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INTERNATIONAL
Standards Worldwide

COMMITTEE D02 ON PETROLEUM PRODUCTS, LIQUID FUELS, AND LUBRICANTS

Originally Issued: May 30 , 2023

Reply to: Richard Grundza
ASTM Test Monitoring Center
203 Armstrong Drive
Freeport, PA 16229
Phone: 412-365-1031
Fax: 412-365-1047
Email: reg@astmtmc.org

Unapproved Minutes of the May 4, 2023
Sequence IV Surveillance Panel Meeting.

The meeting was called to order by Chairman Buscher at 8:08 AM Central Time.

A copy of the agenda is included as attachment 1.

A list of attendees is included as attachment 2.

Minutes from the 11/11/22 meeting were approved by voice vote.

The status of action items from the previous meeting(s) were reviewed as documented in attachment 3. All items were completed as documented in the attachment.

The panel discussed hardware for the Sequence IVA and IVB tests. The panel also reviewed the CPD report. All the hardware updates are included as attachment 4. Of particular note was that cam consumption was down 18% and engine consumption was down 63% since 2018. The CPD indicated that engines are the limiting factor for continuation of this test from a hardware standpoint. The CPD also stated that there are head kits and other components available to refresh engines can add 10-29 years worth of hardware. There was some discussion on refreshing engines. Intertek had experimented with "refreshing" engines. Rings were replaced and cylinders were reworked with a ball hone and they were able to restore oil consumption to acceptable levels. The panel had a brief discussion on tracking of engines due to EPA import rules and determined that holding onto these engines once removed from the system would not be a problem for potential rebuilding in the future.

The fuel supplier reported that there were approximately 12000 gallons of the KA24E fuel available and another batch is being prepared. Batches typically take two months to blend. The supplier agreed to work with the test labs to determine an allocation of the remaining fuel amongst the labs.

The panel reviewed the current industry charts and discussed the mild trend for both Average Volume loss and Iron (See attachment 5). During the review, it was noted that the data suggested that 3 of the 4 active labs may have shifted with the V-00038 batch. The fuel supplier will review the how this batch was constructed as well as previous and subsequent batches to see if there is a difference in components and or suppliers. The panel also reviewed the TMC report for the IVA, which showed the industry in severity action alarm. One lab had issues calibrating a stand while a second lab found enough hardware to complete another reference period. The first lab was able to calibrate a different stand, but that stand is on the severe end.

The panel discussed a recommendation from ACC to relax the requirement to only test <0W-16 oils in engines where a <0W-16 oil had been tested. Many members agreed that this course of action was appropriate when instituted as there were concerns about the potential impact on subsequent candidates, especially when at that time there were instances of high lobe failure rates of 10% or greater. However, there was reluctance from some panel members to relax this requirement and after considerable discussion, it was agreed to leave it in place.

Two items were discussed under new business. First, it was brought to the attention of the panel that a typo exists in Table 3 of Test Method D8350. The lower limit for engine coolant temperature used for QI calculation is listed as 50.75, but it should be 50.50. The panel agreed to address this with an information letter. The Second item was a request to allow the addition of valving to allow the fuel system to be isolated and drained during engine removal and replacement. Some additional suggestions were discussed and the panel agreed that this was a worthwhile improvement. This item will also be addressed with an information letter. These items of new business are included in attachment 6.

The panel reviewed the scope and objectives of the Sequence IV panel. The scope and objectives are included as attachment 7.

Attachment 8 includes the motion and action items recorded during this meeting.

Attachment 1

Sequence IV Surveillance Panel

San Antonio, TX
Southwest Research Institute – Building 209
May 4, 2023
8:00 a.m. - 10:30 a.m.

A G E N D A

1. Chairman comments.
2. Attendance sign-in sheet distribution.
3. Membership changes.
4. Approval of minutes for November 15, 2022
5. November 15, 2022 action item review.
6. Fuel supplier report – KA24E Green fuel.
7. CPD inventory status report.
8. TMC report.
9. Sequence IVA status update.
10. Revisit Sequence IVB engine segregation for ultra-low viscosity candidate oils
11. Review TMC's evaluation of fuel batch effect, lab and stand effect, reference oil effect and chart scale effect on Sequence IVB LTMS charts.
12. Review scope & objectives
13. Old business.
14. New business.
15. Motion and action item review.
16. Next meeting.
17. Adjourn.

MEMBERSHIP
SEQUENCE IV SURVEILLANCE PANEL

May 4, 2023

NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Bowden, Jason	OH Technologies, Inc. Phone No.: 440-354-7007 Cell No.: 216-210-0871 Email: jhbowden@ohtech.com	
Buscher III, William	Intertek Automotive Research Phone No.: 210-647-9489 Cell No.: 210-240-8990 Email: william.buscher@intertek.com	
Buscher, Jr., William	Buscher Consulting Services Phone No.: 845-676-3141 Cell No.: 845-797-3919 Email: buschwa@aol.com	
Deegan, Michael	Ford Motor Company Phone No.: Cell No.: 313-805-8942 Email: mdeegan@ford.com	✓ ONLINE
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Okuda, Sachiko	Nissan Motor Co., Ltd. Phone No.: Cell No.: Email: sa-okuda@mail.nissan.co.jp	
Proctor, Robert	Honda R&D Americas, Inc. Phone No.: 937-309-9321 Cell No.: Email: rproctor@oh.hra.com	

MEMBERSHIP
SEQUENCE IV SURVEILLANCE PANEL

May 4, 2023

NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
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	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	

NON-MEMBER MAILING LIST
SEQUENCE IV SURVEILLANCE PANEL

May 4, 2023

NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Affinito, Ricardo	Company: Phone No.: Cell No.: Email:	✓ ONLINE
Altman, Ed	Company: Phone No.: Cell No.: Email:	
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Campbell, Bob	Company: Phone No.: Cell No.: Email:	
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Catanese, Tony	Company: LZ Phone No.: Cell No.: Email: tony.catanese@lubrizol.com	
Clark, Sid	Company: Phone No.: Cell No.: Email:	
Clark, Jeff	Company: Phone No.: Cell No.: Email:	
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Kostan, Travis	Company: SwRI Phone No.: 210-522-2401 Cell No.: Email: travis.kostan@swri.org	

NON-MEMBER MAILING LIST
SEQUENCE IV SURVEILLANCE PANEL

May 4, 2023

NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Lang, Patrick	Company: Phone No.: Cell No.: Email:	
Lekavich, Jason	Company: Phone No.: Cell No.: Email:	
Leverett, Charlie	Company: Phone No.: Cell No.: Email:	
Lochte, Michael	Company: Phone No.: Cell No.: Email:	
Lopez, Al	Company: Phone No.: Cell No.: Email:	
Martinez, Jo	Company: Phone No.: Cell No.: Email:	
Matthews, Tim	Company: Phone No.: Cell No.: Email:	
Meier, Adam	Company: Phone No.: Cell No.: Email:	
Passmore, David	Company: Phone No.: Cell No.: Email:	
Porter, Christian	Company: Phone No.: Cell No.: Email:	
Rohlfing, Andrew	Company: Phone No.: Cell No.: Email:	
Schmid, Lesley	Company: Phone No.: Cell No.: Email:	
Stone, Amanda	Company: Afton Phone No.: Cell No.: Email: Amanda.Stone@newmarket.com	Amanda Stone
Zdrodowski, Rob	Company: Phone No.: Cell No.: Email:	

NON-MEMBER MAILING LIST
SEQUENCE IV SURVEILLANCE PANEL

May 4, 2023

NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
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Andrew Stevens	Company: Lubrizol Phone No.: Cell No.: Email: andrew.stevens@lubrizol.com	[signature]
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
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	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	
	Company: Phone No.: Cell No.: Email:	

Attachment 3

Sequence IV Surveillance Panel
November 15, 2022
8:00AM – 12:00PM
Intertek – Port San Antonio
San Antonio, TX

Motions and Action Items
As Recorded at the Meeting by Bill Buscher

1. Action Item – Evaluate fuel batch effect, lab and stand effect, reference oil effect and chart scale effect on Sequence IVB LTMS charts.
   Completed. To be discussed at today's meeting.

2. Action Item – Request fuel batch CofA data from fuel supplier from the last 3 KA24E Green fuel batches and from any time any of the fuel batches were adjusted. Request details on the current storage situation for the most recent KA24E Green fuel batch. Request information on the frequency of sampling and analysis checks of the current fuel batch in the fuel supplier's inventory.
   Incomplete. SP chair to complete.

3. Action Item - The Sequence IV Surveillance Panel chair to report back to the ACC PAPTG on the surveillance panel's discussions, action and conclusion for the ACC PAPTG request to the surveillance panel to investigate increase in camshaft lobe failures during candidate tests.
   Incomplete. SP chair to complete.

4. Motion – Extend the calibration interval for the Sequence IVA test from 15 tests or 6 months to 15 tests or 12 months. Effective 11/15/2022.
   Robert Stockwell / Andy Ritchie / Passed 9 – 0 – 4
   Completed. Sequence IVA Information Letter 23-1 issued 1/23/2023.

5. Action Item – The Sequence IV Surveillance Panel chair to report back to CLOG on the surveillance panel's discussions, action and conclusion for the CLOG request to the surveillance panel to address Sequence IVA end of life / availability.
   Incomplete. SP chair to complete.

Seq. IVB Inventory Status Report
As of March 31, 2023

Seq. IV Surveillance Panel (May 4, 2023)
&
PCEOCP (June 27, 2023)

1. Seq. IVB Engine Inventory Life Estimates (Based on Industry Wide Consumption Rates)

Remaining Engine Inventory Life (Based on 5 Year Industry Wide Consumption Rate)	
OHTIVB-16000-2 Engine Assembly	7.10 Years
Including Engine Component Build-Out	10.29 Years

*Includes highest yearly consumption rate (2018-2019)

Remaining Engine Inventory Life (Based on 2 Year Average Industry Wide Consumption Rate)	
Current OHTIVB-16000-2 Engine Assembly	12.74 Years
Including Engine Component Build-Out	18.46 Years

Remaining Engine Inventory Life (Based on 1 Year Industry Wide Consumption Rate)	
OHTIVB-16000-2 Engine Assembly	13.12 Years
Including Engine Component Build-Out	19.00 Years

Comments:

- Industry Engine Consumption Rates have decreased 63.04% since 2018.
- From 2021 to March 31, 2023, Industry Engine Consumption Rates have decreased 15.00%.
- At the time of this estimate, the supplier anticipates engine consumption rates to remain the same.
- The supplier has also acquired enough ancillary engine kit materials (OHTIVB-103-1) to match our engine inventory.

2. Seq. IVB Intake and Exhaust Camshaft Inventory Life Estimates (Based on Industry Wide Consumption Rates)

Remaining Camshaft Inventory Life (Based on 5 Year Average Industry Wide Consumption Rate)	
Seq. IVB Intake Camshaft	12.92 Years
Seq. IVB Exhaust Camshaft	14.48 Years

*Includes highest yearly consumption rate (2018-2019)

Remaining Camshaft Inventory Life (Based on 2 Year Average Industry Wide Consumption Rate)	
Seq. IVB Intake Camshaft	18.28 Years
Seq. IVB Exhaust Camshaft	21.21 Years

Remaining Camshaft Inventory Life (Based on 1 Year Industry Wide Consumption Rate)	
Seq. IVB Intake Camshaft	15.38 Years
Seq. IVB Exhaust Camshaft	16.91 Years

Comments:

- From 2021 to March 31, 2023, Industry Camshaft Consumption Rates have increased 18.62%.
- At the time of this estimate, the supplier anticipates camshaft consumption rates to remain the same.
- The supplier has also acquired enough camshaft test kit (OHTIVB-102-1) materials to match our camshaft inventory.

3. Seq. IVB Test Lifters Inventory Life Estimates (Based on Industry Wide Consumption Rates)

Remaining Lifter Inventory Life (Based on Average Industry Wide Consumption Rate)	
Minimum Inventory Life of any Given Lifter Size (5 Year Consumption Rate)	9 Years
Minimum Inventory Life of any Given Lifter Size (2 Year Consumption Rate)	9 Years
Minimum Inventory Life of any Given Lifter Size (1 Year Consumption Rate)	10 Years

- There are 25 individual lifter grades (sizes). The remaining lifter inventory life estimate indicates the earliest depletion of any given lifter grade.
- At the time of this estimate, there is only one lifter Grade that has less than 14 years remaining of inventory. The balance of the lifter grades have an estimated minimum of 14 years' worth of inventory.
- The supplier is in the process of acquiring additional lifters to ensure a minimum of 20 years of lifter availability for any given grade. At the time of this report, estimated receipt of this inventory is May 2023.
- At the time of this estimate, the supplier anticipates lifter consumption rates to remain the same.

Sequence IVA

April 2023

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Sequence IVA Activity

Test Status	Validity Code	#
Acceptable Calibration Test	AC	3
Statistically Unacceptable Calibration Test	OC	3
Operationally Invalid Calibration Test (Lab Judgement)	LC	3
Terminated Before End of Test Calibration Test	XC	1
Total		10

Sequence IVA – Lost Tests*

Test Status	Cause	#
Aborted	Oil Leak at Sample Valve	1
Invalid	Oil Gallery Temperature Calibration Error	1
Invalid	Driveline Failure, Broken Flywheel Bolt	1
Invalid	Driveline Issue, Universal Joints Damaged	1
Totals		**4**

Aborted and invalid tests were all from the same stand.

*Invalid and aborted tests

Sequence IVA – Failing Tests

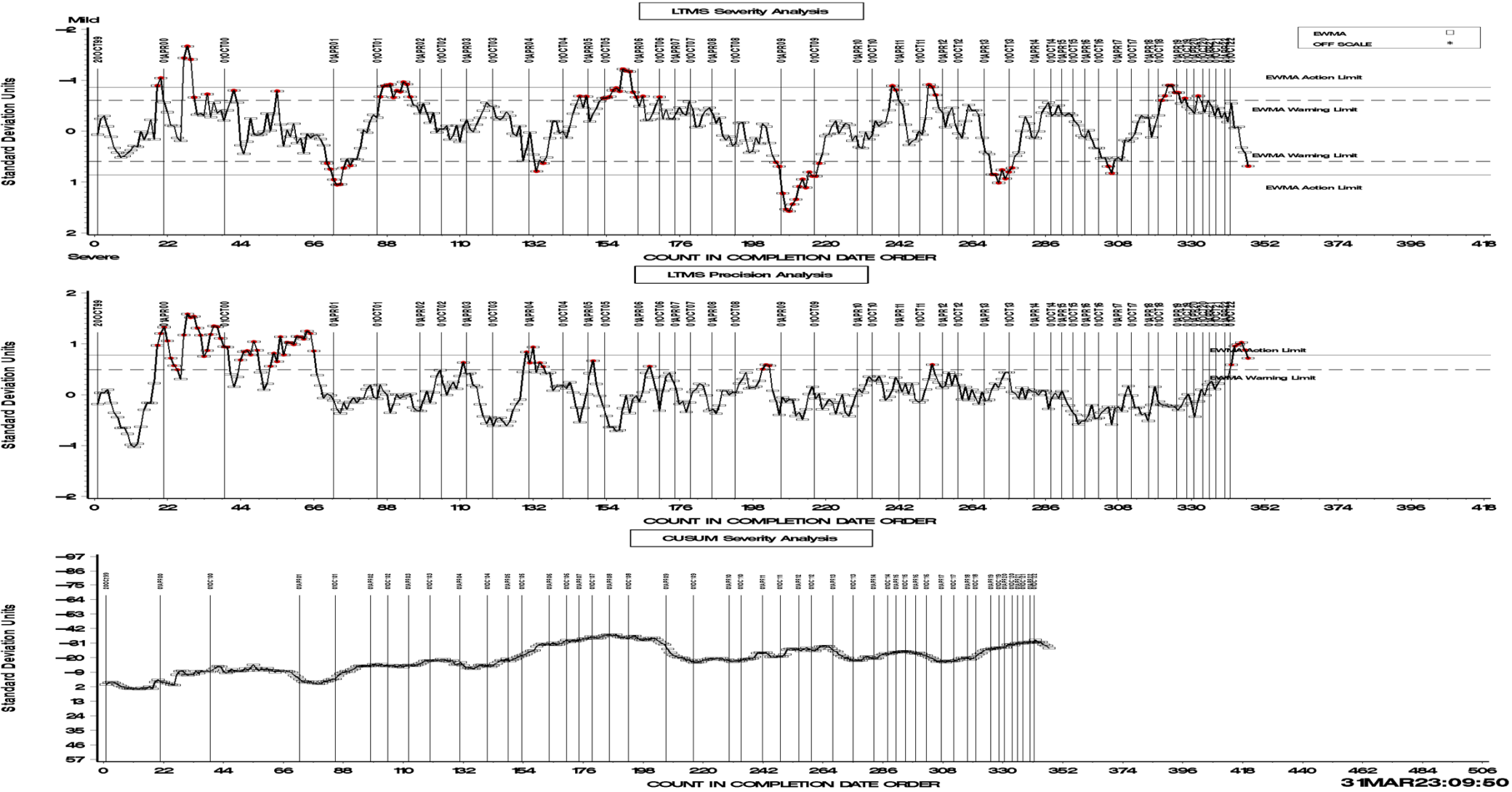
Test Status	#
ACW Mild	1
ACW Severe	2
Total	**3**

Sequence IVA Test Severity

- ACW is in warning alarm for both severity and precision. Precision has degraded with respect to the previous period.
- Severity and precision issues maybe the result of issues on one stand. This stand did not re-calibrate and the laboratory did manage to calibrate another stand.

SEQUENCE IVA INDUSTRY OPERATIONALLY VALID DATA

AVERAGE CAM WEAR



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SEQUENCE IVA INDUSTRY OPERATIONALLY VALID DATA

Last 20 results

AVERAGE CAM WEAR

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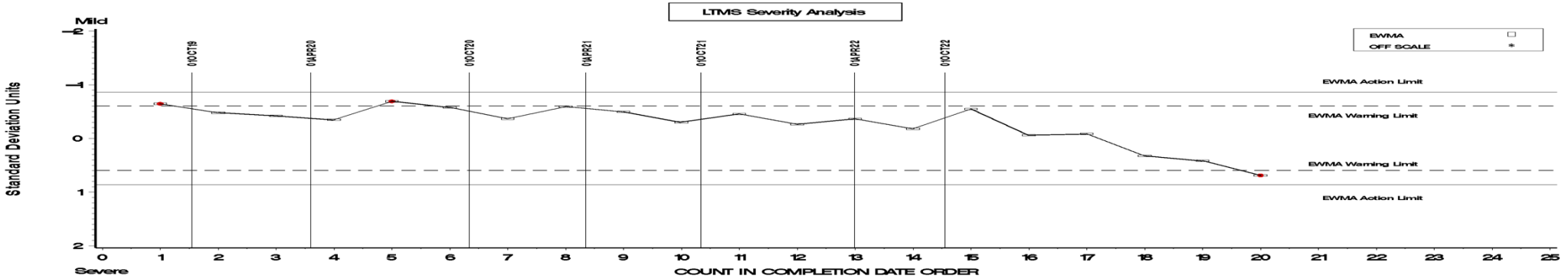
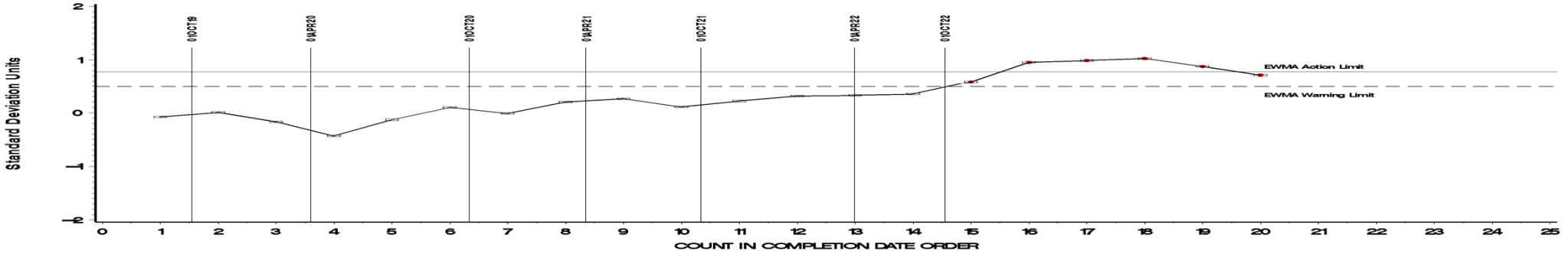
LTMS Severity Analysis



LTMS Precision Analysis



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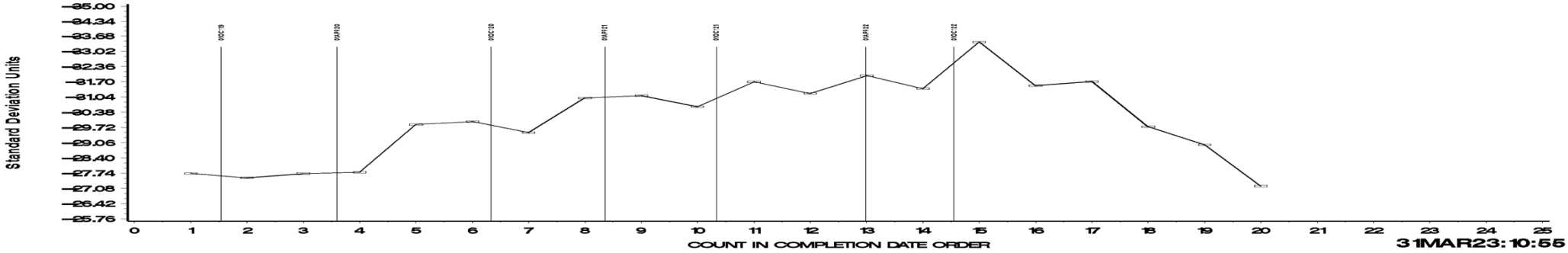

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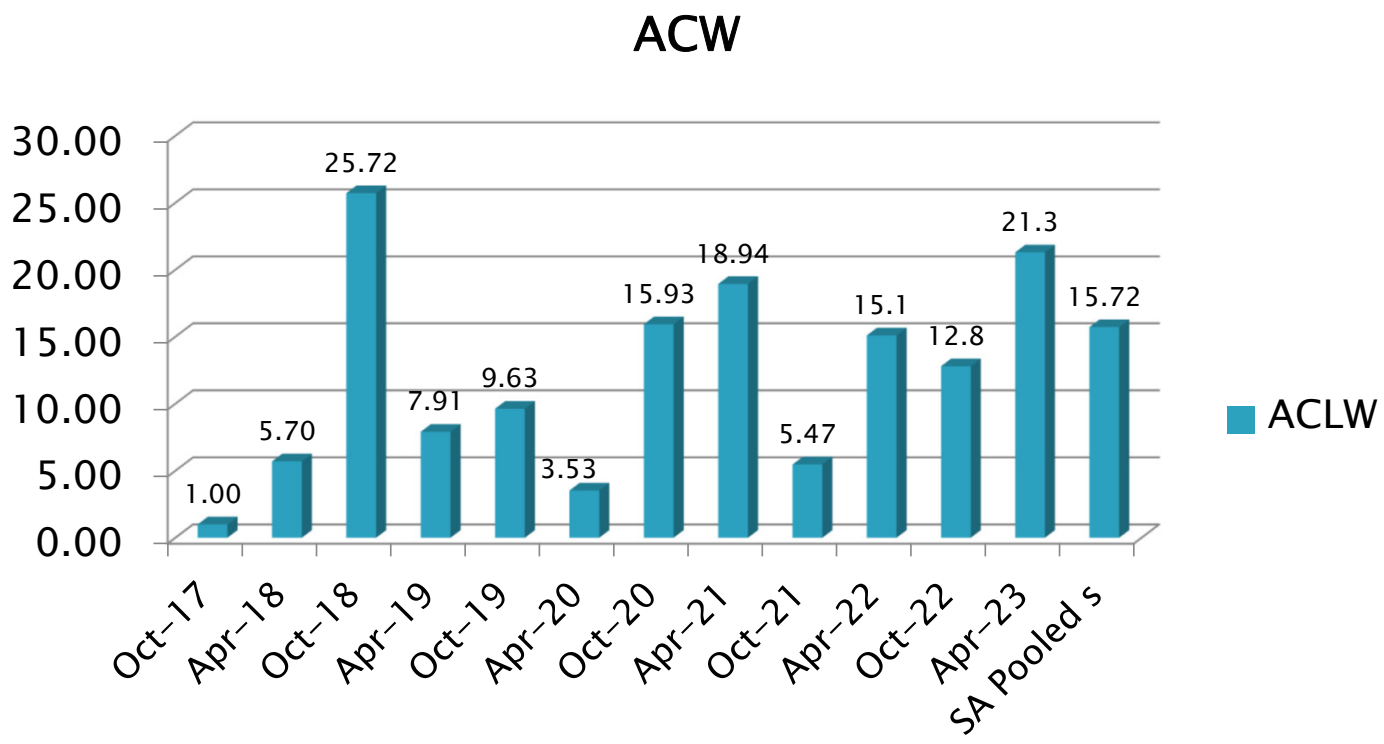
Sequence IVA Precision Estimates



Return to Table of Contents

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Sequence IVB

April 2023

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SEQUENCE IVB INDUSTRY OPERATIONALLY VALID DATA

AVERAGE VOLUME LOSS BY KEYENCE INTAKE Final

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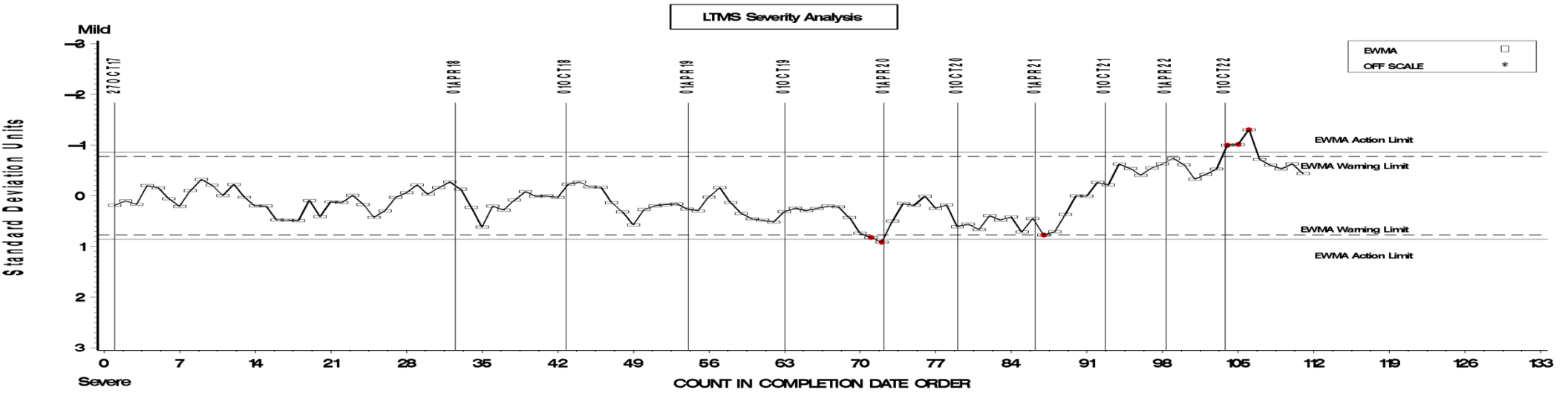

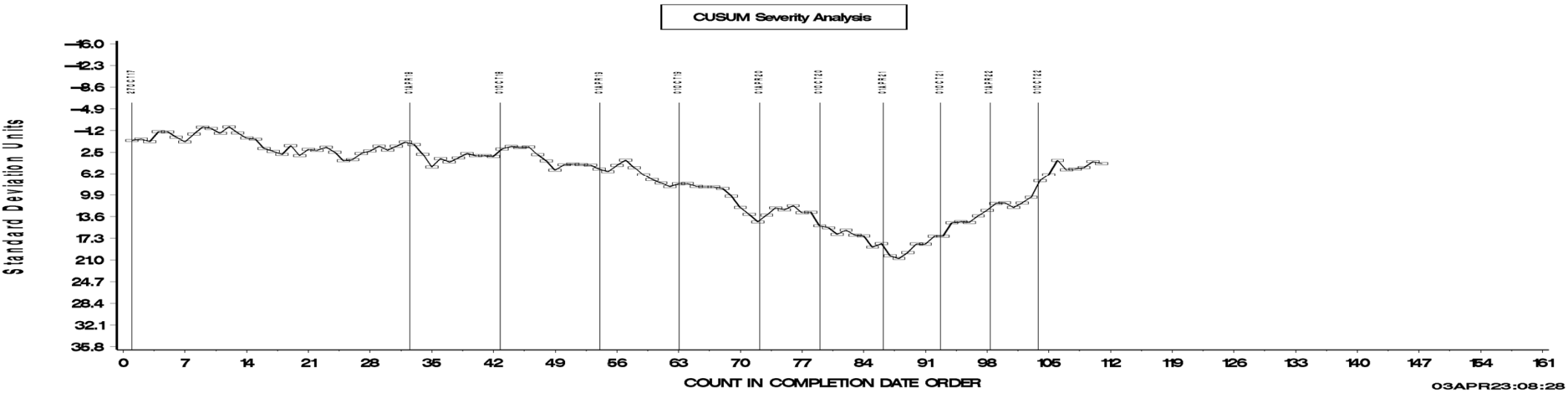

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SEQUENCE IVB INDUSTRY OPERATIONALLY VALID DATA

END OF TEST FE FINAL Severity Adjusted RESULT

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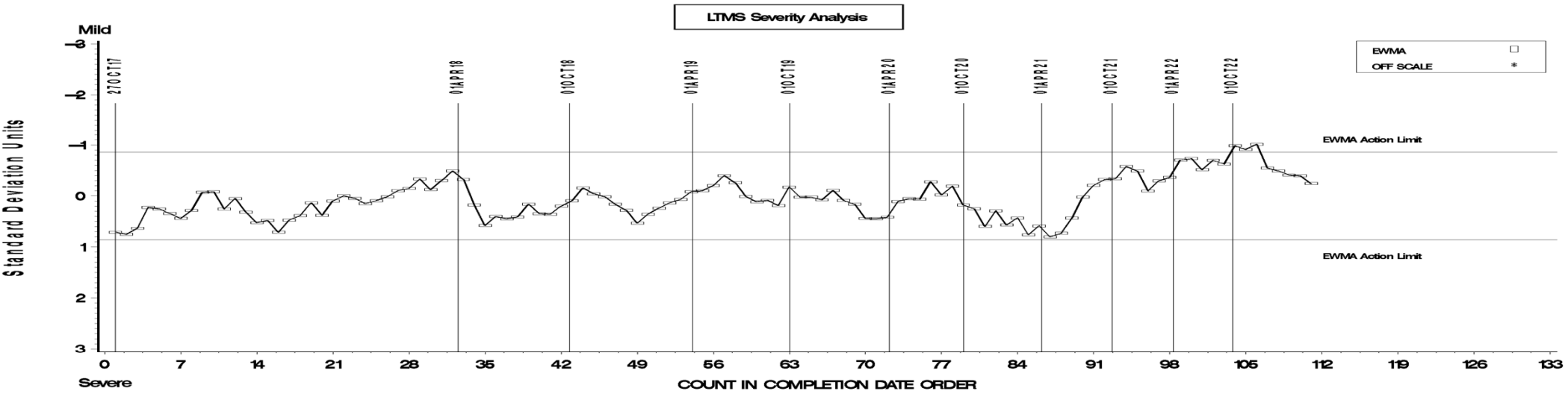

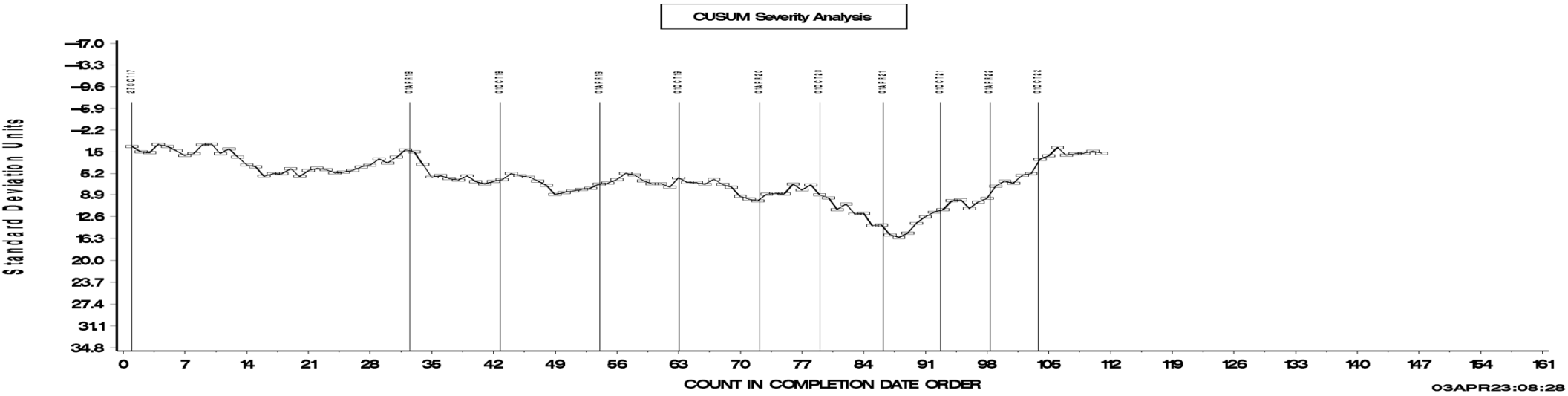

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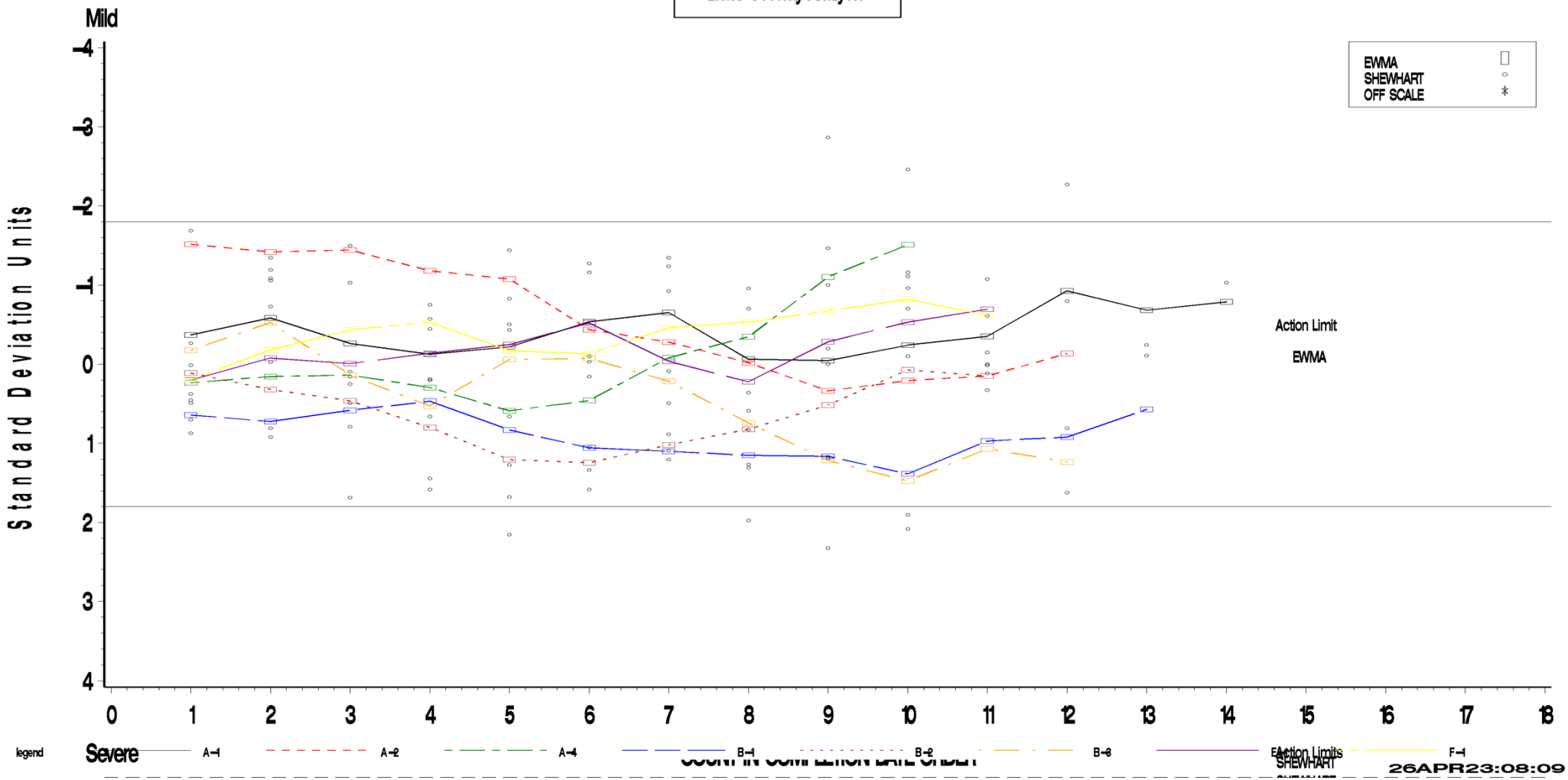
SEQUENCE IVB APPARATUS OPERATIONALLY VALID DATA

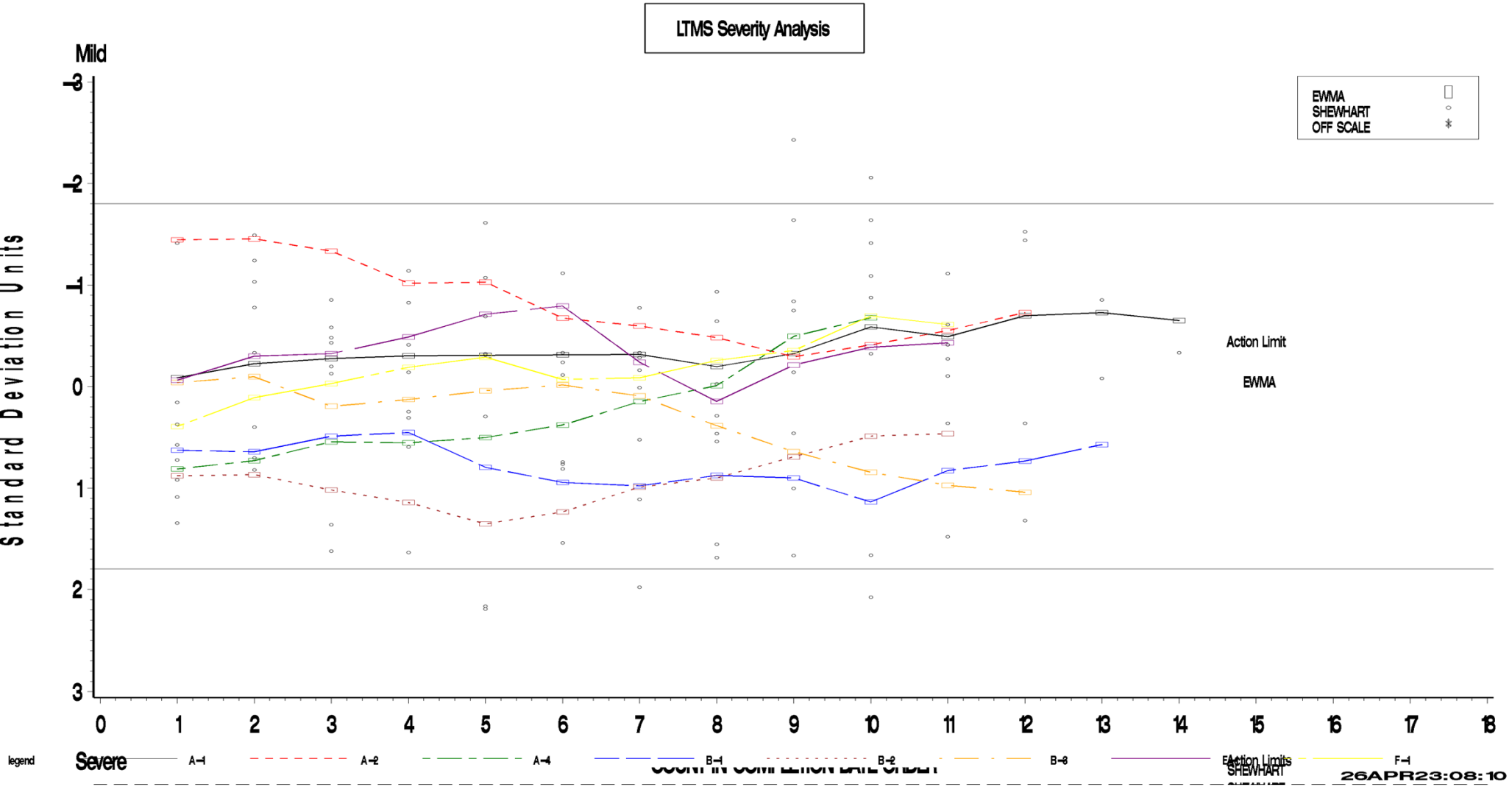
AVERAGE VOLUME LOSS BY KEYENCE INTAKE Final

LTMS Severity Analysis

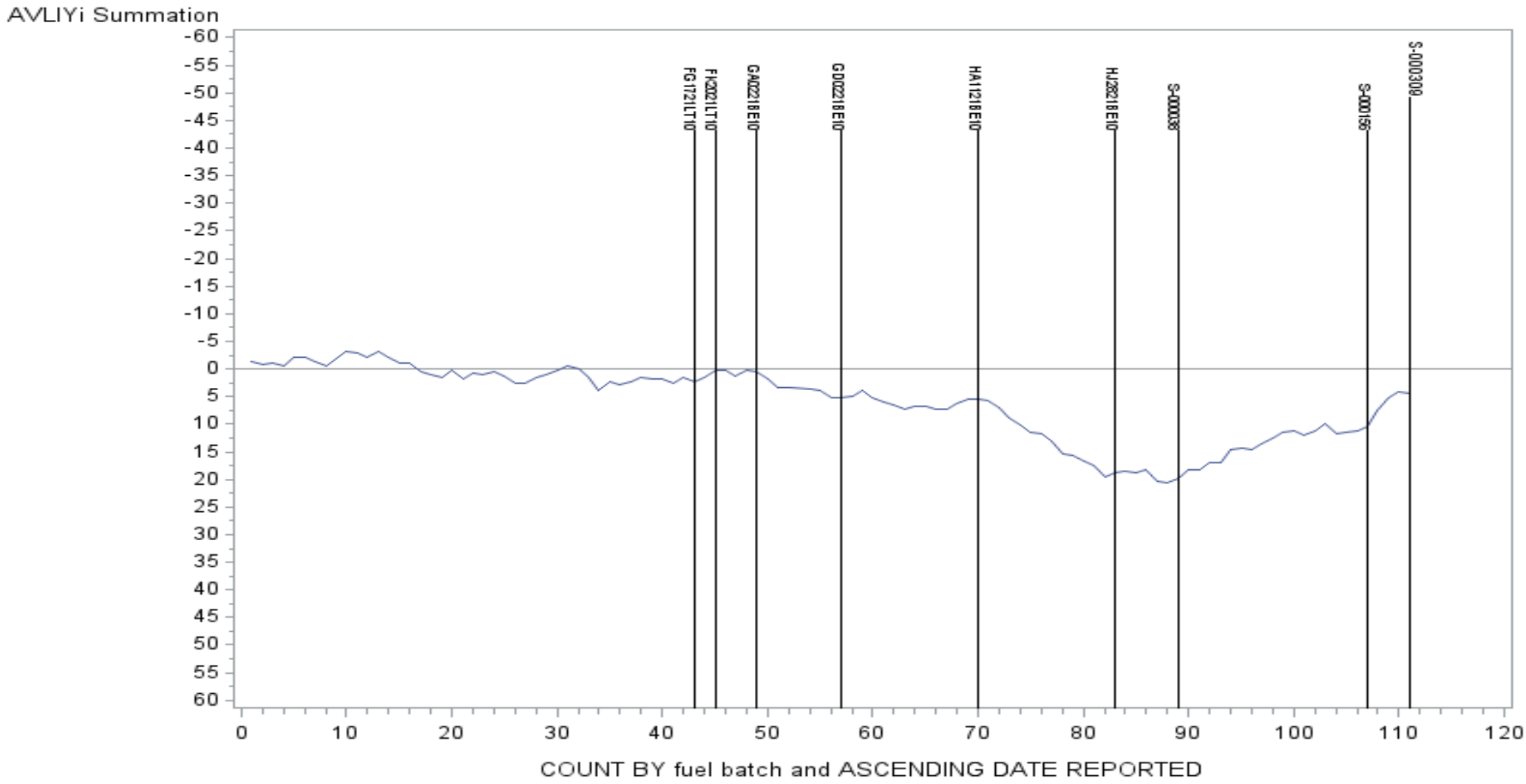


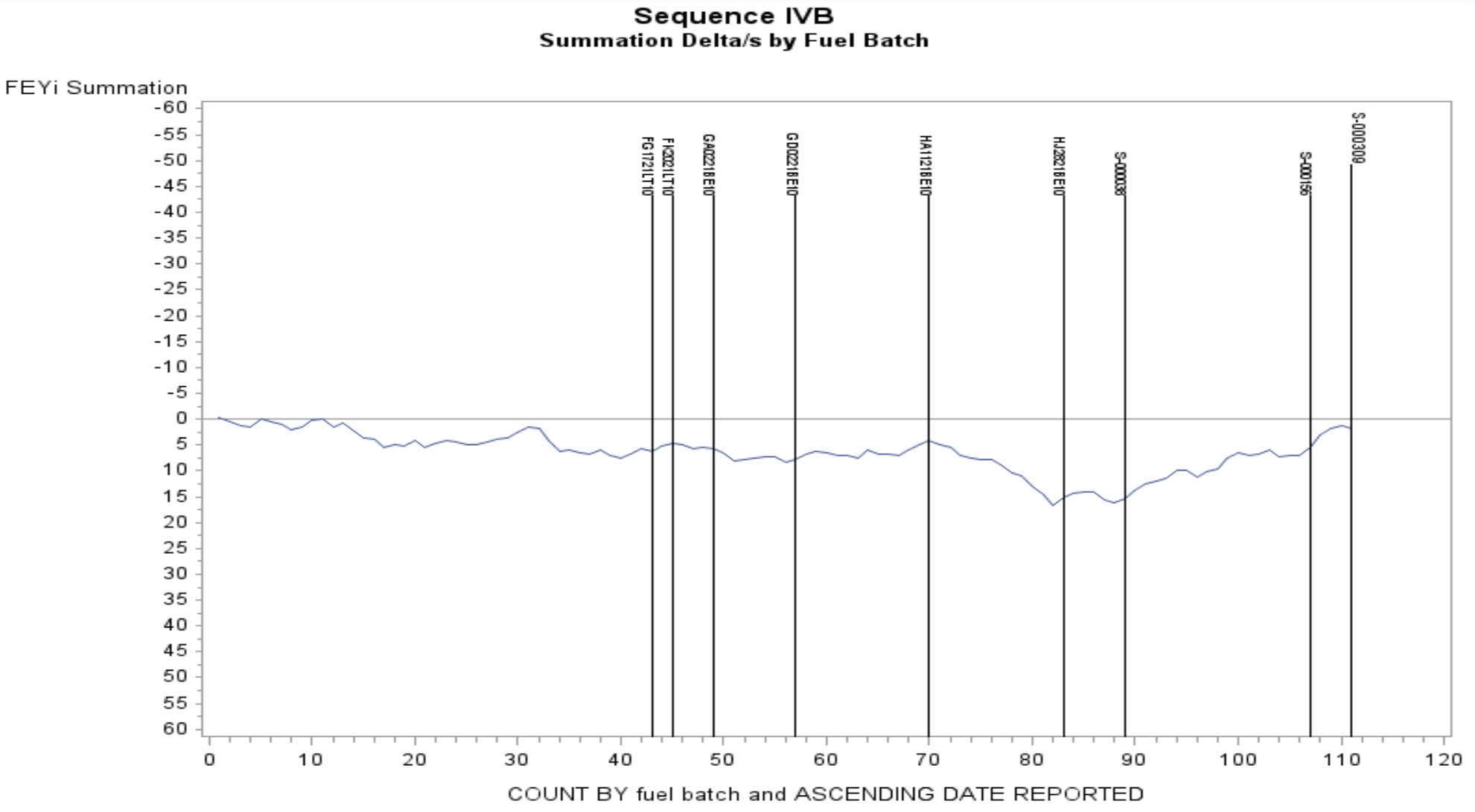
SEQUENCE IVB APPARATUS OPERATIONALLY VALID DATA

END OF TEST FE FINAL Severity Adjusted RESULT



Sequence IVB
Summation Delta/s by Fuel Batch




Sequence IVB
Summation Delta/s by Fuel Batch
FEYi Summation
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-50
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-30
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-15
-10
-5
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5
10
15
20
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60
FG1721LT10
FK2021LT10
GA0218E10
GD0218E10
HA1218E10
HJ2818E10
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S-000156
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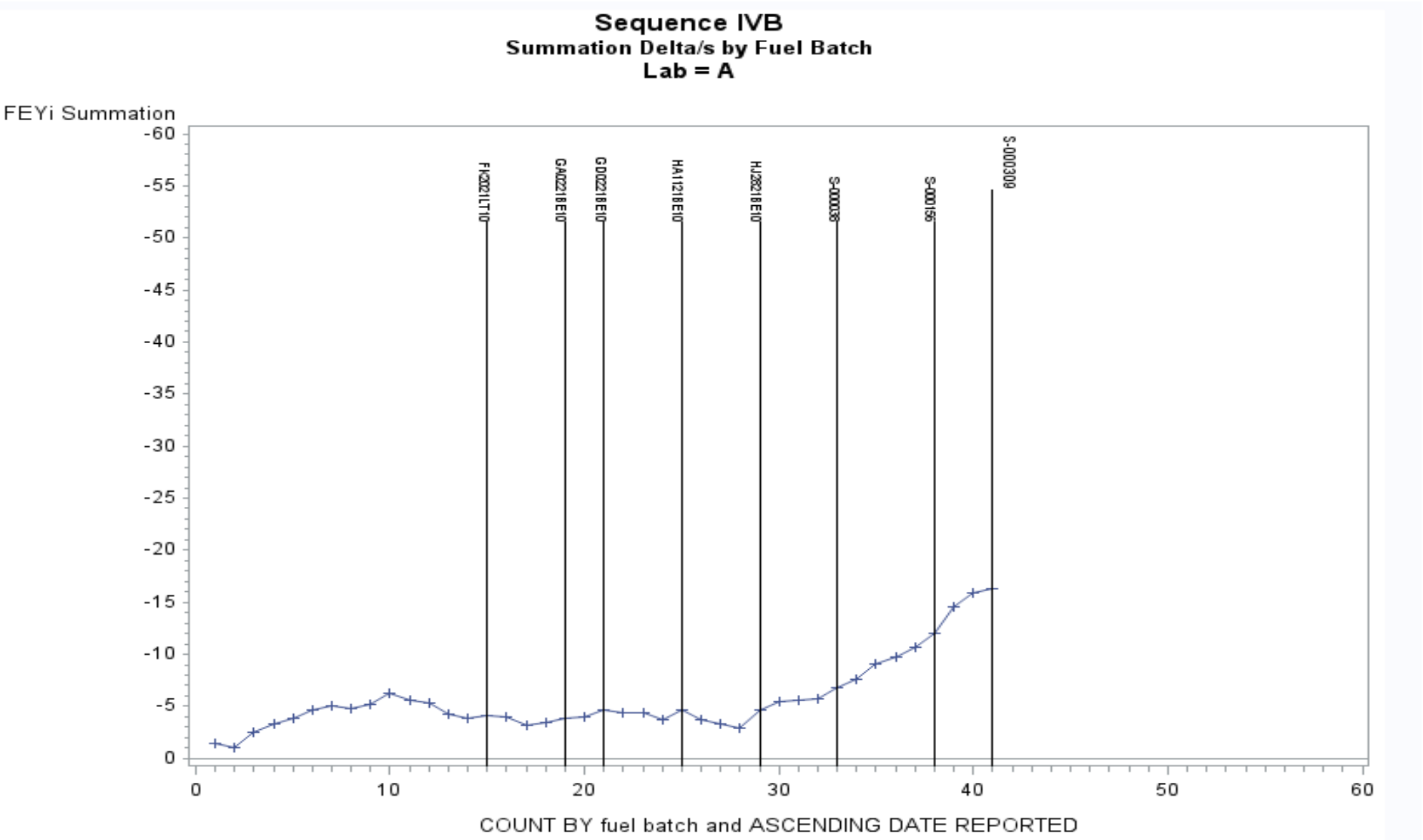
100
110
120
COUNT BY fuel batch and ASCENDING DATE REPORTED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Summation Delta/s by Fuel Batch
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-15
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FH2021LT10
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GD0221BE10
HA1121BE10
HJ2821BE10
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COUNT BY fuel batch and ASCENDING DATE REPORTED

Sequence IVB
Summation Delta/s by Fuel Batch
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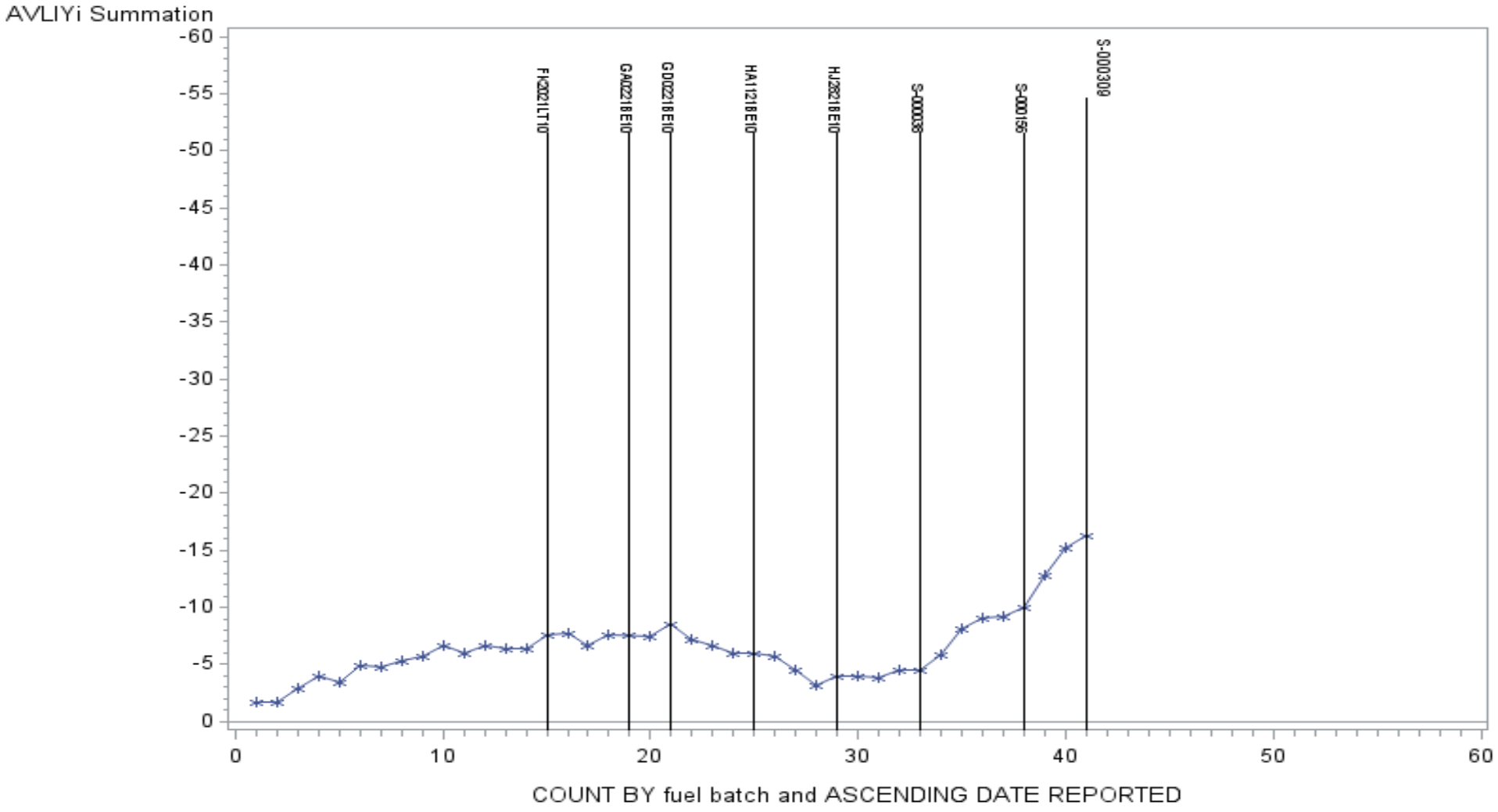

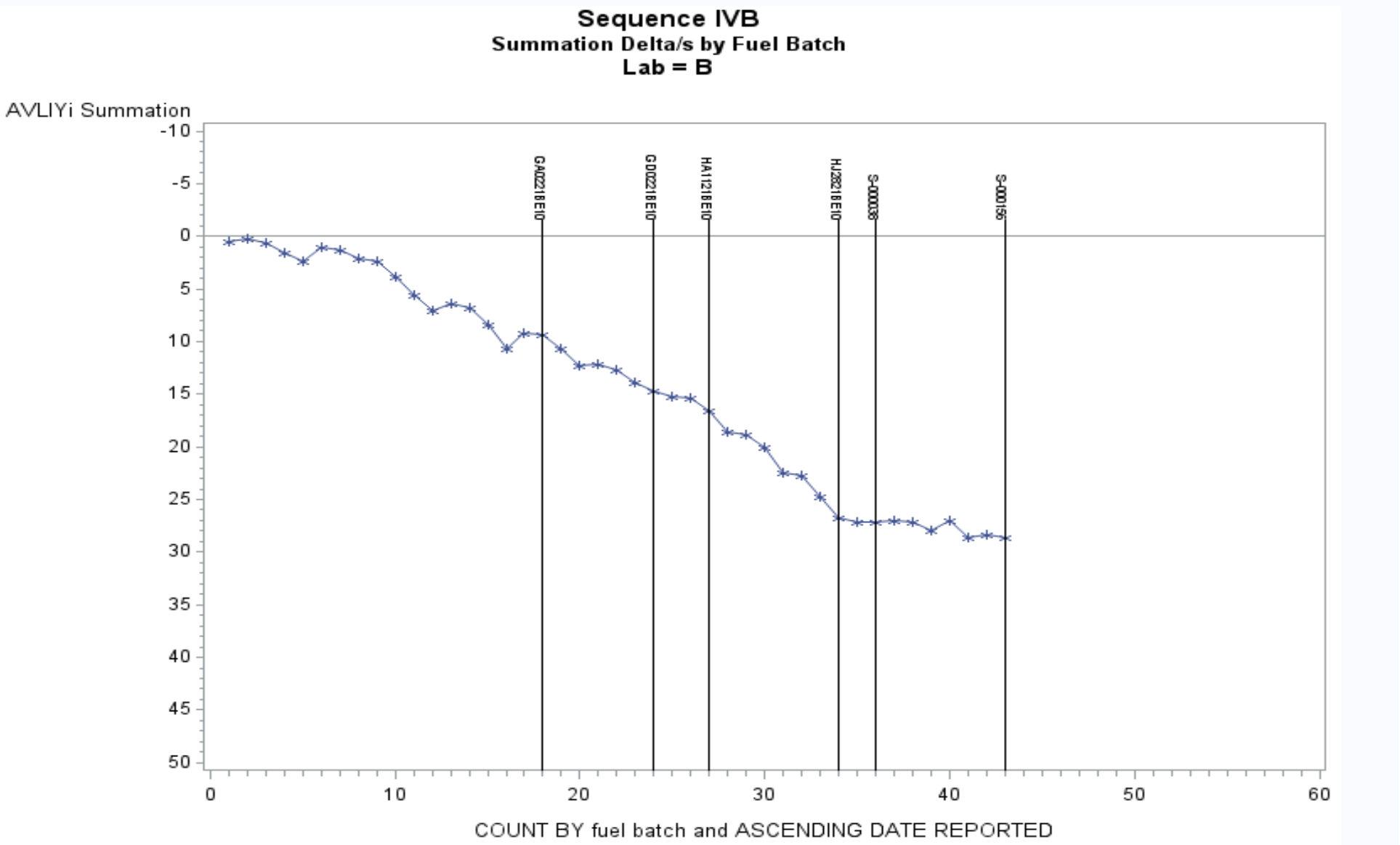
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Summation Delta/s by Fuel Batch
Lab = B
AVLIYi Summation
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35
40
45
50
GA02218E10
GD02218E10
HA11218E10
HJ28218E10
S-000038
S-000156
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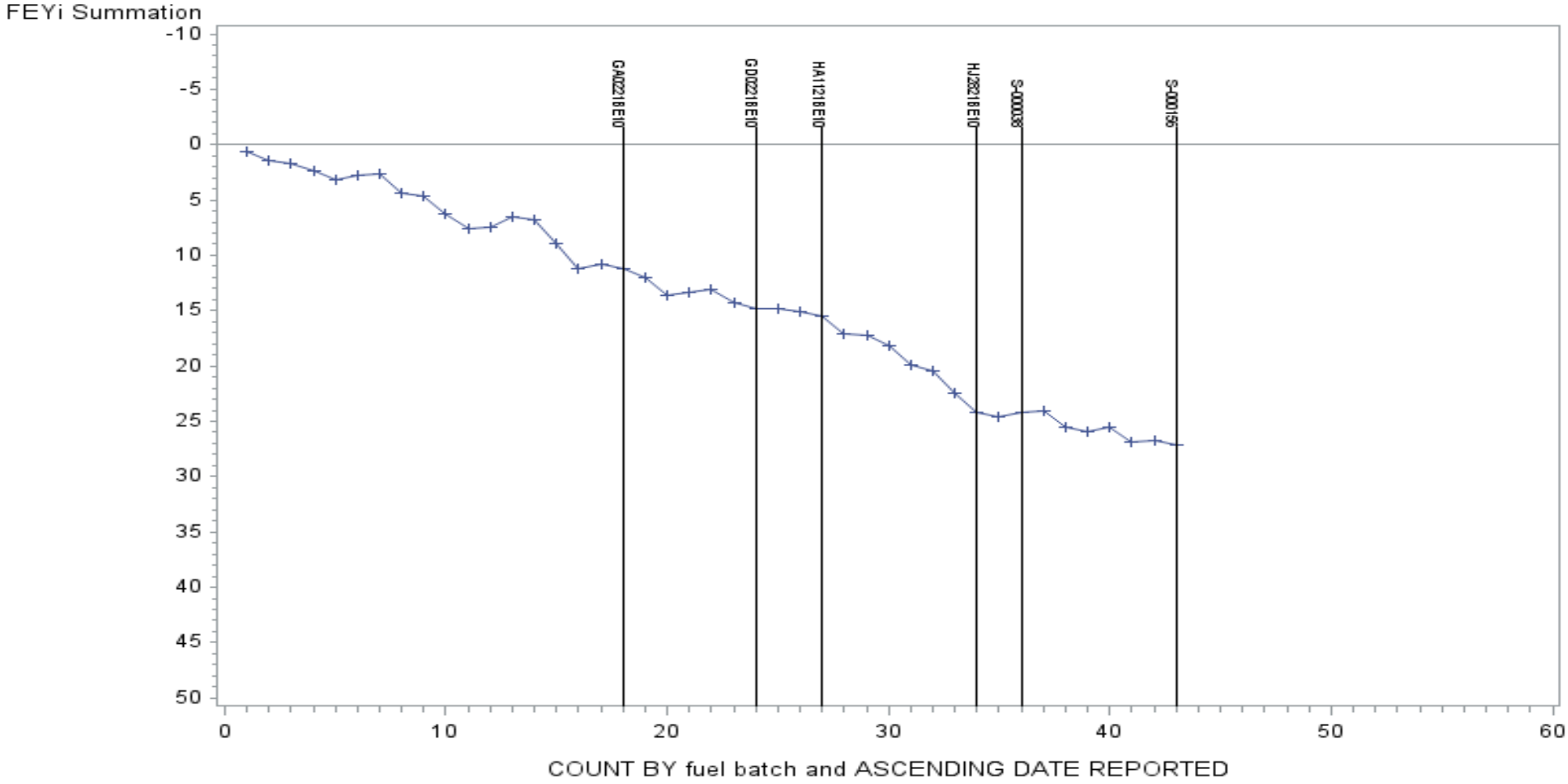
20
30
40
50
60
COUNT BY fuel batch and ASCENDING DATE REPORTED

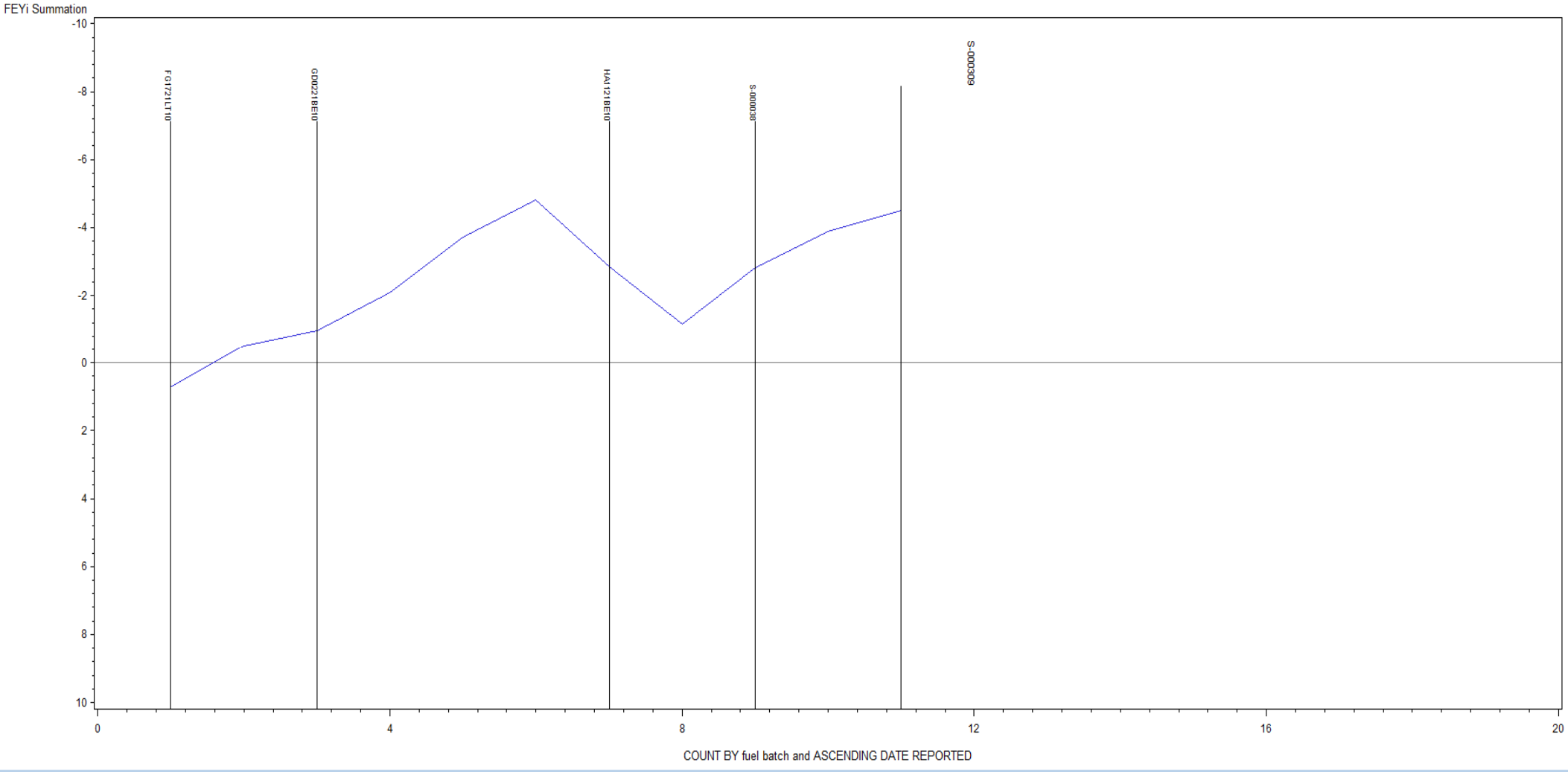
Sequence IVB
Summation Delta/s by Fuel Batch
Lab = B



Sequence IVB

Summation Delta/s by Fuel Batch

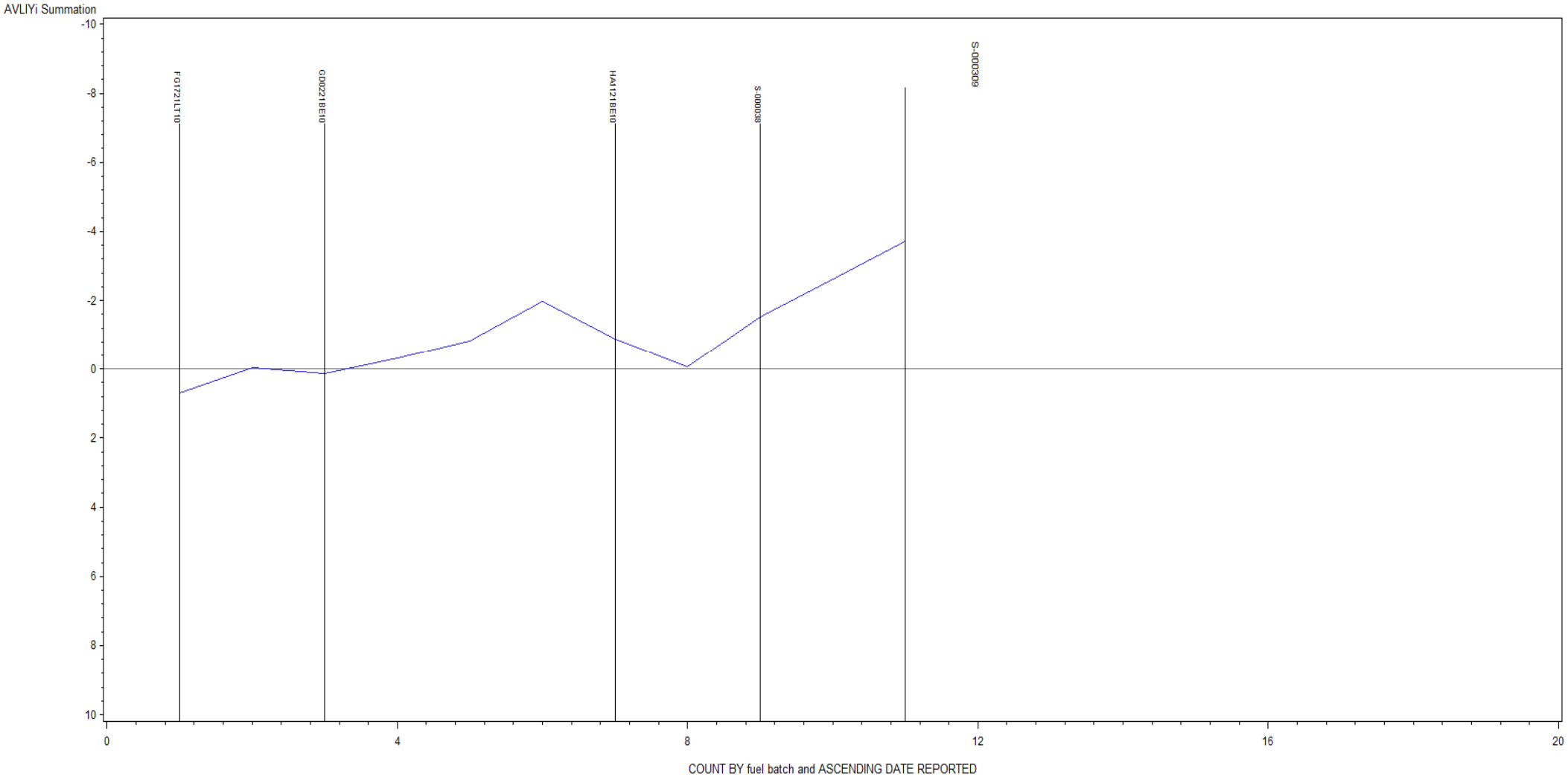
Lab = E



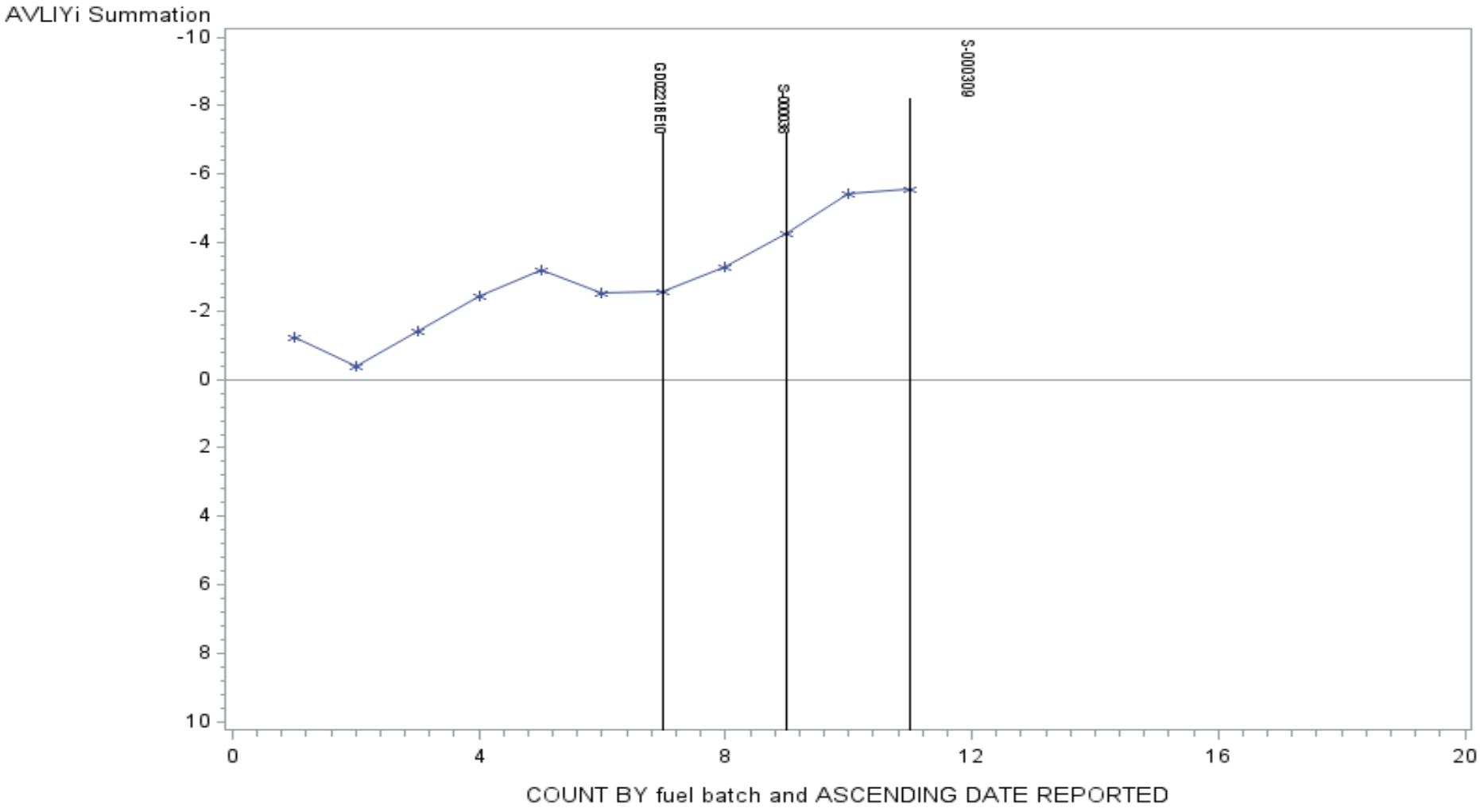
Sequence IVB

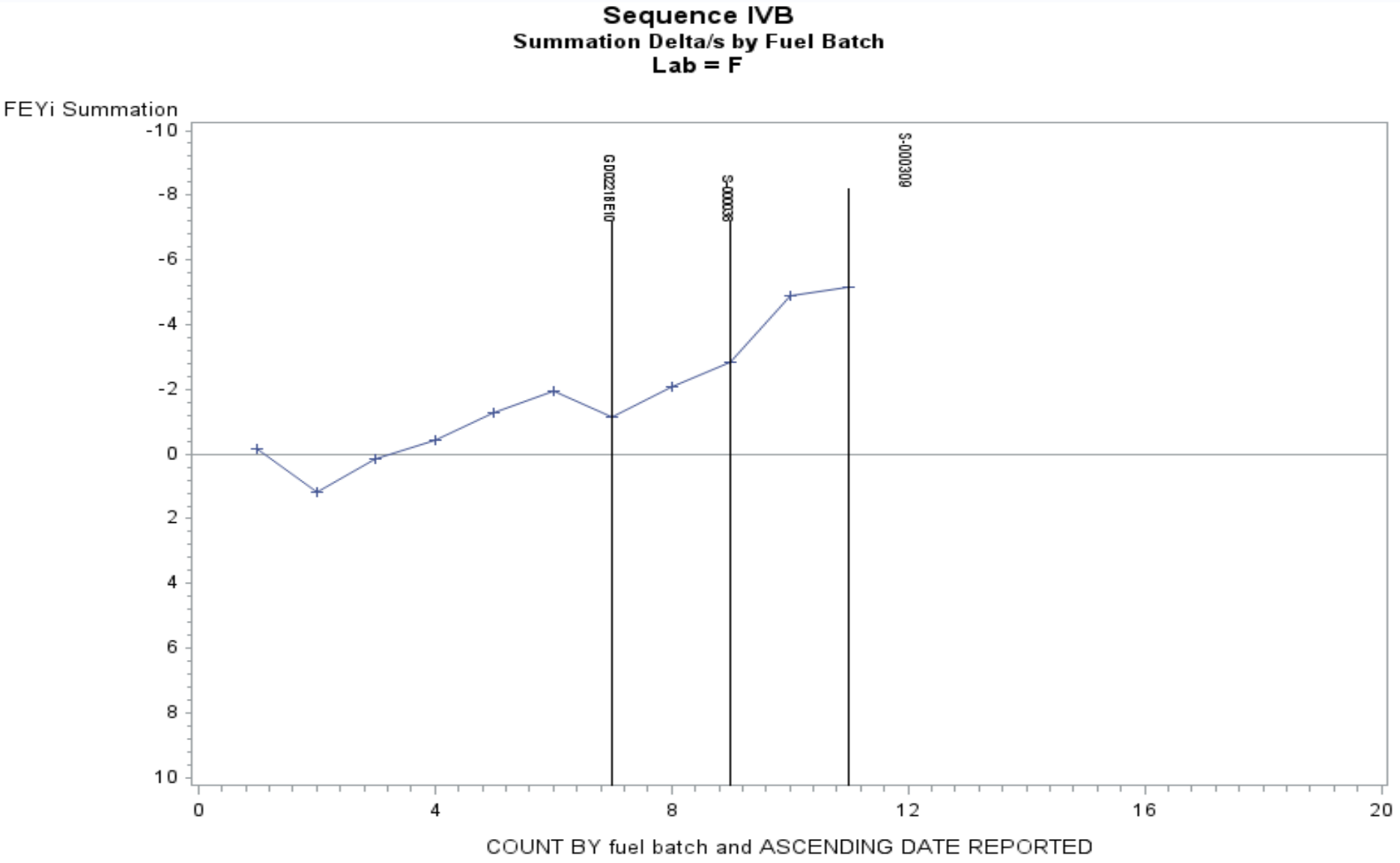
Summation Delta/s by Fuel Batch

Lab = E



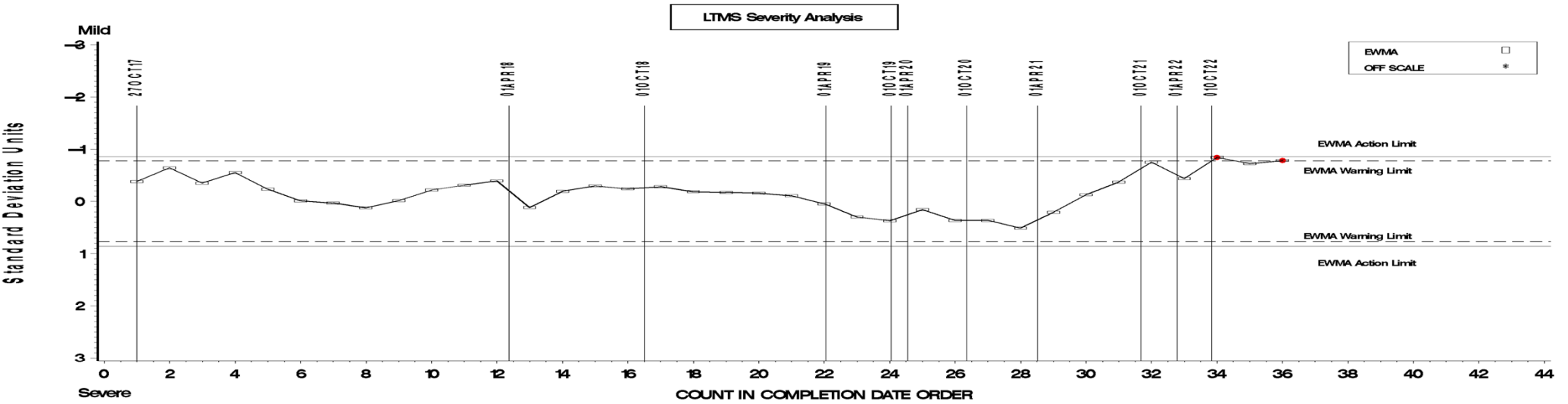
Sequence IVB
Summation Delta/s by Fuel Batch
Lab = F

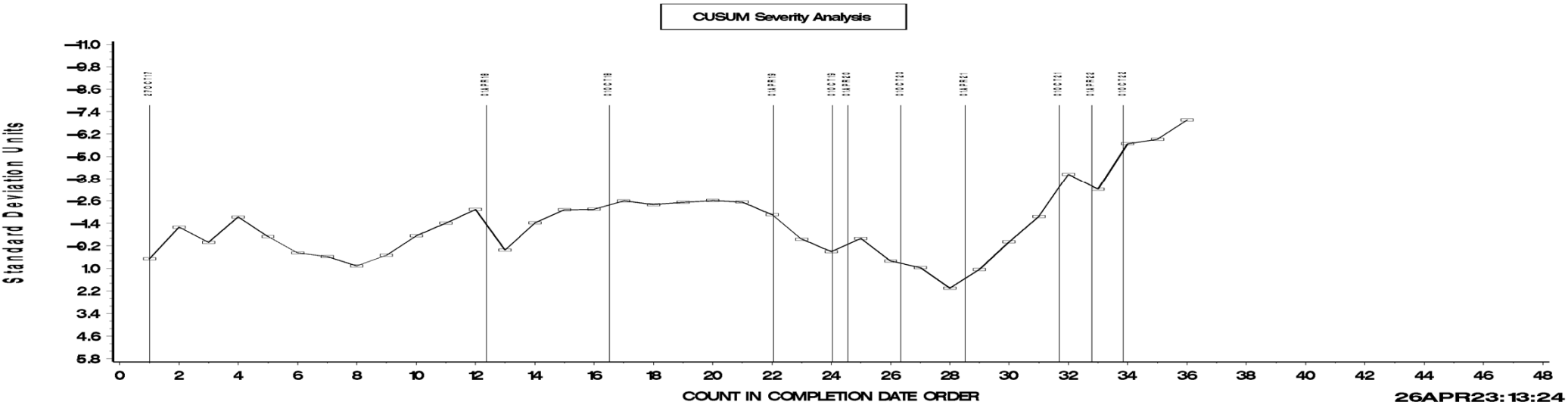



Sequence IVB
Summation Delta/s by Fuel Batch
Lab = F
FEYi Summation
-10
-8
-6
-4
-2
0
2
4
6
8
10
0
4
8
12
16
20
COUNT BY fuel batch and ASCENDING DATE REPORTED
G00221BE10
S-000038
S-000309

SEQUENCE IVB INDUSTRY OPERATIONALLY VALID DATA
Reference oil 1012 only
AVERAGE VOLUME LOSS BY KEYENCE INTAKE Final

A Program of ASTM International

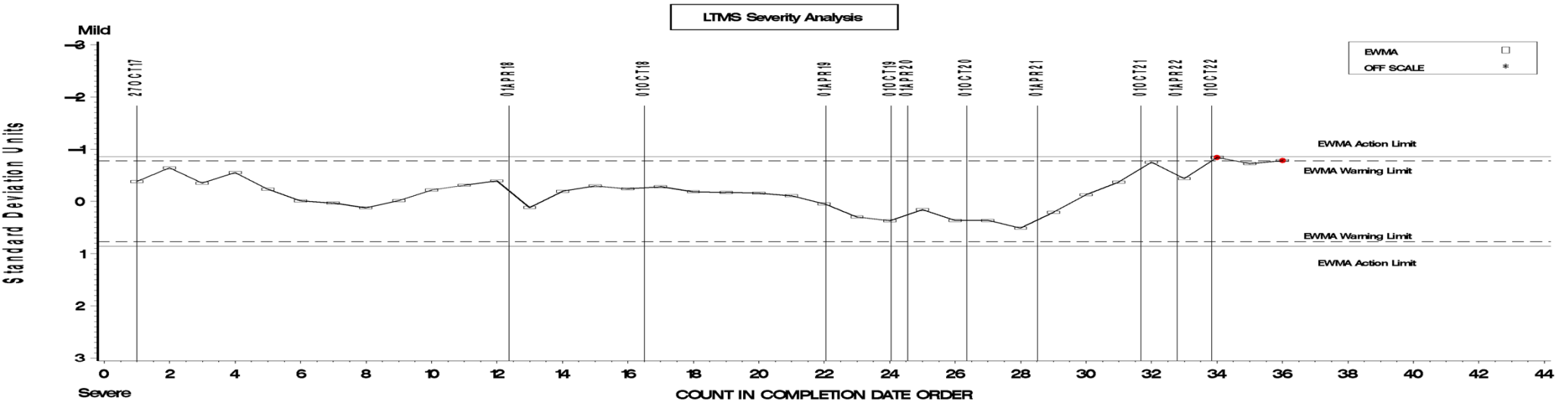


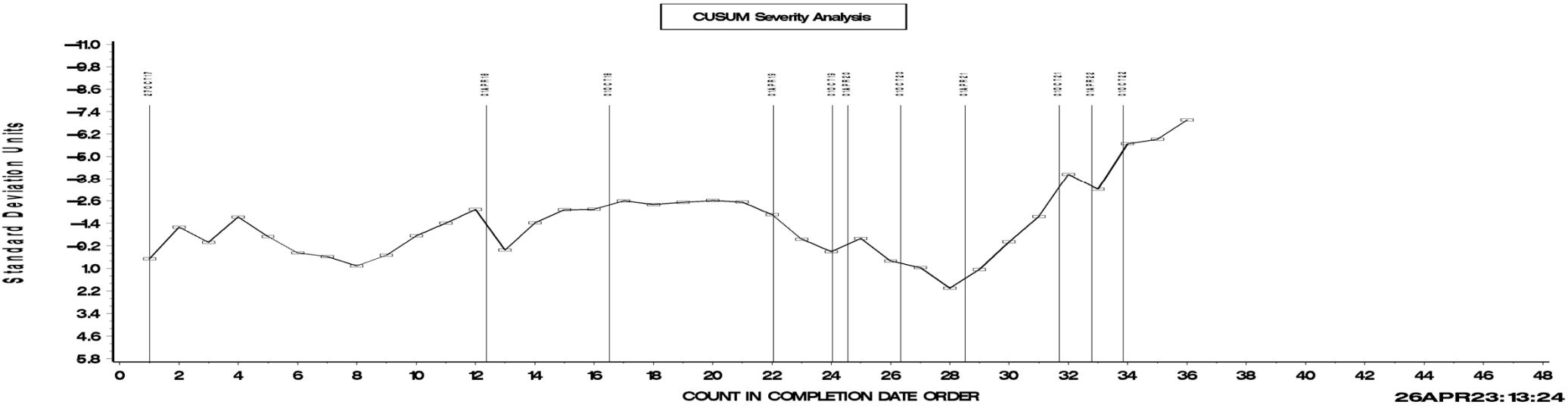


26APR23:13:24

SEQUENCE IVB INDUSTRY OPERATIONALLY VALID DATA
Reference oil 1012 only
AVERAGE VOLUME LOSS BY KEYENCE INTAKE Final

A Program of ASTM International





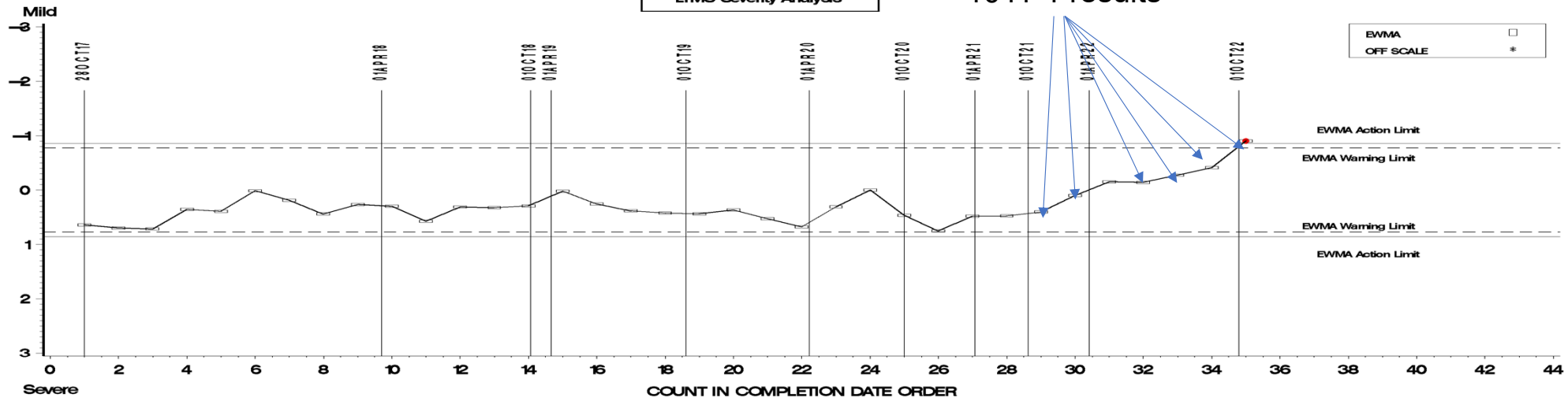
26APR23:13:24

SEQUENCE IVB INDUSTRY OPERATIONALLY VALID DATA
Reference oil 1011 only
AVERAGE VOLUME LOSS BY KEYENCE INTAKE Final

A Program of ASTM International

1011-1 results

LTMS Severity Analysis

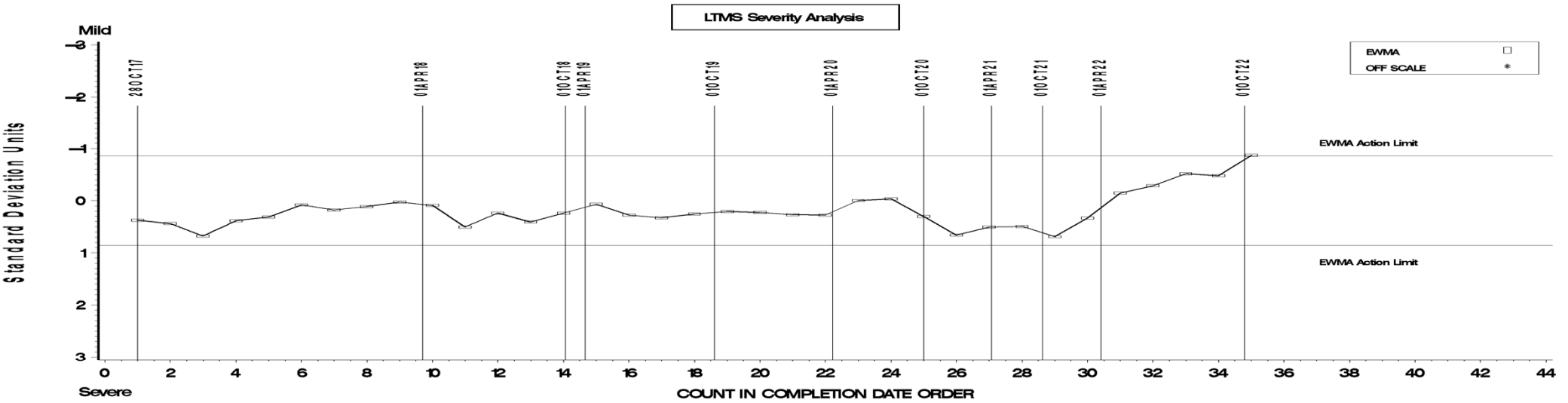


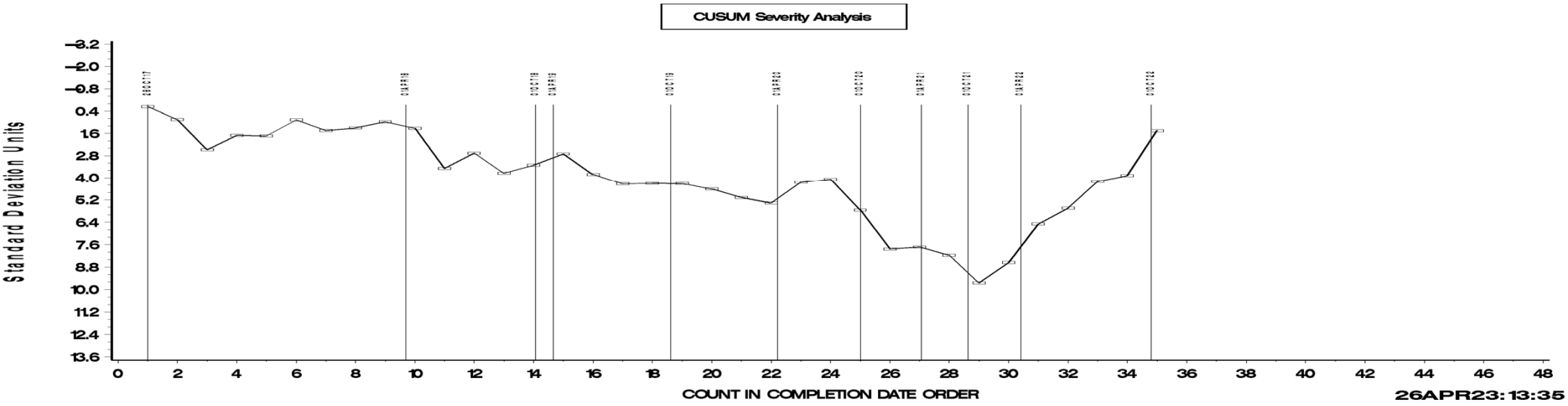
CUSUM Severity Analysis

26APR23:13:35

SEQUENCE IVB INDUSTRY OPERATIONALLY VALID DATA
Reference oil 1011 only
END OF TEST FE FINAL Severity Adjusted RESULT

A Program of ASTM International





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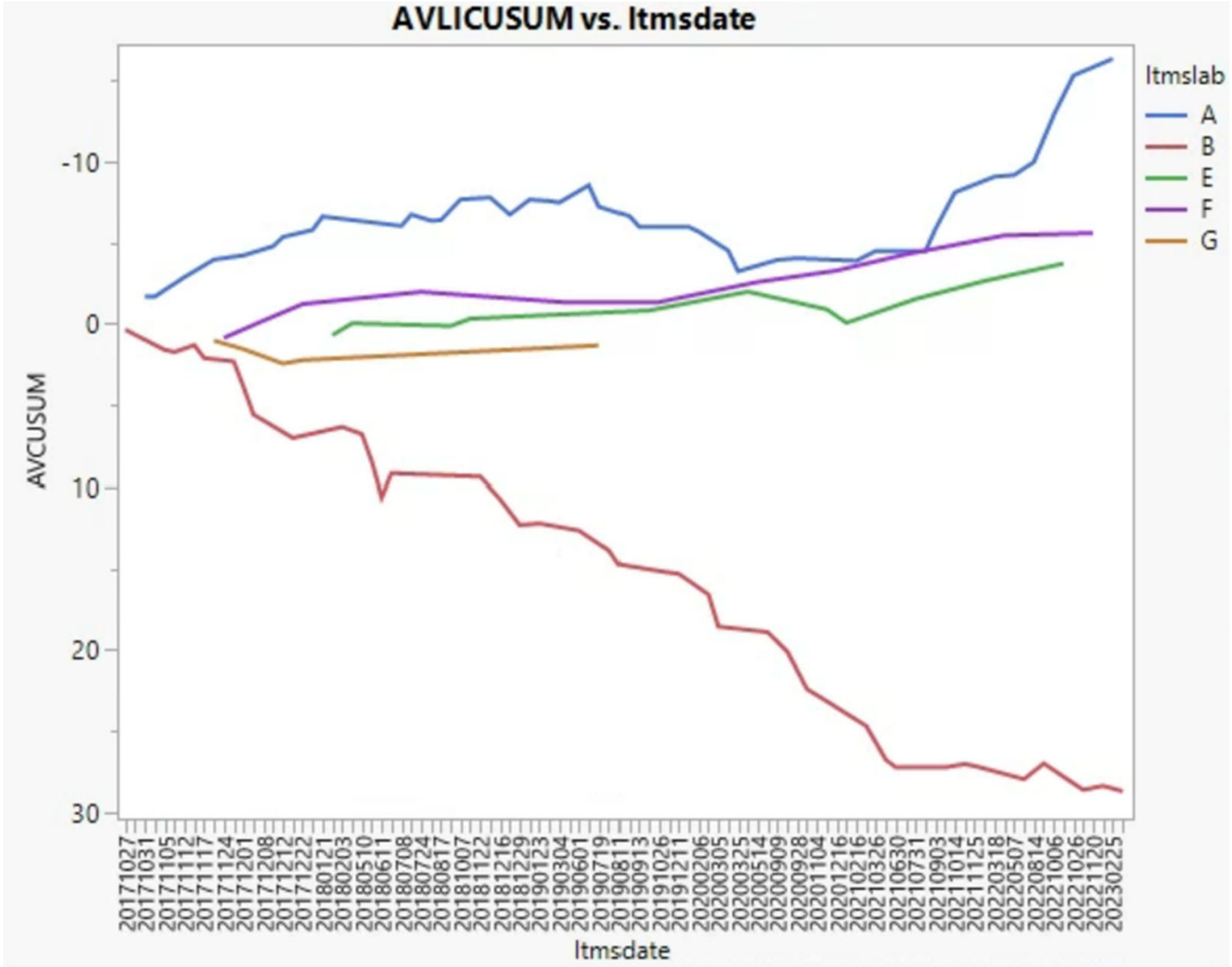
AVLICUSUM vs. ltmsdate
ltmslab
A
B
E
F
G
AVCUSUM
-10
0
10
20
30
ltmsdate
20171027
20171031
20171105
20171112
20171117
20171124
20171201
20171208
20171212
20171222
20180121
20180203
20180510
20180611
20180708
20180724
20180817
20181007
20181122
20181216
20181229
20190123
20190304
20190601
20190719
20190811
20190913
20191026
20191211
20200206
20200305
20200325
20200514
20200909
20200928
20201104
20201216
20210216
20210326
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20210731
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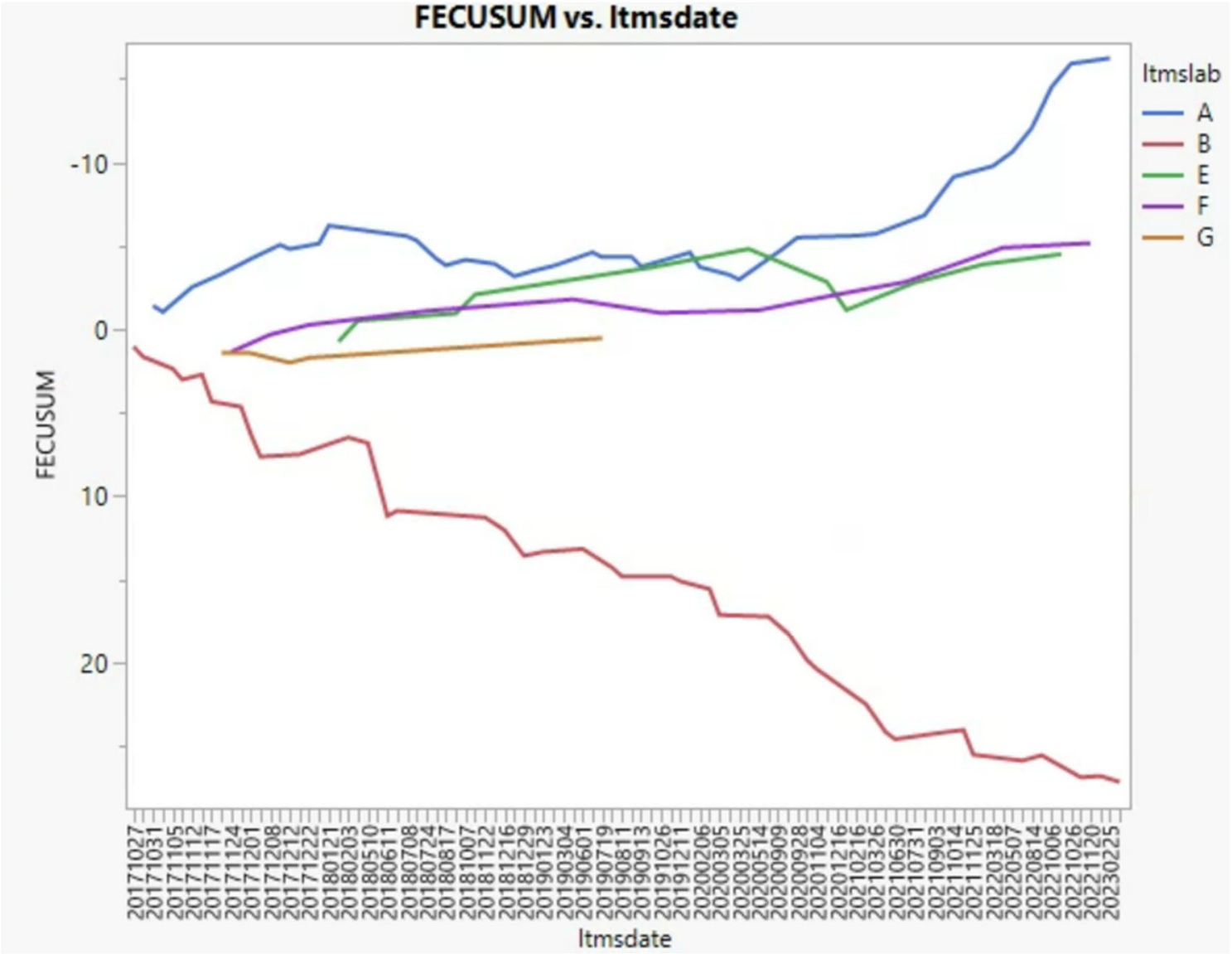
20221026
20221120
20230225


FECUSUM vs. ltmsdate
FECUSUM
-10
0
10
20
ltmsdate
ltmslab
A
B
E
F
G
20171027
20171031
20171105
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20171117
20171124
20171201
20171208
20171212
20171222
20180121
20180203
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20180724
20180817
20181007
20181122
20181216
20181229
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20190601
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20191026
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20200305
20200325
20200514
20200909
20200928
20201104
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20210216
20210326
20210630
20210731
20210903
20211014
20211125
20220318
20220507
20220814
20221006
20221026
20221120
20230225

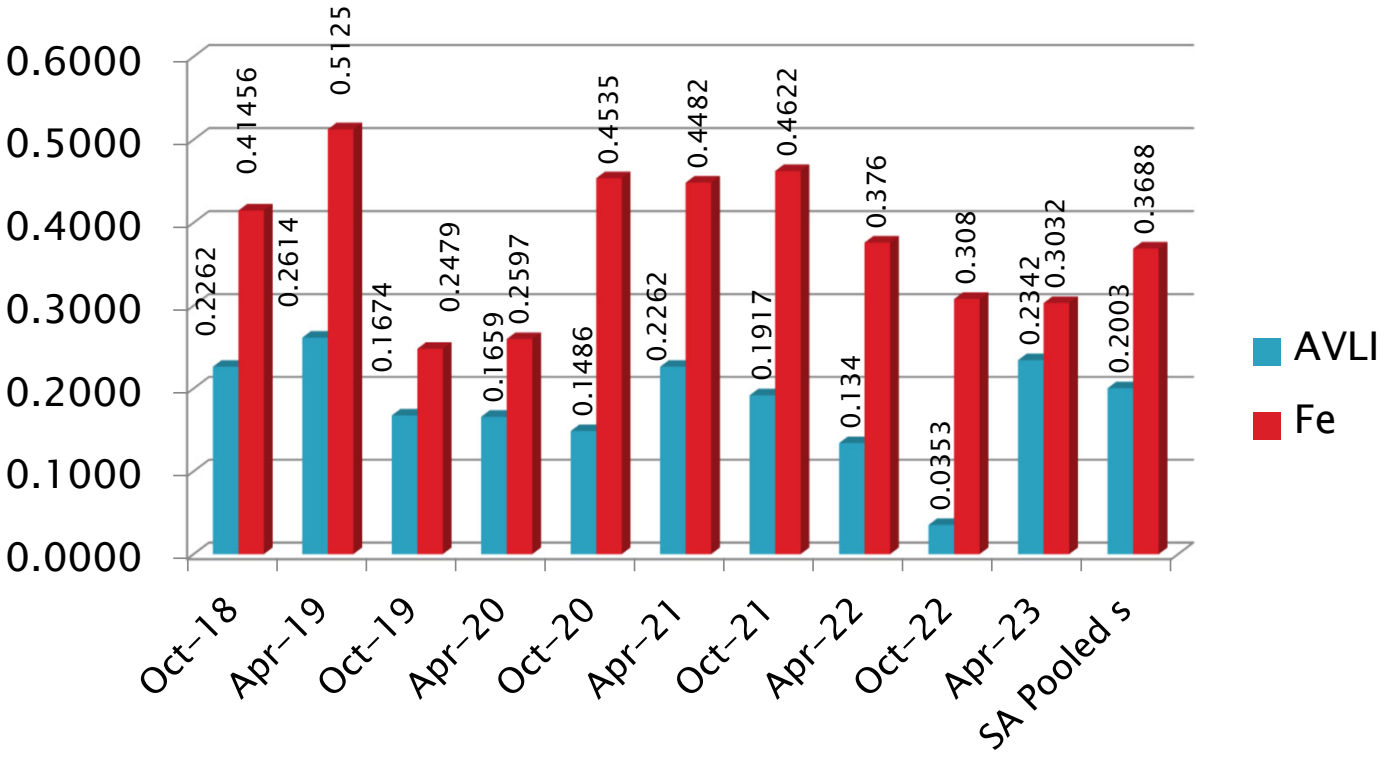
1011-1 Reblend

The GLM Procedure
Least Squares Means
Adjustment for Multiple Comparisons: Tukey-Kramer

ind	AVLIti LSMEAN	H0:LSMean1=LSMean2 Pr > |t|
1011	1.32119434	0.0023
1011-1	1.03553598	

ind	FEti LSMEAN	H0:LSMean1=LSMean2 Pr > |t|
1011	5.11507492	0.0083
1011-1	4.68374403	

Sequence IVB Precision Estimates



Return to Table of Contents

From: Szappanos, George
To: Bill Buscher Intertek
Subject: [External] RE: Sequence IV Surveillance Panel Agenda and Call-in (new agenda item)
Date: Wednesday, May 3, 2023 11:20:40 AM
Attachments: image002.png
image004.png

Thanks Bill. One more item (easy) – the highlighted value does not match with Table 13.
I believe it SHOULD read 50.5 (the setpoint is 52 ± 1.5).

D8350 – 21$^{\varepsilon 1}$

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TABLE 3 QI Control Limits

Parameter	U	L
Intake Air Humidity	12.00	11.00
Engine Coolant Out Temperature[A]	53.50	50.75
Exhaust Backpressure[B]	107.50	101.50
Fuel Rail Temperature	24.50	23.50
Intake Air Pressure	0.50	0.00
Intake Air Temperature	32.75	31.25
Oil Gallery Temperature	58.00	50.00
RAC Coolant Out Temperature	20.75	19.25
Torque	26.50	23.50
Engine Coolant Flow Rate	80.40	79.60
RAC Coolant Flow Rate	120.75	119.25
Blow-by Gas Temperature	29.50	28.50
Load Cell Temperature	49.00	41.00
Engine Coolant Pressure	80.00	60.00
Fuel Rail Pressure	345.00	325.00

[A] Only calculated during stages 1 and 2.
[B] Only calculated during stage 2.

From: Bill Buscher Intertek <william.buscher@intertek.com>
Sent: Tuesday, May 02, 2023 4:16 PM
To: Szappanos, George <George.Szappanos@lubrizol.com>
Subject: [EXTERNAL] RE: Sequence IV Surveillance Panel Agenda and Call-in (new agenda item)

George,

This item has been added to the agenda. I don't see any issues with adding the shutoff valve.

Regards,

William A. Buscher III
Principal Engineer
Automotive Research
Transportation Technology Business Line

Mobile (210)-240-8990

Office (210)-647-9489
www.intertek.com

Intertek, 5404 Bandera Road San Antonio, Tx 78238

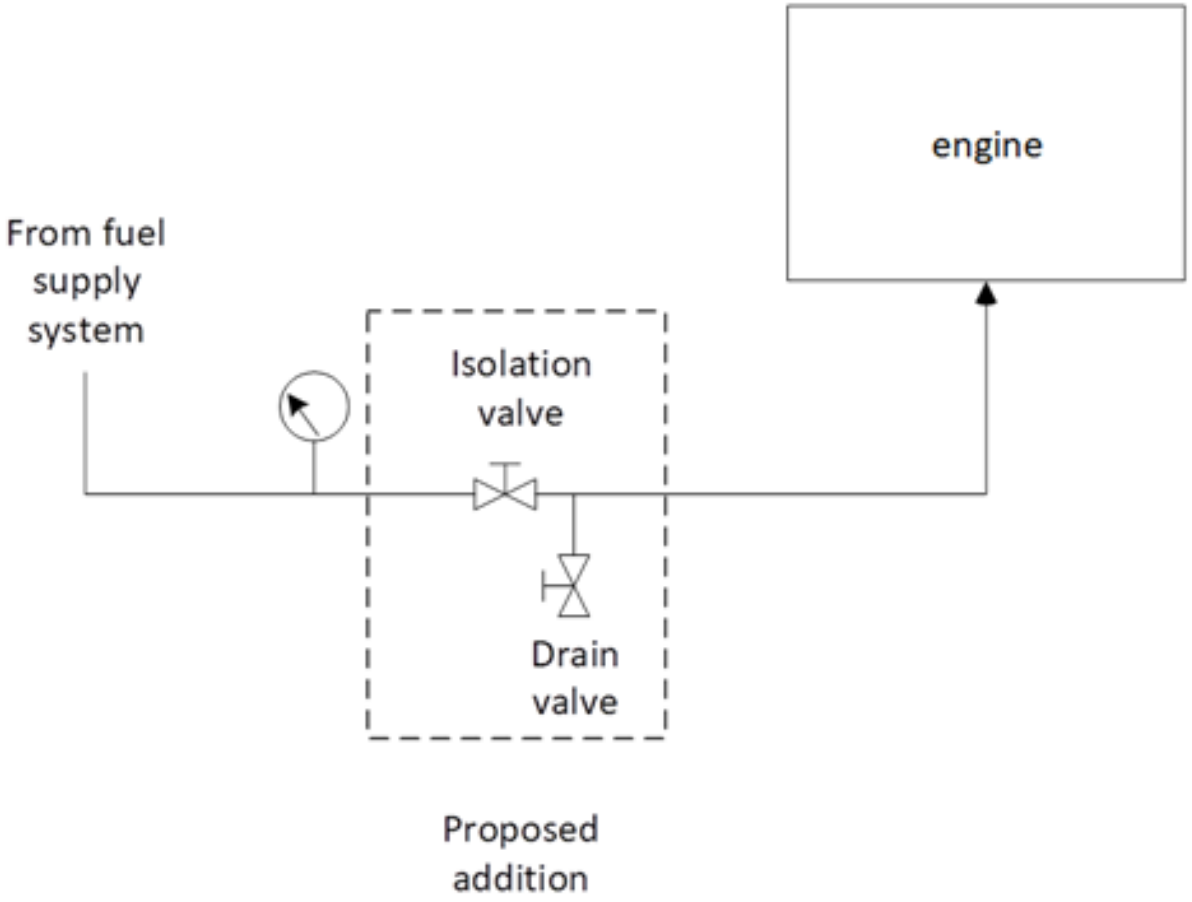
From: Szappanos, George <George.Szappanos@lubrizol.com>
Sent: Thursday, April 27, 2023 8:02 AM
To: Bill Buscher Intertek <william.buscher@intertek.com>
Subject: [External] RE: Sequence IV Surveillance Panel Agenda and Call-in (new agenda item)
Importance: High

Hi Bill, I'd like to add an item to the Agenda which should be fairly straightforward –
Motion to allow shutoff valve at the engine fuel line to allow for positive fuel blockage during engine changes or fuel system maintenance.
This is a safety issue and would not impact the test in any way. Appreciate the support in advance.

Thank you,
George Szappanos
Senior Test Engineer

The Lubrizol Corporation
29400 Lakeland Blvd.
Wickliffe, OH 44092
440.347.2352

-----Original Appointment-----
From: Bill Buscher Intertek <william.buscher@intertek.com>
Sent: Tuesday, April 25, 2023 11:55 PM
To: Bill Buscher Intertek; NON-LZ LOPEZ AL; NON-LZ LANG PATRICK; Sid Clark; Satoshi Hirano; Teri Kowalski; 'stephen.fields@nissan-usa.com'; Tang Haiying (FCA) (haiying.tang@fcagroup.com); 'Mark Sutherland'; 'Dan Lanctot'; 'Jason Bowden (jhbowden@OHTech.com)'; Jeff Clark; Rich Grundza; 'Ritchie, Andrew'; 'Ed.Altman@aftonchemical.com'; 'Bob.Campbell@aftonchemical.com'; Timothy L Caudill; 'Jeff Hsu'; 'BuschWA@aol.com'; Amol Savant; Seiz, Ray; NON-LZ CHADWICK MARTIN; Martinez, Jo G. (jogm); 'Affinito, Ricardo E'; NON-LZ LOCHTE MIKE; 'Stockwell, Robert T'; Meryn.hopp@gm.com; juan.vega@intertek.com; Kostan, Travis G.; Rais, Khaled; Haumann, Karin SLUBE-PTX/L/OA; Tarry, Preston; Charlie; Calcut, Brent; Carlton Coker Intertek; Collins, Chet A.; Meier, Adam Robert; Joshua Frederick; darryl.purificati@petrocanadalsp.com; Andrew.Rohlfing@AftonChemical.com; Matthew Bowden; Chen, Min; Michael P. Raney; Aleise Gauer; Garelick, Ken; Jacob Goodale; Porter, Christian; Maria.Chiappelli@Infineum.com; Brass, David; Scinto, Phil; Wingert, Dean (D.; mdeegan@ford.com; Rubas, Paul J; Kinzel, Mike; OKUDA, SACHIKO; tim.matthews@uk.bp.com; Szappanos, George; Wolfe, Justin; Nguyen, Nga; Hairston, William; Hennessy, Ed; Catanese, Tony; Zdrodowski, Rob (R.J.); Dave Passmore; djb@astmtmc.org;


engine
From fuel supply system
Isolation valve
Drain valve
Proposed addition

Attachment 7

ASTM Sequence IV Surveillance Panel

Scope and Objectives

Scope

The Sequence IV Surveillance Panel is responsible for the surveillance and continued improvement of the Sequence IVA test documented in Test Method D 6891 and the Sequence IVB test documented in Test Method D 8350, both as updated by the Information Letter system. Data on test precision and laboratory versus field correlation will be solicited and evaluated at least every six months. Improvements in wear measurement technique, test operation, test monitoring and test validation will be accomplished through continual communication with the Test Sponsors and Parts Distributors, ASTM Test Monitoring Center, ASTM Committee D02.B0.01 and the ASTM Passenger Car Engine Oil Classification Panel. Actions to improve the process will be recommended when deemed appropriate based on input from the proceeding. The Panel will review development and correlation of updated test procedures with previous test procedures. This process will provide a suitable test procedure for evaluating an automotive lubricant's effect on controlling valve train wear and overall engine wear for overhead valve train equipped engines with sliding followers or lifters.

Objectives	**Target Date**
1. Preserve Sequence IVA test hardware to maintain test availability for legacy specifications.	*On-going*
2. Maintain acceptable test hardware for the life of the Sequence IVB test.	*On-going*
3. Maintain acceptable test fuel for the life of both the Sequence IVA and Sequence IVB tests.	*On-going*
4. Maintain reference oil supply for the life of both the Sequence IVA and Sequence IVB tests.	*On-going*
5. Continue active monitoring of test severity and precision for both the Sequence IVA and Sequence IVB tests.	*On-going*
6. Maintain an on-going timeline / events list for the Sequence IVB test.	*On-going*

William A. Buscher III, Chairman
Sequence IV Surveillance Panel

Updated: May 2023

Attachment 8

Sequence IV Surveillance Panel
May 4, 2023
8:00AM – 10:30AM
Southwest Research Institute – Building 209
San Antonio, TX

Motions and Action Items
As Recorded at the Meeting by Bill Buscher

1. Action Item – Haltermann to solicit Sequence IV test laboratories to divide remaining KA24E Green fuel batch S-000309 inventory.

2. Action Item – Haltermann to research/investigate differences between the last five (5) KA24E Green fuel batches.

3. Motion – Modify Sequence IVB test procedure to allow for the addition of a fuel shutoff valve and pressure relief between the fuel pressure gauge and fuel rail. George Szappanos / Rich Grundza / Passed Unanimously 14 – 0 – 0