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Issued: April 13, 2015
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These are the unapproved minutes of the 04.09.2015 Sequence VI Surveillance Panel call.

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The meeting was called to order at 12:30 PM Central Time by Chairman Nathan Moles.

Agenda

The Agenda is the included as **Attachment 1**.

1.0 Roll Call

The Attendance list **Attachment 2**.

2.0 Approval of minutes

2.1 Approval of the minutes of the 03.02.2015 conference call.

Motion – Accept the minutes of the 03.02.2015 VI SP Conference Call.
Dan Worcester, Rich Grundza, second.

2.2 This motion received unanimous approval.

3.0 Action Item Review

- 3.1 OHT to report VID & VIE engine usage and expected depletion date of VID engines. There are 0 VID and 78 VIE engines in inventory. The VIE survey for new engine purchases is complete. There will be a final count reviewed and then a conference call with the labs to finalize the order.
- 3.2 SP chair and test sponsor to investigate what is needed to establish VID equivalent limits for VIE. This will be an on-going effort.
- 3.3 TMC to check with ASTM on the removal process for the Seq. VIB. This will be an on-going effort.
- 3.4 Stats group to review targets for Sequence VID RO 542-2 and updated results from TMC See Attachment 3 for 542 analysis.
-The Data Analyst Group has reviewed the recent 542-2 data for the VID and does not recommend any target updates at this time. While there are some concerns in the group that 542-2 is not performing with the same severity as past 542 blends the presence of significant lab differences and the mix of data across engines and labs make it difficult to recommend any target updates at this time. The group agrees that significant lab differences exist in the data set that includes 542-2 and recommends the SP pursue these differences on a technical level. These differences can be observed in the attached graphs of FEI1yi and FEI2yi which contain data from engines that have been used to test 542-2. We will continue to review the 542-2 data as additional tests are reported and notify you if our recommendations change. Afton changed engines and passed all 3 oils for stand calibration. There may be an engine effect. IAR is mild and may not be engine related. 6 engines have been abandoned of the D version that were all built at GM with the oil rings at the upper limit of the specification of tension.

4.0 Old Business

- 4.1 Discussion to consider allowing the oil be changed at 75 hours during the break-in for Seq. VIE -IAR completed DIR analysis (spread sheet attached) –Adrian/Charlie See Attachment 4 for break in data. There is not a huge change in oxidation.
- 4.2 List of items to be reviewed after the Precision Matrix
-Do we really need to run three RO tests to establish the new engine for LTMS?
-Discussion of reducing the new reference requirement to two oils, then a third oil run after a defined number of candidates.

- Discussion of using FEI 2 and FEI Sum for references to match candidate pass/fail criteria.
- Discussion of evaluating 80/20 ratio of BL before to after for FEI 1 and 10/90 for FEI 2.
- Should the acceptance bands value of 1.96 be rounded up? Due to the rounding on FEI 1 and 2 the actual pass limit is 1.91 and 1.92.

- 4.3 Discussion regarding Sequence VIE test ready to proceed with precision matrix. Chair to report results of vote at joint AOAP and PCEOCP meeting May 14th in Detroit.
- The Memorandum of Agreement must be signed and the test receive AOAP approval before the Precision Matrix begins.
 - Lab visits required by TMC to be completed by 4//16.
 - Labs must have two valid tests run on their stands to participate. 4 of 6 interested labs have data on the current version of the test (must use additized fuel).
 - Presentation from stats group analysis of prove out data was reviewed at AOAP meeting March 19th meeting. [TMC will complete lab visits in April.](#)
- 4.4 Order of service engines on hold due to concerns that engine life could change as result of fuel treat rate.
- OHT has request that the laboratories participating in the Seq. VI Surveillance Panel provide their final numbers to them no later than April 8th, 2015
 - Perhaps we can lessen our burden somewhat if we consider refurbishing engines. We are already thinking that we consider this dealer purchase as being different than the existing stock I see no difference if we rebuild engines and treat them as different.*
- [All survey results are complete. Rebuild of engines will be kept as a possible action item. There will be an Action Item for a survey on the life of the remaining VID engines.](#)
- 4.5 There are several of items in the most current draft version of the Seq. VIE test procedure posted on the TMC website that need to be updated. Dave Glaenzer has agreed to reconvene the Task Force to review the procedure. [This will be an on-going effort.](#)

5 New Business

- 5.1 Request from the test sponsor following review of prove-out data at March AOAP meeting:
- a. Precision of the VID is 0.12 while the VIE is 0.21. Taskforce needs to demonstrate it is working on understanding this and what measures need to be put in place to reduce variation. Why does the VIE have worse precision?
 - a. Is it because of the 0W-16 data or something else?
 - b. Does the precision improve (using only the 542 and 541 oils) if the 0W-16 data is removed?
 - c. Calculate VIE and VID standard deviations for both FEI1 and FEI2 using only the 541 and 542 oils.
 - b. The taskforce needs to understand why 0W-16 Tech1 performs similar to 10W-30 and not better than 0W-20. Is this a viscometric or chemistry issue?
 - a. Run 0W-16 Tech1 in VID
 - b. Run 5W-30 Tech1 in VIE

There was discussion on whether a prove out matrix was needed prior to the start of the Precision Matrix. The concern is the standard deviations for FEI 1 and 2 are higher with current industry data than the VID test. Labs have run the 0W-16 in the VIE but Ford will make the 5W-30 Tech 1 version available for the VIE and labs will volunteer to run the 0W-16 in the VID.

- 5.2 Discuss about the oil system in VIE procedure –Rich Grundza
During a recent lab visit, I noted that a lab had installed Aeroquip #12 between the engine oil pump adapter and the oil filter.
The section of the VIE procedure (20140714 draft) reads as follows:
6.6.5.9 Engine oil plumbing shall be stainless steel tubing or piping or flexible hose suitable for use with oils at the temperatures specified (see Fig. A5.6). When using a flexible hose in the external oil system, excluding the line to the dump tank, flexible hoses to and from FCV-150C are to be size #12 and internal diameter of all fittings on the suction side of the engine driven oil pump will be equal to or greater than 13 mm. Install Aeroquip No. 10 (Part No. 2807-10) to and from FIL-2 (see X1.22).
Filter 2 has been deleted so section 6.6.5.9 should read FIL-1, but is #12 aeroquip acceptable for this connection or does it need to be #10.
Also:
Current note on forms 8 and 9 indicate that readings are once per hour.
The plumbing lines to FIL-1 will be #10. There will be a data dictionary change to one minute data for aging.

- 5.3 There are only 4 gallons of 541 left for VID testing. There will be a survey of the amount remaining at labs for the remainder of tests and engines for the VID.
- 5.4 There was a request for information on using drive by wire with a device to improve that response versus using a manual throttle and stepper motor. Amol will provide experimental data.

6 **Next Conference Call will be at the Chair notification.**

The meeting adjourned at 2:10 PM.

ASTM SEQUENCE VI

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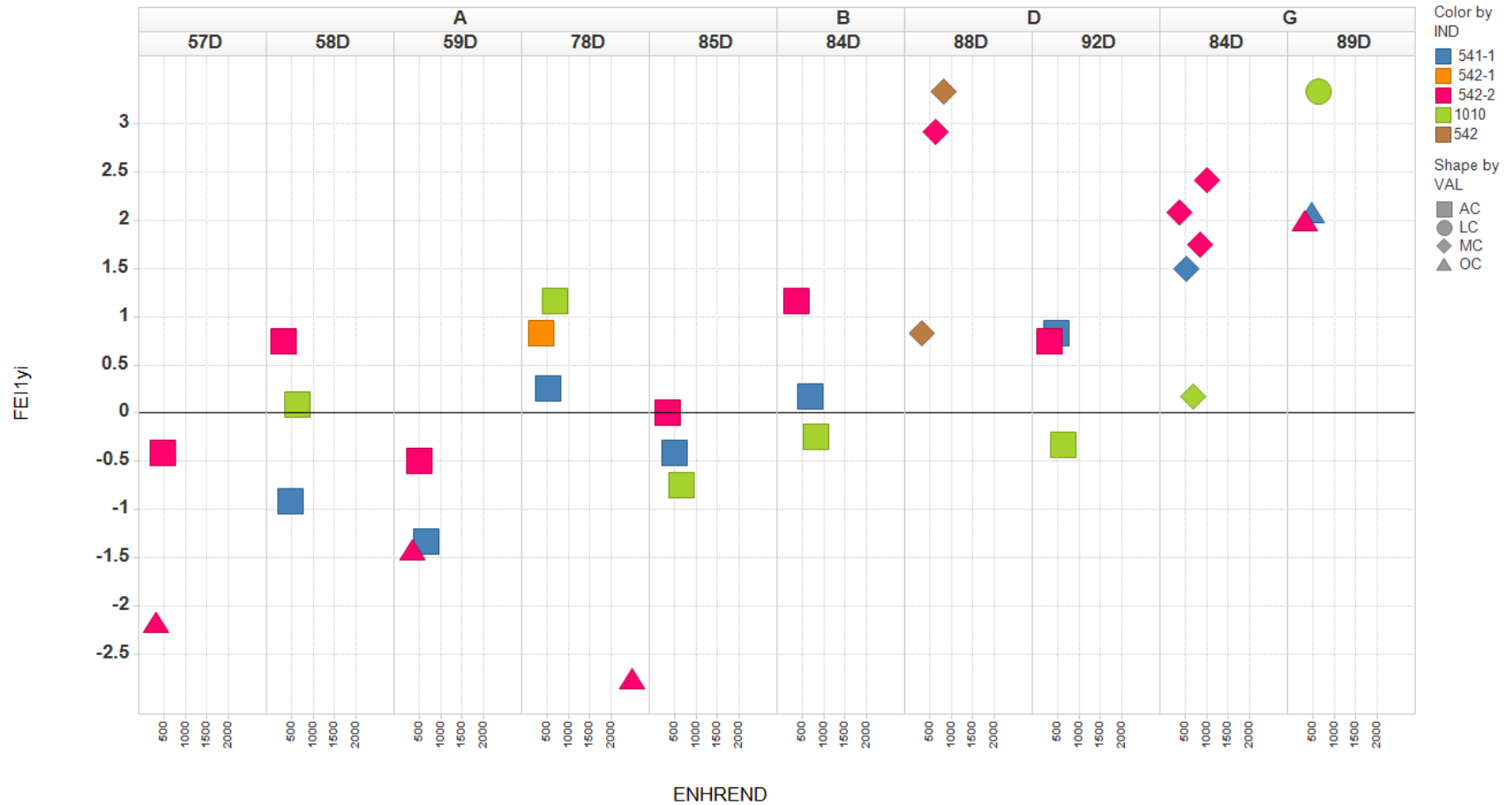
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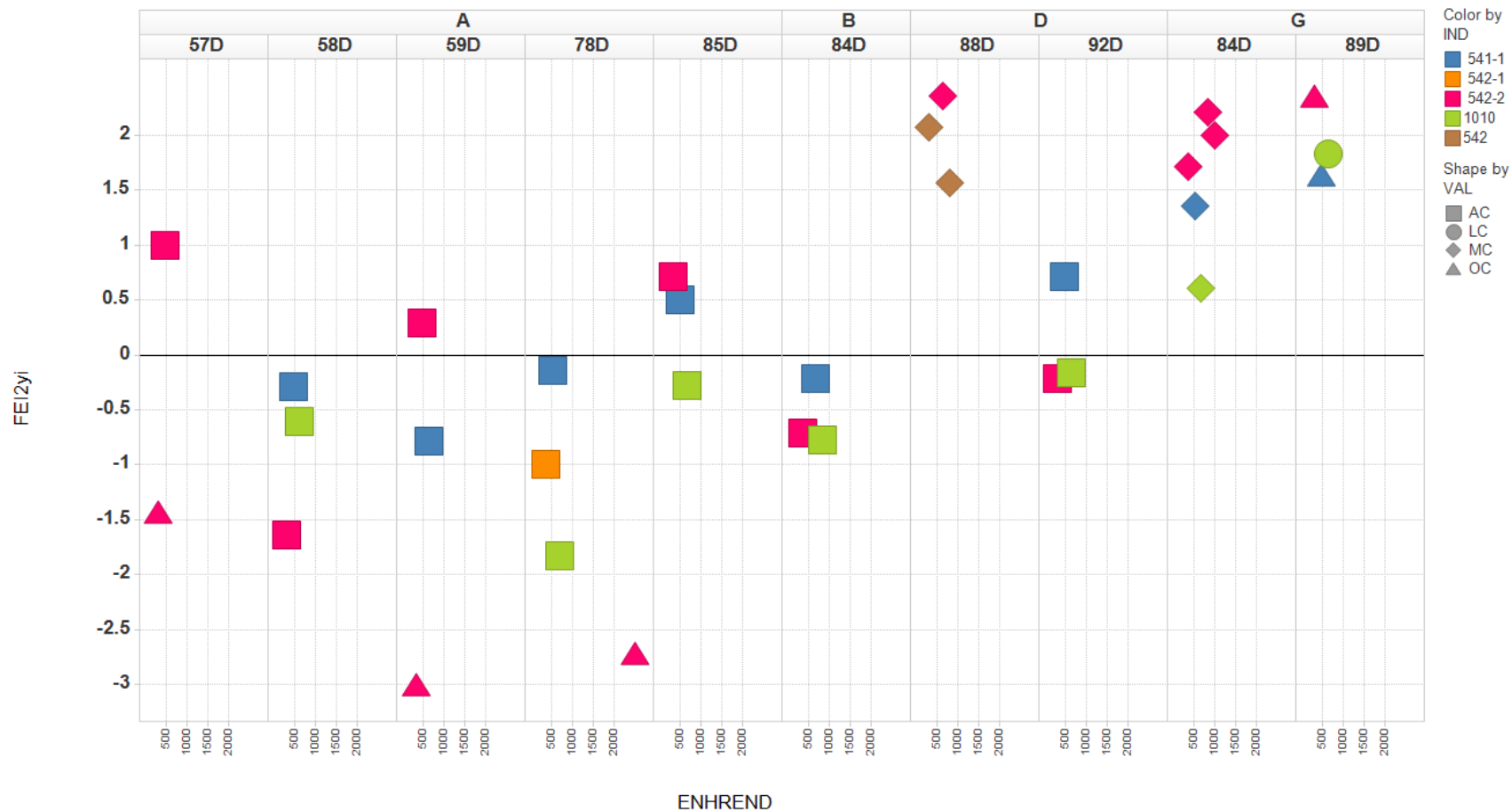
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[illegible]

FEI1yi



FEI2yi



Code	Hour	Test	Actual Value	Unit	Run	Method
A	75	DIR Area Nitration	3	A*cm-1/cm	1	E168
		DIR Area Oxidation	152	A*cm-1/cm	1	E168
B	75	DIR Area Nitration	3	A*cm-1/cm	1	E168
		DIR Area Oxidation	157	A*cm-1/cm	1	E168
C	75	DIR Area Nitration	4	A*cm-1/cm	1	E168
		DIR Area Oxidation	134	A*cm-1/cm	1	E168
D	75	DIR Area Nitration	3	A*cm-1/cm	1	E168
		DIR Area Oxidation	145	A*cm-1/cm	1	E168
D	150	DIR Area Nitration	6	A*cm-1/cm	1	E168
		DIR Area Oxidation	143	A*cm-1/cm	1	E168