 e-Mail: fmf@astmtmc.cmu.edu

# OIL SEAL COMPATIBILITY SURVEILLANCE PANEL

Date: \_\_\_\_\_

Initials	V = Voting NV = Non-voting	Name	Company & Address	Phone / FAX / e-Mail
HG above	NV	Hong Gao	ConocoPhillips 1000 S. Pine Street Ponca City, OK 74602	Phone: 580-767-2126 FAX: 580-767-4534 e-Mail: Hong.gao@conocophillips.com
	NV	Anthony Galdier FIX	Afton Chemical Corp. 1000 S. Pine Street Ponca City, OK 74602	Phone: 580-767-2126 FAX: 580-767-4534 e-Mail: Hong.gao@conocophillips.com
	NV	Rick Graziano	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-2051 FAX: 440-347-5337 e-Mail: rpg@lubrizol.com
GG	NV	G. Greene Galen	Lubrizol 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-2394 FAX: _____ e-Mail: ggre@lubrizol.com
Attended by phone.	V	Rebecca Grinfield	Southwest Research Institute P.O. Drawer 28510 San Antonio, TX 78228-0510	Phone: 210-522-3652 FAX: 210-522-5907 e-Mail: bgrinfield@swri.org
JG	V	Jerry Gropp	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-1223 FAX: 440-347-5337 e-Mail: jlg@lubrizol.com
JAH for MH	V	Mike Haire (JACK ZAKARIAN)	Chevron Global Lubricants 100 Chevron Way, rm 71-7302 Richmond, CA 94802	Phone: 510-242-2740 FAX: 510-242-3758 e-Mail: mhaire@chevron.com
	NV	Sam Higuchi	Afton Chemical Corp. 500 Spring Street (23219) P.O. Box 2158 Richmond, VA 23218-2158	Phone: 804-788-5375 FAX: 804-788-6358 e-Mail: Samuel.higuchi@aftonchemical.com
	NV	Matt Jackson	Southwest Research Institute P.O. Drawer 28510 San Antonio, TX 78228-0510	Phone: 210-522-6981 FAX: 210-684-7523 e-Mail: Matt.jackson@swri.org

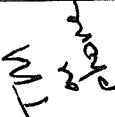
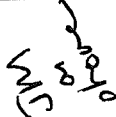

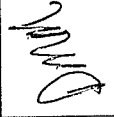
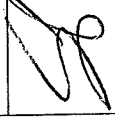

# OIL SEAL COMPATIBILITY SURVEILLANCE PANEL

Date: \_\_\_\_\_

Initials	V = Voting NV = Non-voting	Name	Company & Address	Phone / FAX / e-Mail
	NV	Bill Kearney	Afton Chemical Corp Southfield, MI	
<i>JK</i>	NV	Jennifer Keiter	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-8034 FAX: 440-347-8003 e-Mail: Jennifer.keiten@lubrizol.com
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<i>[Signature]</i>	NV	Cory Koglin	Afton Chemical Corp. 500 Spring Street (23219) P.O. Box 2158 Richmond, VA 23218-2158	Phone: 804-788-5305 FAX: 804-788-6358 e-Mail: cory.koglin@aftonchemical.com
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# OIL SEAL COMPATIBILITY SURVEILLANCE PANEL

Date: \_\_\_\_\_

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**OIL SEAL COMPATIBILITY SURVEILLANCE PANEL**

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