

Caterpillar Surveillance Panel

Conference Call 10/2/2014 9:30AM CST

Attendance:

Jim Gutzwiller
Martin Thompson
Bob Salgueiro
Bill Larch
Andrew Stevens
Kevin O'Mally
Elisa Santos
Bob Campbell
Hind Abi-Akar
Mark Jarrett
Jim Moritz
Beth Sebright
Mark Cooper
Sean Moyer
Pat Fetterman
Mike Alessi
Jim McCord
Laura Birnbaumer

Agenda Items:

Discussion on the 1N correction factor analysis.

1P Engineering review for QI

Old Business

Discussion Items:

1N Connection Factor

Elisa Santos Presentation on Data Analysis and potential outcomes

Document ** Oct 21st 1N Evaluating the impact**



Oct 21st 1N
Evaluating the impact

Top Groove Fill

There are concerns that the recommended correction factors are approximately ½ the pass fail limit.

The data shows that the correction is appropriate for all new liners and is reflected in multiple reference oils. These oils are not representative of modern formulations.

There was a short discussion on the possibility of adding a reference oil that represents current technologies.

It was clarified that the original targets for 811-2 were established from the performance of 811-1 on OLD liners and not the 1Y3998.

The addition of a straight correction factor prevents any oil from performing a perfect pass on TGF. Adding a correction factor of 15 makes a piston with zero deposits a 15.

The final decision on the correction factor options will be made at a later date allowing everyone to review the impact on candidate testing.

Top Land Heavy Carbon

Mildly impacted could be reviewed in the future and adjusted. Removing the current correction factor may be the best option.

Oil Consumption and Total Demerits

Not largely impacted and may not need a correction factor.

1P Engineering Judgment for negative QI

This has been reviewed and recommended by the TMC and is similar to what is allowed on several other test types.

Document ** Oct 21st 1N Evaluating the impact**



1P Engineering
Review Revision.docx

Motion by Jim Moritz Seconded by Sean Moyer

To accept the proposed changes in the document 1P Engineering Review Revision to effect all test starting 10/22/2014.

0 waves 0 opposed – Motion carries

Follow up comments sent to the SP on 10-22-2014 by Elisa Santos

Dear Surveillance Panel members,

I did some follow up work based on Bob Campbell's comments about focusing on 811 data.
I also combined 811-1 and 811-2 – Kevin's comment.

Options 4A, 4B and 5B were added to the previous scenarios (Table 1).
Details about the new options are also summarized in this email – see tables2 and 3.

Note that the added options below have smaller corrections than 1A, 1B, 2A and 2B.
Other options were considered but eliminated, since the SP has demonstrated concern with high CFs.
We can discuss more about this on Friday. Best Regards, Elisa

About previous scenarios:

1A & 1B: CF= 15 (std for y_i = new liner std by oil; std for SA= 14.6 or pooled std for new liner)
2A and 2B: LN (TGF rated); CF 0.5814693; (std for y_i = new liner std by oil; std for SA= model RMSE or pooled std for new liner)

Table 1

Lab	N new liner	TGF								
		Current state		Scenario 1A		Scenario 1B	Scenario 2A		Scenario 2B	
		Actual		Actual		Actual	Actual		Actual	
		Pass/Fail	Pass/Fail	Pass/Fail	Pass/Fail	Pass/Fail	Pass/Fail	Pass/Fail		
		Fail Cal	limit	Fail Cal	limit	limit	Fail Cal	limit	Fail Cal	limit
A	22	0	20	3	20	16	2	18	3	18
B1	22	0	7.4	2	5	5	2	11	4	11
D	8	0	20	0	5	5	0	11	0	11
G	14	0	9.4	0	5	5	0	11	0	11

About new scenarios:

- Scenario 4A and 4B: All data combining 811-1 and 811-2; LN (TGF rated); CF= 0.496015 (std for y_i = new liner std by oil; std for SA= pooled std for new liner)

Table 2

n=116	LN TGFrated			options 4A and 4B	
Level	LSMean	Std Error	Mean		
1Y355	3.195117	0.12016	3.19651		
1Y3998	2.699102	0.158134	2.64479		
diff	0.496015		0.55172		
oil is IND2	combining 811-1 and 811-2				
Summary of Fit					
RSquare	0.316374				
RSquare Adj	0.236728				std pooled
Root Mean SE	0.599782	4A		4B	0.524359
Mean LN TGFrated	2.925407				
Observations	116				

- Scenario 5B: 811 data ONLY; LN (TGF rated); CF = 0.438191 (std for yi= new liner std by oil; std for SA= pooled std for new liner)

Table 3

Scenario 5B					
Model with liner only: equivalent to taking the mean by liner					
Level	LSMean	Std Error			
1Y355	3.01828	0.112267			
1Y3998	2.580089	0.120915			
diff	0.438191				
std pooled	0.524359				

Elisa Santos, Ph.D.

Statistician US Group Leader

Marketing & Technology

Infineum USA L.P.

Elisa.Santos@Infineum.com

Tel: 908 474 3335