

**Report of Meeting**  
**L-37-1 Surveillance Panel Conference Call**  
**August 8th, 2024**

**Attendees:**

SwRI -	<b>Mueller, Thomas</b>
Lubrizol -	<b>Schaup</b> , Ariemma, Gingerich
Afton -	<b>Sangpeal</b> , Bell, Campbell
Intertek -	<b>Lange</b> ,
TMC -	<b>Beck</b> , Clark
BASF -	<b>Goyal</b> , Margret, Mosher
Dana -	<b>Zyski</b>
Cummins-Meritor -	<b>Carowick</b> , Catania
Army -	Sattler, <b>Comfort</b>
AAM -	<b>Muransky</b>
Navistar -	Morris
Fuchs -	Bender, Brugman
Oronite-	<b>Warden</b> , Jackson
Shell-	Jordan, Schweitzer, Uy
Exxon-	<b>Banas</b>
Tribodens-	Mohammad-Pour

Voting Members in **BOLD**

**1.0 Membership Review**

No change

**2.0 Meeting minutes Approval**

– August 7th, 2024, ASTM Meeting #213

**Motion #1** → **Zyski 1<sup>st</sup> / 2<sup>nd</sup> Carowick** approve the meeting minutes from the November 8th, 2023, ASTM Meeting. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

**3.0 Rater Variability**

Action Items:

- The Panel authorized the rating task force to propose a plan to reduce rater variability
- The Panel agreed to an extra day before the November LRI to attend a “Rating 101” activity
- Caroline Mueller volunteered to create a flowchart that lists rating inputs and decisions for the panel to refer to, this was scheduled to be completed by Feb 2025.

**4.0 Old Business**

- Stats group requested to review data on 155-2
- Stats group requested to review data on 2023 coated hardware

**5.0 New Business**

**6.0 Adjourn**

**Motion #3** → **Mueller 1<sup>st</sup> / 2<sup>nd</sup> Schaup** to adjourn. Motion passed unanimously, 10-0-1 (Yes-No-Abstain).

Respectfully submitted,

Nick Schaup  
L-37-1 Surveillance Panel Chairman



D02.B0.03

# L-37-1 Surveillance Panel Meeting

8/7/2024

Nick Schaup

- Call to Order/Agenda review
- Meeting Minute Approvals
  - May 8<sup>th</sup>, 2024, Panel Meeting Minutes
- Membership review
- Rater variability update
- Old Business
  - ?
- New business
- Adjournment

# Meeting Minutes Approval

- May 8th<sup>th</sup> , 2024 Panel Meeting Minutes

# Membership Review

Rob Banas	ExxonMobil
Allen Comfort	US Army
Troy Muransky	AAM
Matt Sangpeal	Afton
Arjun Goyal	BASF
Amy Zyski	Dana
Dylan Beck	TMC
Jessica Carowick	Cummins
Anthony Lange	Intertek
Nick Schaup	Lubrizol
Caroline Mueller	SwRI
Rebecca Warden	Oronite

**Total Voting Members = 12**



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# ***Test Monitoring Center***

<http://astmtmc.cmu.edu>

## **RCMS Rater Discussion**

June 4, 2024

# Recent Rating Activity Summary

- In the first quarter of 2024 there was a round robin activity where gear raters rated parts two different ways.
  - Once as they typically would with whole numbers for RIDG, RIPP, and WEAR
  - Then also rating to one decimal point for RIPP and RIDG
- The idea is to see if there was a tighter range of ratings when using this decimal approach.
- This activity concluded after the last May panel meeting

# Recent Rating Activity Summary

- Feedback from raters on this activity:
- Most raters said that rating to a tenth digit get difficult, and this would be better if rated to every half or quarter number
- A few raters said they were not able to visualize rating to a decimal point at all and only see whole number ratings.



# Decimal Rating Activity Summary

SET #	DISTRESS	Decimal Ratings				Whole Number Ratings			
		Average	Std Dev	Min	Max	Average	Std Dev	Min	Max
1	Ridging	6.27	0.473	5.5	7	6.2	0.60	5	7
1	Rippling	5.84	1.336	4.3	9.5	5.6	1.21	5	9
2	Ridging	5.91	0.425	5.2	6.5	5.9	0.30	5	6
2	Rippling	7.26	0.851	6	9	7.4	0.81	6	9
3	Ridging	7.85	0.723	6.7	9.5	7.8	0.60	7	9
3	Rippling	7.17	0.663	6.5	8.8	7.0	0.77	6	9
4	Ridging	9.05	0.403	8.4	9.7	8.9	0.30	8	9
4	Rippling	9.41	0.266	9	9.9	9.0	0.00	9	9

# Decimal Rating Activity Summary

SET #	DISTRESS	Decimal Ratings				Whole Number Ratings			
		Average	Std Dev	Min	Max	Average	Std Dev	Min	Max
5	Ridging	8.75	0.587	8	9.8	8.4	0.67	7	9
5	Rippling	9.37	0.344	9	9.8	9.0	0.00	9	9
6	Ridging	8.41	0.509	7.5	9	8.4	0.50	8	9
6	Rippling	6.45	0.596	5.7	7.4	6.4	0.50	6	7
7	Ridging	8.68	0.576	7.8	9.4	8.5	0.52	8	9
7	Rippling	9.48	0.282	9	10	9.2	0.40	9	10
8	Ridging	8.77	0.374	8.2	9.4	8.6	0.50	8	9
8	Rippling	9.30	0.286	8.8	9.6	9.0	0.00	9	9

# Decimal Rating Activity Summary

- For most of the round robin parts, the mean and standard deviation stayed essentially the same
- The range tended to increase when decimal ratings were used

# Follow-Up From May Meeting

- At the May panel meeting there was a proposal to approve new RCMS parts with targets
  - These targets were generated by bringing the parts to gear rating workshop, having established raters rate the parts, and waiting until the N size reached 30+ before bringing the targets to the panel for a vote.
  - Once the target data was presented to the panel, there was concerns about the range of results.
  - The panel decided to not approve the RCMS targets, and instead focus on an alternative way of generating targets for RCMS parts.
    - Instead of using a mean and stdev. the panel is seeking a single correct rating result to use as the target.

# L371 RCMS Target Generation Activity

Proposal from Martin Chadwick from Data Analytics Group

If the panel agrees and we decide to go this route, in practice it could look something like this:

1. Have the most experienced rater from each lab come to a dedicated meeting to discuss the gears.
2. The 4 raters discuss and come to a consensus on what the rating is for each gear and document why.
  - a. This will set the target for this particular part.
3. Set the range for each part to be  $\pm 1$  of what the target was set to be.
4. Allow the rater to rate  $\pm 1$  on 25% of the parts, and require that 75% of the ratings hit the target.
  - a. These numbers will need to be discussed and fine tuned based on what rater variability is which the TMC should have enough data to calculate.

Test Monitoring Center

<http://astmtmc.cmu.edu>



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# L371 RCMS Target Generation Activity

- At the July 2024 Gear Rating Workshop an extra day was added to allow time for this L-37-1 rating activity and to see the feasibility of raters coming to a consensus
- 9 established raters participated
- 32 pinions were initially rated (many raters rated these parts during the Tuesday and Wednesday sessions)
- 10 parts were deeply reviewed. Raters were given the opportunity to discuss, look at the part together, explain their thinking, methodology, and justification, and then determine if they would change their initial ratings.

# L371 RCMS Target Generation Activity

Initial Rating Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
73	Ridging	10	9	9	10	9	9	9	9	10
73	Rippling	10	9	8	9	9	8	8	8	8
73	Wear	8	8	7	8	8	7	8	9	8
73	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

Post Discussion Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
73	Ridging	10	9	9	10	9	9	9	9	10
73	Rippling	9	9	8	9	9	8	8	8	8
73	Wear	8	8	8	8	8	8	8	9	8
73	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

RIPP: most raters were split between ratings this an 8 or a 9

# L371 RCMS Target Generation Activity

Initial Rating Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
74	Ridging	9	9	9	9	9	9	9	9	9
74	Rippling	10	9	9	9	9	10	9	9	9
74	Wear	8	8	8	9	7	8	8	9	8
74	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	10.0	9.9	10.0

Photo candidate for a 9 rating for RIDG

Post Discussion Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
74	Ridging	9	9	9	9	9	9	9	9	9
74	Rippling	10	9	9	9	9	10	9	9	10
74	Wear	8	8	8	9	8	8	8	9	8
74	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	10.0	9.9	10.0



# L371 RCMS Target Generation Activity

Initial Rating Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
76	Ridging	4	5	6	6	6	6	6	6	6
76	Rippling	7	7	7	7	6	7	7	7	7
76	Wear	7	7	7	6	6	7	7	7	7
76	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9

During this day of exercise the Rippling ratings were a majority a 7. From looking at the history of this parts from other exercises, it has been a majority 6 before.

Post Discussion Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
76	Ridging	6	5	5	6	6	6	6	6	6
76	Rippling	7	7	7	7	7	7	7	7	7
76	Wear	6	6	6	6	6	6	7	6	6
76	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9

Wear changed from a majority 7, to a unanimous 6. After looking at the part again many raters missed a wear step that dropped their ratings.

# L371 RCMS Target Generation Activity

Initial Rating Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
80	Ridging	7	6	8	7	7	7	7	7	7
80	Rippling	6	7	7	6	7	6	7	7	7
80	Wear	7	7	7	7	7	7	7	7	7
80	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.7	9.9

The majority of raters went from a 7 to a 6 because there was a spot that was initially missed for them. RIPP is in the toe of the root.

There was discussion of keeping an answer key if this is made into an RCMS gear with an explanation of where the 6 area is.

Post Discussion Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
80	Ridging	7	7	7	7	7	7	7	7	7
80	Rippling	6	7	6	6	6	6	7	6	6
80	Wear	7	7	7	7	7	7	7	7	7
80	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9

# L371 RCMS Target Generation Activity

Initial Rating Data:

		Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
SET #	DISTRESS	36	37	42	43	47	48	51	52	53
85	Ridging	7	8	8	8	8	8	8	7	8
85	Rippling	6	6	6	6	6	7	6	6	6
85	Wear	7	7	7	7	7	7	7	7	7
85	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

RIDG: some raters could go either way between a 7 and an 8. After looking at the part again the room was split between 7 and 8.

Photo candidate for a 6 on RIPP and 7 on wear.

Post Discussion Data:

		Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
SET #	DISTRESS	36	37	42	43	47	48	51	52	53
85	Ridging	7	8	8	8	8	8	8	7	7
85	Rippling	6	6	6	6	6	6	6	6	6
85	Wear	7	7	7	7	7	7	7	7	7
85	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

# L371 RCMS Target Generation Activity

Initial Rating Data:

			Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
5											
6	SET #	DISTRESS	36	37	42	43	47	48	51	52	53
133											
134	86	Ridging	7	8	9	9	9	9	9	9	8
135	86	Rippling	7	7	6	6	7	6	6	6	5
136	86	Wear	7	7	7	7	7	7	7	7	7
137	86	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

RIPP was unanimous after discussing and looking at the part again.

One rater did not see a 9 for Ridging

Post Discussion Data:

			Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
	SET #	DISTRESS	36	37	42	43	47	48	51	52	53
	86	Ridging	8	8	9	9	9	9	9	9	9
	86	Rippling	6	6	6	6	6	6	6	6	6
	86	Wear	7	7	7	7	7	7	7	7	7
	86	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

# L371 RCMS Target Generation Activity

Initial Rating Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
88	Ridging	5	5	6	6	6	6	6	5	5
88	Rippling	9	10	9	9	9	10	10	9	9
88	Wear	5	6	6	6	6	5	5	6	6
88	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.5	9.9

This part had an odd discoloration and may not be a good candidate as an RCMS or photo part

Post Discussion Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
88	Ridging	5	5	6	6	6	6	6	5	5
88	Rippling	9	10	9	9	9	10	10	9	9
88	Wear	5	6	6	6	6	5	5	6	6
88	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.5	9.9

# L371 RCMS Target Generation Activity

Initial Rating Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
91	Ridging	7	7	9	8	9	8	8	7	7
91	Rippling	5	5	5	6	6	7	6	7	5
91	Wear	7	7	7	7	7	7	7	7	7
91	Spitting	10.0	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

After discussing the part some raters changed from a 7 to an 8 because they couldn't see the same level of Ridging

After the discussion there was a unanimous agreement of a 5 for RIPP because there was a severe spot pointed out that some did not see at first (Rater 51 had left the activity at this point).

Post Discussion Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
91	Ridging	8	8	8	8	8	8	8	8	8
91	Rippling	5	5	5	5	5	5	6	5	5
91	Wear	7	7	7	7	7	7	7	7	7
91	Spitting	10.0	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

# L371 RCMS Target Generation Activity

Initial Rating Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
92	Ridging	6	8	8	7	8	8	7	8	7
92	Rippling	6	6	7	7	7	8	7	7	6
92	Wear	7	7	7	6	6	6	6	7	6
92	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9

Raters came to a consensus on RIDG (raters 36 and 51 left at this point).

There was a wear step that caused some of the raters to rate a 7 initially for WEAR

Post Discussion Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
92	Ridging	7	8	8	8	8	8	7	8	8
92	Rippling	7	7	7	7	7	7	7	7	7
92	Wear	6	6	6	6	6	6	6	6	6
92	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9

# L371 RCMS Target Generation Activity

Initial Rating Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
95	Ridging	9	9	9	9	9	9	9	8	7
95	Rippling	10	9	9	9	9	10	9	9	9
95	Wear	8	8	7	8	7	7	7	7	7
95	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10.0

Some raters saw light RIPP on this part and called it a 9, while other did not see it and called it a 10.

Consensus on WEAR (rater 51 left before this part was reviewed)

Post Discussion Data:

SET #	DISTRESS	Lonsway	Aguirre	Dominguez	DeCapite	Sanchez, C	Chalkey	Price	Austin	Matthews
		36	37	42	43	47	48	51	52	53
95	Ridging	9	9	9	9	9	9	9	9	9
95	Rippling	10	9	9	9	9	10	9	10	10
95	Wear	8	8	8	8	8	8	7	8	8
95	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9



# L371 RCMS Path Forward

## Overview:

- There was a lot of beneficial discussion amongst the raters to get the industry ratings closer together.
- A rating aid for Gleason gears still needs to be developed and this activity was a step forward in that development.
  - Photos will be taken of potential candidates

# L371 RCMS Path Forward

Recommendations for right now:

- Rating Aids:
  - The first step to focus on right now is updating the rating aids to include photos of Gleason parts
    - Don't focus on changing to a decimal system until this is complete
    - Don't focus on restructuring the rater calibration process until this is complete
- Oversight of L-37-1 (and gear test) ratings
  - Currently the oversight of gear tests are left up to the individual panel for each test type
  - Passenger car and heavy duty ratings are governed by the rating task force group
  - The gear tests have the option to go under the rating task force
    - This task force could then manage the future of rater calibration and rating workshops.

# L371 RCMS Path Forward

## Rating Aid Steps:

- From the July rating activity, there are pinions that are good candidates for photos.
  - Photos of these pinions will be taken
  - Photos will be sent out for a round robin activity
  - Review results of round robin activity
  - Use these photos for compiling a rating aid that can then be voted on for approval
- We will most likely need more Gleason parts from the test labs, and additional rating activity to identify candidates for future photos



D02.B0.03

Old Business

New Business

Adjournment