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Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

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ASTM Gear Rating Workshop Wickliffe, OH July 22-24, 2014

The summer Gear Rating Workshop took place at Lubrizol, in Wickliffe, Ohio, on July 22-24, 2014.

Attendees were:

Brian Foecking
 Chris Lonsway
 William Potocar
 Art Sanchez
 Brian Kozak
 Tony Barrera
 Don Lind
 Scott Parke

Light meter readings were done every morning before any ratings were done. On the last day we only needed four (4) of the lights. Those were the only ones we took readings on.

Light #	7/22/14	7/23/14	7/24/14
1	265	254	
2	276	206	
3	280	237	255
4	290	258	
5	265	213	216
6	243	212	
7	250	243	
8	279	247	
9	252	230	225
10	250	248	249

Chris Lonsway and Brian Foecking started off the event on Tuesday morning, with a brief explanation of our safety and evacuation policies and procedures.

Tony Barrera brought up a discussion regarding the wording in the L-37 info letter 13-3, specifically paragraph 12.3.4. It states that we are to report the fourth lowest tooth. Scott Parke wanted to clarify that we are reporting the fourth lowest tooth, with regards to it being the fourth most severe as far as ratings go, of all of the teeth. We all agreed that we are.

Lubrizol wanted us to create a definition for "cracked tooth". We came up with "a linear fracture of the tooth surface". We all agreed on this definition. Scott is going to take it to the Surveillance Panel. This definition should be added to manual 21.

We discussed that the new L-33-2 axle cover template. With the design of the axle cover, it could be installed upside down on the axle (rotated 180 degrees), because the bolt holes would still line up. Therefore, our templates could also be installed upside down. It was decided that the part of the axle cover that has the three (3) tabs (by the bolt holes), is the top. This information also needs to be sent to the technicians that assemble the axles.

Then we discussed what the "rated area" is for an L-60. The procedure states that we are to exclude the gear teeth and the spacer bushing contact area. There is technically only a spacer bushing on the rear face of the gear, since the excluded area on the front of the gear is called the "washer nut" area. Another problem, is that each lab uses a slightly different size washer nut. For now, we all agreed that we would only use the template to determine percentages of surface area on the gears and not to determine the rated area. Scott is going to bring this up to the Surveillance Panel and see if they want to come up with a specification for the washer nut size. We also decided that we would rate sludge before we put the gears on the rating stand, so that none of the sludge would get disturbed.

After the meeting, we began calibration exercises, and then reviewed calibration data after lunch.

Then we had a discussion regarding L-33 rust. Trace rust is defined as "not more than 6 spots of 1mm in diameter or less". Chris asked a hypothetical question that if you had a spot of rust that was ¼ mm wide and 2mm long, would it be trace or trace/light rust because it is longer than 1mm, but the total surface area is only .5mm. It was decided that the 1mm in diameter is if you "lumped" all of the rust together. Therefore, the hypothetical question would be that the spot is trace rust. Everyone at the workshop agreed on this.

We swapped out the calibration parts for the practical application, then started the "practical application" ratings which took us to the end of the day on Tuesday and continued until shortly after lunch on Wednesday. Data and parts review took place after lunch on Wednesday.

We then rated the "new" L-42 gears that are being considered for the RCMS until the end of the day on Wednesday, and into Thursday morning.

Thursday morning we finished up the "new" L-42's and rated 5 Gleason gears that Chris Prengaman requested ratings and discussion on. We reviewed data for the new L-42's and the Gleason gears.

We discussed the wear patterns and the wear definitions for the new Gleason gears run in the L-37 test. We decided to stay with the current wear definitions, with the exception of, substituting the words "peening marks" for "tooling marks". We are referring to "peening marks" as the matt finish that is on a new gear after the final step in manufacturing process.

We discussed the different wear patterns that we are seeing on the Gleason gears as compared to the original L-37 gears. We are going to use the "contact area" as the normal wear area, not the area that we were used to seeing in the old L-37's. For example, if there are absence of peening marks in the contact area at the heel and the toe without a wear step, that would be rated a seven (7).

There was a brief discussion about having only 1 workshop a year. Scott stated that the labs would have an issue with all of the raters being out of the labs (basically shutting down any time sensitive tests) at the same time. Art agreed with

Scott that the engineers don't want all the raters out of the labs at the same time. Brian's point was that we do that for the heavy and light duty workshops.

The next two (2) workshops will be held on the following dates:

January 20-22, 2015 - Southwest Research Institute.

July 21-23, 2015 - Afton.

Art and Tony thanked Lubrizol for everything that we had done. They said that they always feel welcome when they come here. Everyone else agreed.

The meeting minutes were taken by Chris Lonsway, Lubrizol.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Arthur Sanchez", written over a horizontal line.

Arthur Sanchez,
ASTM Gear Rating Task Force Chairman

ASTM Gear Rating Calibration Workshop
Attendance Roster
Cleveland, OH July 22, 2014

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ASTM Gear Rating Calibration Workshop
Attendance Roster
Cleveland, OH July 23, 2014

[illegible]

ASTM Gear Rating Calibration Workshop
Attendance Roster
Cleveland, OH July 24, 2014

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ASTM GEAR RATING TASKFORCE PANEL MEMBERSHIP

<u>MEMBERS</u>	<u>COMPANY</u>
Aguirre, Nancy.....	Intertek
Adams, Pat	Afton
Barrera, Tony.....	Intertek
Foecking, Brian.....	Lubrizol
Lopez, Frank.....	SwRI
Lonsway, Chris.....	Lubrizol
Rodriguez, Jesse.....	SwRI
Rose, Marty.....	Afton
Sanchez, Art, Ldr.	SwRI
Stocks, Wes.....	Afton
Trevino, Bobby.....	Intertek

<u>MAILING DISTRIBUTION</u>	<u>COMPANY</u>
Bonewald, John.....	SwRI
Gottwald, Thomas.....	Afton
Gropp, Jerry	Lubrizol
Huron, John.....	Oronite
Koehler, Brian.....	SwRI
Kozak, Brian.....	Afton
Lind, Don	TMC
McGlone, Bruce.....	Meritor
Parke, Scott.....	TMC
Potokar, Bill.....	Lubrizol
Schenkenberger, Chris.....	Lubrizol
Smith, Dale.....	Intertek PARC
Zakarian, Jack	Chevron