



**COMMITTEE D02 on PETROLEUM PRODUCTS, LIQUID FUELS, AND LUBRICANTS**

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## SEQUENCE IX SURVEILLANCE PANEL

Date: 8 Aug 24

### ATTENDANCE

SWRI	Christine Eickstead, Khaled Rais, Pat Lang, Travis Kostan
INTERTEK	Jason Soto, Al Lopez
LUBRIZOL	George Szappanos
AFTON	Jason Lekavich, Amanda Stone
INFINEUM	Todd Dvorak, Chris Tonstad, Andy Ritchie
TMC	Rich Grundza
ORONITE	Robert Stockwell, Jo Martinez, Ricardo Affinito
SHELL	Jeff Hsu, Seth Demel
HALTERMAN SOLUTIONS	Ed Hennessy, William Hairston
FORD	Mike Deegan
TOYOTA	Venkat Deshpande
TEI	Dan Lanctot
OHT	Jason Bowden
IMTS	Dave Passmore, Sid Clark
CQA	Mike Kunselman

**ATTACHMENTS:**

- A: Meeting Agenda
- B: Email from George re. report form corrections

**MEETING:**

Attendance. See table above.

Motion to approve minutes from last SP meeting (6 June 24), Khaled. Jason L. seconds. Approval unanimous.

**Fuel Supplier Report:** Halterman Solutions, Willian Hairston / Ed Hennessy

117,000 temp-adjusted gal available, 56 gal heel

So ~45 days from now, will be rebuilding

No impact from hurricane, all in good shape

**Rich – TMC update**

224 results – currently in control

TMC is out of 221, couple of labs have depleted inventory as well; 221-1 is being shipped

Have three donated tests on 224-2:

AVPIE 224-2	AVPIE 224-1		Xformed-2	XFORMED-1
4.25		IMTS PISTON	2.179449	
1.5	2.75		1.414214	1.802776
2.5	4.5		1.732051	2.236068
6.25	3.75	224-2 Preliminary	2.598076	2.061553
			1.91478	2.033465
			1.980948	with IMTS piston
221 has been depleted at TMC two labs are out as well				
221-1 is being shipped.				
Three donated results on 224-2				

Rich – really need to introduce 224-2. Two labs ready to run references, this is the only oil available. If accepted, do we move forward with current targets or set new targets based on above data?

Todd – not much data to review, so unless something is concerning, not enough data to *not* use oil. Should revisit when have more data, but too early now to make a judgement.

Rich – with agreement, will move forward with using this for cal. purposes with current targets

Rich – make motion?

Todd – yes, make motion. Add to motion to have stats group look at it in couple weeks.

Rich – will have two more data points soon (two labs will be assigned this oil today).

Jo – should apply level 2 Ei limits in situations like this. Todd – good point Jo. Level 2 Ei on this is +/- 1.734, so if exceed that limit, would have to run another test. Which is a good idea if concerned about resetting targets.

Khaled – talking about applying this for next three tests only right? Todd – yes.

Travis – hypothetical – lab fails Ei level 2 on first test. Is second test subjected to level 2 or 3 on? Rich – believe second test subject to level 3 at that point.

Rich – motion:

-Allow the use of 224-2 with 224 targets for calibration purposes with level 2 Ei limits on the first attempt and level 3 Ei limits for subsequent tests for at least the next three reference attempts or more if advised by the Stats group

Second: Khaled

Objections: none

Waives: OHT, Shell (Jeff Hsu), IMT (Sid)

Approves – rest of the group

### **221 Introduction:**

TMC has no 221 left. May be able to cobble together retains at labs. Could also go live with current 221 targets with 221-1, but if new blend is mild, will be uncertain

Maybe run one or two and see what happens? TMC will send labs one can of next oil at no charge

Rich – make motion to introduce with current 221 targets. Todd – can replicate 224-2 process with this one? Donated tests? Rich – is possible to do but additional hoops (send sample of retains to TMC for chem analysis).

Rich – asks labs to go back and total retains on 221, Rich can supply testkeys if needed.

Rich – one lab has two cans of 221, second lab has 2 cans. Khaled – so have enough to replicate 224-4 process with four tests

Khaled – so plan is to replicate 224-2 process: labs donate tests for new blend as done with 224-4 (see above), Rich assigns as labs need references

Rich – will deal with as labs call for references

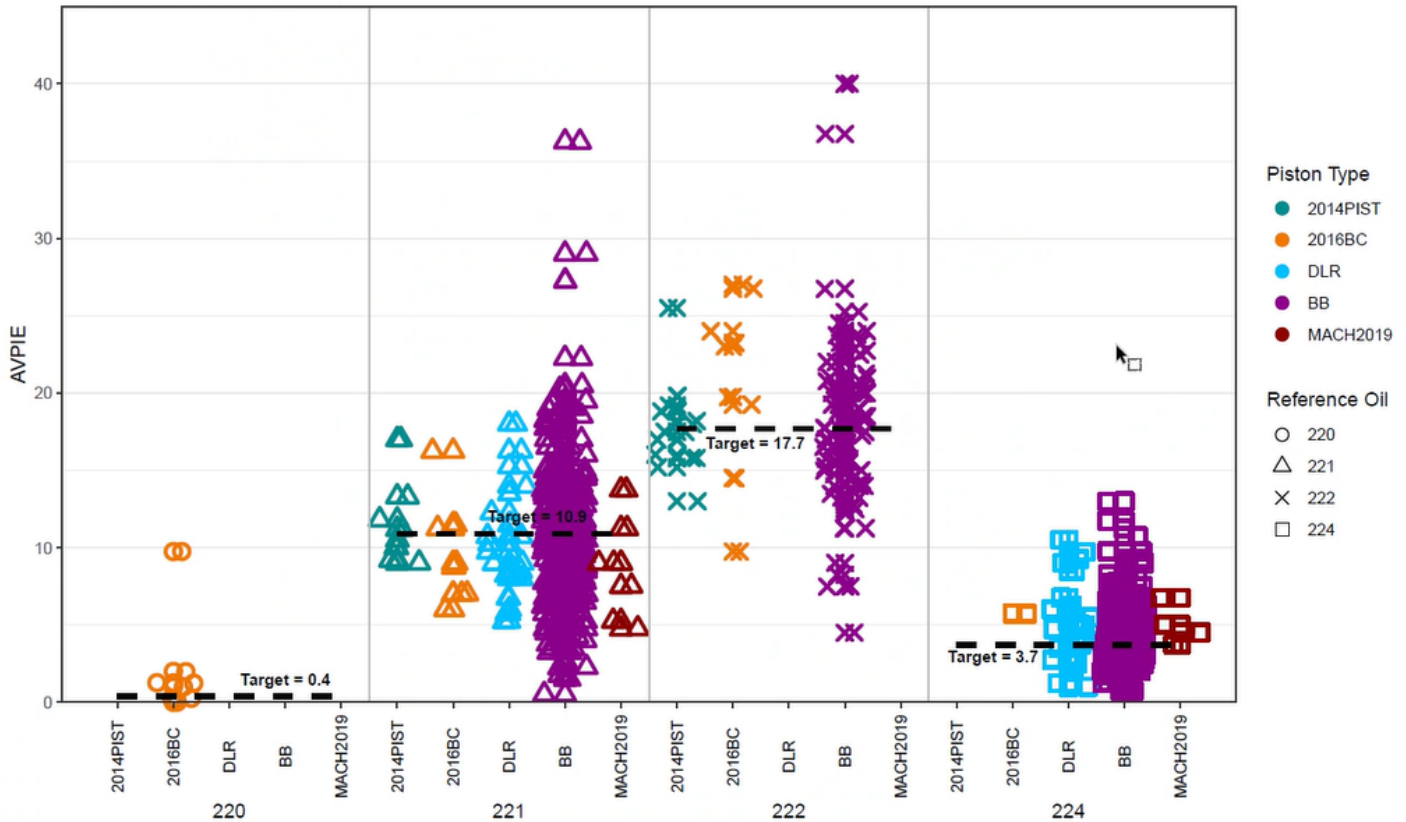
### **Hardware:**

Have multiple types of pistons approved, but not everything is equally distributed between labs.

Testing of BC pistons? George – last discussed in 2017 – bullet point from minutes “continue to evaluate BC pistons for future use”. George shares:

## AVPIE Results by Reference Oil and Piston Type

All chartable tests, except 2016BC



All types chartable except 2016 BCs.

Christine – were the BCs run as is? Did we change out the rings? No one remembers. Andy – recollection is that there was an issue with BB vs. BC. Jason – only difference is the rings. And maybe smoke holes?

Christine – why were the BCs abandoned? No one knows. Rich – variability maybe? Didn't discriminate?

Christine – is this something that we abandoned at the time because we didn't need more hardware, but now we do?

Al – made sense at the time to keep using BC as CW only, since CW was developed with BCs.

Jason – original matrix was run on AC2s. Then ran out of AC2, and received BBs and BCs. Contacted Ron - BBs are same print as AC2s. So BBs go to LSPI, BCs go to CW.

Andy – based on George's data, BCs can be used. But still think there was a reason why we didn't use them... but can't remember what it was. Jason – would guess that those 10 event runs on 220....

Jason – based on data, don't see why we can't use same procedure as introducing other hardware for BCs (machined)

Jason – are outlier (10 event) runs from same lab? Same engine? Both runs from G (IAR). Jason – other than that, data looks fine.

Deegan – results from new engine? Jason – maybe break-in? So yes, new engine.

Andy – notes from 2017, BBs assigned to LSPI, BCs to CW (to confirm Al's memory)

George – looking at data, only see one result with 10 events – oh no – all data in charts is duplicated. Oops. So only one 10 event outlier run. Will correct chart.

BB and AC pistons – identical geometry

BC - different – hence nervousness in 2017, that they look different

Andy – offers to review notes more carefully and come to next call ready to brief

Jason – so to bring us back to today, 2017 efforts are fine, but today. Ranges are within reasonable range. Machined pistons faced less scrutiny. So maybe run a few tests on BC pistons and bring in as did machined pistons.

Andy – notes don't match with George's data set. Will need to look at more closely. New data would definitely help. Also, 224 was not in the mix in 2017.

George – 2018 was LTMS data introduction for 224.

Andy – if 220 was noisy with BCs, would have been a red flag.

Deegan – so how to move forward?

Run some BC tests. George – BC is all we have, so we will be happy to run some.

George – would there be any value in making 220 as a discrimination oil? So, run break-in, 220 iterations, 224, 221... if all tests within limits, valid engine. Rich – only difference is no one reports 220 data.

George – so would apply to everything (IMTS, dealer, etc.). Christine – would be nice to have a standard way to introduce new hardware.

Jason – for 220 as a "test" – would QI limits now apply, etc? Some labs run double length. Rich – maybe just AvPIE.

Jason – if sensor goes out, run another iteration?

George – assemble a smaller group to hack out a procedure and LTMS mod? Rich – maybe best way to handle this is to put in procedure as part of break-in. "Validity not determined by QIs, etc, up to lab's discretion" etc. Similar to VIE. Count as run? Some labs do, some don't.

George – take action to assemble smaller group to hash out details, report back to group. Anyone wants to be involved, send George an email.

Andy – sounds like practical, pragmatic way to proceed.

Sid – IMTS has two sets of pistons.

Deegan – have to remember that we don't want to run out of BCs. Christine – highly unlikely. Andy – may be useful to have hard numbers on engine count.

Jason – Mike, do you have BCs available to purchase right now? Deegan – will get this for next meeting (through FCS)

### **Running Aging and LSPI portions in diff labs:**

George – brought by LZ. Have aged oils sitting with no way to run LSPI. Could alternate lab LSPI test aged oils?

Kind of running out of time. Maybe address again once BC issue is resolved.

Al – couple things: let's say LSPI lab aborts test. Who is responsible to re-age? Also – would have to run by legal department.

Rich – from a procedural standpoint – maybe an additional statement? How ugly for registration? Christine touched on this way back – have an engineer signing off on another lab's / engineer's test.

Al – worst case – oil on shelf that is absolute disaster – who is responsible? Legal department would have a fit.

Todd – LTMS right now based on IX, but could go really extreme with SA for Aging... So some risk of blowing up LTMS with this proposal

George – appreciates thoughts. Will put eggs in the BC basket for now.

#### **New Business:**

Rich – couple changes to report, will initiate change to data dictionary and circulate

Test length – sometimes get reports of more than 27 hours

Christine – test time is counted only when in test soak. Ramps do not count towards test time. The 1-hr conditioning does not count towards test time. IAR agrees. Rich – will clarify and issue IL.

Jason – added new section asking for # runs from last ref? Form 2 – cal count. Okay with having it, but need to clarify how to count it. At start of aging run right after ref., enter 1. Counts current test that is running.

George will send out corrected chart.

**Adjournment – Rich, Christine – second.**