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Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

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Issued: November 30, 2011
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The unapproved minutes of the 11.30.2011 Sequence VI Surveillance Panel Conference Call.

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The meeting was called to order at 9:30 AM by Chairman Charlie Leverett.

Agenda

The Agenda is the included as **Attachment 1**.

1.0 Roll Call

The Attendance list **Attachment 2**.

2.0) Approval of minutes

2.1) Approval of the minutes of the 09.14.2011 Conference Call.

Motion – Accept the minutes of the 09.14.2011 VID SP CC. Unanimous.

3.0) Action Item Review

3.1) OHT to report VID engine usage and expected depletion date at all Surveillance Panel meetings. **Will be on-going.**

As of 11.30.2011, there are 56 engines in inventory at OHT. See Attachment 3. Testing has dropped off in the last several months, so it will be reported to D02 that the current engine should be available until 2015.

3.2 Statistical Group review of RO-1010 results. See Old Business below.

4.) Old Business

4.1) Review initial data from reference oil RO-1010. Here are runs to date:

As-Of 11/18/11
38 Runs on RO-1010
4 were donated for initial targets
20 were acceptable
2 Deemed Invalid by Lab
9 Abandon by Lab
4 non-acceptable
1 do not go to completion

4.1.1) Rich Grundza did a review included as Attachment 4.

4.1.2) There was discussion on the engine hour correction, especially the response in engines with more hours. Rich has assigned RO-1010 on recent references to gather more data.

4.1.3) There was discussion to remove RO-1010 as the third reference oil on new engines, and even to go back to random oil assignments for those oil selections. There will be no change until the Statistical Group completes their review.

4.1.4) Jo Martinez will work on the data review to meet the requested time line of 12.12.2011. There will then be another Surveillance Panel call scheduled.

4.4.5) Mark Mosher asked that abandoned engines be included in this review, and the data include a RO-1010 reference running now at one lab.

ACTION: Martin Chadwick will request a meeting of the Statistical Group.

5.) New Business

5.1 Recommendations from New Engine Task Force for program on the 2012 engines.

Four labs will run the new engines. Two of those engines with the [*NOTE: the gears are shipped with the new engine but not installed*] fixed gears will be sent to IAR and SwRI the week of 11/14 as they each have a stand available now and both of those labs can have the engines running in December. The other two labs are Afton and Lubrizol; their engines will be delivered no later than 01/23/2012.

All four labs will run 542 first, but there will be a conference call after the first tests complete at IAR and SwRI. If both of those results are favorable, the next steps will be determined.

The TF determined a stand can be used that was previously calibrated. The ASTM D7589 standard shall be followed for these new 2012 engines the same as if a new 2009 engine were being installed, i.e. full instrument calibration and complete 150 hours of break in.

There was a question on how the installation of these engines would affect the current stand/engine calibration period if used in a calibrated stand/engine. Currently the procedure states:

10.1.1.5 Re-reference the engines once removed from the test stand and re-installed, even if the test number and time criteria are met by the engine.

This wording has been in the Seq. VI procedures since the introduction of the VIA, the reason it was included is due to the fact that no one really knows if the engine would shift after being pulled then reinstalled.

5.2) Additional Data Request from Dave

1. We are on the verge of evaluating a replacement engine for VID use. An engine that has already exhibited different oil pressure characteristics than the 2009 engine.
2. Different oil pressure equates to changes in energy required for pumping.
3. When the final six stages were selected for the VID test, it is my understanding that they were run in the order that resulted after stages were eliminated.
4. Sequence VIA and VIB tests, predecessors to the VID, both ordered stages with decreasing temperatures, starting high and moving to low.
5. The Sequence VID test, as well as the tests that preceded it all used a 60 minute window for stabilization prior to running the BSFC routine.
6. Those who run the VID will attest that the time to stabilization for Stage 6 is minimal, the "fix" being the doubling of Stage 4 power, the remainder of the stage is the same as Stage 4. Perhaps a change in stabilization time is in order.

7. Although stages other than Stages 1 and 3 are considered “minor stages” in terms of contribution to BSFC, the contribution(s) from those stages can make or break the final test result, especially if a change of pass/fail is warranted.
8. We have the opportunity to expand our knowledge of running the test, but we must have data to evaluate.

I therefore propose that:

1. Labs provide raw data files for the tests used to evaluate the 2012 engine.
2. Data files would include snapshot data, one data point a minute, for the sixty minute stabilizations prior to the BSFC routines for BLB1, BLB2, BLB3(if needed), Cand1, Cand2 and BLA.
3. Aging data would include snapshot data, one data point every five minutes (minimum).
4. Data acquisition routines as currently specified for the BSFC routines would remain unchanged.
5. Data could be blind coded and provided to the Industry Statisticians for evaluation. *This will be as CSV files supplied to TMC.*

ACTION: Labs will review to see if the same data files can be supplied on one recent reference test for comparison.

5.3) Update from Rich on Reference Oil 541 – *TMC will hold some of the current blend of 541 should there be problems with the new blend.*

5.4) *There was no additional New Business.*

6.) Next Meeting

At the call of the chairman, after the Statistical Group Review is complete on RO-1010.

7.) Meeting Adjourned

The meeting adjourned at 10:10 AM.

**Sequence VI Surveillance Panel conference Call
November 30, 2011 @ 9:30 CDT**

Agenda

1.0) Roll Call

2.0) Approval of minutes

2.1) Approve the minutes from the Sept. 14, 2011 Sequence VI Surveillance Panel conference call.

3.0) Action Item Review

3.1 OHT to report VID engine usage and expected depletion date at all Surveillance Panel meetings. **Will be on-going.**

3.2 Statistical Group review of RO-1010 results. A formal request was submitted 11/18/11 so we may not have anything for this meeting.

4.) Old Business

4.1) Review initial data from reference oil RO 1010. Since we changed the reference oil requirements putting RO-1010 in as the third oil for a new engine we have run 13 new engines and as-of 11/18 we have had 2 new engines abandon and current have 2 additional with 3 runs which resulted in Severe FEI II results.

[Here is a summary of runs on RO-1010 to date:](#)

As-Of 11/18/11
38 Runs on RO-1010
4 were donated for initial targets
20 were acceptable
2 Deemed Invalid by Lab
9 Abandon by Lab
4 non-acceptable
1 do not go to completion

Should we consider taking RO-1010 out of the mix for new engines until the Statistical Group?

5.) New Business

5.1 Recommendations from New Engine Task Force for program on the 2012 engines.

Four labs will run the new engines. Two of those engines with the fixed gears will be sent to IAR and SwRI the week of 11/14 as they each have a stand available now and both of those labs can have the engines running in December. The other two labs are Afton and Lubrizol; their engines will be delivered no later than 01/23/2012.

All four labs will run 542 first, but there will be a conference call after the first tests complete at IAR and SwRI. If both of those results are favorable, the next steps will be determined.

The TF determined a stand can be used that was previously calibrated. The ASTM D7589 standard shall be followed for these new 2012 engines the same as if a new 2009 engine were being installed, i.e. full instrument calibration and complete 150 hours of break in.

Dave Glaenzer will supply a list of desired data rates and points. His list might have a faster data collection rate and/or more data than required in the procedure.

There was a question on how the installation of these engines would effect the current stand/engine calibration period if used in a calibrated stand/engine. Currently the procedure states:

10.1.1.5 Re-reference the engines once removed from the test stand and re-installed, even if the test number and time criteria are met by the engine.

This wording has been in the Seq. VI procedures since the introduction of the VIA, the reason it was included is due to the fact that no one really knows if the engine would shift after being pulled then reinstalled.

5.2) Additional Data Request from Dave

Colleagues

At a Sequence VI teleconference call on November 17 I expressed a desire to have labs provide raw data files for tests to be run evaluating the 2012 engine under VID operating conditions. I have been asked to provide a detailed accounting of what data I believe would benefit the SP in its evaluation of the replacement hardware along with data acquisition rates for that data.

1. We are on the verge of evaluating a replacement engine for VID use. An engine that has already exhibited different oil pressure characteristics than the 2009 engine.
2. Different oil pressure equates to changes in energy required for pumping.

3. When the final six stages were selected for the VID test, it is my understanding that they were run in the order that resulted after stages were eliminated.
4. Sequence VIA and VIB tests, predecessors to the VID, both ordered stages with decreasing temperatures, starting high and moving to low.
5. The Sequence VID test, as well as the tests that preceded it all used a 60 minute window for stabilization prior to running the BSFC routine.
6. Those who run the VID will attest that the time to stabilization for Stage 6 is minimal, the “fix” being the doubling of Stage 4 power, the remainder of the stage is the same as Stage 4. Perhaps a change in stabilization time is in order.
7. Although stages other than Stages 1 and 3 are considered “minor stages” in terms of contribution to BSFC, the contribution(s) from those stages can make or break the final test result, especially if a change of pass/fail is warranted.
8. We have the opportunity to expand our knowledge of running the test, but we must have data to evaluate.

I therefore propose that:

1. Labs provide raw data files for the tests used to evaluate the 2012 engine.
2. Data files would include snapshot data, one data point a minute, for the sixty minute stabilizations prior to the BSFC routines for BLB1, BLB2, BLB3(if needed), Cand1, Cand2 and BLA.
3. Aging data would include snapshot data, one data point every five minutes (minimum).
4. Data acquisition routines as currently specified for the BSFC routines would remain unchanged.
5. Data could be blind coded and provided to the Industry Statisticians for evaluation.

I welcome an open discussion as I feel we now have been given the opportunity to improve the VID test, if we are willing.

David L. Glaenzer

5.3) Update from Rich on Reference Oil 541 – In September of this year Rich informed me TMC is down to our last drum of 541 which means ~ 11 tests. At this time each lab has at least one test’s worth in house. A reblend, 541-1, is available and he would like to just advice the panel the sometime in the next 8 to 12 months we will need to introduce this reblend. **09/14/11 it was determined that some of the current blend will be retained so a back up run for comparison can take place should a new blend reference test fail and that be questioned.**

6.) Next Meeting

At the call of the chairman

7.) Meeting Adjourned

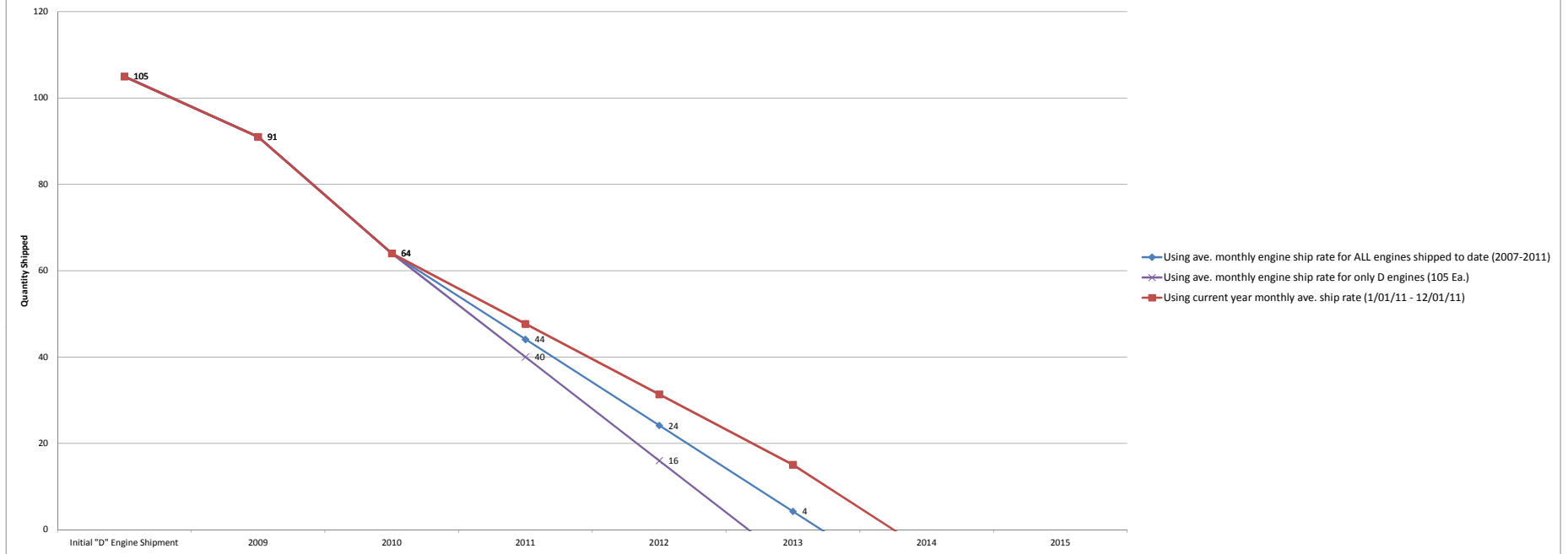
ASTM SEQUENCE VI SURVEILLANCE PANEL

Name	Address	Phone/Fax/Email	Attendance
Bowden, Jason Voting Member	OH Technologies, Inc. P.O. Box 5039 Mentor, OH 44061-5039	Phone: 440-354-7007 Fax: 440-354-7080 dhbowden@ohtech.com	Adam, Dwight, Jason, Matthew
Bruce Matthews Voting Member	GM Powertrain Engine Oil Group Mail Code: 483-730-472 823 Joslyn Rd	Pontiac, MI 48340: 248-830-9197 bruce.matthews@gm.com	YES
Andy Ritchie Voting Member	Infineum 1900 East Linden Ave. Linden, NJ 07036-0735	Phone: 908-474- Fax: 908-474-3637	YES, Mike McMillan visitor
Ron Romano Voting Member	Ford Motor Company 21500 Oakwood Blvd POEE Bldg Rm DR 167 MD 44 Dearborn, MI 48121-2053	Phone: 313-845-4068 rromano@ford.com	YES
Leverett, Charlie Voting Member	Intertek Automotive Research 5404 Bandera Road San Antonio, TX 78238	Phone: 210-647-9422 Fax: 210-523-4607 charlie.leverett@intertek.com	YES
Grundza, Rich Voting Member	ASTM TMC 6555 Penn Ave. Pittsburgh, PA 15206-4489	Phone: 412-365-1034 Fax: 412-365-1047 Dml@tmc.astm.cmri.cmu.edu	YES
Miranda, Timothy Voting Member	BP Castrol Lubricants USA 1500 Valley Road Wayne, NJ 07470	Phone: 973-305-3334 Timothy.Miranda@bp.com	
Mosher, Mark Voting Member	ExxonMobil 600 Billingsport Road Paulsboro, NJ 08066	Phone: 856-224-2132 Fax: 856-224-3628 mark_r_mosher@exxonmobil.com	YES
Caudill, Timothy Voting Member	Ashland, Inc. 21st and Front Streets Ashland, KY 41101	Phone: 606-329-5708 Fax: 606-329-3009 Tlcaudill@ashland.com	YES
Dan Worcester Voting Member	Southwest Research Institute (SwRI) 6220 Culebra Road San Antonio, TX 78228	Phone: Fax: dan.worcester@swri.org	YES, Bill Buscher visitor
Szappanos, George Voting Member	Lubrizol 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347- Fax: 440-347-4096 George.Szappanos@lubrizol.com	YES
Glaenger, David Voting Member	Afton Research Center 500 Spring Street Richmond, VA 23218	Phone: 804-788-5214 Fax: 804-788-6358	YES
Sutherland, Mark Voting Member	Chevron Oronite Company LLC 4502 Centerview Ste. 210 San Antonio, TX 78228	Phone: 210-731-5605 Fax: 731-5621 msut@chevrontexaco.com	Jo Martinez with proxy
Robert Stockwell Voting Member	ConocoPhillips Lubricants R&D Passenger Car Engine Oil	office 580-767-6894 Robert.T.Stockwell@conocophillips.com	
Tracy King Voting Member	Chrysler	Phone: 248-576-7500 tek1@chrysler.com	
Teri Kowalski	Toyota	teri.kowalski@tema.toyota.com	Jim Linden with proxy
Bob Olree	Visitor		

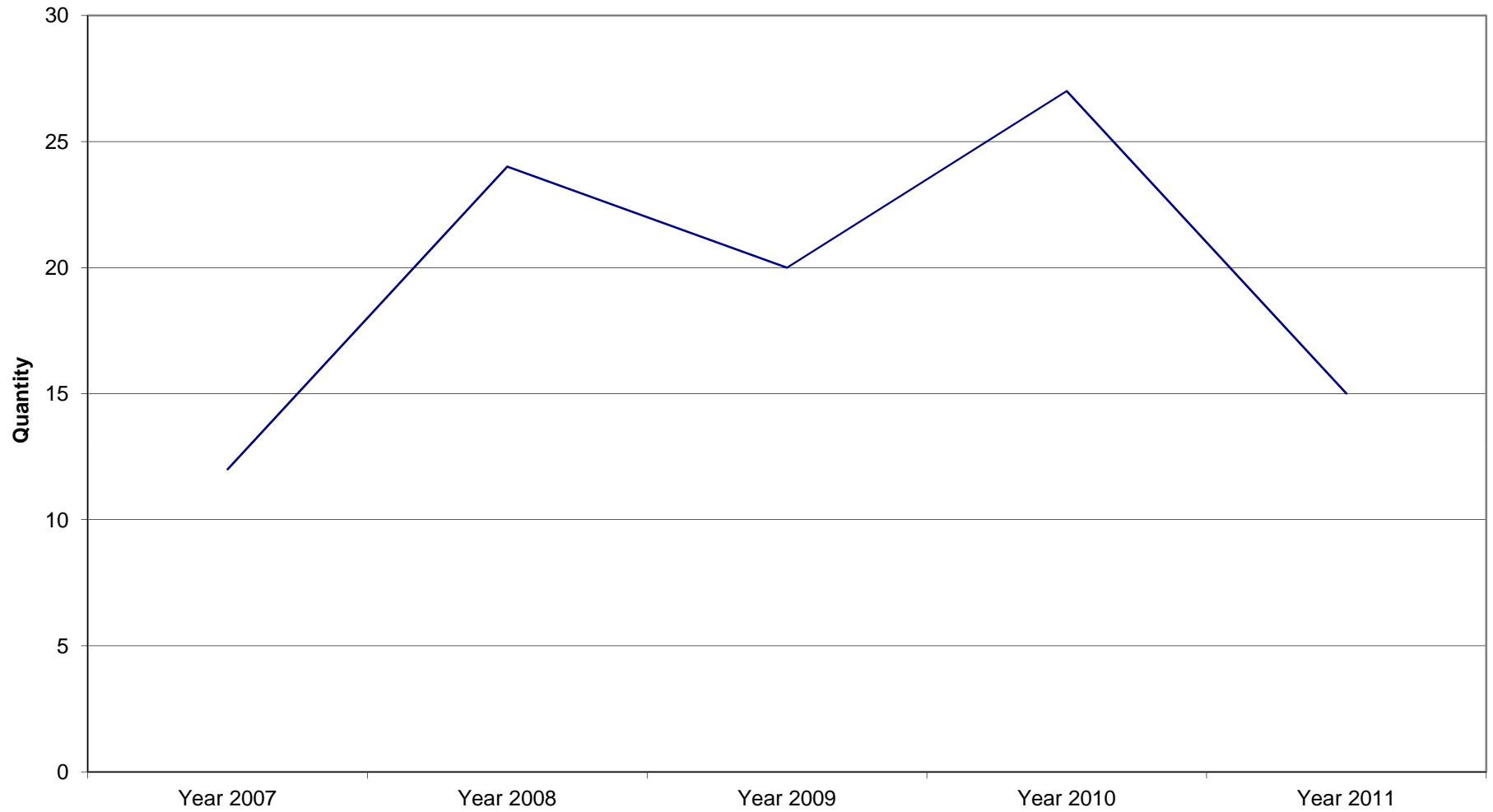
ASTM SEQUENCE VI SURVEILLANCE PANEL

Name	Address	Phone/Fax/Email	Attendance
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VID Engine Depletion Estimate Based on Average Monthly Ship Rates
As of 11/28/11



VID Engine Shipments by Year



VID Engine Quantity Required for GF5 using Ave. Monthly Ship Rate for "D" Engines Only		VID Engine Quantity Required for GF5 using Ave. Monthly Ship Rate for all Engines Shipped to Date		<u>Average Monthly Ship Rate by Year</u>	
As of: 11/28/11 (Ship Dates from 8/9/09-11/28/11)		As of: 11/28/11		2007	1.00
Average = 56 engines / 28 months = 2		Average= 1.66		2008	2.00
Months left in GF-5 (10/01/11 thru 12/31/2015) (49)		Months left in GF-5 (12/01/11 - 12/31/2015) (49)		2009	1.67
49 months X 2 per month = 98		49 months X 1.66per month = 81		2010	2.25
Current Engine Balance (11/28/11) (49)		Current Engine Balance (11/28/11) (49)		2011	1.36
Difference: 98-49= 49		Difference: 81-49= 32		2012	
Quantity Short		Quantity Short		2013	
49		32		2014	
				2015	
				Overall Yearly Average	1.66

Sequence VID

1010 Results

Current Industry Severity

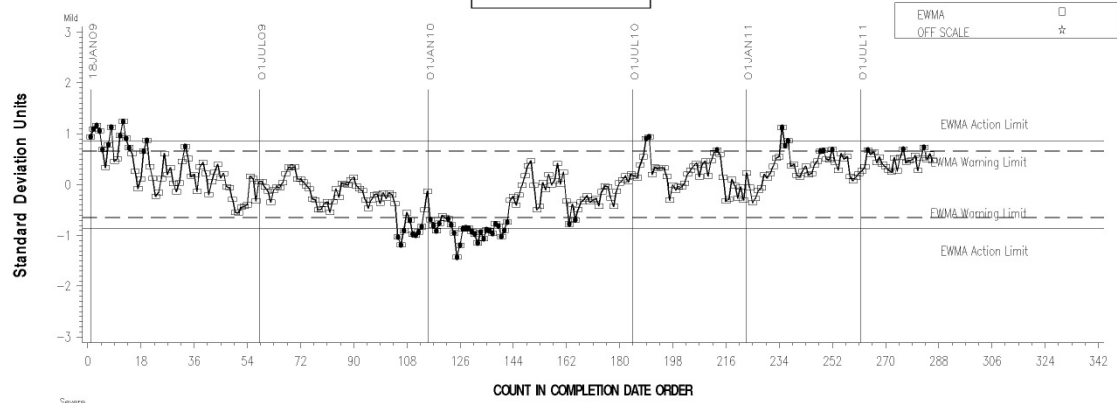
- FEI1 Trending mild since July 2010
- FEI2 Trending severe since about January 2011
average delta/s for this time period was -0.30
for the 64 operationally valid results reported.
 - BY oil (FEI2 only)
 - 1010 -0.92 (20 tests)
 - 540 -0.42 (10 tests)
 - 541 -0.11 (12 tests)
 - 542 0.23 (22 tests)

SEQUENCE VID INDUSTRY OPERATIONALLY VALID DATA

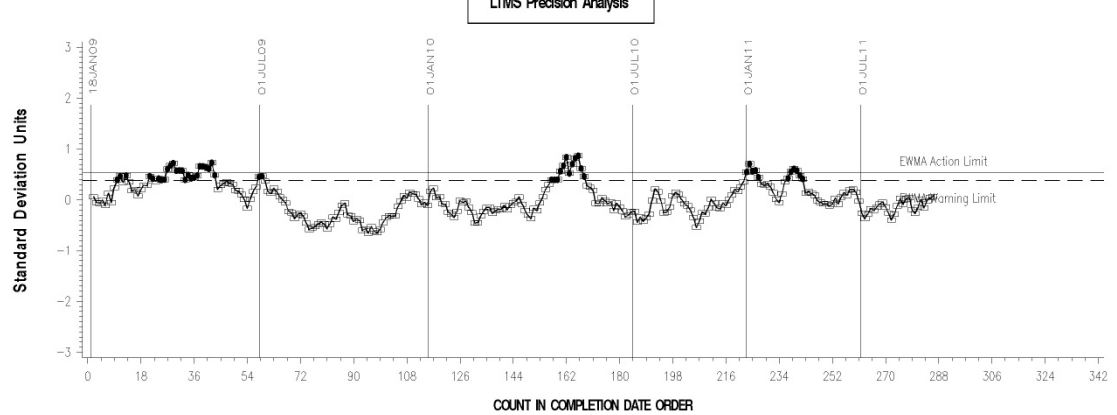


FEI FINAL RESULT PHASE I

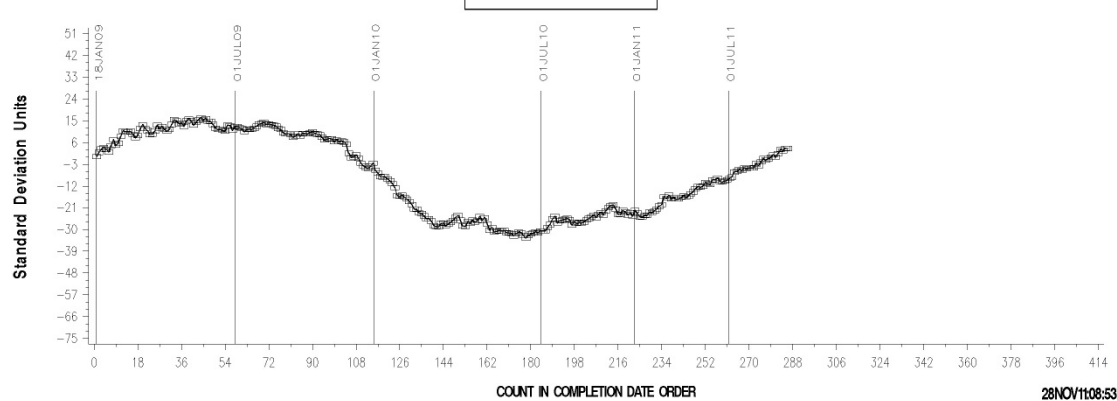
LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

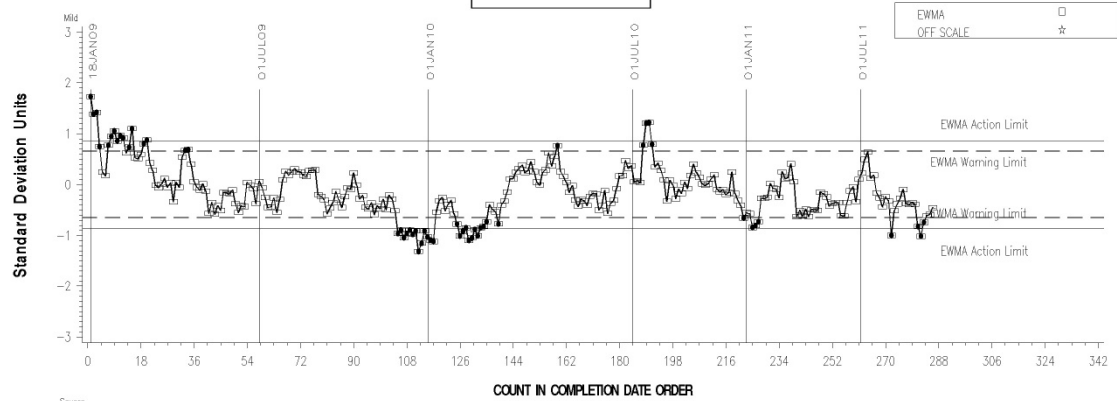


SEQUENCE VID INDUSTRY OPERATIONALLY VALID DATA



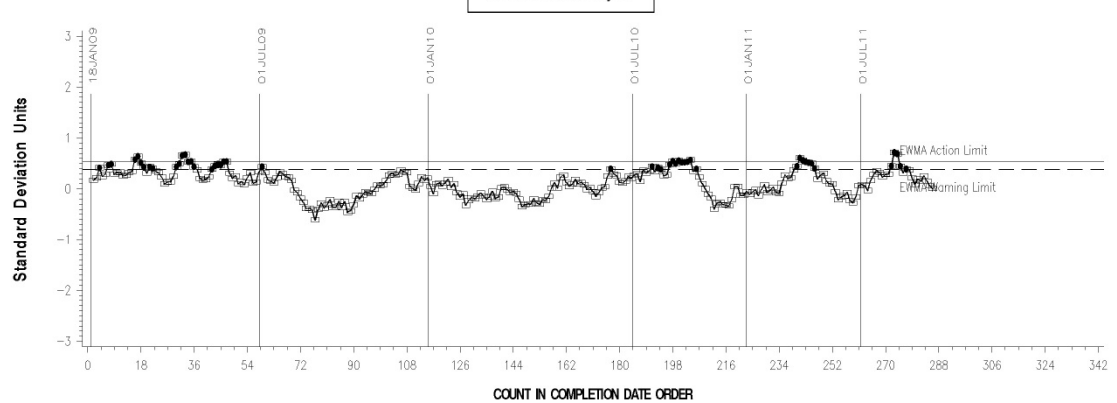
FEI FINAL RESULT PHASE II

LTMS Severity Analysis



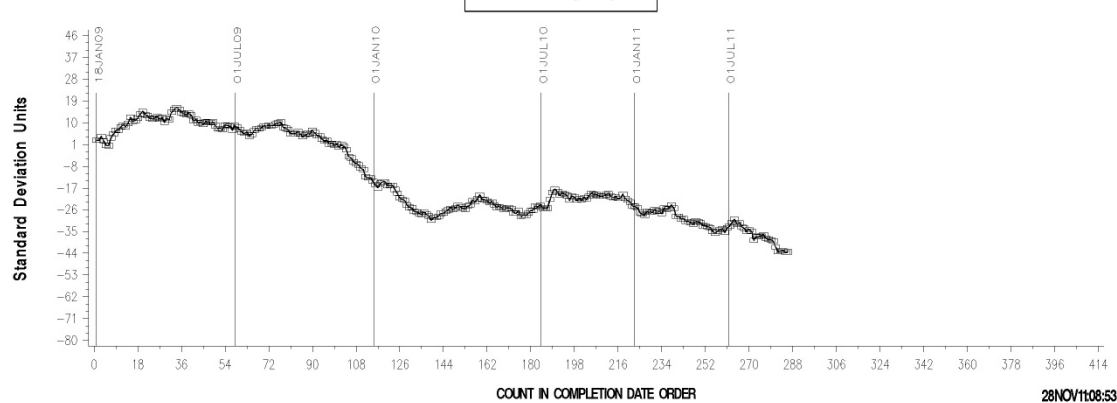
COUNT IN COMPLETION DATE ORDER

LTMS Precision Analysis



COUNT IN COMPLETION DATE ORDER

CUSUM Severity Analysis



Some Plots To Look At

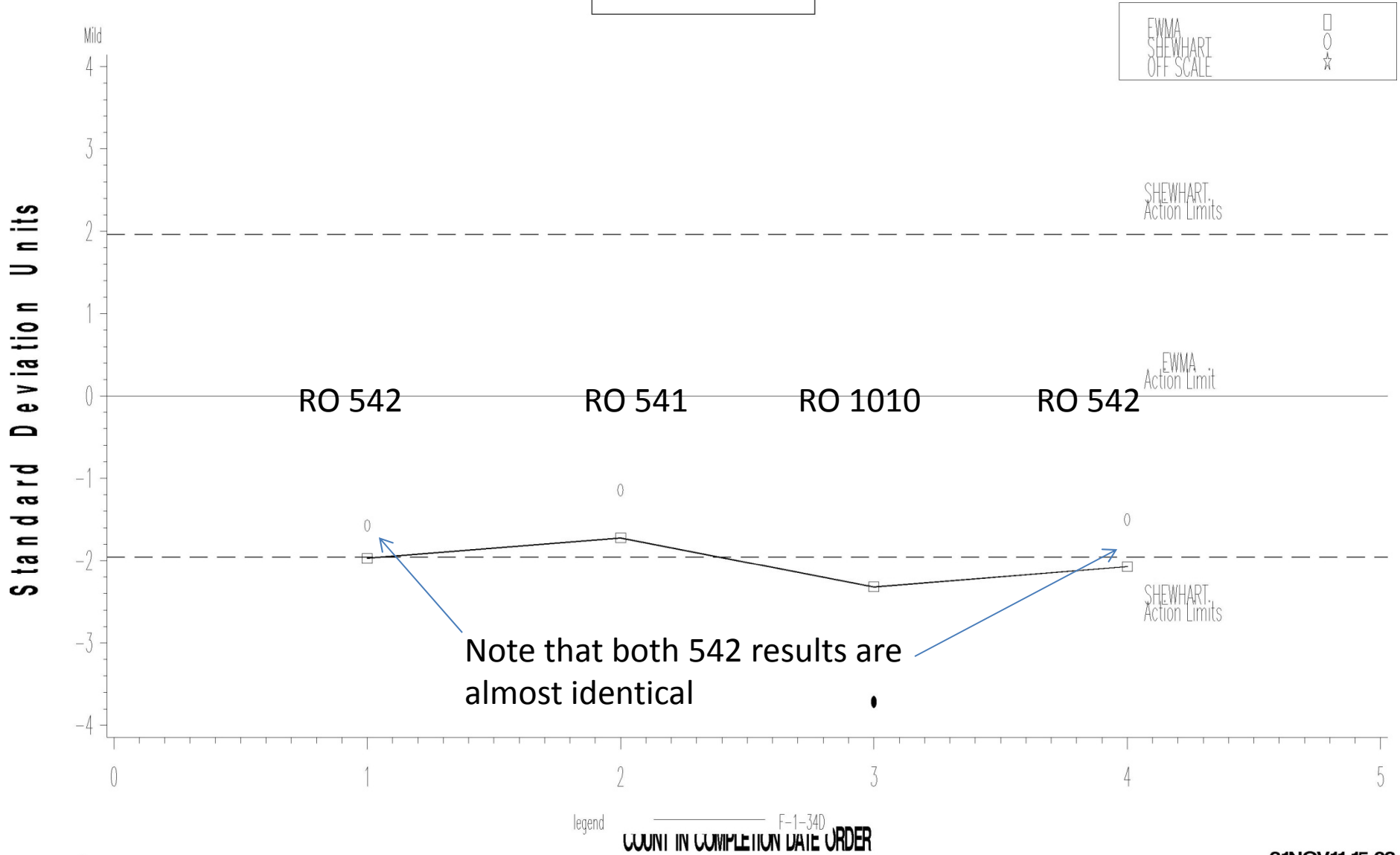
- The next slide is FEI2 for engine 34D.
- The laboratory had abandoned engine 43D prior to this, it will be included as well.
- 34D produced acceptable, but severe results on 542 and 541, but failed FEI2 for 1010.
- The laboratory requested to repeat another reference oil to see if severity had changed, chart is below

SEQUENCE VID APPARATUS OPERATIONALLY VALID DATA



FEI FINAL RESULT PHASE II

LTMS Severity Analysis



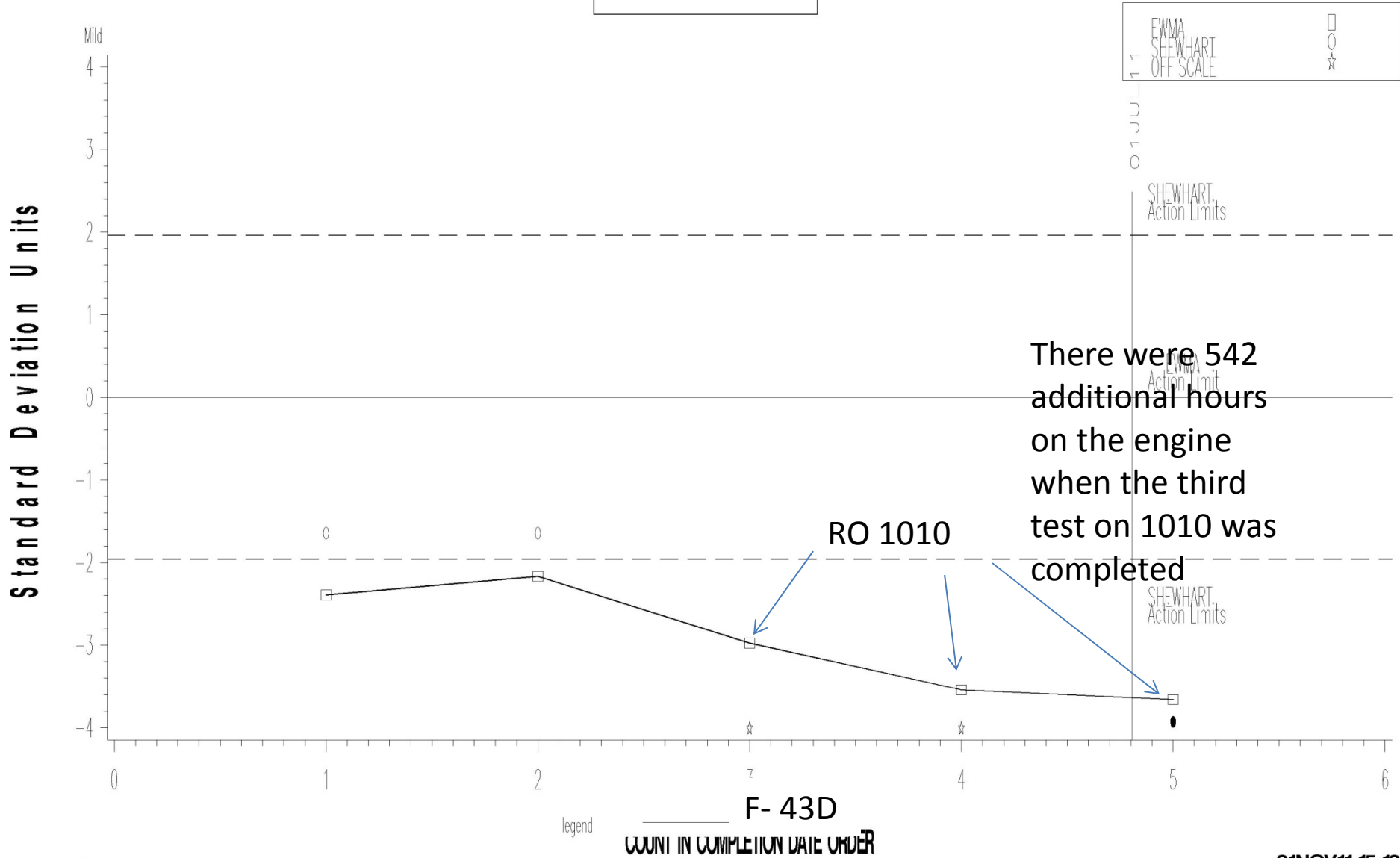
Severe

SEQUENCE VID APPARATUS OPERATIONALLY VALID DATA



FEI FINAL RESULT PHASE II

LTMS Severity Analysis



Some More Plots To Look At

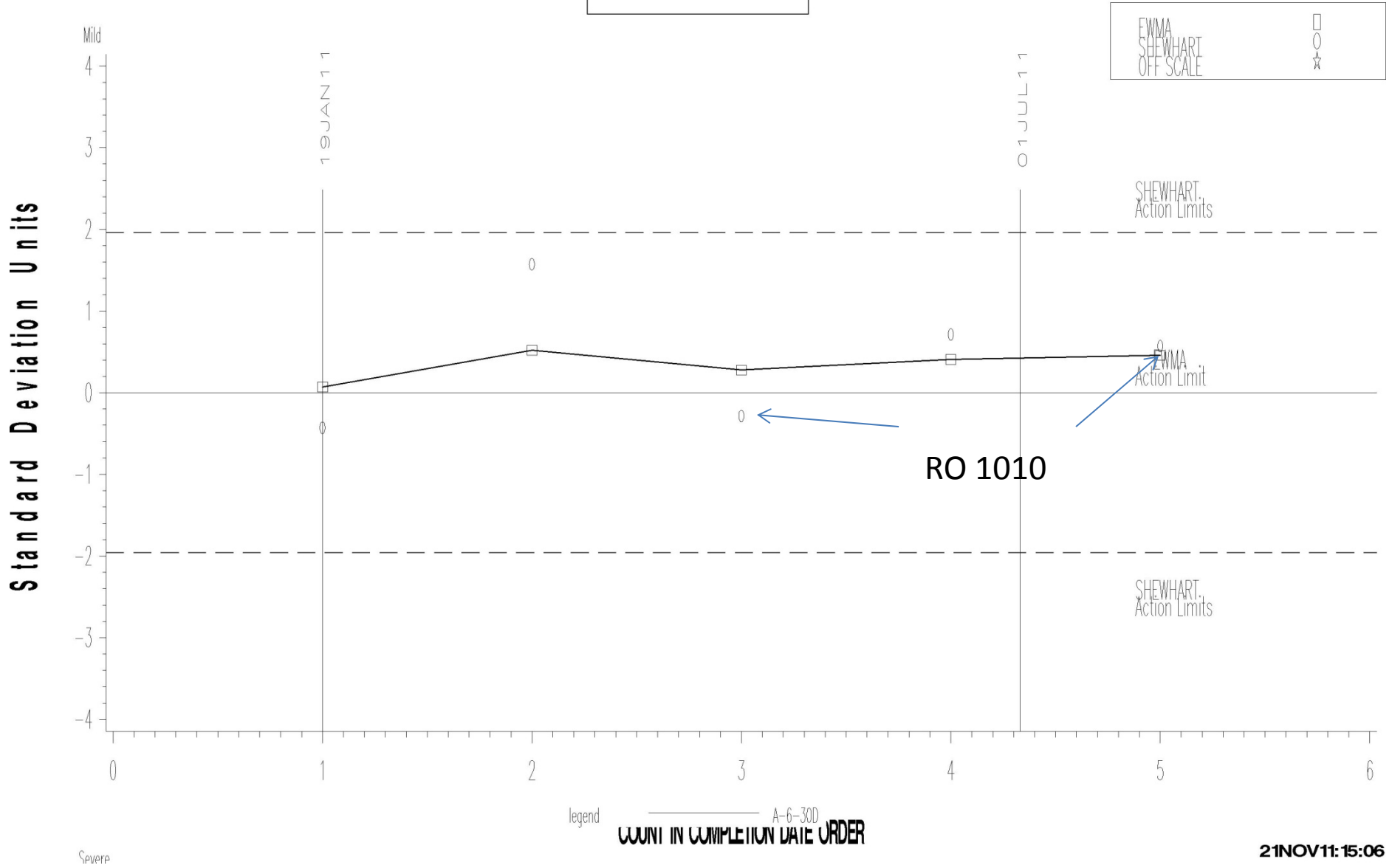
- The next set of slides are FEI2 for engine 30D, 21D, 8C, 11D and 31D.
- These stands all have replicate runs on 1010.

SEQUENCE VID APPARATUS OPERATIONALLY VALID DATA



FEI FINAL RESULT PHASE II

LTMS Severity Analysis



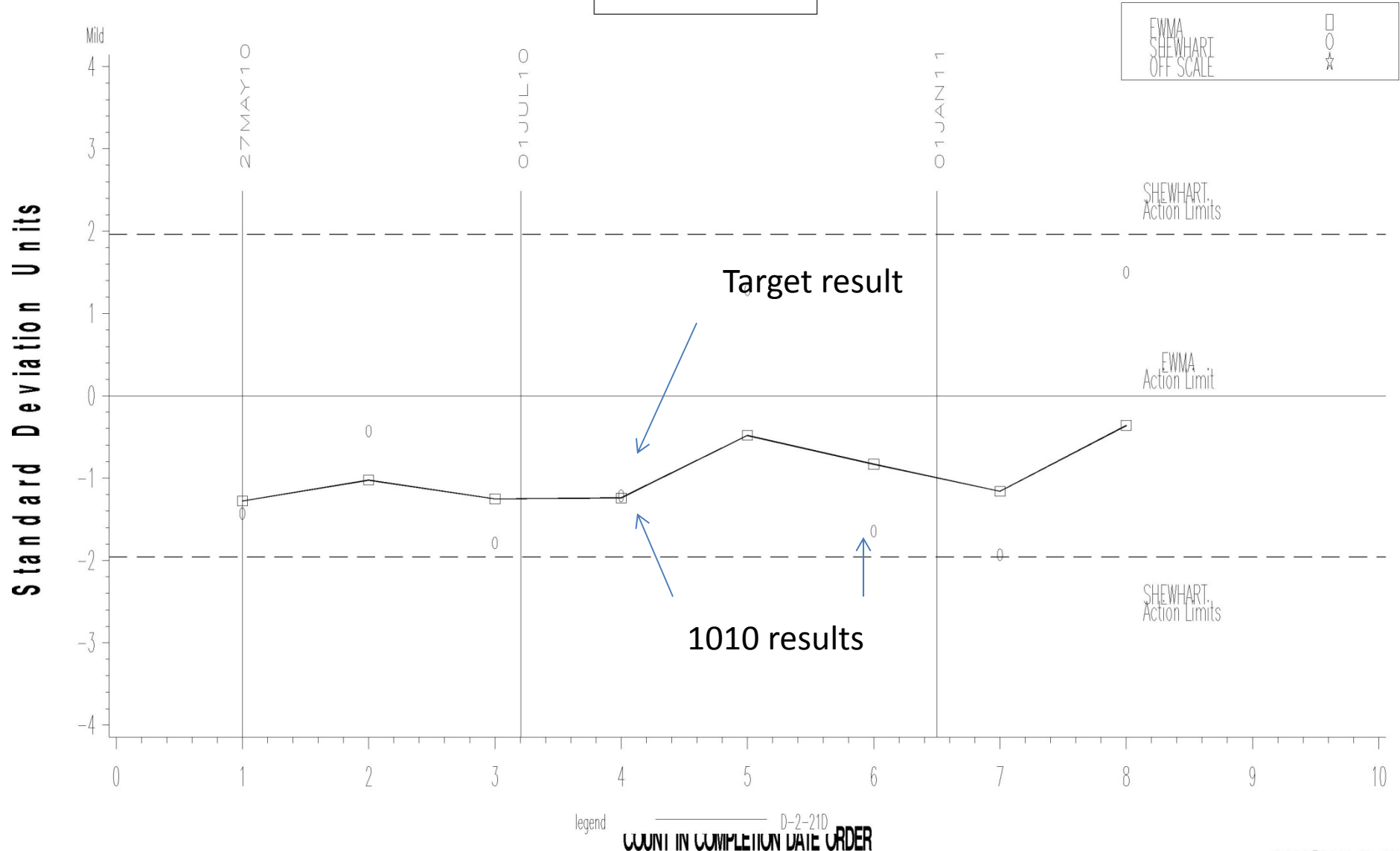
legend A-6-30D
COUNT IN COMPLETION DATE ORDER

SEQUENCE VID APPARATUS OPERATIONALLY VALID DATA



FEI FINAL RESULT PHASE II

LTMS Severity Analysis



Severe

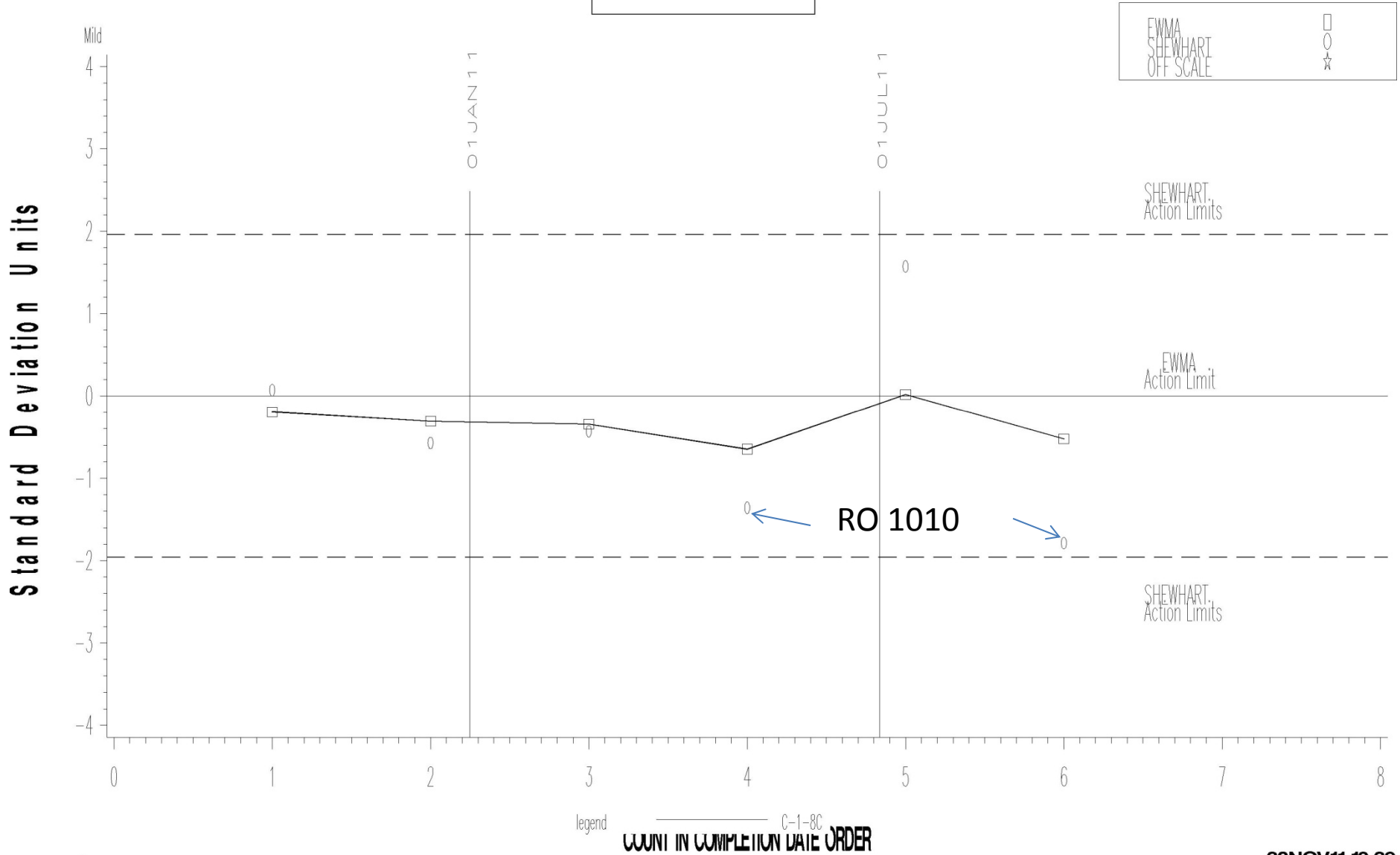
legend D-2-210
COUNT IN COMPLETION DATE ORDER

SEQUENCE VID APPARATUS OPERATIONALLY VALID DATA



FEI FINAL RESULT PHASE II

LTMS Severity Analysis

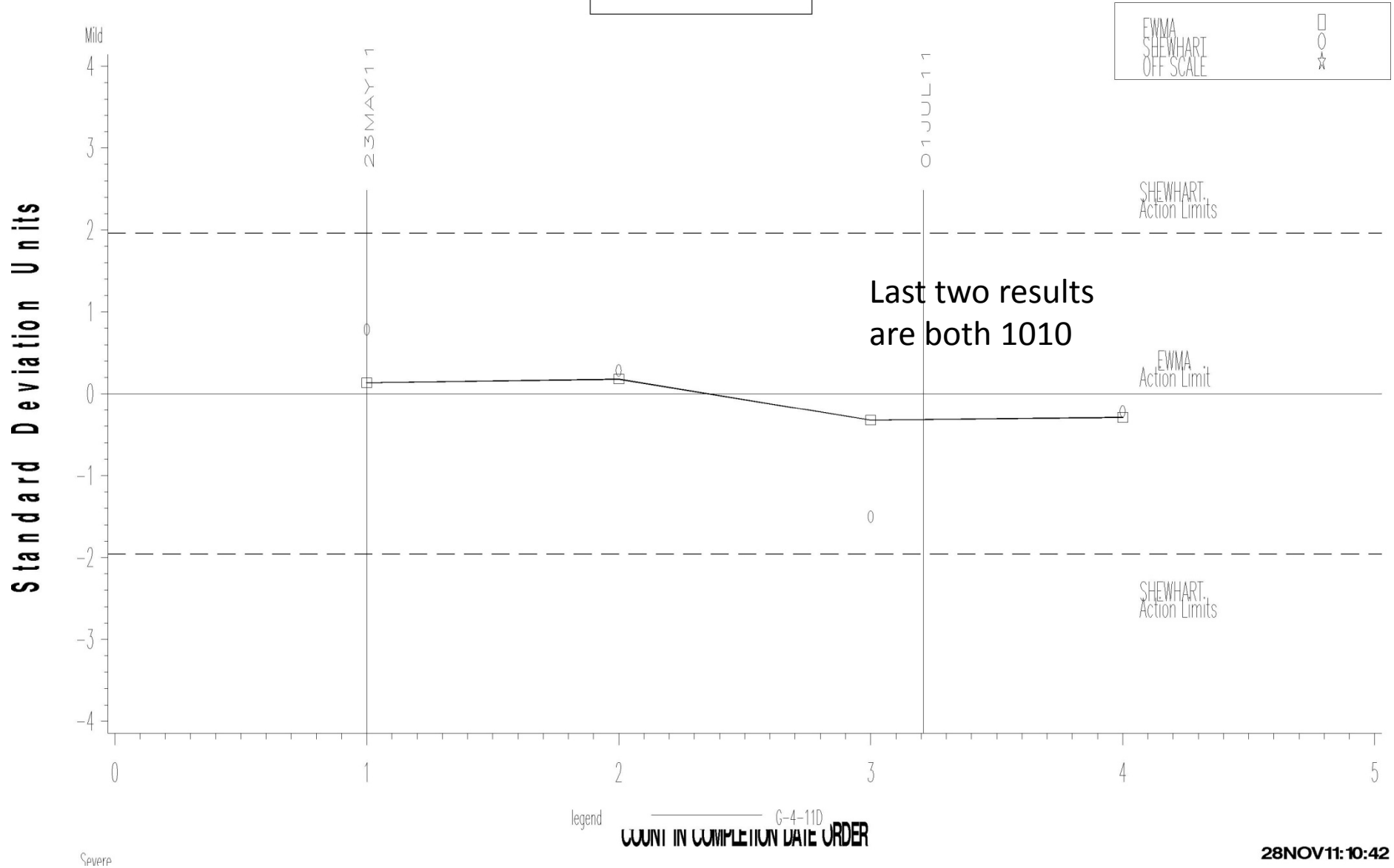


SEQUENCE VID APPARATUS OPERATIONALLY VALID DATA



FEI FINAL RESULT PHASE II

LTMS Severity Analysis



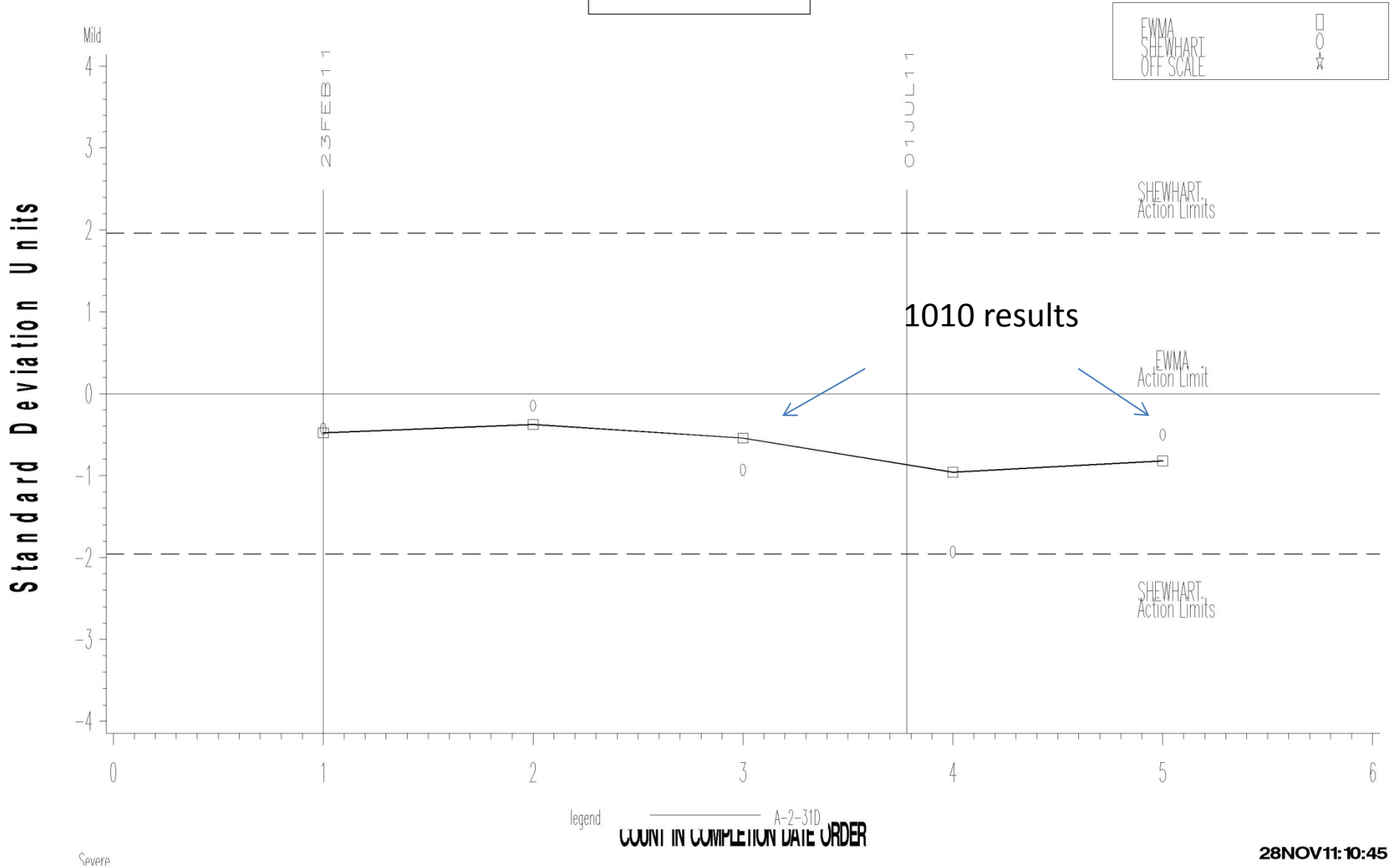
legend G-4-11D
COUNT IN COMPLETION DATE ORDER

SEQUENCE VID APPARATUS OPERATIONALLY VALID DATA



FEI FINAL RESULT PHASE II

LTMS Severity Analysis



Recent Calibration Attempts

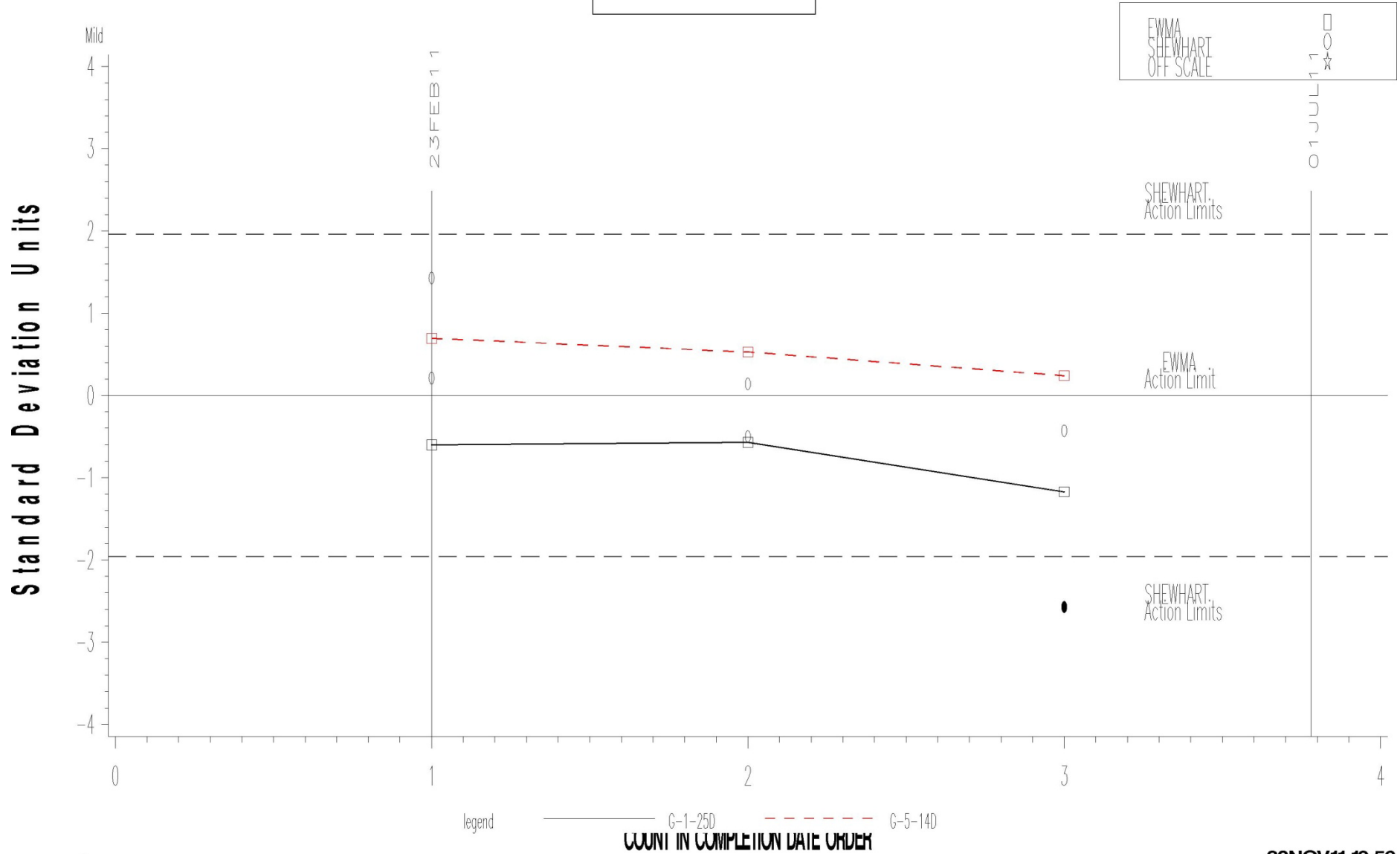
- The next (and last) chart shows FEI2 results from two stand/engine combinations in a lab. Both calibration sequences were run within two weeks of each other. One stand was calibrated successfully, while the other did not provide acceptable results on 1010 for FEI2

SEQUENCE VID APPARATUS OPERATIONALLY VALID DATA



FEI FINAL RESULT PHASE II

LTMS Severity Analysis



EWMA
SHEWHART
OFF SCALE