

# Daimler Surveillance Panel Meeting Minutes

June 18, 2020

9:00 AM – 11:00 AM CST

## Call Participants:

Lubrizol - Patrick Joyce (Chairman), Andrew Stevens, George Szappanos  
Southwest Research Institute – Jose Starling (Secretary), Travis Kostan, Robert Warden  
Intertek –Josh Ward  
Daimler - Suzanne Neal, Daniel Kozub, Mesfin Belay  
Afton – Bob Campbell, Christian Porter  
Infineum - David Brass, Elisa Santos, Jim Gutzwiller  
Chevron Oronite – Mark Cooper, David Lee  
TEI – Derek Grosch, Mark Sutherland  
TMC – Sean Moyer  
Haltermann Solutions – Prasad Tumati  
ExxonMobil – Riccardo Conti

## Agenda Items

### **June ASTM Meeting Update – Patrick Joyce (Lubrizol)**

No ASTM meeting this summer due to the current pandemic. This meeting is somewhat the information that would have been discussed during the ASTM meeting if one were held.

### **Reference Control Chart Review – Patrick Joyce (Lubrizol)**

The reference control chart for the DD13 Scuffing test were presented to the panel. There were some excursions in the near past that moved the test into the action limit but seems to be trending where it should be at the moment. Additional control charts for other tests were presented in comparison however the DD13 is on target at this time. Control chart data presented can be found in the attached presentation.

### **Batched and General Parts Update – Derek Grosch (TEI)**

TEI outlined the batched hardware that is starting to run low and showed expected time remaining before they run out (see attached DD13 Parts Update slides). Based on previous year kits sales we have approximately 7 months remaining of piston and oil rings. However, kit sales at TEI have slowed down significantly in 2020. At the current kit sales they can see this same hardware lasting for at least a year or two. Thus the actual time we have left with current batch hardware is somewhere in the middle of both columns but TEI will monitor levels and order hardware with sufficient time to insure no lapse in test availability.

There is a 16 week lead time to get hardware from time of order and it takes TEI about a week to get a good representative sample of parts measured for comparison. Would take a bit longer to verify parts are consistent with other batches. So total of about 20 weeks to get hardware in but also need to account for getting hardware to labs and getting reference tests done plus reference test data review.

David Brass mentioned that if things pick up again we may be in a pinch and need to get this hardware in a hurry. It was mentioned that perhaps it would be better to get the hardware ordered now just in case. TEI wants to make sure that they don't just sit on the hardware. It was decided that TEI is to monitor the

hardware status and if there is an increase in sales where we may run out sooner rather than later then Derek will let the panel know and kick off the order earlier or bring up to the panel.

It was asked what the group was thinking in regards to how to reference the hardware. Since there are still a few more top rings available the piston/oil ring could be referenced first and then the top ring. It was mentioned that if we did want to align that TEI wouldn't lose out on too many top rings since they save about 10 to 12 sets from each batch anyway. Due to the current pandemic it was mentioned that more time than typical time may be necessary to order parts, test it and have it approved. So need to keep that in mind. Panel to continue discussion once it gets closer to that time to see how it is best to proceed. Order would be to help align hardware running low with other batch of hardware (liners and second rings). Thus about 2500 to 3000 top rings would be ordered. Mark mentioned that they had 10 to 12 sets of the original batch of top rings just to remind the panel.

#### **Continuous Improvement Discussion – Patrick Joyce (Lubrizol)/Suzanne Neal (Daimler)**

Patrick presented a few slides (attached) for continuous improvement discussion. Items included where rater precision and if any additional rater training for the test is necessary. It was also asked if the panel wanted to include DD13 scuffing test hardware in the next rater's workshop. Finally it was asked if there are any additional measurements that aren't being taken that should be or vice versa that we are taking but aren't needed.

Rater precision is something that has been discussed in the past. It was mentioned that perhaps we could do a round robin on various levels of scuffed and not scuffed liners/rings to have the data back and see if there is any additional training or items that don't make sense and need to be removed.

It was asked what the status of the next rating workshop is. Sean mentioned that there is a plan to have one in the fall, but it is more of a makeup session for the one that didn't occur in the spring. Due to this Sean mentioned that it would likely not be suitable to have it done during the upcoming fall Rater session since it is already pressed for time. Patrick asked if the hardware could just be shipped between labs instead of hosting it at the rater workshop. Sean mentioned that it is an option that can be done and he can gather the data from each lab after hardware has been rated.

Bob C. mentioned that the best path forward was likely just going straight thru the labs/test engineers and having them coordinate with their raters to have the ratings conducted. It was in agreement that this is probably the best path forward. It was asked what this quantity should be and it was mentioned that perhaps we should align with the previous ratings we had conducted during the test development. This may have been 2 to 3 sets worth of liners. **Action Item: Patrick Joyce to figure out how many liners were used last time during the DD13 rating workshop during test development.**

Patrick asked if there any hardware that needs to be removed or anything additional that needs to be measured on the hardware that we are currently not doing? No major suggestions by the panel folks. Jose mentioned that the only major item was agreement within the panel if oil ring scuffing ratings where actually necessary since data seems quite variable. It was agreed that after the rating round robin data was available the need to keep or discard this item could be discussed. **Suzanne mentioned that she will take the action item to involve and discuss with Michael Teal if there are any additional hardware measurements that we should be taking.**

#### **Alterative Supplier Request – Prasad Tumati (Haltermann)**

Prasad presented his presentation which he mentioned is along the same lines as what has been presented to the other panels (see attached). Prasad mentioned that he has been coming to the panel meetings and not much action has taken place and would like the panel to take action on this request. Prasad presented a proposal to conduct DD13 testing in order to view acceptability of the new fuel. The proposal was as follows: Conduct two tests with reference oil and the candidate fuel to verify the test data falls within the acceptable ranges established by the panel.

Prasad also mentioned that other lube tests worldwide do not consider fuel to be a major factor as long as fuel meets the requirements. Prasad mentions that he would like some acceptable test ranges to be developed of the group. Robert Warden mentioned it would at least be worth considering the alternative fuel as all the other panels have done so far.

Mark mentioned the current process includes having acceptable limits setup by the panel members. Suzanne mentioned that if Prasad could share the fuel analysis with Daimler along with a few other items as requested by Daniel Kozub. Prasad stated there would be no issue in sharing any information on the fuel if the panel accepts his request for consideration.

Suzanne mentioned that the consensus seems to be that the panel supports this proposal and that Daimlers stance is that they don't believe that the fuel will cause any negative effects on this test but have been surprised in the past. Suzanne mentions that the panel would likely support the pursuit of an alternative fuel supplier for this test if certain steps were met. This included Haltermann solutions being able to provide chemical analysis as requested by Daimler and panel members for their PC-10 fuel to conduct comparative analysis. The panel members would then establish acceptability limits that would be used to accept the fuel under reference oil engine testing.

**Motion: Mark Cooper made the motion that the Surveillance Panel pursue the development of acceptance criteria for an alternate fuel supplier for PC-10 fuel for tests overseen by Daimler Surveillance Panel. Prasad seconded the motion.** The motion passed unanimously.

It was mentioned by Daniel Kozub that any variation in hydrocarbon content could affect soot formation and potentially impact test variability. It was also mentioned that soot formation on this test is typically on the low end of about 1% for a longer running test so may not have much of an impact. Patrick stated that as many know, in the past fuel differences have made an impact on the test and caused severity shifts. It was mentioned that working this alternative fuel item in the larger panel makes sense to insure that everyone is on board with the decisions made.

Jose mentioned that he can work with Travis on drafting up an initial document with acceptability considerations to bring in the new fuel as a starting point for the panel to discuss. Everyone agreed it would be good to have this document as a first start. It was mentioned that what came up in a recent panel meeting was to include data from another lab other than southwest to show comparison. SwRI to reach out to other lab during this development to see if they can share data. It will take a couple of weeks to develop this outline.

**Action Item: Jose to work with Travis on developing an acceptance document as an initial starting point for the DD13 Test.**

**New Business – Patrick Joyce**

Patrick Joyce is stepping down as Surveillance Panel Chairman and is promoting Andrew Stevens as the new chair. Andrew is currently the Surveillance Panel Chairman for the Sequence VI testing. Patrick has done a great job as chairman and will be greatly missed.

**Next Meeting:**

Andrew is to send out a possible meeting time list for the group to vote on. Next expected call is 2 to 3 weeks out.

# DAIMLER

Daimler Surveillance Panel Meeting  
Thursday June 18<sup>th</sup>, 2020

## Daimler Trucks



# Agenda

1. **June ASTM Meeting Update – Patrick Joyce (Lubrizol)**
2. Reference Control Chart Review – Patrick Joyce (Lubrizol)
3. Batched and General Parts Update – Derek Grosch (TEI)
4. Continues Improvement Discussion – Patrick Joyce (Lubrizol) / Suzanne Neal (Daimler)
5. Alternative Supplier Request – Prasad Tumati (Haltermann)
6. Next Meeting

# June ASTM Meeting Update

- Face-to-face ASTM meetings for June 2020 in Washington D.C. have been cancelled
  - Some panels have elected to hold virtual Webex meetings in-place of face-to-face meetings
- Currently, Daimler Surveillance Panel does not plan to meet during June ASTM week

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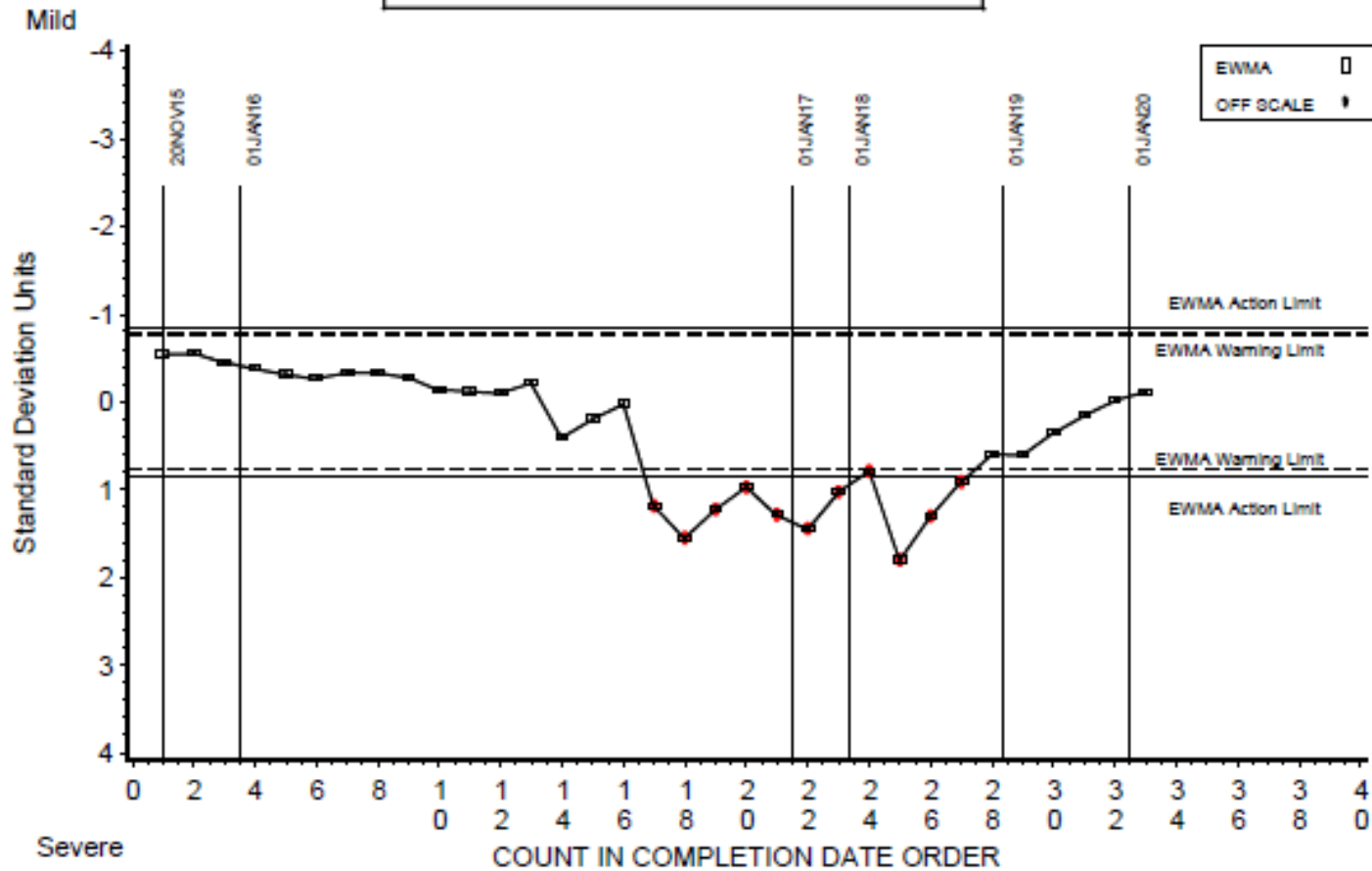
# Reference Control Chart Review

DAIMLER D13 INDUSTRY OPERATIONALLY VALID DATA

FNL. ORIG. UNIT HOURS TO SCUFF



LTMS Severity Analysis



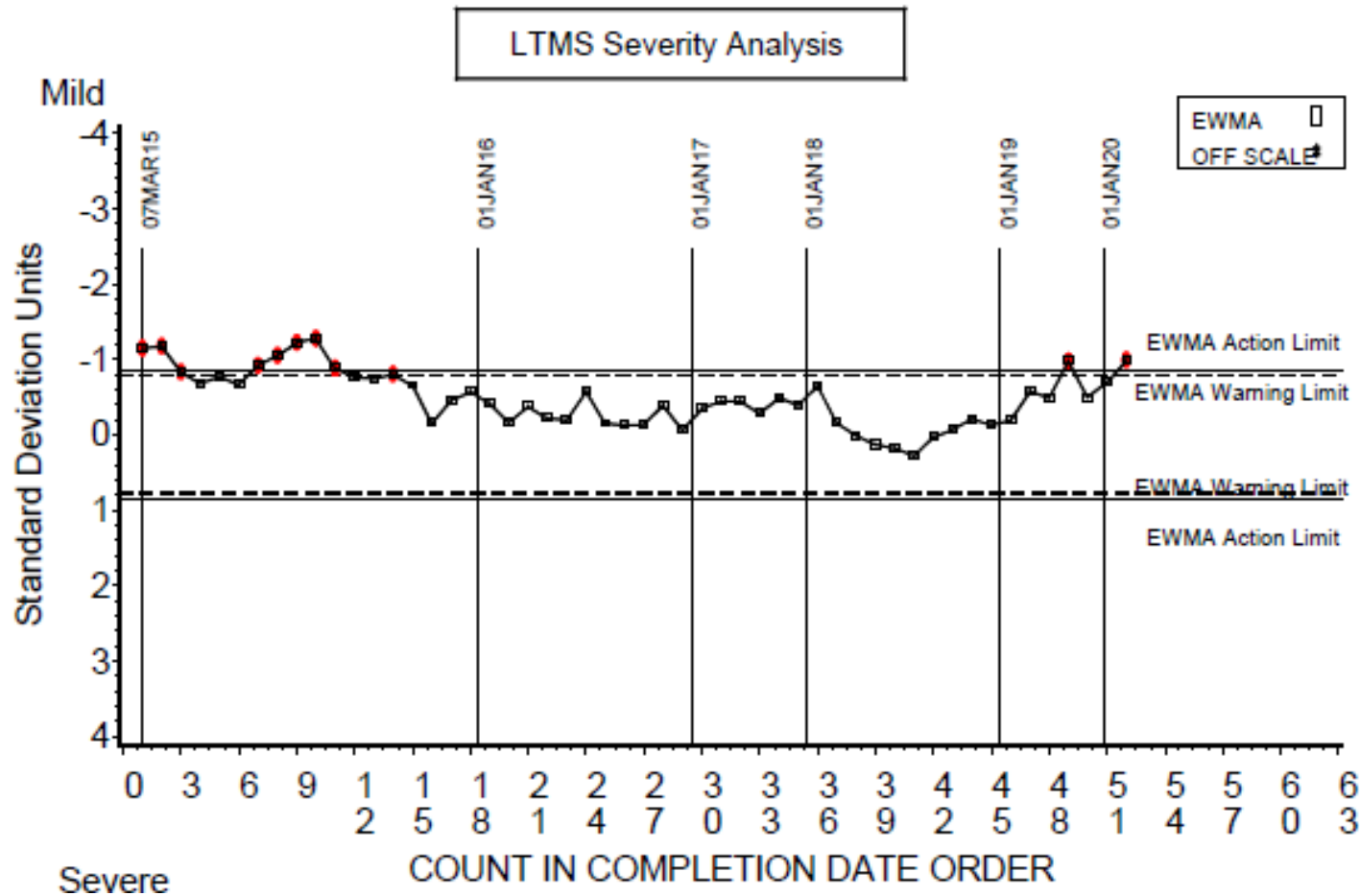
Source: TMC Website. 09APR20 Update

# Comparison Test Reference Control Charts

VOLVO T-13 INDUSTRY OPERATIONALLY VALID DATA



FINAL ORIGINAL PEAK HEIGHT IR AT EOT

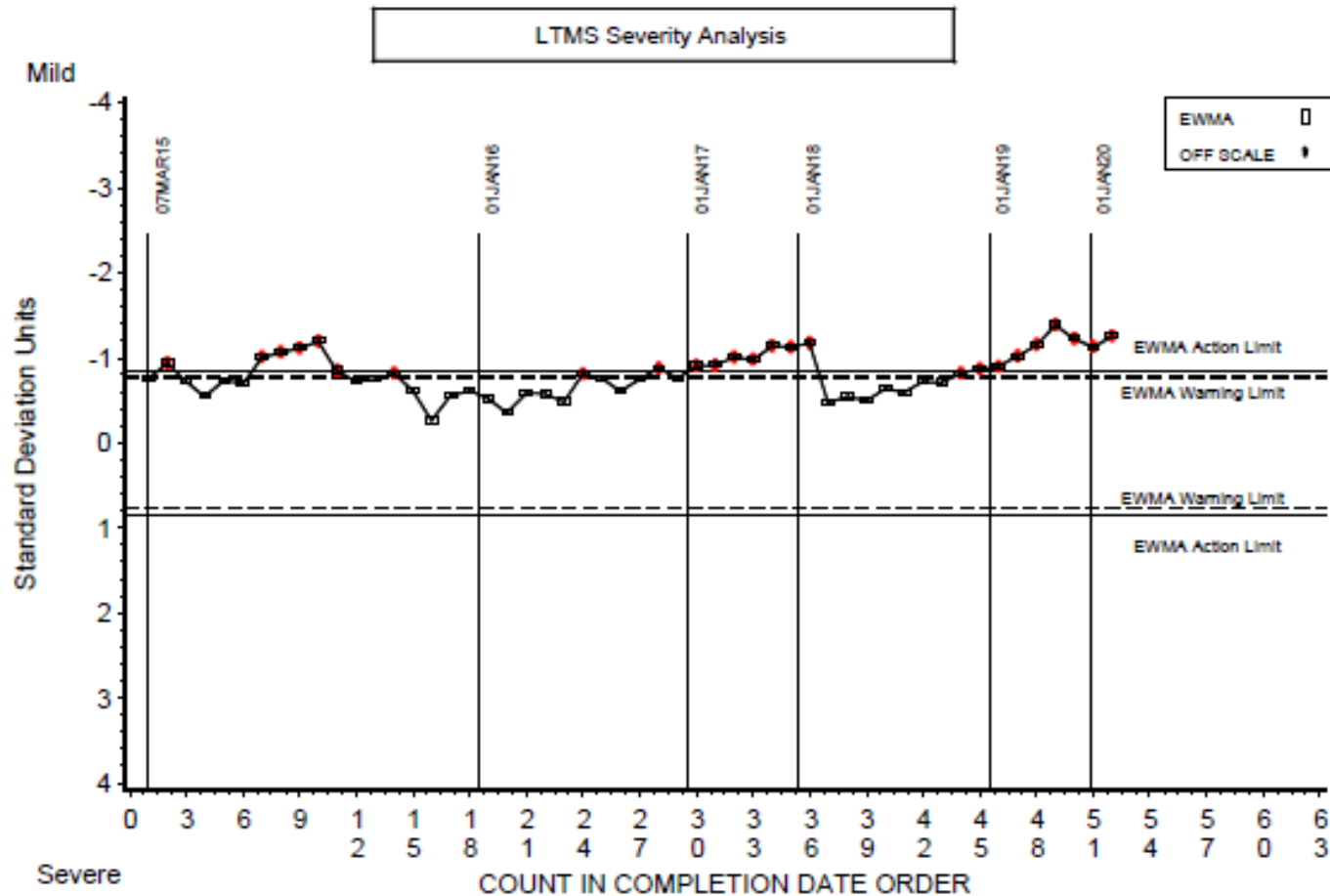


Source: TMC Website. 10JUN20 Update

# Comparison Test Reference Control Charts

VOLVO T-13 INDUSTRY OPERATIONALLY VALID DATA

FNL. ORIG. UNIT KINEMATIC VISCOSITY AT 40 DEG C % CHANGE 300-360 I

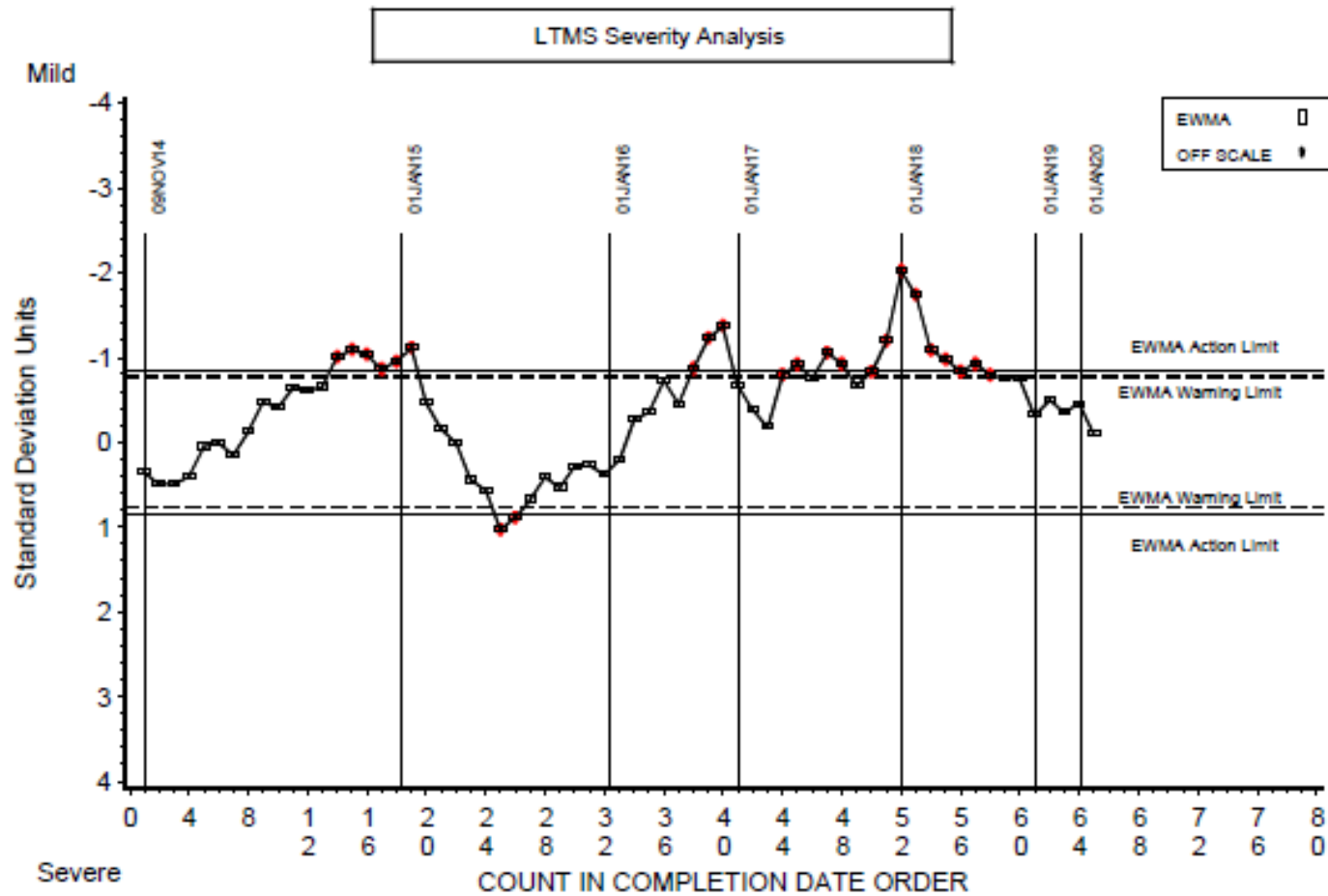


Source: TMC Website. 10JUN20 Update

# Comparison Test Reference Control Charts

CATERPILLAR OIL AERATION TEST INDUSTRY OPERATIONALLY VALID DATA

FINAL AVERAGE OIL AERATION OVER TEST HOURS 40-50



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# DD13 Parts Update

- Parts quantities for most limiting batched parts shown on right
- 2020 has had lower than historic consumption rates
- Quote received from supplier
  - 16 week lead time for all parts

Data from May 2020				
Part	Quantity	Kits Worth	Months Remaining (2020)	Months Remaining (Past 12 Months)
Top Ring	482	80	53.6	12.4
Piston	290	48	32.2	7.4
Oil Ring	282	47	31.3	7.2

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# Continuous Improvement Discussion

- Rater Precision
  - Recommend that the Panel direct the Rating Taskforce to collect data to survey Rater precision by conducting round robin ratings on:
    - 12 x Liners
    - 12 x Top Rings
    - 12 x Second Rings
    - 12 x Oil Rings
- Parts Measurement Refresh
  - Are all measurements still necessary?
  - Are different measurement techniques needed?



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# Alternative Supplier Request

- Review Request from Hagerman Solutions – Separate Attached presentation.

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# Next Meeting

- Determine date/time for Next Meeting.



**Test proposal for DD13  
Surveillance panel with PC10  
from an Alternate Fuel Supplier**

# Daimler Panel – DD13 Scuffing test

- Haltermann Solutions Diesel fuel that meets the current PC-10 C of A will be used in this test to show that there is no significant difference to the outcome of a scuffing test relative to the current dataset

## Test Proposal

1. Provide Chemical analysis of the fuel to show that our fuel not only meets the specifications but is chemically identical in terms of speciated components that affect major test variables.
2. Conduct two tests with reference oil and Candidate fuel and verify whether the test data falls within the current range of the current test database.
3. Submit the data to the panel for approval of the candidate fuel.

Test duration: Up to 200 hours

Oil qty: 25 gallons/test

Fuel qty: Up to 4500 gallons of PC-10

Measurements: Hours to Scuff (25 ppm of iron delta), EOT at 2kpa Crankcase pressure

# Diesel Combustion background

- Diesel fuel combustion is characterized by diffusion flames in an oxygen rich environment where chemical kinetics play significantly lesser role. Most diesel engine lube tests worldwide do not consider fuel to be a major factor as long as fuel meets the specs. We do not think Scuffing test is any different.
- Since the industry has developed a large database over the years with only one fuel source, we are willing to verify the data with limited testing that shows the data we develop is within the range of the existing dataset.