HEAVY-DUTY ENGINE OIL CLASSIFICATION PANEL

OF

ASTM D02.B0.02

June 27, 2023

Sheraton Denver Downtown Hotel– Denver, CO

ACTION ITEMS

MINUTES

1.0 Call to order

1.1 The Heavy-Duty Engine Oil Classification Panel (HDEOCP) was called to order by Chairman Shawn Whitacre at 1:30 p.m. on Tuesday, June 27, 2023, in the Plaza Ballroom B of the Sheraton Denver Downtown Hotel, Denver, CO.

1.2 There were 10 members present and 48 guests present. The attendance list is included as Attachment **2.**

2.0 Agenda 1:30 PM

2.1 The agenda circulated prior (included as Attachment **1**) had a minor change, a new business item to be addressed at the end of the meeting.

3.0 Minutes

3.1 The December 6, 2022, minutes were approved as written.

4.0 Membership

4.1 There were no membership changes.

5.0 Mack / Volvo - David Brass **(Attachment 3)**

5.1 The introduction of the new RO oil for Volvo T-13 was accepted with the current targets. The targets will be reevaluated as more data is produced.

5.2 The Mack T-12 will introduce the last batch of hardware before end of life. Coordinated referencing will begin in July.

5.3 The Mack T-11 test will also be on the last batch of hardware.

5.4 The Mack T-8 uses the same rings set as the Mack T-12. It is also on the last batch of hardware.

5.5 The Volvo T-13 KV40 parameter is in EWMA action alarm. the Mack SP is looking at the data and will address it respectively.

5.6 In the June 7th SP meeting the Stats group decided they needed more data to evaluate the targets for RO 823-1.

5.7 The NCDT requested an analysis to be performed to determine if transformation is needed for IRPH parameter.

6.0 CAT – David Brass **(Attachment 4)**

6.1 COAT batch B oil filters were approved in November. An updated CF for average oil aeration was introduced.
6.2 RO 833-1 is running low, new TMC 833-2 and TMC 832-2 will be introduced as new blends.
6.3 Frist half of COAT / EOAT equivalency testing is complete, the remaining half is pending funding.
6.4 C13 deposit test is working on proving out the ECM calibration for lower vis grades.
6.5 The Rating workshops have changes in the name and frequency. The procedures will be updated.
6.6 Question - Who is soliciting funding for equivalency? Answer - The funding is being done by the SP and donations. The SP is still actively solicitating.
6.7 RO supplies look good, except for 1M-PC and 1P/1R.

7.0 Cummins – Andrew Smith **(Attachment 5)**

7.1 ISB test has been active. Ther are 3 labs and 3 stands currently calibrated.
7.2 The new hardware has been approved.
7.3 There is a good supply of RO.
7.4 New Batch of tappets will be introduced in 2025.
7.5 Question- what is the hardware consumption due to ISB soot test? Answer – very minimal at this time.
7.6 The SP had 3 meetings. They discussed the new hardware and rollout plan, coordinated reference plan and discussed the 5 tests conducted on the new hardware.
7.7 The data showed that the previous CF was over correcting.
7.8 Current action items are, timing on low viscosity RO and handling referencing with new oil introduction.
7.9 The panel will continue to monitor ISB hardware and monitor the new CF.
7.10 ISM status, crossheads will be introduced soon.
7.11 No issues with RO
7.12 ISM action items- same as ISB.

8.0 DD13 – Robert Slocum **(Attachment 6)**

8.1 Not much activity.
8.2 There was an email vote sent out to edit Table 5.1 Pretest Break-in Sequence.
8.3 The panel is looking into low viscosity oils and how to roll them in.
8.4 The test activity is light, 3 labs 3 stands calibrated.
8.5 There are no complete kits at TEI, exhaust rocker arms are unavailable.
8.6 RO is in good shape, 3 years supply with current usage.
8.7 The SP will meet in July to discuss hardware usage and availability and the reuse of non-critical parts.
8.8 Question – what is the timeline on when parts are available? Answer- The orders are in, waiting on deliveries.

9.0 Ford – Mike Deegan **(Attachment 7)**

9.1 MY23 engines are in the labs.
9.2 There is a change to the critical valvetrain component. The cam exhaust ramp and lift changed for MY 2023, the intake side is the same as MY19.
9.3 The ECM calibrations are confirmed and running in the independent labs.
9.4 Scoping test on HWO is complete. The final results are similar to previous HWO however, the intake rocker arm have more wear and there is less wear on exhaust rocker arms.
9.5 Short block ability to run 7 tests minimum needs to be verified.
9.6 Double checking RO oils at TMC. Need more ECMs for labs, need more turbos since they are replaced every test.

9.7 The current issue is with funding. Meetings with management are underway.

10.0 Old Business – EOEC – Laura Birnbaumer

10.1 Requesting approval of the information letter for the proposed variable limits using SL 107

11.0 New Business – CPChem Update – Jonathan VanScoyoc

11.1 Planned outage for diesel fuel in Q4 2023 for plant maintenance.

12.0 EMA - Roger Gault

12.1 Reiterating discussion of obsoleting older categories and how to move forward.
12.2 EMA doesn't want to eliminate tests and would like to continue the support of older test.
12.3 CLOG will address replacement tests for older categories. They will look into equivalency limits for older tests. The group will need to revisit the Mack T-12 and equivalency limits.

13.0 The meeting was adjourned at 2:25 pm.

AGENDA
D02.B0.02.1
Heavy-Duty Engine Oil Classification Panel
Tuesday, June 27, 2023 1:30pm MDT
Sheraton Denver Downtown Hotel
Denver, Colorado USA

1) **Call to Order/Anti-trust statement**

2) **Minutes** – Approval of Minutes from December 6, 2022 Meeting in Orlando, FL USA

3) **Membership**

   a) Review and update current panel membership

4) **Surveillance Panel/Task Force Reports**

   a) Volvo/Mack SP Report (David Brass, Infineum)
   b) CAT SP Report (David Brass *for Jacob Goodale*, Infineum)
   c) Cummins SP Report (Andrew Smith, Intertek)
   d) DD13 SP Report (Robert Slocum, Lubrizol)
   e) Ford 6.7L VTW Test TF Update (Mike Deegan, Ford)

5) **Old Business**
   a) EOEC Fixed limits Information Letter Update (Laura Birnbaumer, Oronite)

6) **New Business**
   a) CPChem Borger Refinery Planned Maintenance (Jonathan VanScoyoc, CPChem)

7) **HDEOCP Adjournment**

LastName	FirstName	Company	Business Phone	E-mail Address
Abi-Akar	Hind	Caterpillar Inc.	309-578-9553	abi-akar_hind@cat.com
Alessi	Michael	ExxonMobil F&L	856-224-2309	michael.l.alessi@exxonmobil.com
Bachelder	Dennis	API	202-682-8182	bachelderd@api.org
Baldridge	Anthony	Phillip 66	918-977-6820	Anthony.baldrige@p66.com
Birnbaumer	Laura	Chevron Oronite	510-242-59942	labi@chevron.com
Bowden	Matthew	OH Technologies	440-354-7007	mjbowden@ohtech.com
Bowden	Jason	OH Technologies, Inc.	440-354-7007	jhbowden@ohtech.com
Brass	David	Infineum	908-474-3374	david.brass@infineum.com
Campbell	Bob	Afton Chemical Corporation	804-788-5340	bob.campbell@aftonchemical.com
Carter	James	Gage Products	517-896-1150	jcarter@gageproducts.com
Castanien	Chris	Chevron	440-290-9766	christiancastanien@chevron.com
Cisneros	Lizbeth	Motiva Enterprises, LLC	713-751-3756	lizbeth.cisneros@motiva.com
Clark	Sid	ASTM Facilitator	586-873-1255	slclark@comcast.net
DeBaun	Heather	Navistar, Inc.	331-332-4795	heather.debaun@navistar.com
Deegan	Michael	Ford Motor Co.	313-805-8942	mdeegan@ford.com
Dellinger	Madelaine	BG Products	316-670-4022	mdellinger@bpprod.com
Delp	Lynsie	Caterpillar Inc.	765-448-5656	delpr@cat.com
Demel	Samuel	Shell	281-544-9754	samuel.demel@shell.com

LastName	FirstName	Company	Business Phone	E-mail Address
Denton	Vicky	Fuels & Lubes Asia		editor@fuelsandlubes.com
Esche	Carl	Vanderbilt Chemicals	804-740-1658	cesche@vanderbiltchemicals.com
Gaal	Dennis	ExxonMobil Research and Engineering	346-566-9366	dennis.a.gaal@exxonmobil.com
Gault	Roger	EMA	312-929-1975	rgault@emamail.org
Gibbons	Greer	Lubrizol	440-347-2103	greer.gibbons@lubrizol.com
Girard	Luc	Sanjuro Consulting	647-648-9704	lgirard@sanjuroconsulting.com
Goodrich	Barb	John Deere	319-292-8007	GoodrichBarbaraE@JohnDeere.com
Haumann	Karin	Shell	281-544-6986	karin.haumann@shell.com
Hsu	Jeffrey	Shell	281-544-8619	j.hsu@shell.com
Kalberer	Eric	Shell	346-814-0224	eric.kalberer@shell/com
Ketcham	Stephen	Chevron	510-242-4382	Stephen.ketchan@chevron.com
Koglin	Cory	Afton Chemical Corporation	248-996-0386	cory.koglin@aftonchemical.com
Kostan	Travis	SwRI		travis.kostan@swri.org
Kress	Kyle	Phillips 66	832-765-5760	kyle.r.kress@p66.com
Lanctot	Dan	TEI	210-933-0301	dlanctot@tei-net.com
Lang	Patrick	Southwest Research Institute	210-522-2820	plang@swri.org
Laufer	Caroline	Infineum	347-423-6445	caroline.laufer@infineum.com
Lee	David	Chevron Oronite	925-548-1281	david.lee@chevron.com

LastName	FirstName	Company	Business Phone	E-mail Address
Leer	Issac	SwRI	210-522-3258	isaac.leer@swri.org
Loop	John	The Lubrizol Corporation	440-347-5365	john.loop@lubrizol.com
Matheson	Greg	The Lubrizol Corporation	440-347-5032	greg.matheson@lubrizol.com
Moyer	Sean	Test Monitoring Center	412-365-1035	sam@astmtmc.org
O'Ryan	Bill	API		oryanw@api.org
Patel	Manish	ExxonMobil Products		manishpatel@exxonmobil.com
Pridemore	Dan	Infineum	248-320-9032	danny.pridemore@infineum.com
Purificati	Darryl	HF Sinclair	226-387-1790	darryl.purificati@hfsinclair.com
Rajala	Scott	Idemitsu Lubricants	248-455-1460	srajala.1460@idemitsu.com
Slocum	Robert	The Lubrizol Corporation		robert.slocum@lubrizol.com
Stevens	Andrew	The Lubrizol Corporation	440-227-2517	andrew.stevens@lubrizol.com
Stockwell	Robert	Chevron Oronite	210-232-3188	robert.stockwell@chevron.com
Styer	Jeremy	Vanderbilt Chemicals	848-234-7176	jstyer@vanderbiltchemicals.com
Tomaro	Joe	BP Castrol	440-340-8543	joseph.tomaro@bp.com
Tonkel	Bruce	Valvoline	901-603-6541	bruce.tonkel@valvoline.com
Vega	Juan	Intertek Automotive Research	210-269-6959	juan.vega@intertek.com
Warden	Robert	Southwest Research Institute	210-522-5621	robert.warden@swri.org
Westbrook	Jerimiah	Lubrizol		JEKS@Lubrizol.com

LastName	FirstName	Company	Business Phone	E-mail Address
Whitacre	Shawn	Chevron Lubricants	510-242-3557	shawnwhitacre@chevron.com
Willis	Angela	Willis Advance Consultant	734-904-7714	angelawillis@willisadvanceconsulting.com
Wilson	Beth	API	202-682-8200	wilsonk@api.org
Wolfe	Justin	Lubrizol		Justin.wolfe@lubrizol.com

Mack/Volvo Surveillance Panel Update

David Brass, Mack/Volvo Surveillance Panel Chair

HDEOCP

June 27, 2023

Key Updates

- New Reference Oil Blend TMC 823-1 was accepted with targets from TMC 823 for Volvo T-13. This target will be re-evaluated after at least 10 runs on TMC 823-1.
- Mack T-12 will be transitioning into the last batch of parts before end of life (YYYFZQWB). Coordinated referencing will begin prior to July 5.
- Mack T-11 has transitioned into last batch of parts before end of life (YYYFZQWB). Parts are being accepted lab by lab with referencing until Mack T-12 coordinated referencing is completed.
- Current projected end of life for Mack T-8/T-11/T-12 is about 6 years (under current parts usage). Limiting test part is piston crowns for Mack T-11/T-12.
- Volvo T-13 KV40 parameter is in EWMA action alarm and will soon be in Zi Limit alarm.

Surveillance Panel Meeting Updates

May 23, 2023

- New Reference Oil Blend TMC 823-1 was accepted with targets from TMC 823 for Volvo T-13. This target will be re-evaluated after at least 10 runs on TMC 823-1.
  - Though some TMC 823 remains all reference testing will be conducted on TMC 823-1 until those 10 tests are reached to help evaluate target for TMC 823-1.
- Surveillance Panel successfully voted that next reference tests for Mack T-12 will be completed on new batch of parts: **Y** *top ring*, **Y** *2nd ring*, **Y** *oil ring*, **F** *piston crown* (subgroup randomized but will exclude subgroup A), **Z** *connecting rod bearing*, **Q** *main bearing* , **W** *liner*, and **B** *piston skirt*.
  - Coordinated reference will be started prior to July 5, 2023
- Mack T-11 will move to new batch of parts: **Y** *top ring*, **Y** *2nd ring*, **Y** *oil ring*, **F** *piston crown* (subgroup randomized but will exclude subgroup A), **Z** *connecting rod bearing*, **Q** *main bearing* , **W** *liner*, and **B** *piston skirt*. Referencing will be completed at the labs bringing in these parts until the Mack T-12 coordinated referencing has been completed
- Mack T-8 will move to new batch of parts: **Y** *top ring*, **Y** *2nd ring*, **Y** *oil ring*

Surveillance Panel Meeting Updates

June 7, 2023

- Statisticians requested more data on TMC 823-1 to help with setting targets for this new reference oil blend.
- NCDT requested an analysis be performed to determine whether a transformation should be applied to the IRPH parameter as PC-12 is looking to move to lower limits. An evaluation was asked to be conducted by the statisticians

Reference Oils

Test	Reference Oil	Supply
Mack T-8	TMC 1005-5	~ 2 year supply
Mack T-11	TMC 822-2	5+ year supply
Mack T-12	TMC 821-4	5+ year supply
Volvo T-13	TMC 823 TMC 823-1	2 drums remaining 5+ year supply

Updates:

TMC 823-1 introduced in May 2023.

- Surveillance Panel voted to use targets from TMC 823

Mack T-8/T-11/T-12 Hardware

Prior Parts Batch

	Mack T-12
Top Ring	X
2nd Ring	**X (limiting part)**
Oil Ring	X
Piston Crown	FsubE
Rod Bearing	Y
Main Bearing	P
Liner	W
Skirt	B

Final Parts Batch

Mack T-11/T-12	Mack T-8	Approximate Available Kits
Y	**Y**	353
Y	**Y**	329
Y	**Y**	329
F (Random Subgroup, Excluding sub A)		**267 (w/o sub A) (Limiting Part for T-11/T-12)**
Z		326
Q		450
W		339
B		327

- As of May 2023 only 2 kits of the XXXFsubEYPWB parts remained at TEI
- Current Purchase Rate for T-11/T-12 kits is 40-45/year
  (~ 6 years of parts remain)
- Typical Purchase Rate for T-8 kits is ~6 kits/year. Over the last 6 months, 11 kits have been sold
  (3-10 years of parts remain if only overage parts (62) are directed to Mack T-8).

Caterpillar Surveillance Panel

HDEOCP Update

Prepared By: Jacob Goodale, S.P Chairman, June 2023

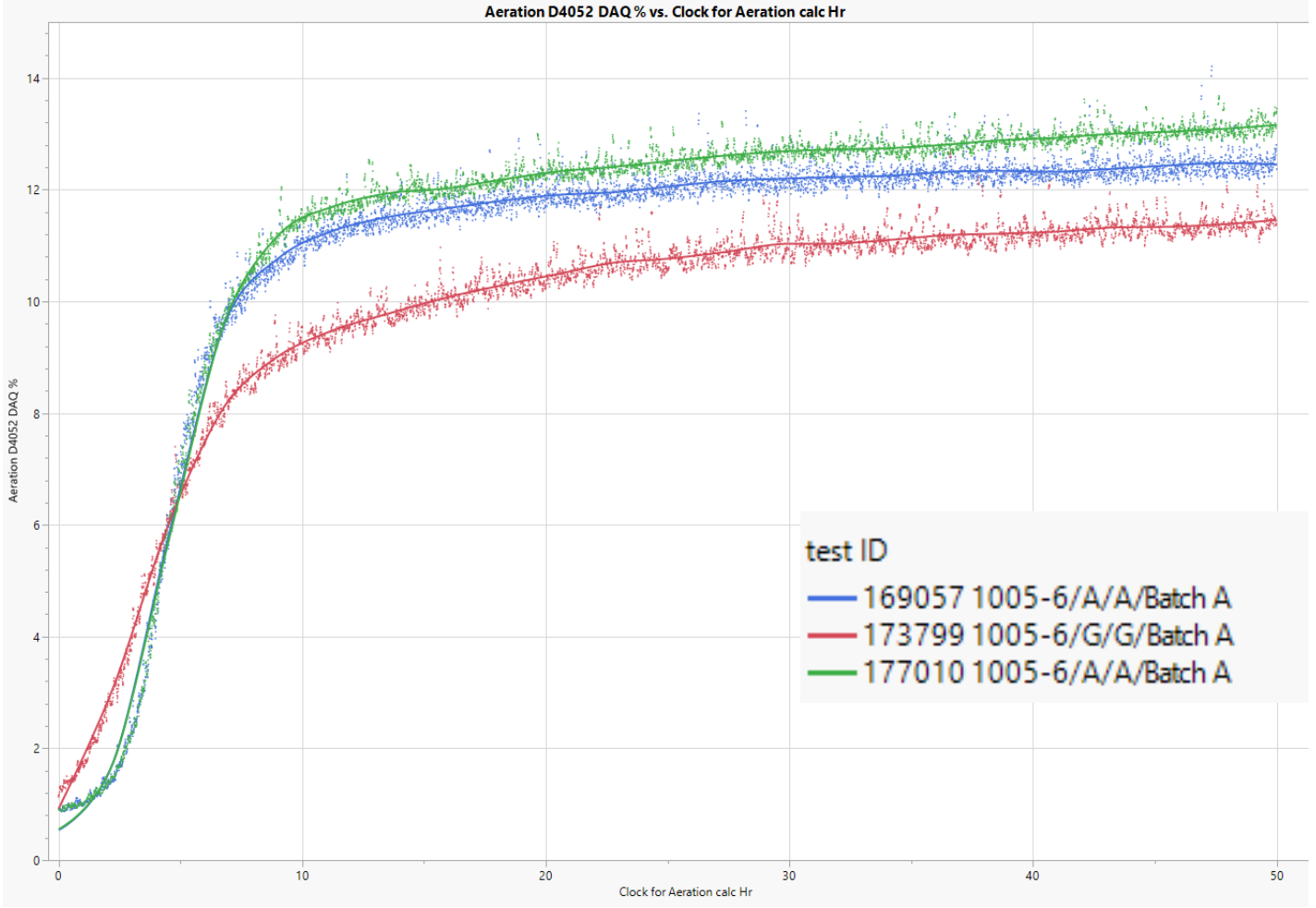
Presented By: David Brass, June 2023

Key Updates

- COAT
  - Batch B filters approved 11/18/2022
    - Updated Correction factor: 0.9310 multiplicative on average oil aeration
  - Batch B filter supply
    - 226 filters remaining at TEI
  - Reference oil TMC 833-2 and TMC 832-2 will be introduced as new blends in 2023
- COAT/EOAT Equivalency
  - First half of equivalency matrix completed December 2022
    - 3X COAT on TMC 1005-6
    - 1X EOAT on TMC 1005-6
  - Remaining tests needed to finalize matrix, pending funding
    - 3X COAT on TMC 1005-6
    - 1X EOAT on TMC 1005-6
- C13 Deposit Test
  - Prove out of updated engine calibration pending
    - Calibration removes derate flag for lower oil pressures allowing for low viscosity testing
- All deposit test procedures updated due to change in name and frequency of rating workshop

EOAT / COAT Equivalency
Current Matrix Test Status & Results

- 1005-6 Testing completed to date
  - EOAT
    - One Test completed: Result = 7.9 (Target for 1005 = 7.8, s=0.25)
  - COAT
    - Three tests completed to date
      - Lab A: 2 Tests
      - Lab G: 1 Test
      - Lab B: Currently uncalibrated
    - All tests conducted on Batch A filters (hardware held at CPD to support EOAT/COAT testing)



Aeration profile of 1005-6 runs in COAT, show no abnormalities in aeration profile.

Reference Oils

Test	Reference Oil	Supply
COAT	TMC 832-1 TMC 832-2 TMC 833-1 TMC 833-2	4+ year supply 2-3 year supply <1 year supply 5+ year supply
1P, 1R	TMC 1005-5	2 year supply
1R	TMC 822-2	5+ year supply
1N, 1K	TMC 809-1 TMC 811-2	5+ year supply 5+ year supply
C13	TMC 831-4	2.5 year supply
1M-PC	TMC 873-2	1 year supply

<u>Updates:</u>

- TMC 832-1: suspended from use due to shifting severe
- TMC 832-2: to be introduced in 2023
- TMC 833-1: supply limited
- TMC 833-2: to be introduced in 2023

Cummins

ISB (ASTM D7484) ISM (ASTM D7468)

Surveillance Panel Update

June 2023

Prepared by: Andrew Smith, S.P. Chairman

Cummins SP Report

ISB Test Status

- 3 labs, 3 tests stands are currently calibrated on new hardware
  - Critical Parts Inventory
    - Camshaft Batch N: 158 Kits
    - Tappets Batch F: 83 Kits
    - Crossheads Batch G: 182 Kits
    - Push Rods Batch D: 190 Kits
- Reference Oil Update:
  - Approximately 1.5-2 Year Supply of 831-4 and process for re-blend has started, will need to be introduced in the next couple years

Cummins SP Report

ISB Test Status

- 3 Surveillance Panel Meetings this period
- 1st Meeting
  - Discussion on new ISB hardware and rollout plan
- 2nd Meeting
  - Further discussion and agreement on coordinated reference plan
- 3rd Meeting
  - Discussion on 5 reference tests conducted on new hardware
  - Stats group analysis presentation
  - CF change to Tappet wear going back to previous hardware batch
  - Presentation on low viscosity reference oil introduction and discussion

Cummins SP Report

ISB Test Status

- Action Items
  - Low viscosity reference oil introduction
    - When?
    - How to handle referencing with new oil introduction
    - Long term how the panel handles multiple reference oils
  - Continue to monitor ISB new hardware data as more reference data becomes available

Cummins SP Report

ISM Test Status

- 3 labs, 3 tests stands are currently calibrated
  - Critical Parts Inventory
    - Adjusting Screw Batch E: 151 Kits
    - Crossheads Batch G: 61 Kits
    - Push Rods Batch D: 353 Kits
    - Exhaust Valve Batch F: 87 Kits
    - Intake Valves Batch F: 76 Kits
- Reference Oil Update:
  - Approximately 5 Year Supply of 830-3 at current usage rate

Cummins SP Report

ISM Test Status

- Action Items
  - Low viscosity reference oil introduction
    - When?
    - How to handle referencing with new oil introduction
    - Long term how the panel handles multiple reference oils
  - Continue to monitor ISM control charts as more reference data becomes available

Cummins SP Report

- Questions?

DD13 S.P.
Annual Report, June 2023
Presentation to Subcommittee D02.B0

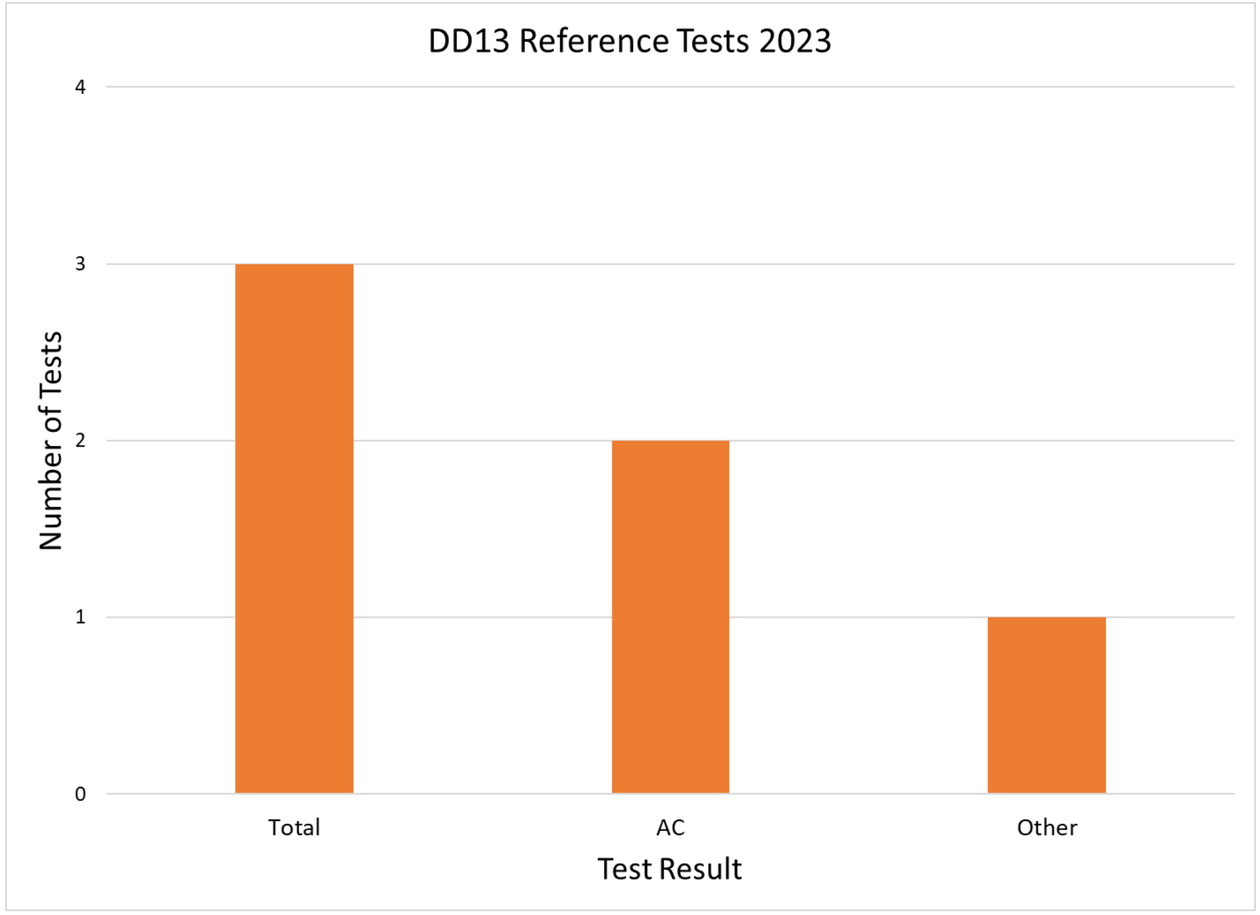
Prepared By: Robert Slocum, S.P. Chair June 2023

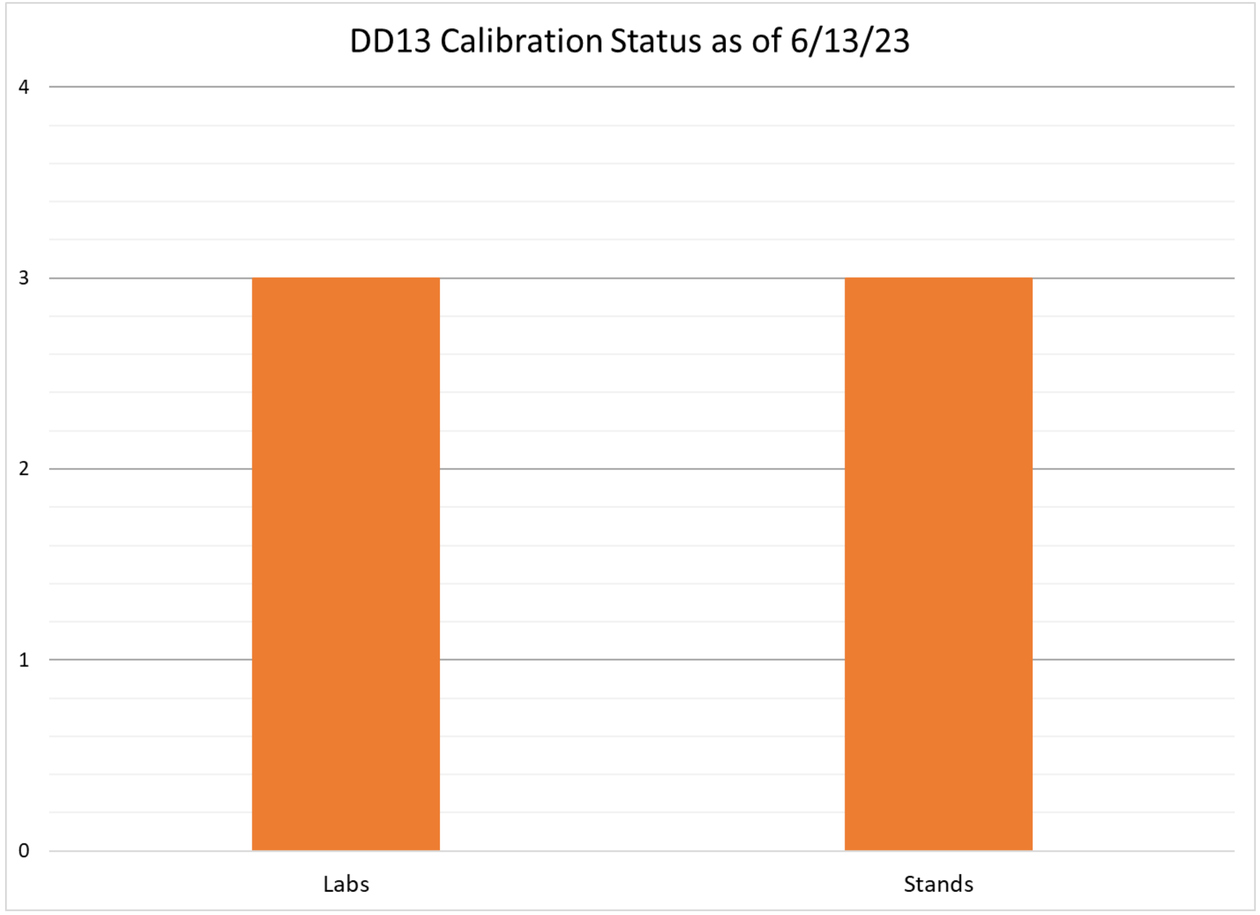
DD13 S.P. Report
Panel Activity

- Email vote to edit Table A5.1 Pretest Break-in Sequence of D8074-22 the time of 20:00 hours to 00:15 minutes

- Matrix Design Taskforce looking into low viscosity reference oils

DD13 S.P. Report
Reference Test Activity





DD 13 S.P. Report Hardware

- No complete kits currently @ TEI
  - A4720503634 (Jake Brake Rocker) and A4710500834 (exhaust rocker) arms currently unavailable
  - Batched parts below

Part	Batch	Quantity	Kits Remaining	Years Remaining*
Top Ring	C	2070	345	7.8
Second Ring	B	1807	301	6.8
Oil Ring	B	1247	208	4.7
Piston	B	1818	303	6.9
Liner	D	2254	376	8.5

*Based on Last 12 months of sales

DD 13 S.P. Report
REF Oils

Reference Oil Inventory Estimated Life

Oil	Tests	Original Blend Amount	Quantity Shipped in last 6 months	TMC Inventory	Lab Inventory	Estimated Life
832-1	COAT	1951	112	1214	0	5+ years
833-1	COAT	1248	308	276	112	1.5 years
833-2	COAT	1078	0	1078	0	5+ years
864-1	DD13	1576	200	440	125	3 years
1005-5	1P, 1R, EOAT, RFWT, T-8/E	3826	332	702	144	2 years

DD 13 S.P. Report
Next S.P. Meeting

- Tentatively planned for end of July
  - Topics
    - Batched Part Usage Rates
    - Re-Using Noncritical parts?
    - Other

Ford 6.7L Diesel Engine Valve Train Wear (VTW) Test Update ASTM June 2023

Update by: Mike Deegan
FCSD SEO Lubricant TS

Additional VTW Industry Team Members:

R. Slocum (Lubrizol), A. Smith (Intertek), R. Warden, J. Starling, T. Kostan (SwRI), B. Maddock (Afton)

6.7L VTW Test Update

Update for DEOAP & NCDT:

a. MY23 Update.
   i. Hardware Availability and Timing.
   ii. Intertek/SwRI Status.
   iii. Overall Status.

b. Preliminary PM Matrix Information.
   i. Planned quantities for oils, fuel, engines, critical hardware.

c. Request other required information.

MY23 6.7L VTW Test Update

MY23 required and planned on implementing.

i. MY2019 will be needed for a year-No longer available.

ii. MY23 to be scoped-3rd Qtr 2023.

  i. Latest Hardware designed Engines and Heads enroute to Labs.

    a. Identifying component differences and impact to test.

      1. Change to Critical Valvetrain components.

        a. Cam- Exhaust Ramp and lift change in MY2023.

      2. Valve seat and guide updates in Head Assys.

      3. Short Block updates to steel pistons from aluminum.

      4. Variable Displacement Oil Pump.

        a. Engine runs at slightly higher Oil Pressure than previous.

  ii. Dyno kits in-process.

    a. Intertek & SwRI complete for (1) engine each. **Calibration confirmed.**

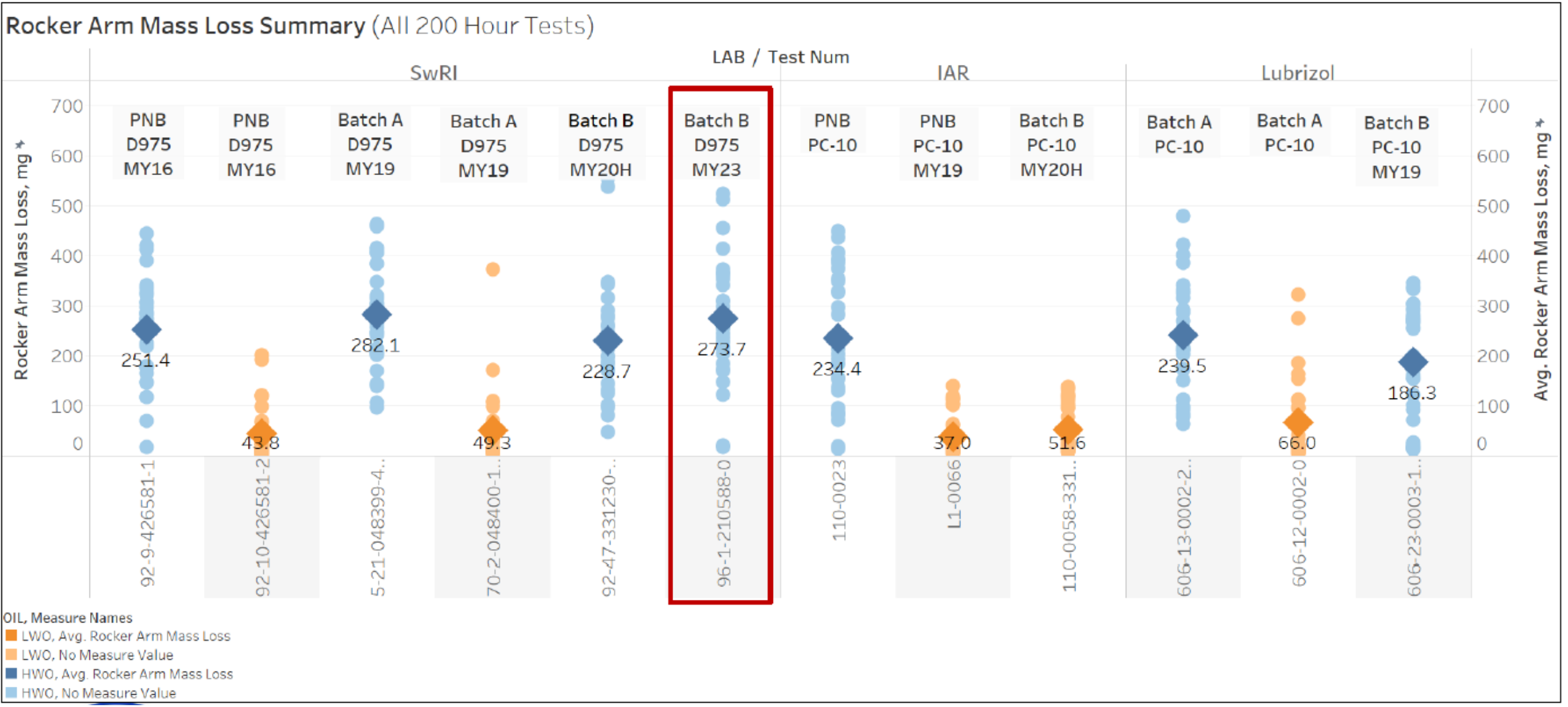
  iii. (4) Scoping tests planned:

    a. Test LWO/HWO. **HWO Complete, see following pages.**

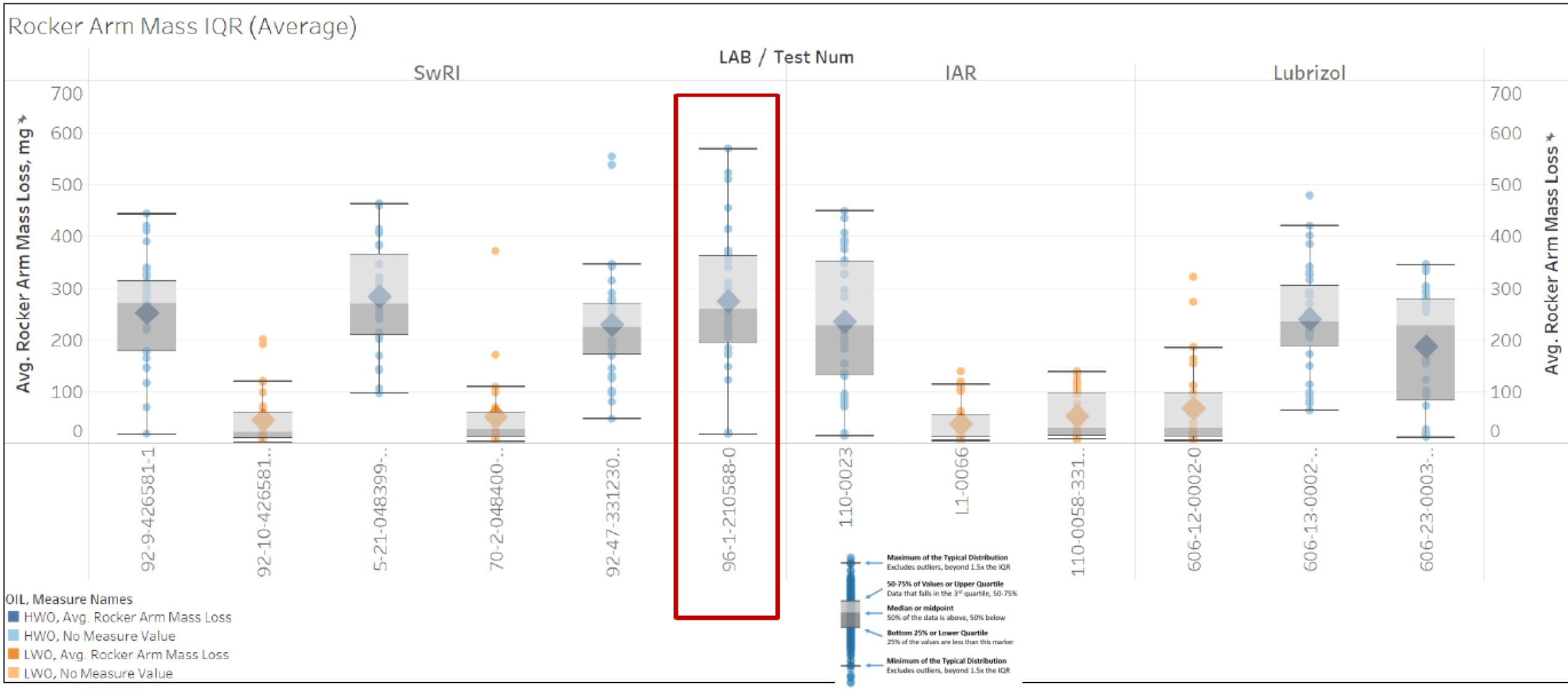
    b. Revalidation of Borderline Oil on MY23 Engine.

    c. Low Vis xW-20 Oil to be planned.

Reference Oil Testing Result Summary – MY23 Test shown in red box

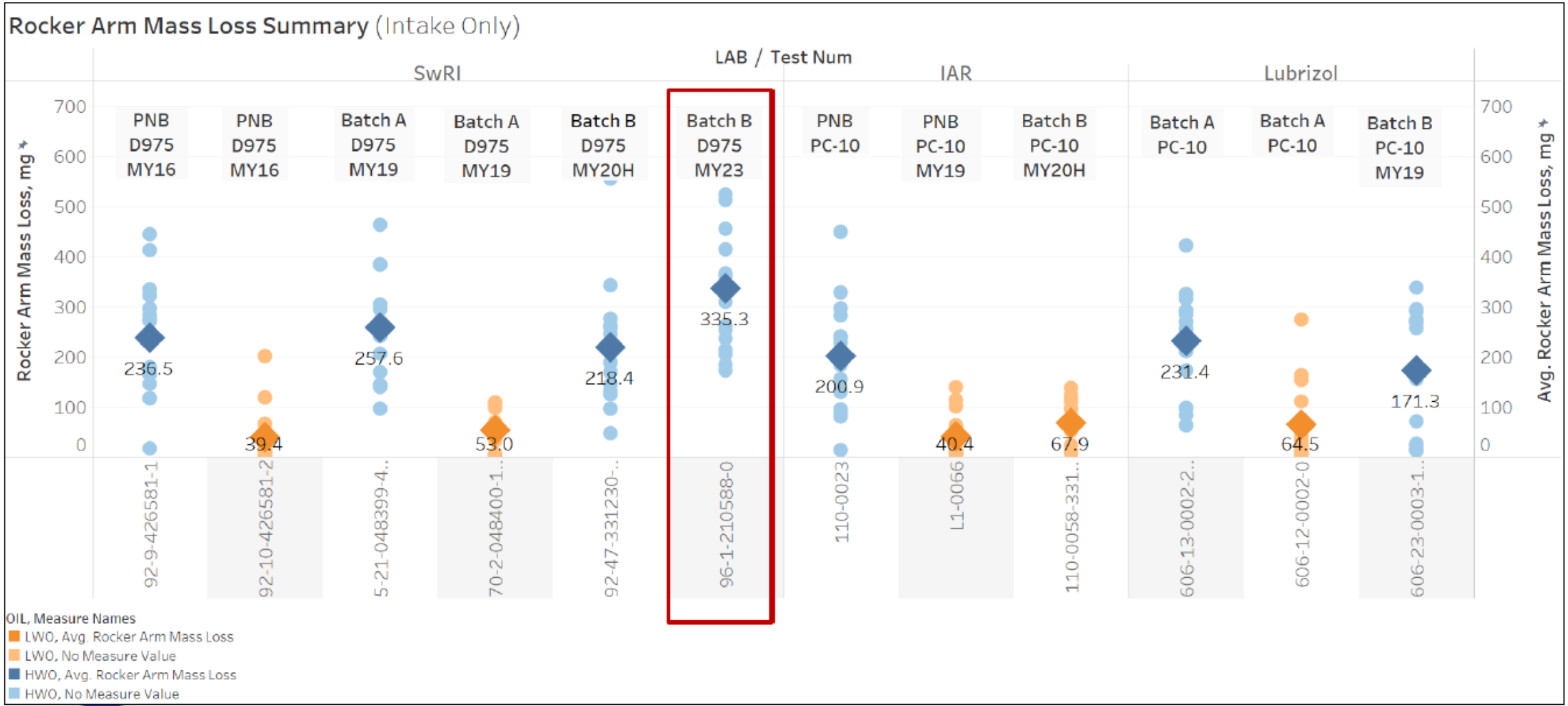


Rocker Arm Mass Loss Summary (IQR) – MY23 Test shown in red box

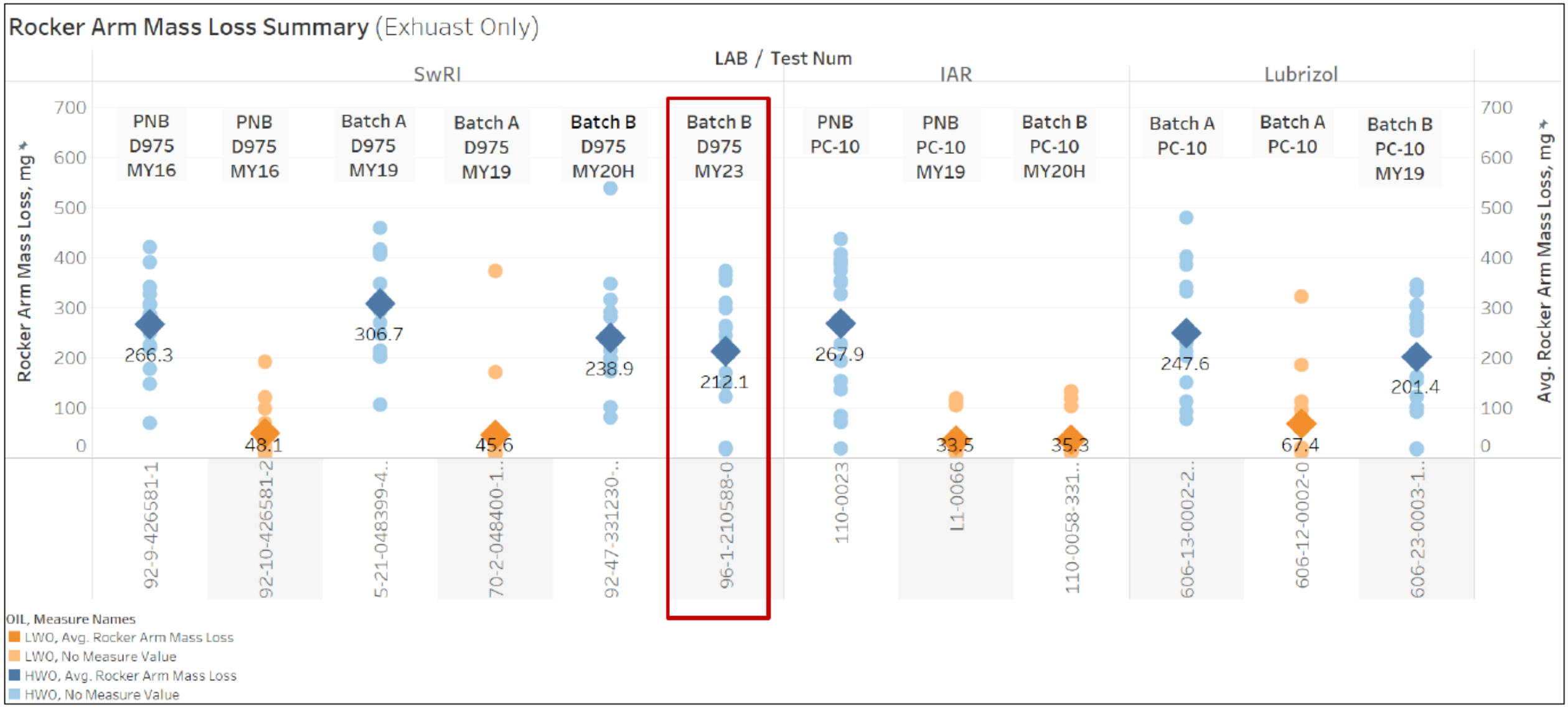


FUELS & LUBRICANTS RESEARCH

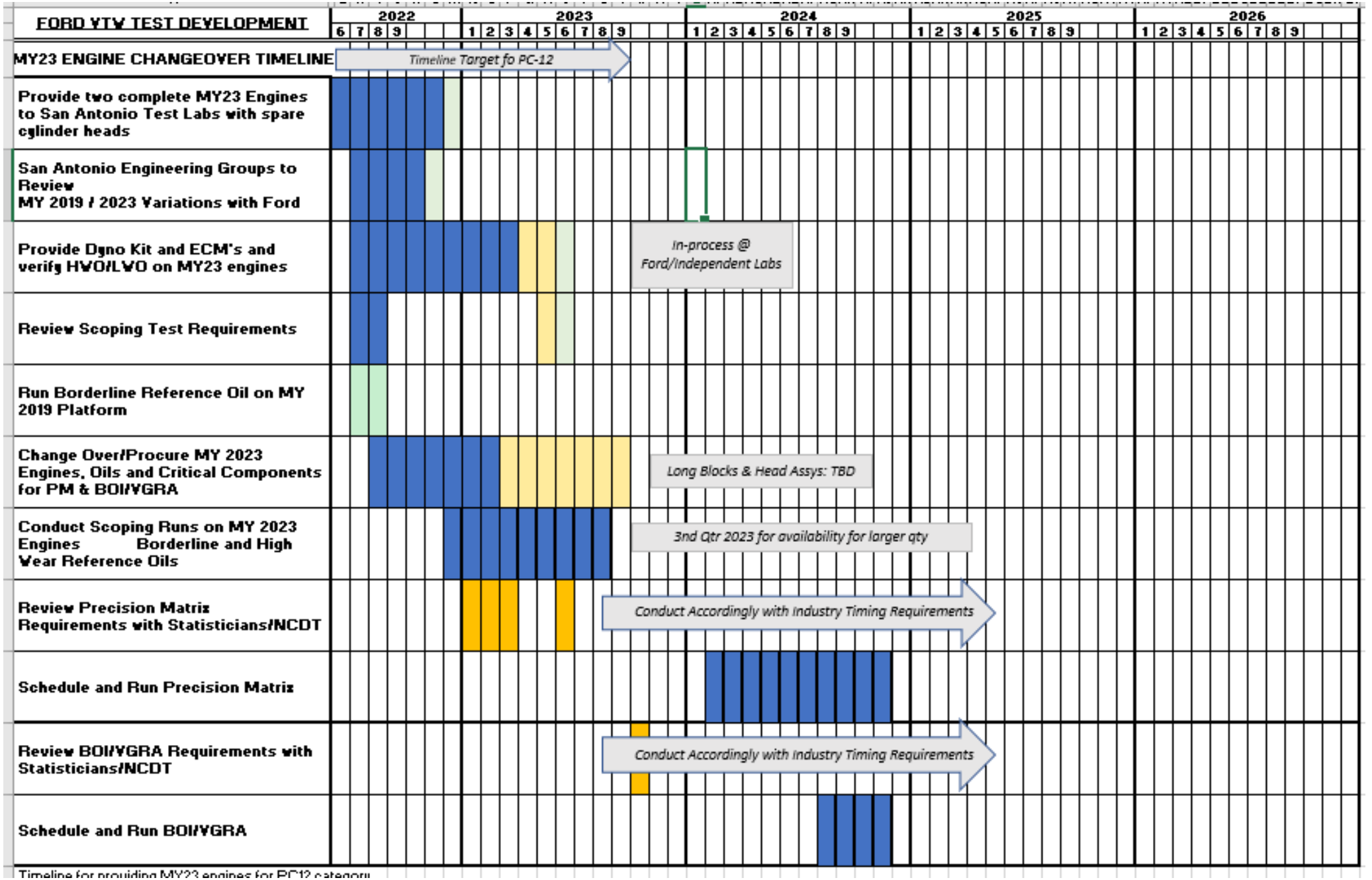
Rocker mass loss, Intake rockers only – MY23 Test shown in red box



Rocker mass loss, Exhaust rockers only – MY23 Test shown in red box



6.7L VTW Test Timing Update



6.7L VTW Test Update

Current timing/funding risks:

- MY23 Engine, Oils, ECMs, and turbo availability.
  - Short block ability to run (7) tests minimum needs to be verified.
  - Oil volumes need to be reviewed and determined if additional is required.
  - Additional Dyno ECMs need to be purchased.
  - Additional Turbo's need to be purchased.
- MY23 ECM programming-completed. No risk.
- Funding-MOA needs to be worked on for July 2023.
  - Ford/Industry needs to evaluate.

6.7L VTW Test Update

Possible changes from original PM Matrix proposal:

- MY23 Engine required. Additional Tests required to verify discrimination.
- Additional Test Oil to be provided. Prove out of Borderline Oil/HWO/xW-20 required.
- Fuel(s) required: PC-10 and/or Bookend D975.
- Additional Labs. Lubrizol and/or Afton based on availability of MY23's.
  - Additional Stands at each lab: 2 & 2 & 1 & 1.
- Inclusion of BOI/VGRA.

6.7L VTW Test Update

Other information request:

- Any additional information that Ford needs to provide for ASTM?