



100 Barr Harbor Drive • PO Box C700 • West Conshohocken, PA 19428-2959 • 2001  
Telephone: (610) 832-9500 • Fax: (610) 832-9666 • email: service@astm.org • Website: www.astm.org

**Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS**

*Chairman:* W JAMES BOVER, Exxonmobil Biomedical Sciences, 1545 Route 22 East, Po Box 971, Annandale, NJ 08801-0971, (908) 730-1048, Fax: (908) 730-1197, email: wjbover@erenj.com  
*First Vice Chairman:* KENNETH O. HENDERSON, Cannon Instrument Co, 30 Doe Dr, Port Matilda, PA 16870, (814) 353-8000 ext:265, Fax: (814) 353-8007, email: kenohenderson@worldnet.att.net  
*Second Vice Chairman:* SALVATORE J. RAND, Consultant, 811 Staco Rd, Hannacroix, NY 12087, (518) 966-8929, Fax: (518) 966-8929, email: sjrand@earthlink.net  
*Secretary:* MICHAEL A. COLLIER, Petroleum Analyzer Co. LP, 21114 Rte. 113, PO Box 206, Wilmington, IL 60481, (815) 458-0216, Fax: (815) 458-0217, email: macvarlen@aol.com  
*Assistant Secretary:* JANET L. LANE, ExxonMobil Research & Engrg, 600 Billingsport Rd, PO Box 480, Paulsboro, NJ 08066-0480, (856) 224-3302, Fax: (856) 224-3616, email: janet.l.lane@exxonmobil.com  
*Staff Manager:* DAVID R. BRADLEY, (610) 832-9681, Fax: (610) 832-9668, email: dbradley@astm.org

March 30, 2005

Reply to:  
Chris Schenkenberger  
The Lubrizol Corporation  
29400 Lakeland Blvd.  
Wickliffe, OH 44092  
(440) 347-2388  
(440) 347-2878 (FAX)

ASTM D02.B0.03 L-60-1 Surveillance Panel  
Members and Guests:

Attached for your review and comment are the unconfirmed minutes of the February 2, 2005 L-60-1 Surveillance Panel meetings held at the PRI Headquarters, Warrendale, PA. Please direct any corrections or comments to my attention.

Sincerely,

Chris Schenkenberger, Chairman  
L-60-1 Surveillance Panel

Attachments

Report of Meeting  
L-60-1 Surveillance Panel  
PRI Headquarters, Apollo Room, Warrendale, Pa.  
February 2<sup>nd</sup>, 2005

Sign-in/Review of Membership: The meeting was called to order at 8:09 am. The sign-in sheet is *Attachment 1*. A review of the agenda was completed and is included as *Attachment 2*. With respect to the L-60-1 Surveillance Panel membership, Brian Koehler was added to the mailing list. For this meeting, he carried the proxy vote for Mr. De Le Fuente from Southwest Research Institute.

Approval of November Surveillance Panel Meeting Minutes:

The meeting minutes from the November 3, 2005 Surveillance Panel are on the TMC website which can be found from the following path (<ftp://ftp.astmtmc.cmu.edu/docs/gear/l601/minutes/>).

*Motion 1* (Motion  $\Rightarrow$  Don Bartlett, Second  $\Rightarrow$  Don Lind) To approve the November 3, 2004 meeting minutes as written with no corrections. The motion passed unanimously.

Meeting Agenda

The meeting agenda was focused on:

1. ASTM Rater Workshop
2. Update on TMC 151 re-blend
3. Cleaning solvent
4. New Business

Summary of Meeting Discussions

**ASTM Rater Workshop:**

The chairman opened with a recap of a previous meeting action item. At a previous meeting, the TMC had notified the L-60-1 Surveillance Panel that a shift in average carbon varnish had been observed at two of the three qualified laboratories. The shift was in the mild direction and primarily observed in TMC 151-2 results. Knowing that there has been a significant standardization effort by the L-60-1 Task Force, the TMC was given direction by the L-60-1 SP to assign TMC 151-2 for stand qualifications in the last half of 2004. Laboratory representatives then provided these gears for the January 2005 Gear Rating Workshop. This allowed the TMC to determine if the shift could be attributed to rating differences. The LTMS Laboratory control charts are included as *Attachment #3*. The results of the TMC 151 gears that were rated by the high volume raters at the January 2005 rating workshop is included as *Attachment #4*.

Mr. Lind reviewed the workshop data with the surveillance panel. The following conclusions can be drawn from the data:

- There is a definite shift seen on TMC 151, not on TMC 148.
- Lab A has been trending mild for last 18 months.
- Lab B has been trending mild, started January 04.
- Lab D is trending slightly severe, a  $\frac{1}{2}$  standard deviation severe each respective test.

Mr. Lind also provided the following comment about the Rating Workshop data. We definitely have lab differences. In looking at all six high-volume raters who participated in the workshop, the

shift we see from lab to lab is due to rating differences. The differences appear to be caused by combinations in the manner in which the gears are held.

**Attachment # 5** is the Rating Task Force (RTF) recommendation to the panel. Raters were instructed to not implement the rating back home until approved by the panel. Mr. Lind commented that he felt the results would drive the labs more toward the middle of the bands and would not drive labs severe. The LTMS target for TMC 151-2 is 8.59.

The Surveillance Panel asked if TMC would decode the labs (not the rater names within the lab). All labs agreed:

- Raters 1 and 10 are from lab A.
- Raters 4 and 11 are from lab B.
- Rater 16 is from lab D.

Mr. Gropp asked if there was a clear understanding how each rater is holding the gear? Mr. Lind reported:

- One rater holds the gear such that the key way is horizontal but does not tilt the gear.
- Some hold the gears horizontal but rotate the angle to get the best rating.
- Others vary based on how comfortable they feel with the result.
- Some were using a new gear or the washer area to judge as a clean/new gear.
- Some only use one of the 3 certified varnish rating scales while others some potentially use all 3 scales.

The Chairman asked the SP how to embrace the recommendation or go about implementing? Mr. Lind commented that we either accept the RTF proposal into the procedure or live with the variability currently observed in the TMC 151-2 results.

Mr. Gropp commented that he would like to see back-to-back comparisons, i.e., having the raters analyze the gears at different orientations (ex. Rate horizontal, rate vertical, and at different angles). He also would like to see what would happen with TMC 148 under the RTF proposal. The purpose would be to quantify and potential affects on TMC 148 and have it documented prior to implementing a change.

Mr. Lind believes that implementation would not make the ratings go any milder and definitely not take the ratings any more severe, rather, bring rating closer together. His recommendation for the SP was to implement the RTF recommendation and monitor. Mr. Castanien shares similar concerns about basing a rating change off of just one oil. Mr. Koglin commented that it will make the raters more consistent and bring them closer together. His suggestion was to implement the changes and simultaneously start a rating round robin of TMC 148 gears.

**Motion 1** (Motion ⇒ Mr. Koglin, Second ⇒ Mr. Smith) Accept the Gear Oil Rating Task Force recommendations (see Attachment # 5) for rating carbon varnish. This is to be implemented with the next stand reference in each laboratory as well as be effective immediately for all stands.

#### Discussions:

Mr. Gropp suggested that the Surveillance Panel obtain more documentation to identify and quantify any possible shifts. As a test sponsor, he is also concerned about running a candidate twice and getting two different answers during the rating transition period. This work should be performed before the implementation. Mr. Gropp also felt that references and candidates should be rated the same way. Therefore, the rating changes should take affect with each respective stand reference rather than blanket the entire laboratory (all stands at once regardless of reference period).

Mr. Lind reiterated that the TMC recommendation is to immediately implement the RTF proposal because it will not have an affect on the industry average and will only reduce variability. His reasoning for feeling comfortable in this recommendation was based on LTMS data showing laboratory differences only detected in one reference fluid (TMC 151-2). His recommendation for the SP was to implement the RTF recommendation and monitor.

In order to quantify results on TMC 148-1, the Chairman proposed the following:

- All labs pull two stand runs of past qualification runs on TMC 148-1.
- Send the gears to the Surveillance Panel Chairman and he will coordinate with the TMC to get these gears into the June Rating Task Force Workshop to duplicate the rating exercised already performed on TMC 151-2. The Chairman will plan on taking this action unless other SP Members provide additional input. If so, the SP Chairman will add this to the April meeting for further discussion. The Chairman will also request that the raters record the scaled used.

Mr. Gropp requested that the meeting minutes reflect that the Surveillance Panel should be first quantifying the affects of the rating proposal on both reference fluids before implementation. We should not be implementing a rating change based on the results for one oil.

#### Motion Results: Pass

In favor: 4

Opposed: 0

Abstain: 0

#### TMC 151 Re-blend.

A pending action item for the TMC was to check the current volume of TMC 151-2 reference fluid and determine whether a reblend was needed. TMC 151-batch 2 is being used only for the L-60-1 and Mr. Lind indicates that we have enough oil for approximately 200 tests. When reviewing the L-60-1 testing volume across the entire industry, the current supply of TMC 151-2 should last for several more years. It was recommended that we stay on batch 2 and not participate in approval testing for 151-4 batch. With the severity issues discussed earlier, we probably would not want to introduce another variable with an oil batch change.

#### Stoddard Solvent:

It was decided to delay this discussion until later in the afternoon when additional members were in attendance.

With no further business to discuss at this time, a motion to adjourn the meeting was made by Mr. Koehler, seconded by Mr. Schenkenberger. The meeting was adjourned at 9:34 am.

**Stoddard Solvent:**

The L-60-1 Surveillance Panel Meeting briefly reconvened at 5:20 pm to discuss a Stoddard solvent issue that was common to all Surveillance Panels within ASTM Section B.03.

***Motion 2*** (Motion  $\Rightarrow$  Mr. Sullivan, Second  $\Rightarrow$  Mr. Smith) Request that the TMC issue an information letter stating the following requirement for cleaning solvent:

Use cleaning Solvent meeting ASTM D235 - Type II, Class C requirements for Aromatic Content (0 to 2% vol), Flash Point (142°F/61°C, min) and Color (not darker than +25 Saybolt Scale or 25 on Pt-Co Scale) may be used. Obtain a Certificate of Analysis for each batch of solvent from the supplier. Implementation date will go into effect the date of the information letter.

The motion passed unanimously and the meeting was adjourned at 5:21.

Respectfully submitted,



Chris Schenkenberger

L-60-1 Surveillance Panel Chairman

ASTM L-60-1 Surveillance Panel Membership/Mailing List

Meeting Date: February 2, 2005

Initials*	Name	Voting Status	Company Name & Address	Phone & Fax & E-Mail
	Anderson, H.	Non-voting	Falex Corporation 1020 Airpark Drive Sugar Grove, Illinois 60554-9585	Phone: 630-556-3669 Fax: 630-556-3679 E-Mail:
	Bartlett, Don	Non-voting	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, Ohio 44092	Phone: 440-347-2388 Fax: 440-347-2878 E-Mail: dtb@lubrizol.com
	Boschert, Tom	Non-voting	Ethyl Petroleum Additives 2000 Town Center, Suite 1750 Southfield, MI 48075	Phone: 248-350-0640 Fax: 248-350-0025 E-Mail: tom_boschert@ethyl.com
	Bryson, Tom	Voting	Mack Trucks 13302 Pennsylvania Avenue Hagerstown, Maryland 21740	Phone: 301-790-5454 Fax: 301-790-6744 E-Mail: tom.bryson@macktrucks.com
	Buitrago, Juan	Voting	Chevron Oronite Co. 100 Chevron Way Richmond, California 94802-0627	Phone: 510-242-1161 Fax: 510-242-3392 E-Mail: jabu@chevrontexaco.com
	Chambers, Harold	Non-voting	Cube C290 81 17000 Rotunda Drive Dearborn, MI 48120	Phone: (313) 755-4246 Fax: E-Mail: hchamber@visteon.com

Attachment 1  
Page 2 of 6  
Reference L-60-1

\* Initial to indicate attendance at subject meeting

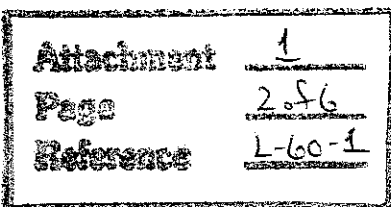
*DRB* Bell, Don Non-voting  
Afton Chemical Corp  
500 Spring St.  
Richmond, VA 23219  
804 788 6332  
804 788 6342 -fax  
Don. Bell@aftonchemical.com

ASTM L-60-1 Surveillance Panel Membership/Mailing List

Meeting Date: February 2, 2005

Initials*	Name	Voting Status	Company Name & Address	Phone & Fax & E-Mail
	Comfort, Allen	Non-voting	AMSTA-TR-D/210 (Allen Comfort) U S Army Tank, Automotive, and Armament Command Warren, Michigan 48397-5000	Phone: 586-574-4225 Fax: 586-574-4244 E-Mail: comforla@cc.tacom.army.mil
	De La Fuente, Hector	Voting	Southwest Research Institute 6220 Culebra Road San Antonio, Texas 78238	Phone: 210-522-5996 Fax: 210-680-1777 E-Mail: hdelafuente@swri.edu
	DuBois, David	Non-voting	Performance Review Institute 161 Thornhill Road Warrendale, Pennsylvania 15086-7527	Phone: 724-772-1616, ext. 8136 Fax: 724-772-1699 E-Mail: dubois@sae.org
	Duckstein, Ron	Non-voting	Parc Technical Services Inc. 100 William Pitt Way Pittsburgh, Pennsylvania 15238	Phone: 412-826-5115 Fax: 412-826-5443 E-Mail: rhd@usaor.net
	Farber, Frank	Non-voting	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, Pennsylvania 15206	Phone: 412-365-1030 Fax: 412-365-1047 E-Mail: fmf@astmtnc.cmu.edu
	Figueredo, Pedro	Non-voting	Inteverp, S. A. Los Teques Edo. Miranda Apdo. 76343 Caracas 1070A Venezuela	Phone: (02) 9086793 Fax: (02) 9087723 E-Mail:

\* Initial to indicate attendance at subject meeting



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Initials*	Name	Voting Status	Company Name & Address	Phone & Fax & E-Mail
	Goyal, Ajun	Non-voting	ExxonMobil Research and Engineering Company 600 Billingsport Road Paulsboro, New Jersey 08066-0480	Phone: 609-224-2115 Fax: 609-224-3613 E-Mail:
<i>JFL</i>	Gropp, Jerry	Non-voting	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, Ohio 44092	Phone: 440-347-1223 Fax: 440-347-1555 E-Mail: <a href="mailto:jlg@lubrizol.com">jlg@lubrizol.com</a>
	Harold, Scott	Non-voting	Infinium USA L.P. East Linden Avenue Linden NJ, 07036	Phone: 908-474-2318 Fax: 908-474-3597 E-Mail: <a href="mailto:Scott.Harold@Infinium.com">Scott.Harold@Infinium.com</a>
	Huron, John	Non-voting	Chevron Oronite 4502 Centerview Drive, Suite 210 San Antonio, Texas 78228	Phone: 210-731-5609 Fax: 210-731-5699 E-Mail: <a href="mailto:HURO@ChevronTexaco.com">HURO@ChevronTexaco.com</a>
	Johnson, Ron	Non-voting	Chevron Products Company 100 Chevron Way Richmond, California 94802-0627	Phone: 510-242-4374 Fax: 510-242-3385 E-Mail: <a href="mailto:rjo@chevron.com">rjo@chevron.com</a>
<i>[Signature]</i>	Koehler, Brian	Non-voting	Southwest Research Institute Culebra Road Bldg. <del>64-209</del> <b>209</b> San Antonio, TX 78238-5166	Phone: (210) 522-3588 Fax: (210) <del>500-1777</del> <b>684-7523</b> E-Mail: <a href="mailto:bkoehler@swri.org">bkoehler@swri.org</a>

*Verify this meeting only for Hester*

Attachment 1  
Page 3 of 6  
Reference L-60-1

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ASTM L-60-1 Surveillance Panel Membership/Mailing List

Meeting Date: February 2, 2005

Initials*	Name	Voting Status	Company Name & Address	Phone & Fax & E-Mail
<i>C.K.</i>	Koglin, Cory	Non-voting	Ethyl Petroleum Additives 500 Spring Street Richmond, Virginia 23218	Phone: 804-788-5305 Fax: 804-788-6358 E-Mail: cory_koglin@ethyl.com
	Layton, Kevin	Voting	Ethyl Petroleum Additives 500 Spring Street Richmond, Virginia 23218	Phone: 804-788-5363 Fax: 804-788-6358 E-Mail: Kevin_Layton@ethyl.com
	Lee, Don	Non-voting	Elco Corporation 1000 Bellline Road Cleveland, Ohio 44109-2848	Phone: 216-749-2605 Fax: E-Mail:
<i>D.S.</i>	Lind, Don	Voting	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, Pennsylvania 15206	Phone: 412-365-1034 Fax: 412-365-1047 E-Mail: dml@astmtmc.cmu.edu
	Marougy, Thelma	Voting	Eaton Corporation 26201 Northwestern Highway Southfield, Michigan 48037	Phone: 248-354-6985 Fax: 248-354-2739 E-Mail: thelmaemarougy@eaton.com
	Marily, Steve	Non-voting	Southwest Research Institute 6220 Culebra Road San Antonio, Texas 78238	Phone: 210-522-5929 Fax: 210-680-1777 E-Mail: smarily@swri.edu

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Attachment 1  
Page 426  
Reference L-60-1

ASTM L-60-1 Surveillance Panel Membership/Mailing List

Meeting Date: February 2, 2005

Initials*	Name	Voting Status	Company Name & Address	Phone & Fax & E-Mail
	McGlone, Bruce	Voting	ArvinMeritor 2135 West Maple Troy, Michigan 48084	Phone: 248-435-9929 Fax: 248-435-1411 E-Mail: mcglonbr@meritorauto.com
	Reitmann, Kevin	Non-voting	PerkinElmer Fluid Sciences 5404 Bandera Road San Antonio, Texas 78238	Phone: 210-706-1546 Fax: 210-523-4614 E-Mail: Kevin.Reitmann@perkinelmer.com
CLS	Schenkenberger, Chris	Voting	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, Ohio 44092	Phone: 440-347-2927 Fax: 440-347-2878 E-Mail: csc@lubrizol.com
	Shah, Rajesh	Non-voting	Koehler Instrument Company 1595 Sycamore Avenue Bohemia, New York 11716	Phone: 516-589-3800 Fax: 516-589-3815 E-Mail:
	Smith, Dale	Non-voting	Parc Technical Services Inc. 100 William Pitt Way Pittsburgh, Pennsylvania 15238	Phone: 412-826-5051 Fax: 412-826-5443 E-Mail: dsmith@parctech.com
	Sullivan, Bill	Voting	ExxonMobil Chemical Company P. O. Box 3140 Edison, New Jersey 08818	Phone: 732-321-3354 Fax: 732-321-6064 E-Mail: william.l.sullivan@exxonmobil.com

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Attachment 1  
Page 5 of 6  
Reference L-60-1

ASTM L-60-1 Surveillance Panel Membership/Mailing List

Meeting Date: February 2, 2005

Initials*	Name	Voting Status	Company Name & Address	Phone & Fax & E-Mail
	Vettel, Paula	Voting	D. A. Stuart Company 4580 Weaver Parkway Warrenville, Illinois 60555	Phone: 630-393-8859 Fax: 630-393-8577 E-Mail: pvettel@dasuart.net
	Villahermosa, Luis	Non-voting	AMSTA-TR-D/210 (Luis Villahermosa) U S Army Tank, Automotive, and Armament Command Warren, Michigan 48397-5000	Phone: 586-574-4207 Fax: 586-574-4123 E-Mail: villahel@cc.lacom.army.mil
	Whitton, Claire	Non-voting	Ethyl Research Center 500 Spring Street P. O. Box 2158 Richmond, Virginia 23218-2158	Phone: 804-788-5052 Fax: 804-788-6243 E-Mail: Claire_Whitton@ethyl.com
	Zakarian, Jack	Non-voting	Chevron Products Company 100 Chevron Way Richmond, California 94802-0627	Phone: 510-242-3595 Fax: 510-242-3758 E-Mail: jaza@chevron.com
	Zreik, Khaled	Non-voting	US Army TACOM AMSRD-TAR-D U S Army Tank, Automotive, and Armament Command Warren, Michigan 48397-5000	Phone: 586-574-4227 Fax: 586-574-4244 E-Mail: zreikk@lacom.army.mil

CASMANUEL, CHARL N V

LUBRIZOL  
29400 LAKELAND  
WICKLIFFE, OH 44092

446 347 2977  
446 347 2878  
CCA@Lubrizol.com

Attachment 1  
Page 6 of 6  
Reference L-60-1

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# L-60-1 Surveillance Panel

February 2, 2005  
PRI Apollo Room – Warrendale, PA

## Agenda

- I. Call to order/Review Membership
- II. Review agenda
- III. Approval of meeting minutes
  - November 3, 2004 L-60-1 SP Meeting
- IV. ASTM Rater Workshop
  - Data
  - Rater Recommendation
- V. Update on TMC 151 Reblend
- VI. Cleaning Solvent
- VII. New Business
- VIII. Adjournment

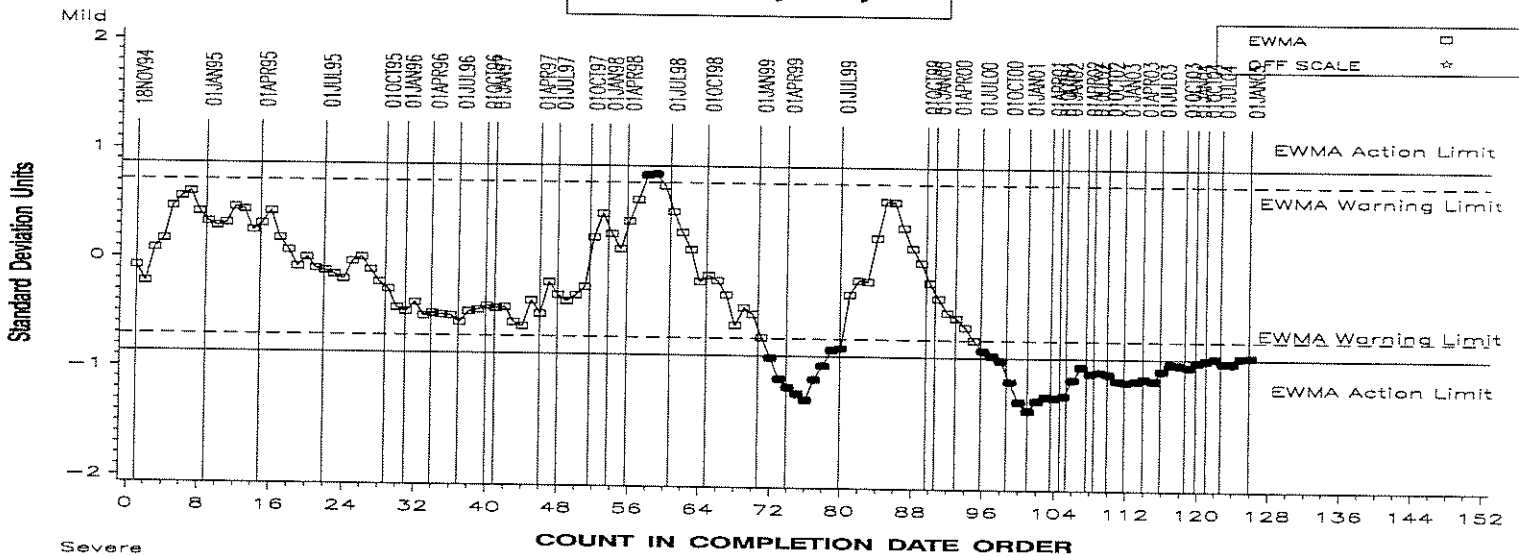
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Page	<u>1 of 1</u>
Reference	<u>L-60-1</u>

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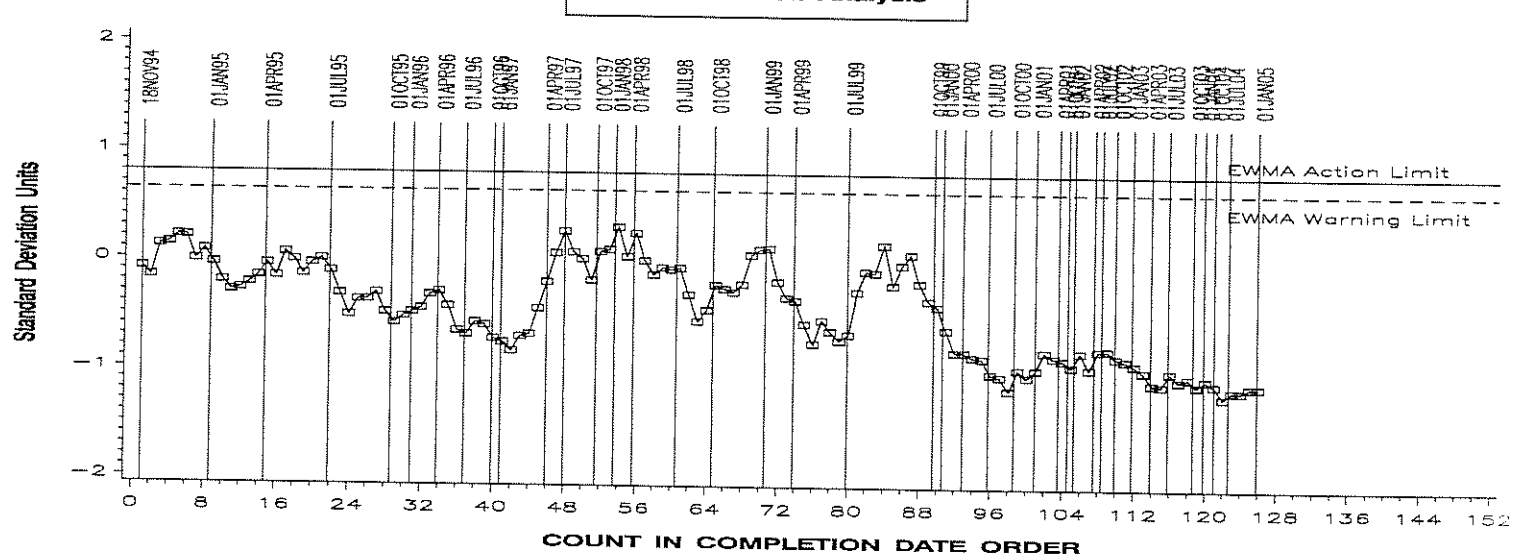
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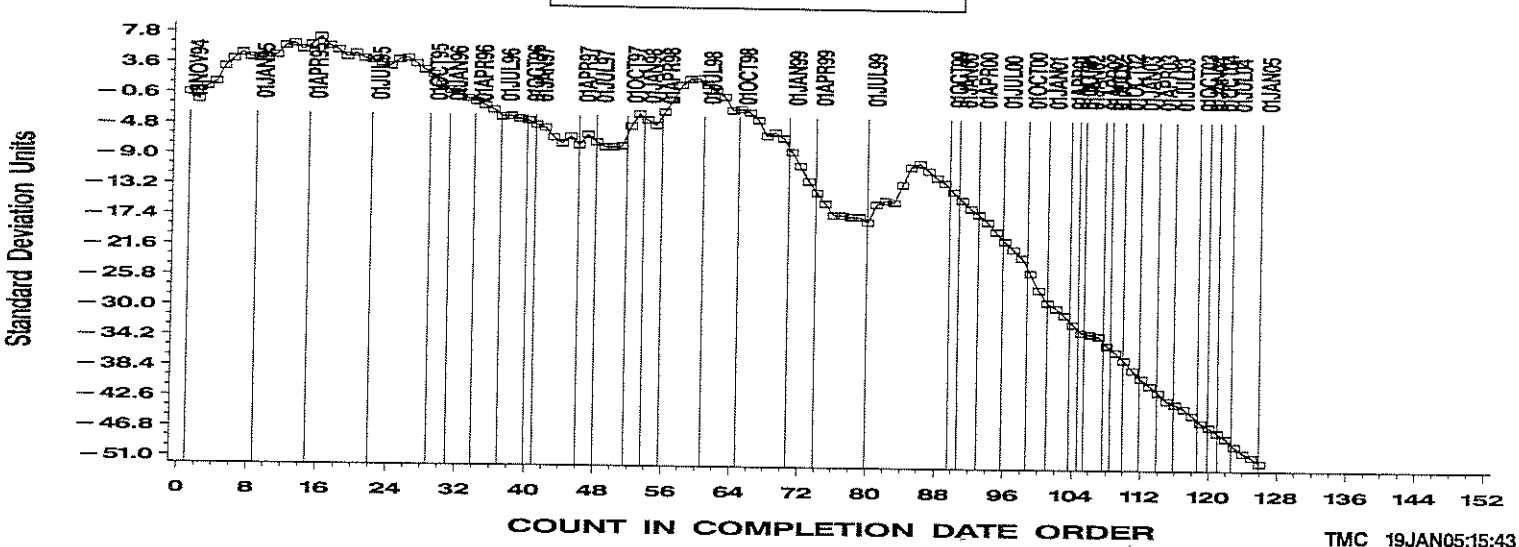
LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

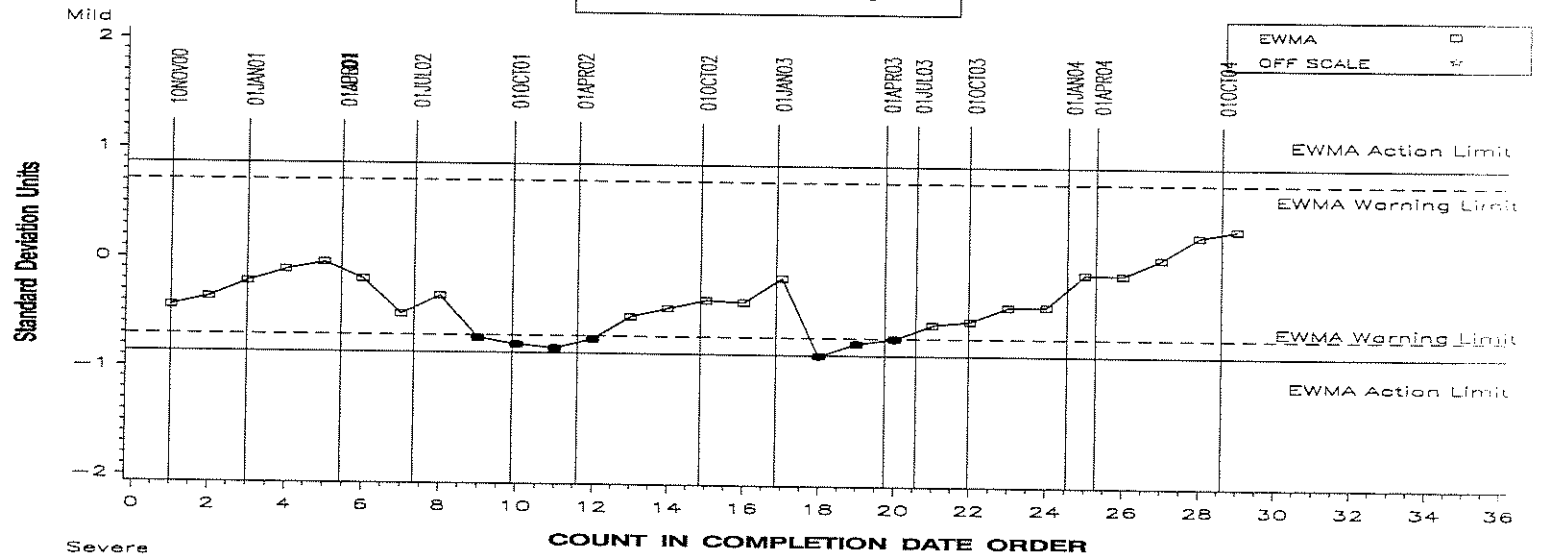


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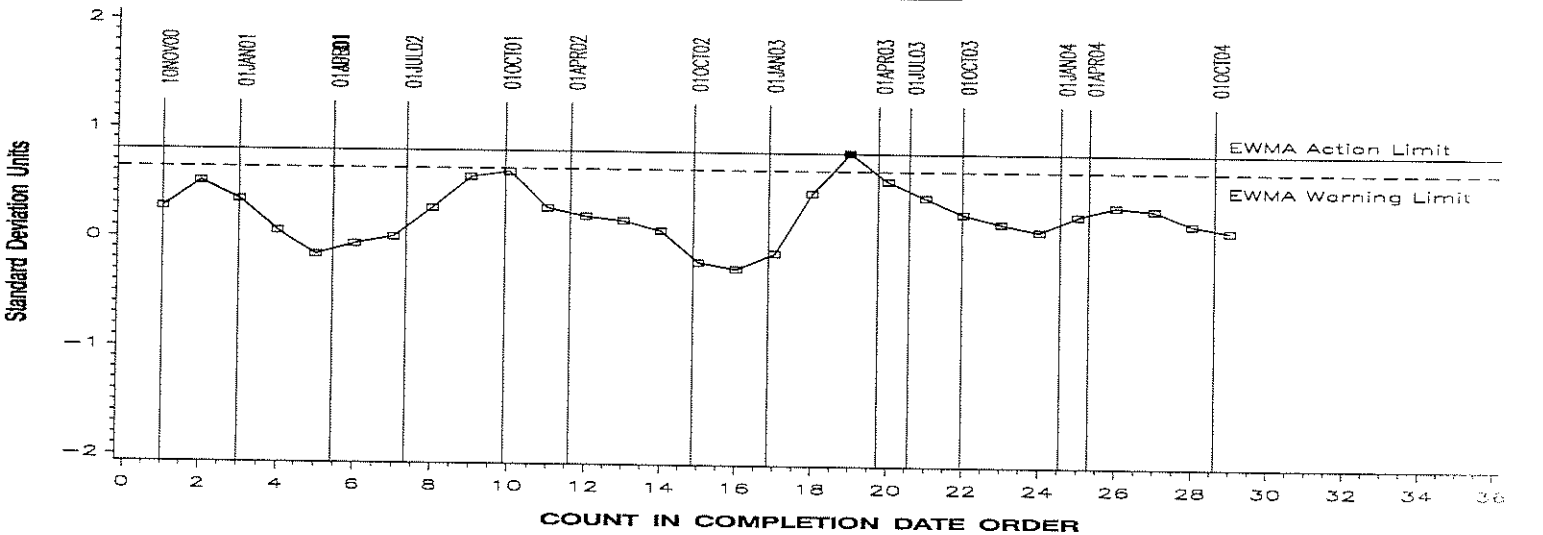
Reference 151-1 (Lab A)

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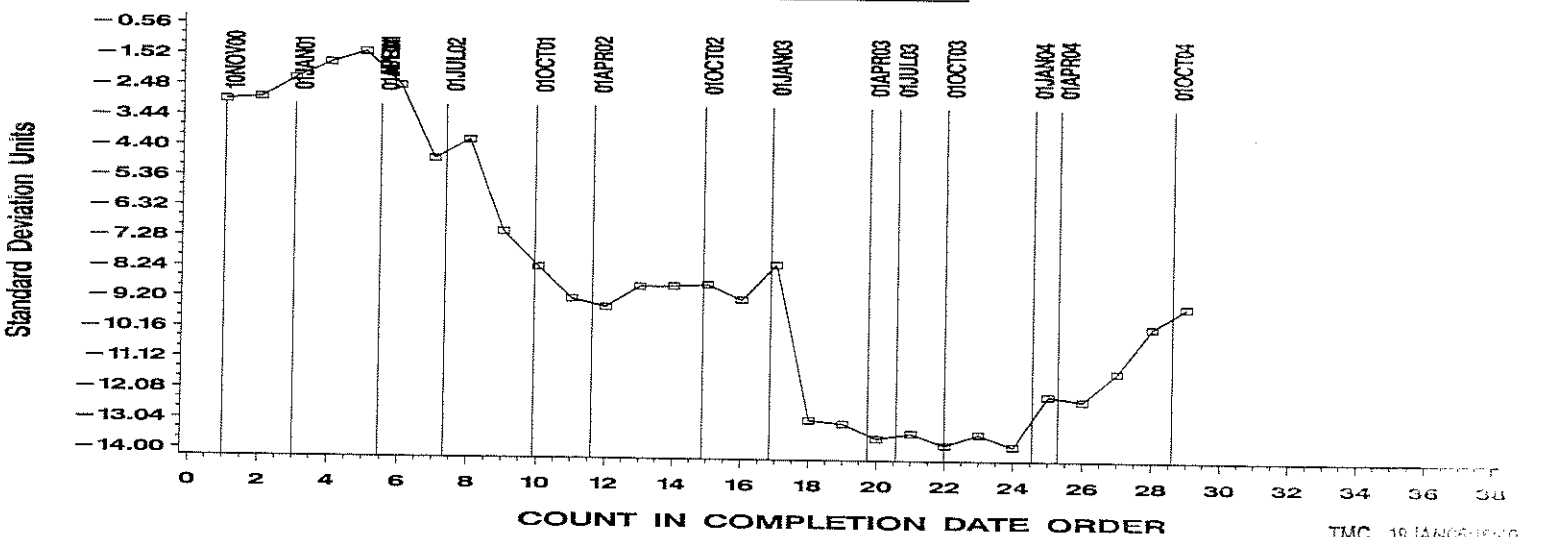
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**LTMS Precision Analysis**

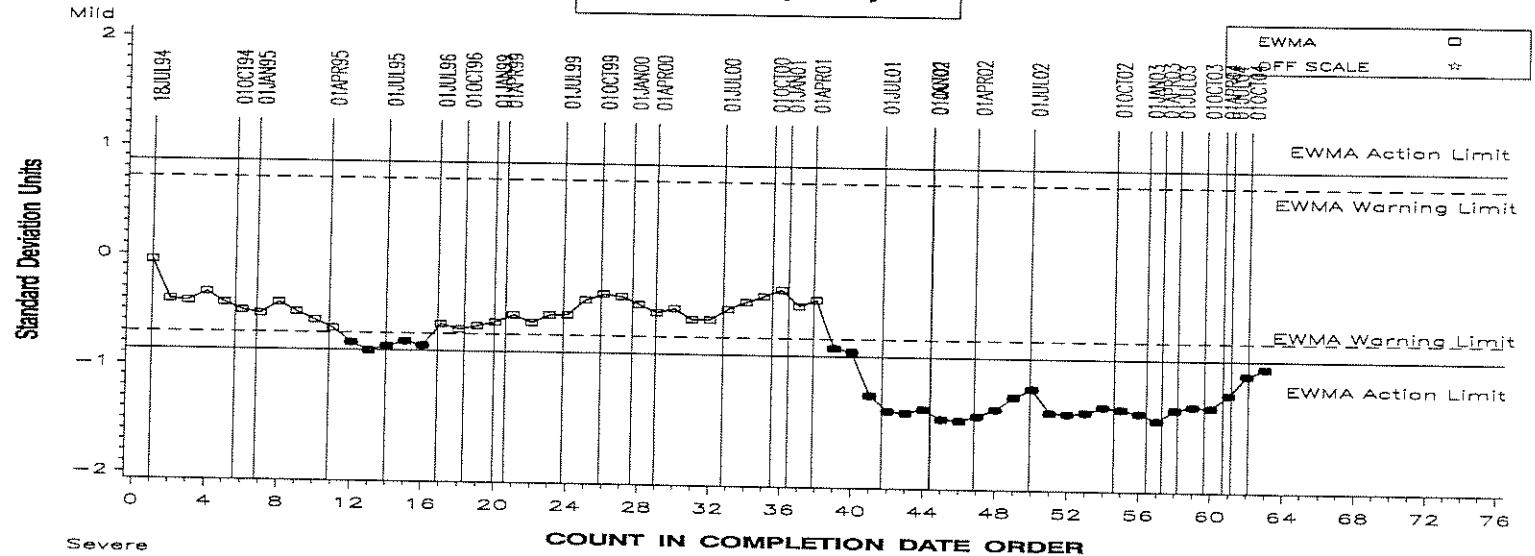


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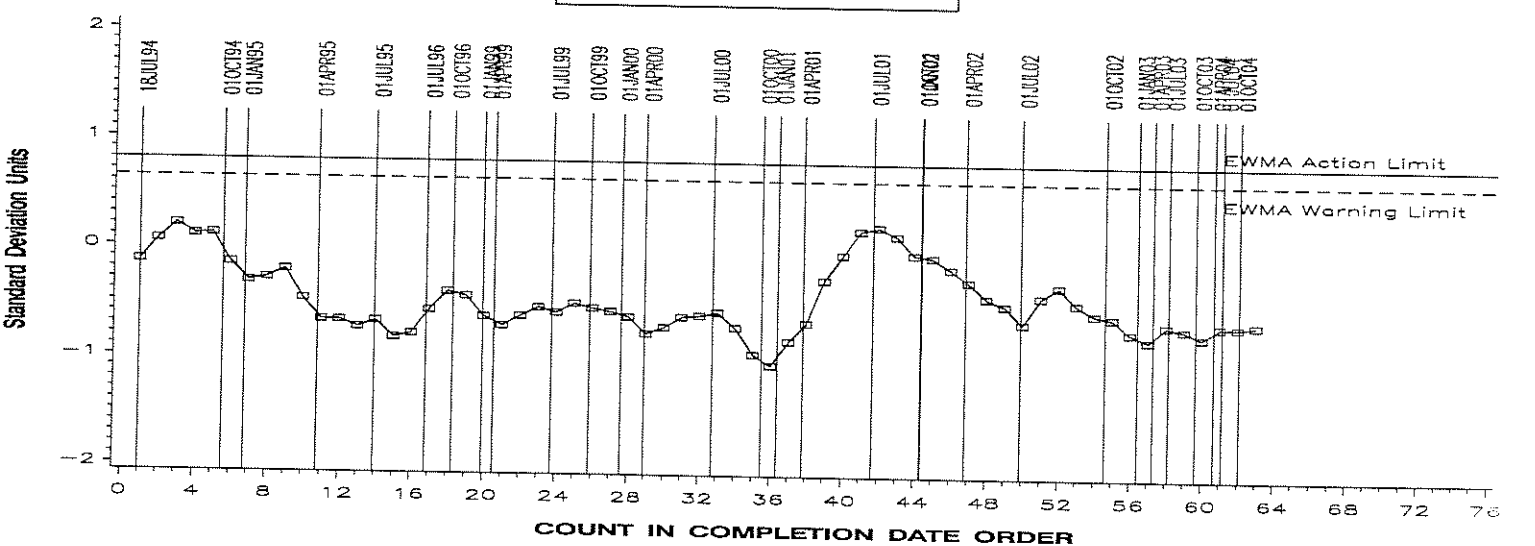


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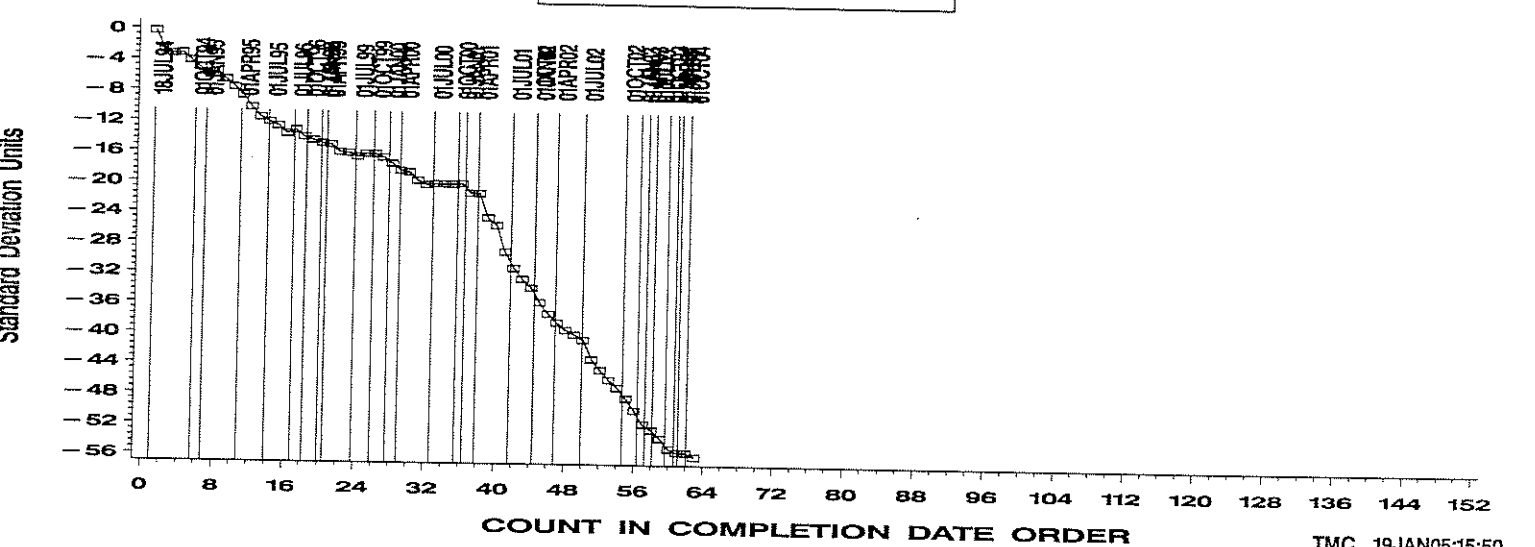
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**LTMS Precision Analysis**

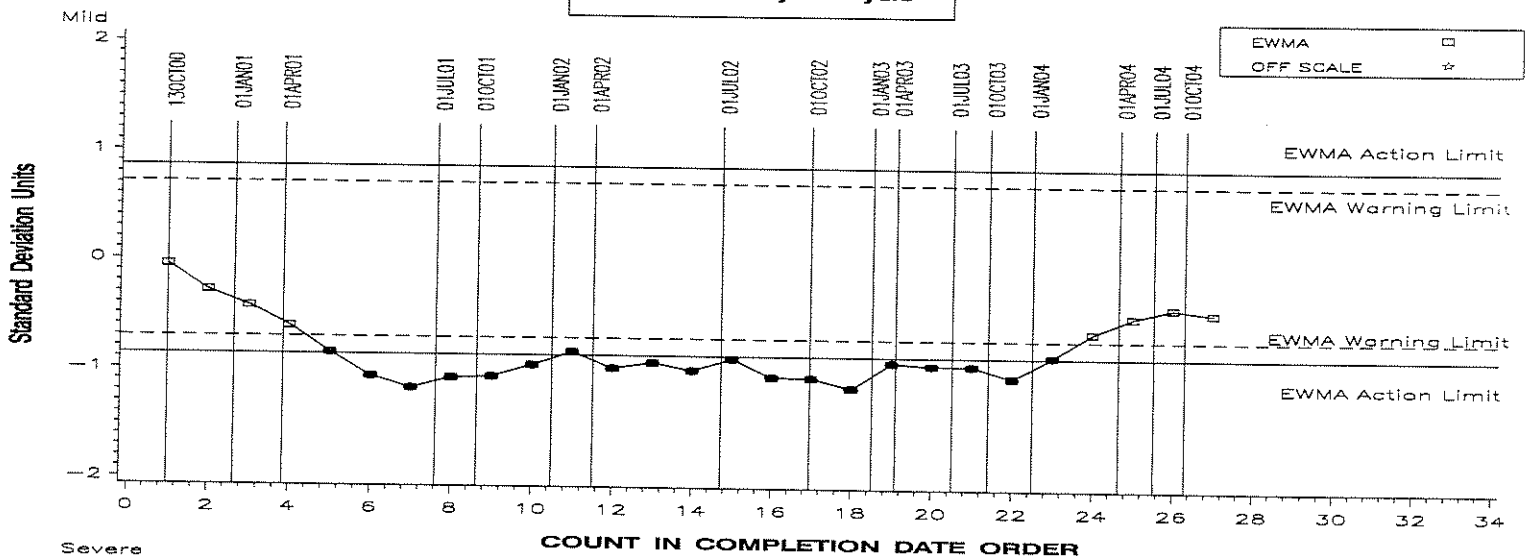


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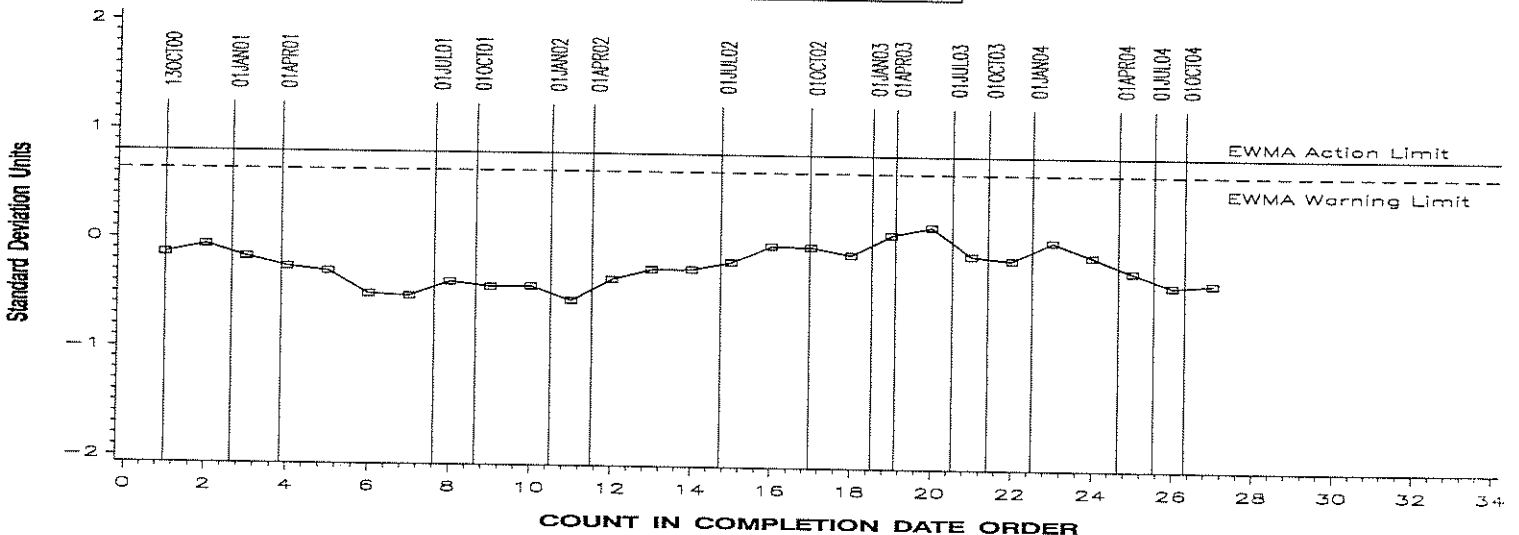


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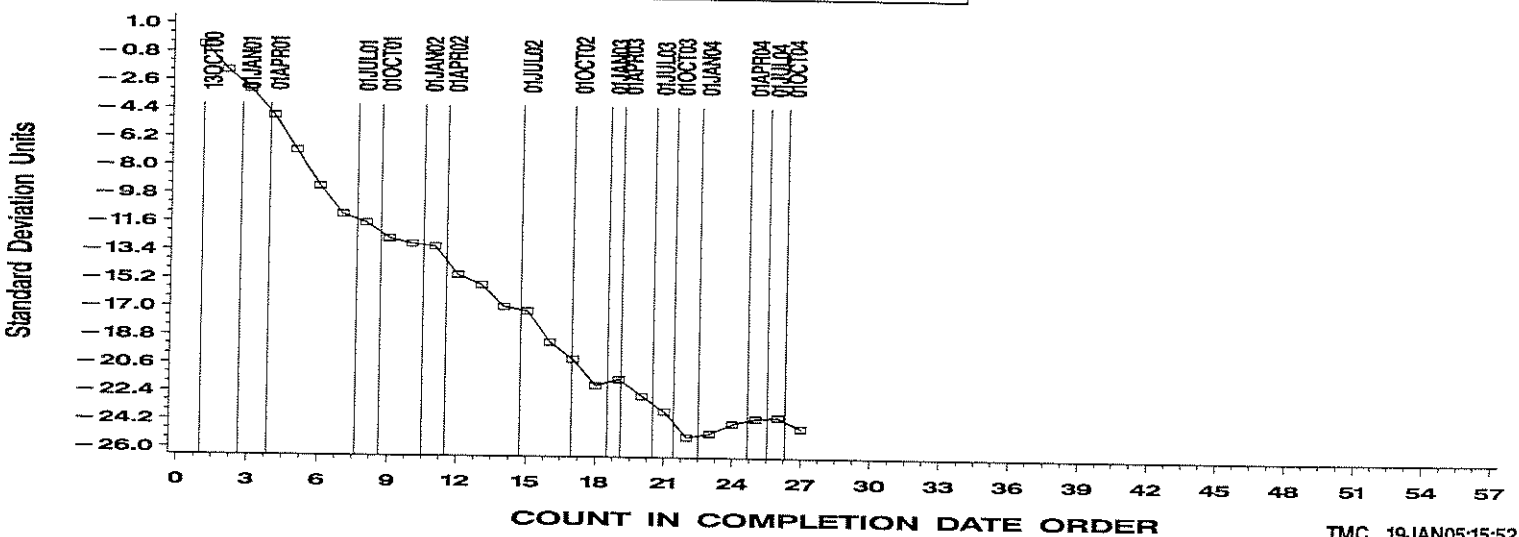
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**LTMS Precision Analysis**



**CUSUM Severity Analysis**



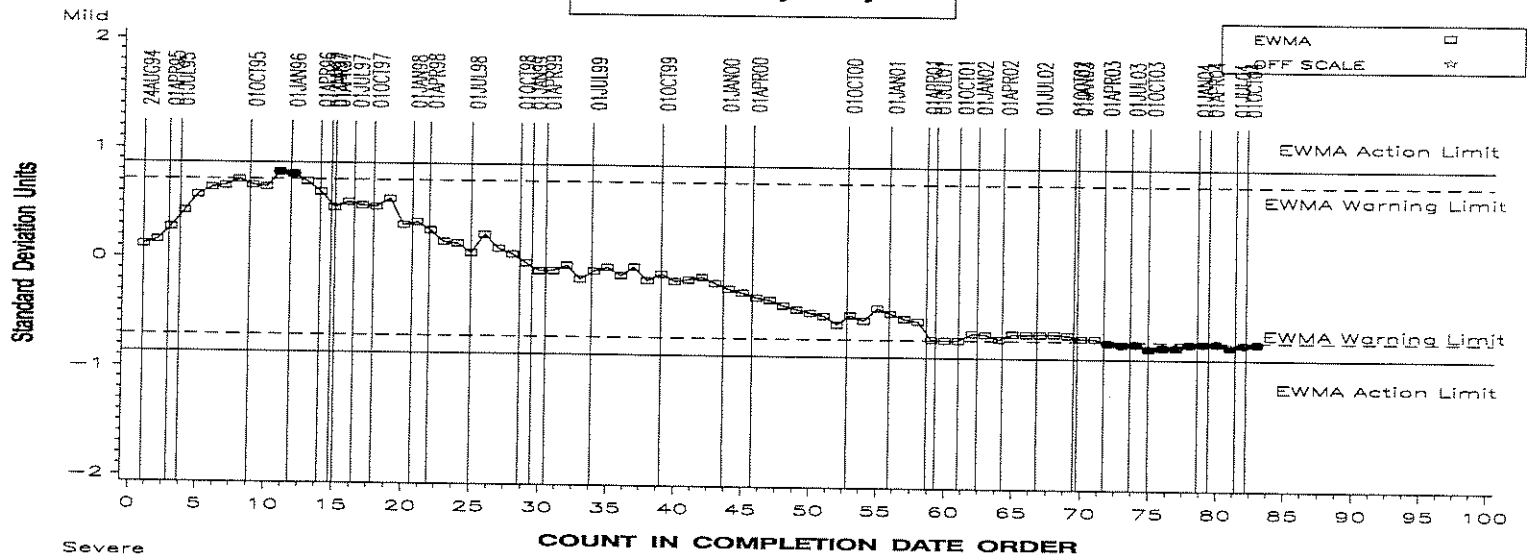


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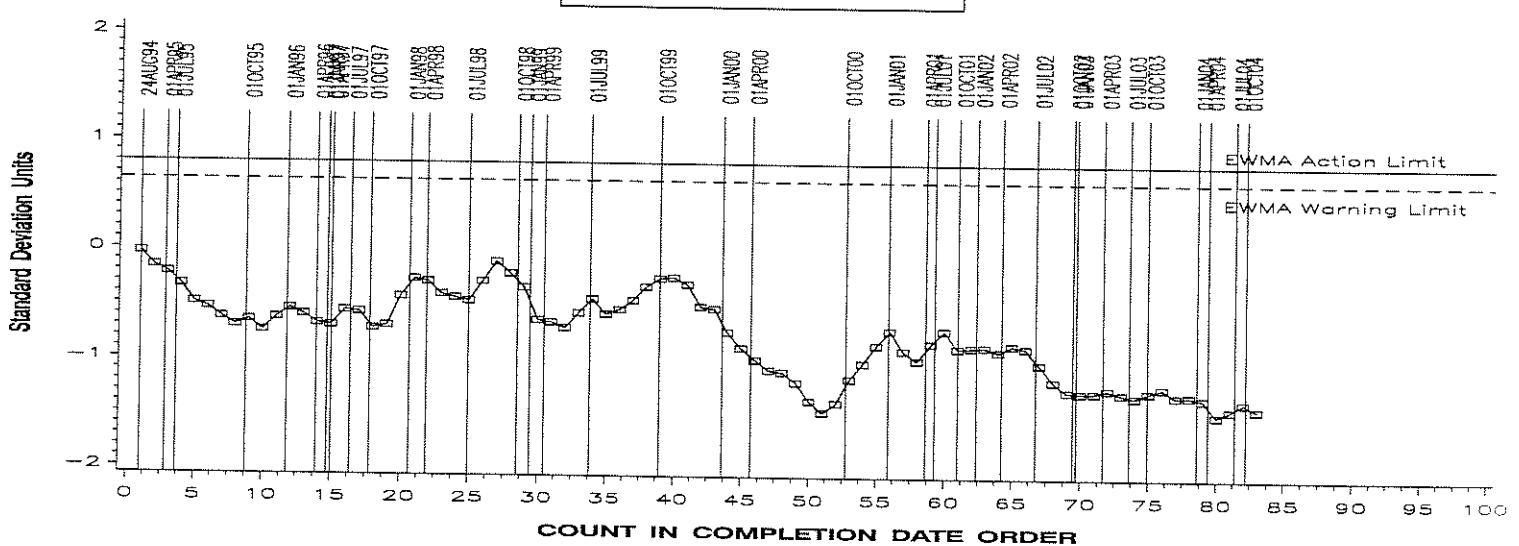
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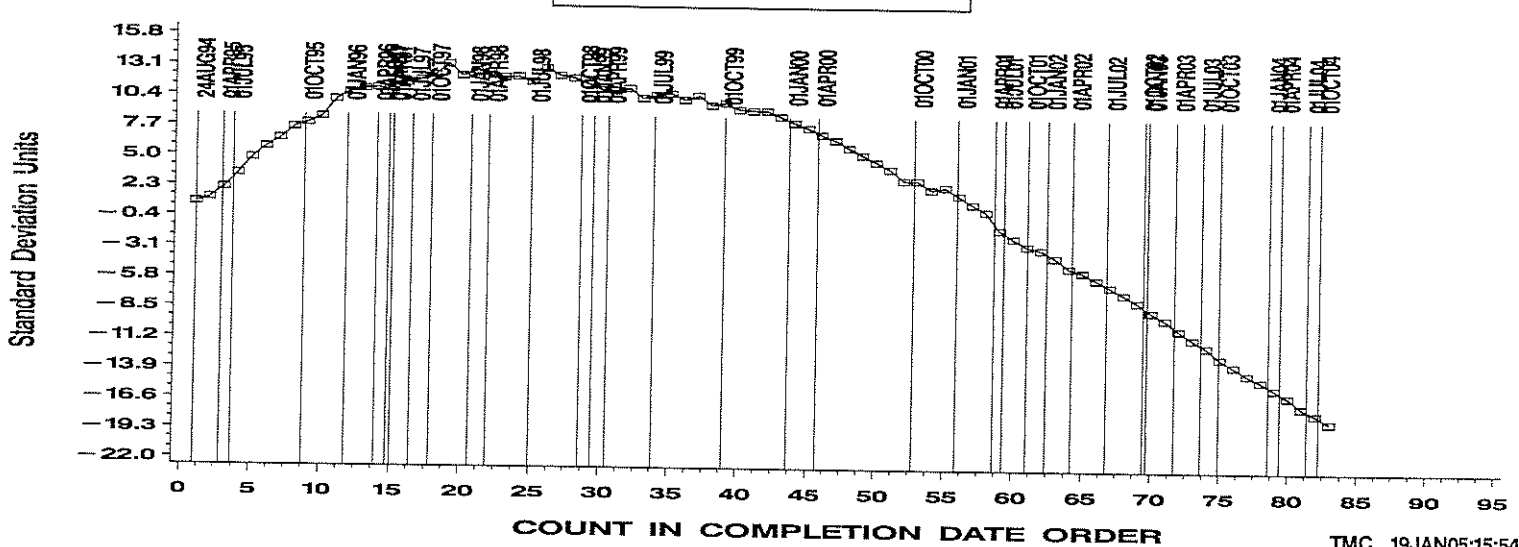
LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

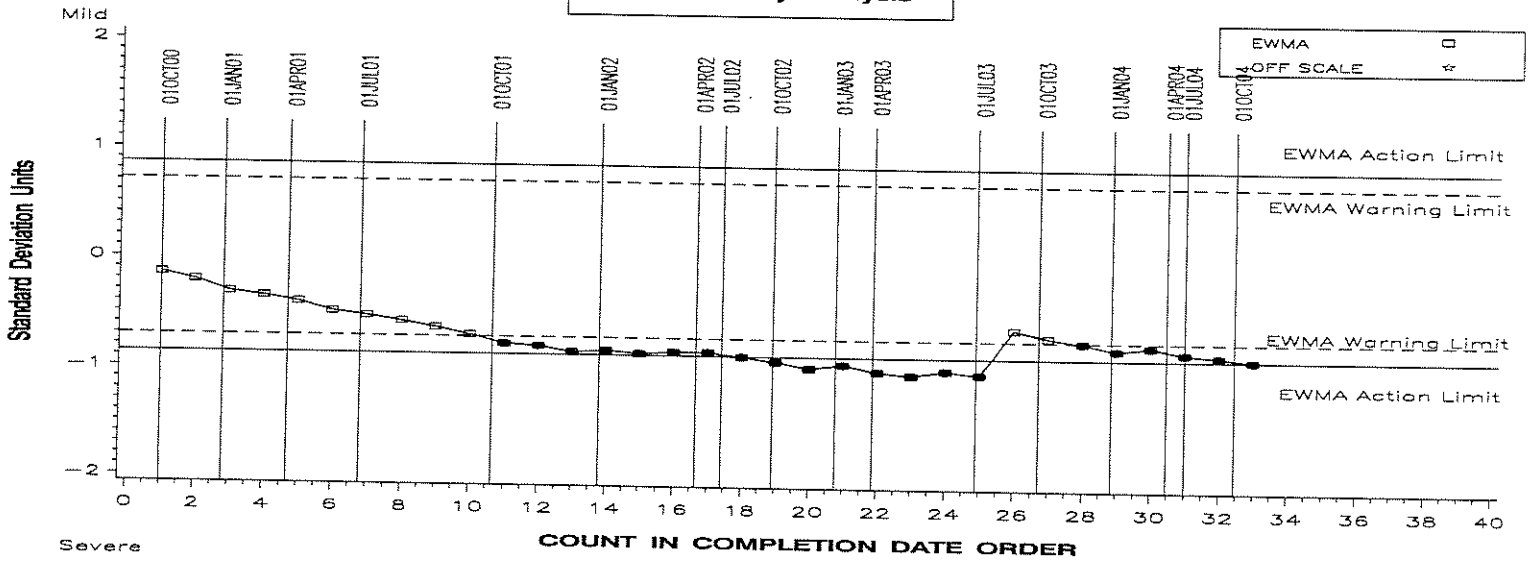


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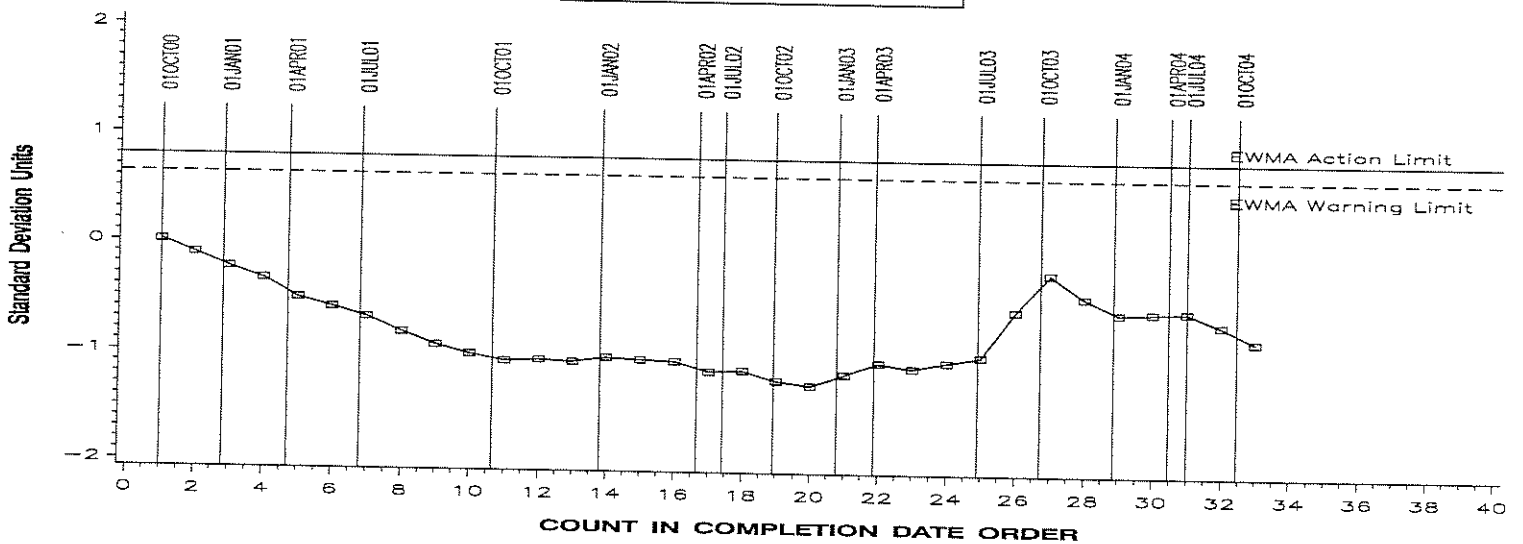
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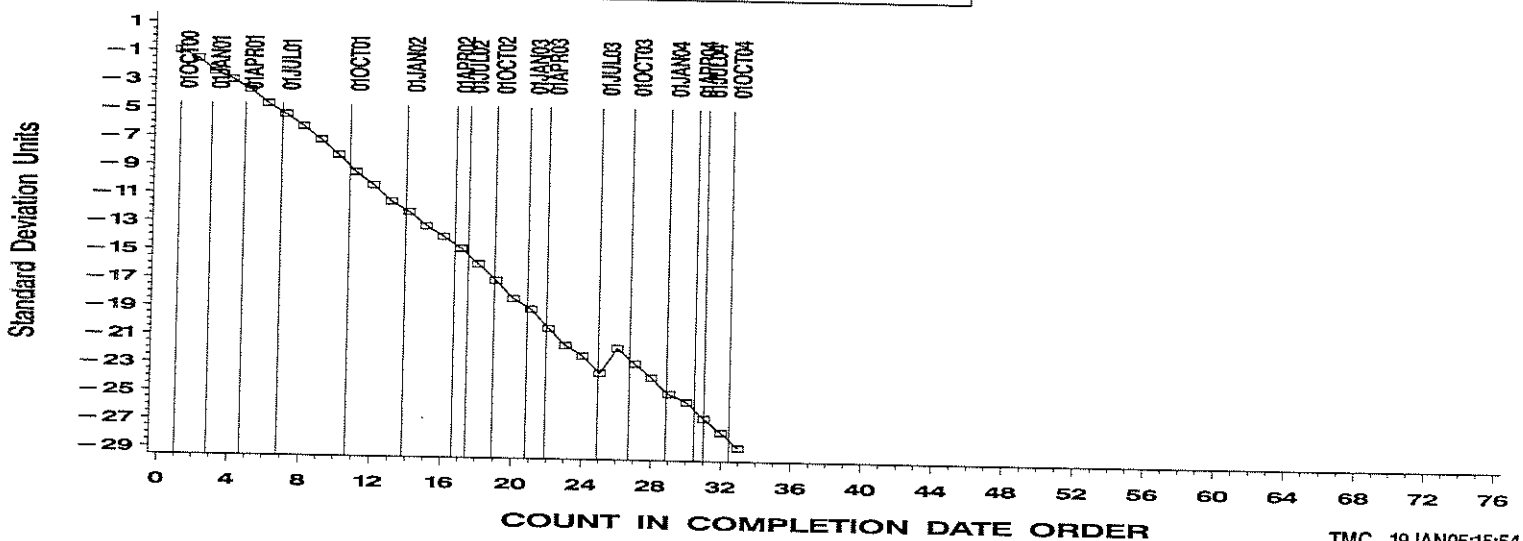
**LTMS Severity Analysis**



**LTMS Precision Analysis**



**CUSUM Severity Analysis**



**ASTM Gear Calibration Workshop**  
**Richmond, VA January 11, 12, & 13, 2005**

**L-60 GEARS Varnish (Large Gear Only)**

SET #	RATER														MAX	MIN	AVG	Std Dev
	1	2	3	4	6	7	10	11	16	21	22	23	24	26				
1	9.09			8.80			9.00	8.85	8.35						9.09	8.35	8.82	0.286
2	9.04			8.60			9.10	8.79	8.40						9.10	8.40	8.79	0.294
3	9.10			8.20			8.90	8.40	8.55						9.10	8.20	8.63	0.367
4	8.80			8.15			8.60	8.47	8.20						8.80	8.15	8.44	0.273
5	9.30			8.80			8.30	8.85	8.50						9.30	8.30	8.75	0.381
6	9.45			8.90			9.15	8.60	8.50						9.45	8.50	8.92	0.391

Attachment	<u>4</u>
Page	<u>1 of 1</u>
Reference	<u>L-60-1</u>



A PROVEN PARTNERSHIP

100 Barr Harbor Drive ■ West Conshohocken, PA 19428-2959  
 Telephone: 610-832-9500 ■ Fax: 610-832-9555 ■ e-mail: [service@astm.org](mailto:service@astm.org) ■ Website: [www.astm.org](http://www.astm.org)

### Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

*Chairman:* N DAVID SMITH, North Carolina Dept Of Agric, 2 West Edenton St, PO Box 27647, Raleigh, NC 27611, (919) 733-3313, FAX: 919-715-0524, Email: [david\\_smith@ncdamail.agr.state.nc.us](mailto:david_smith@ncdamail.agr.state.nc.us)  
*First Vice Chairman:* SUSAN E. LITKA, UOP Research Center, 50 East Algonquin Road, PO Box 5016, Des Plaines, IL 60017-5016, (847) 391-3390, FAX: 847-391-3330  
*Second Vice Chairman:* KURT H. STRAUS, 69 Brookside Rd, Portland, ME 04103, (207) 773-4380, FAX: 207-775-6214  
*Secretary:* KENNETH O. HENDERSON, Cannon Instrument Co, PO Box 16, State College, PA 16804-0016, (814) 353-8000, FAX: 814-353-8007, Email: [kenohenderson@worldnet.att.net](mailto:kenohenderson@worldnet.att.net)  
*Assistant Secretary:* W JAMES BOVER, Exxon Biomedical Sciences, Mettlers Rd Cn2350, East Millstone, NJ 08875-2350 (732) 873-6318, FAX: 732-873-6009, Email: [mailto:james.bover@ere.exxon.sprint.com](mailto:mailto:james.bover@ere.exxon.sprint.com)  
*Staff Manager:* EARL R. SULLIVAN, (610) 832-9709, Email: [esulliva@astm.org](mailto:esulliva@astm.org)

To: Chris Schenkenberger

Arthur Sanchez

January 26, 2005

The Test Monitoring Center requested the Gear Rating Task Force to develop a standardized rating procedure to minimize varnish variability. This request was made at the January 13, 2005 Gear Rating Workshop held in Richmond, VA.

As the ASTM Gear Rating Task Force chairman, I ask that you propose the recommendation developed by the raters at the next L-60-1 ASTM Surveillance Panel meeting.

#### Proposed L-60-1 Varnish Rating Procedure

- 1) ASTM D 5704 rating procedure and CRC Manual 20 are to be used to rate L-60-1 test gears.
- 2) If gloves are needed only use skin tone colored gloves to hold gears. Gears are to be held at the gear teeth lands to avoid any contact of the rated area.
- 3) A cool white type fluorescent 4500° K color temperature light is to be used when rating the gears with a minimum illumination level of 200 foot-candles.
- 4) Adjust the fluorescent rating light to a horizontal position to the comfortable height of the rater. Light is to be projected downward.
- 5) Wipe a ¾" wide area across the diameter along the key way, five times in the same direction on each face of the test gear using lint free material.
- 6) The keyway and the ¾" wiped areas are to be in a vertical position (12:00 and 6:00).
- 7) Hold the gear center bore approximately 4" directly beneath the rating light. Tilt the gear towards the rater approximately 45° from horizontal.
- 8) When rating varnish on each side, rate the top half of the gear in the ¾" wiped area for a rated area of 50%, then rotate gear 180° and rate the other half of the gear in the ¾" wiped area for a total of 100% of rated area. Exclude the gear teeth and the spacer bushing contact area.

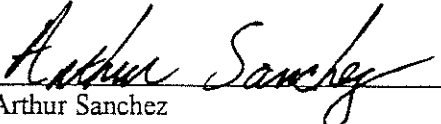
Attachment	5
Page	1 of 2
Reference	L-60-1

9) Use any of the three CRC varnish scales A, B, or C. for rating varnish.

10) Do not use a new gear or the washer nut area of a test gear as a 10.0 reference point.

Please let me know if I can be of any assistance regarding this matter.

Regards,

  
Arthur Sanchez  
ASTM Gear Rating Task Force Chairman

AS/cm

Attachment	<u>5</u>
Page	<u>2 of 2</u>
Reference	<u>L-60-1</u>