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Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

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Issued: February 20, 2015
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These are the unapproved minutes of the 02.18.2015 Sequence VI Surveillance Panel call.

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The meeting was called to order at 8:00 AM Central Time by Chairman Nathan Moles.

Agenda

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

1.0 Roll Call

The Attendance list **Attachment 2**. It does include email and phone for Robert Stockwell.

2.0 Approval of minutes

2.1 Approval of the minutes of the 02.05.2015 conference call.

Motion – Accept the minutes of the 02.05.2015 VI SP Conference Call.
Jason Bowden, Dan Worcester, second.

2.2 This motion received unanimous approval.

3.0 Action Item Review

- 3.1 OHT to report VIE engine usage and depletion date of VID engines.
There are 8 VID and 85 VIE engines in inventory. The remaining engines sales will be based on percentage of historical sales [usage] and will be discussed offline.
- 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 Lab survey to identify used engines available for the precision matrix. This effort will continue until the matrix begins. There is discussion to allow used engines for the matrix then switch to a new engine to allow stand calibration. Jo Martinez will bring this as an action to discuss at the next VIE statistician's meeting.
- 3.4 Create a group to review friction modifier carry over into baseline oils effects or possible changes.

Action – Create a Task Force to review carry-over of friction modifiers.

4.0 Old Business

4.1 Review targets for Sequence VID RO 542-2 – Dave Glaenzer

I believe the chart below is a reasonably accurate depiction of Sequence VID Operationally Valid, chartable tests. The Yi values are my calculation as I believe there are errors in the ASTM-TMC database for those fields.

IND	Average FEI1	Average FEI2	Target FEI 1	Target FEI 2	N	Average FEI1yi	Average FEI2yi
540	1.287	0.984	1.32	1.04	102	-0.275	-0.400
541	0.885	0.676	0.87	0.71	60	0.125	-0.243
541-1	0.933	0.660	0.87	0.71	38	0.525	-0.357
542	1.513	0.834	1.49	0.80	134	0.192	0.243
542-1	1.487	0.845	1.49	0.80	11	-0.025	0.321
542-2	1.686	0.900	1.49	0.80	5	1.633	0.714
1010	1.354	1.060	1.34	1.10	77	0.117	-0.222

Engines have been abandoned that failed the new 542 blend. Some labs are failing mild on both FEI 1 and 2. See Attachment 3 with industry data from TMC. Two more data points will become available so another call to discuss this issue is scheduled for March 02, 2015.

- 4.2 Discussion to consider allowing the oil be changed at 75 hours during the break-in for Seq. VIE. There will be samples taken for DIR analysis for comparison. Charlie Leverett has offered to run one sample for each lab at no cost. Send VIE samples only to IAR. IAR will quote a price offline if labs also want to compare VID numbers at the same break in hours.
- 4.3 Do we really need to run three RO tests to establish the new engine for LTMS? – Dave Glaenzer
- 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.
 - Correlation Oil Consumption to FEI 1 and 2
 - This will be reviewed after the Precision Matrix There was also a question on the acceptance bands. The value of 1.96 is the 95% confidence level, but due to the rounding on FEI 1 and 2 the actual pass limit is 1.91 and 1.92. Dave recommends going to 2.00.
- 4.4 Discussion regarding Sequence VIE test ready to proceed with precision matrix. Chair to report results of vote at joint AOAP and PCEOCP meeting March 19th in Detroit.

Charlie Leverett - The Memorandum of Agreement must be signed and the test receive AOAP approval before the Precision Matrix begins. Lab Visits will be required by TMC. Rich Grundza will work on this. 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.

MOTION: The VIE Surveillance Panel recommends starting the VIE Precision Matrix when AOAP and PEOCP approval votes are completed.
Charlie Leverett, Dan Worcester second. This motion was withdrawn after discussion.

Bruce asked if the Statistical Group had reviewed the data. Jo Martinez had presented data at the last call. There is discrimination of the reference oils. It was noted the FEI2 response is flat, but there is not yet enough data on the engine hour correction. Currently reported VIE reference results are using the VID engine hour correction.

Also 542-2 may have a response change and there are only 3 runs on the new 0W-16 Tech 1 reference oil. Rich Grundza will email the latest results after the meeting. There may be more engine variability on the VIE compare to the stand/engine results for the VID tests.

Nathan Moles – Recommends the motion be tabled and an action list be prepared for when the VIE will be ready for the start of the Precision Matrix. Bruce Matthew agrees to this effort.

Charlie Leverett - Withdraw the motion and notify PCEOCP and AOAP for the March 19th meeting.

- 4.4 Review survey of labs with regards to status of current BL/FO batch (Attached). Discussion about BL and FO quantities and potential for next blend. – Rich Grundza
- One lab has about one year of FO remaining, but other labs have a surplus. TMC will act as a clearing house to evenly distribute BL and FO quantities. New batches will take about a year, so this process will begin in 2015. See [Attachment 4](#).
- 4.5 Discussion about dropping monitoring of the VIB test from the LTMS. – Rich Grundza
- There has not been a VIB calibrated stand since July of 2010
- Labs to check with the test schedulers if there is need for test going forward
[API must remove the VIB.](#)

[ACTION: Rich Grundza will work with ASTM on the removal process.](#)

5 New Business

- 5.1 Discussion on Seq. VIE fuel for precision matrix, currently being blended in small batches and sent to labs. Should single batch of approximately 20k gallons be used for precision matrix? Do we have the storage capacity? – Mark Overaker [Currently fuel is blended in two locations. Mark wanted one large batch blended and stored in a rail car in Houston. Labs will continue to order tankers of additized EEE as needed due to storage capacity issues at labs.](#)
- 5.2 Order of service engines on hold due to concerns that engine life could change as result of fuel treat rate – Jason Bowden [This continues on hold. There is no deadline with GM on when to order the engines. OHT is waiting on customer input. There are also concerns on what the new VIE engine hour correction will do for engine life. Lubrizol has been working with the same additive used for the VIE but at 3 times the treat rate and have not seen a reference shift. The engine order will remain open.](#)

6 Next Conference Call will be 03.02.2015

Meeting Adjourned [Motion: Dan Worcester, Rich Grundza second.](#)

The meeting adjourned at 9:36 AM.

Sequence VI Surveillance Panel Conference Call Agenda February 18 @ 9:00AM EST

Call-in information is included below:

Call-in Number: 866-528-2256
Conference Code: 3744024

1.0) Roll Call

Do we have any membership changes or additions?

2.0) Approval of minutes

2.1) Approve the minutes from the February 5, 2015 Sequence VI Surveillance Panel.

3.0) Action Item Review

3.1 OHT to report VID & VIE engine usage and expected depletion date of VID engines. – OHT

3.2 SP chair and test sponsor to investigate what is needed to establish VID equivalent limits for VIE

3.3 Lab survey to identify used engines available for the precision matrix
- Completed and update was sent to industry statisticians

3.4 Create a group to review friction modifier carry over into baseline oils effects or possible changes

4.) Old Business

4.1 Discussion to consider allowing the oil be changed at 75 hours during the break-in for Seq. VIE

-Labs to send oil samples to IAR, Charlie has agreed to run one sample at no cost.

4.2 Do we really need to run three RO tests to establish the new engine for LTMS? – Dave Glaenzer

- 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.
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- This will be reviewed after the Precision Matrix
- Correlation Oil Consumption to FEI 1 and 2

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 March 19th in Detroit.

4.4 Review survey of labs with regards to status of current BL/FO batch (Attached). Discussion about BL and FO quantities and potential for next blend. – Rich Grundza

- One lab has about one year of FO remaining, but other labs have a surplus. TMC will act as a clearing house to evenly distribute BL and FO quantities. New batches will take about a year, so this process will begin in 2015.

4.5 Discussion about dropping monitoring of the VIB test from the LTMS. – Rich Grundza

- There has not been a VIB calibrated stand since July of 2010
- Labs to check with the test schedulers if there is need for test going forward

4.6 Review targets for Sequence VID RO 542-2 – Dave Glaenzer

I believe the chart below is a reasonably accurate depiction of Sequence VID Operationally Valid, chartable tests.

The Yi values are my calculation as I believe there are errors in the ASTM-TMC database for those fields.

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5.) New Business

5.1 Discussion on Seq. VIE fuel for precision matrix, currently being blended in small batches and sent to labs. Should single batch of approximately 20k gallons be used for precision matrix? Do we have the storage capacity? – Mark Overaker

5.2 Order of service engines on hold due to concerns that engine life could change as result of fuel treat rate – Jason Bowden

6.) Next Meeting

Call of the chairman

7.) Meeting Adjourned

ASTM SEQUENCE VI

Name	Address	Phone/Fax/Email	Attendance
Jason Bowden Voting Member	OH Technologies, Inc.	Phone: 440-354-7007 jhbowden@ohtech.com	Attended
Timothy Caudill Voting Member	Ashland, Inc.	Phone: 606-329-5708 Tlcaudill@ashland.com	Attended
David Glaenzer Voting Member	Afton Research Center	Phone: 804-788-5214 Dave.Glaenzer@aftonchemical.com	Attended
Rich Grundza Voting Member	ASTM TMC	Phone: 412-365-1034 reg@astmtmc.cmu.edu	Attended
Tracey King Voting Member	Haltermann	Phone: tking@jhaltermann.com	Attended
Charlie Leverett Voting Member	Intertek Automotive Research	Phone: 210-647-9422 charlie.leverett@intertek.com	Attended
Terry Kowalski Voting Member	Toyota	teri.kowalski@tema.toyota.com	
Bruce Matthews Voting Member	GM Powertrain Engine Oil Group	Phone: 248-830-9197 bruce.matthews@gm.com	Attended
Timothy Miranda Voting Member	BP Castrol Lubricants USA	Phone: 973-305-3334 Timothy.Miranda@bp.com	
Nathaniel Moles Voting Member	Lubrizol	Phone: (440) 347-4472 Nathaniel.Moles@Lubrizol.com	Attended
Mark Mosher Voting Member	ExxonMobil	Phone: 856-224-2132 mark_r_mosher@exxonmobil.com	Attended
Andy Ritchie Voting Member	Infineum	Phone: 908-474-2097 Andrew.Ritchie@infineum.com	Attended
Ron Romano Voting Member	Ford Motor Company	Phone: 313-845-4068 rromano@ford.com	Attended
Kaustav Sinha Voting Member	Chevron Oronite Company LLC	Phone: 713.432.6642 LFNQ@chevron.com	Attended
Mark Sutherland Voting Member	TEI	Phone: 123.456.7890 msutherland@tei-net.com	
Haiying Tang Voting Member	Chrysler	Phone: 248-512-0593 HT146@Chrysler.com	
Dan Worcester Voting Member	Southwest Research Institute	Phone: 210.522.2405 dan.worcester@swri.org	Attended

ASTM SEQUENCE VI

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Matt Bowden	mjbowden@ohtech.com	OHT	
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Adrian Alfonso	adrian.alfonso@intertek.com 210.838.0431	Intertek	Attended
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Zack Bishop	zbishop@tei-net.com 210.877.0223	TEI	
Patrick Lang	Patrick.lang@swir.org 210.522.2820	SwRI	Attended
Mike Warholic	Michael.warholic@Infineum.com 908.474.2065	Infineum	

ASTM SEQUENCE VI

Name	Address	Phone/Fax/Email	Attendance
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Test Monitoring Center

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542-2 Review

February 5, 2015

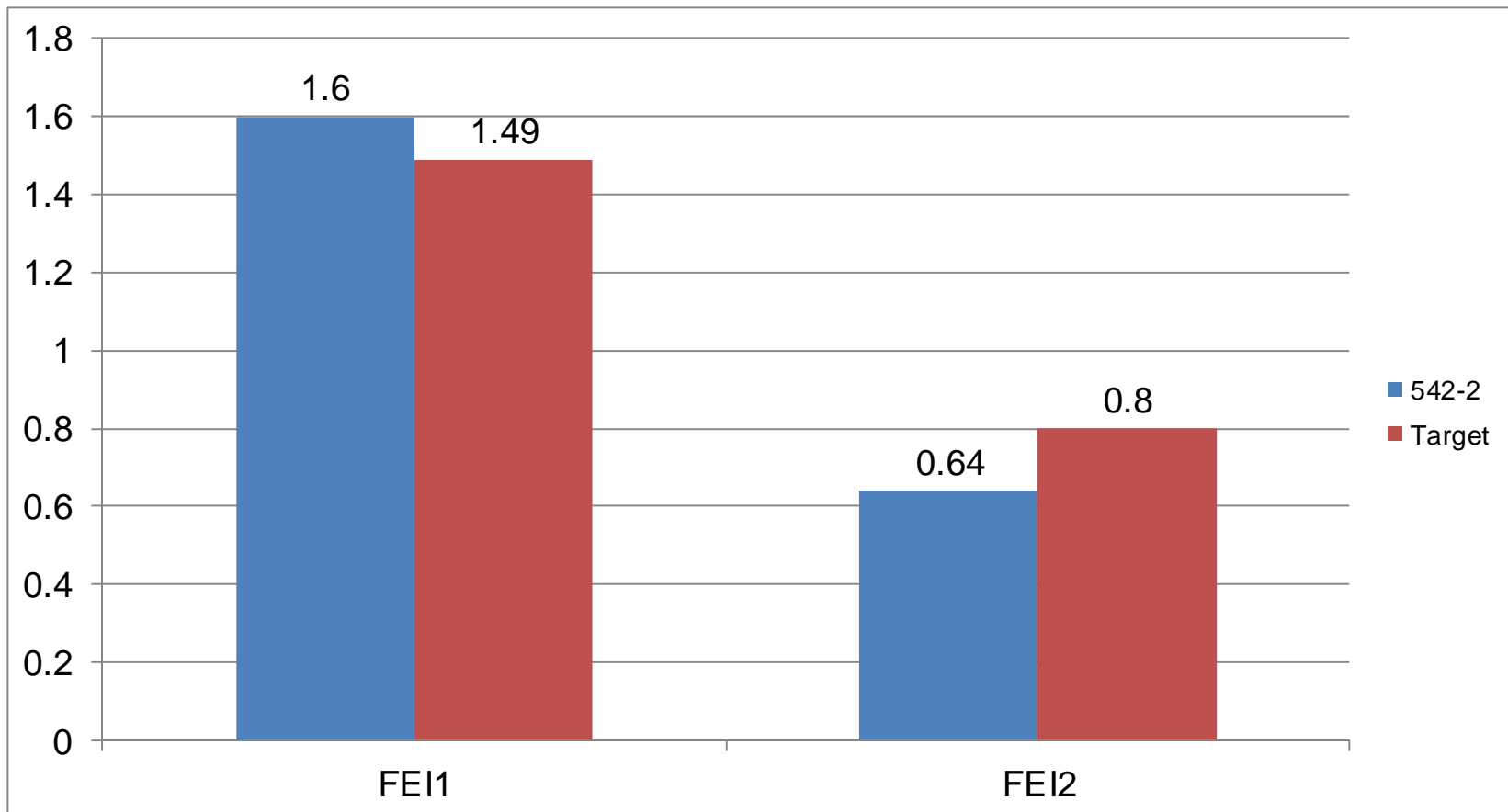
Results to Date

- 6 operationally valid results as of today
- 2 acceptable statistically
- 4 rejected statistically, Mild on FEI1 or FEI2 or Both
- No 542 or 542-1 remains in inventory at TMC
- Some labs have no 542 or 542-1 in VID or VIE inventory
- Results to date summarized in the following slides

Results to Date

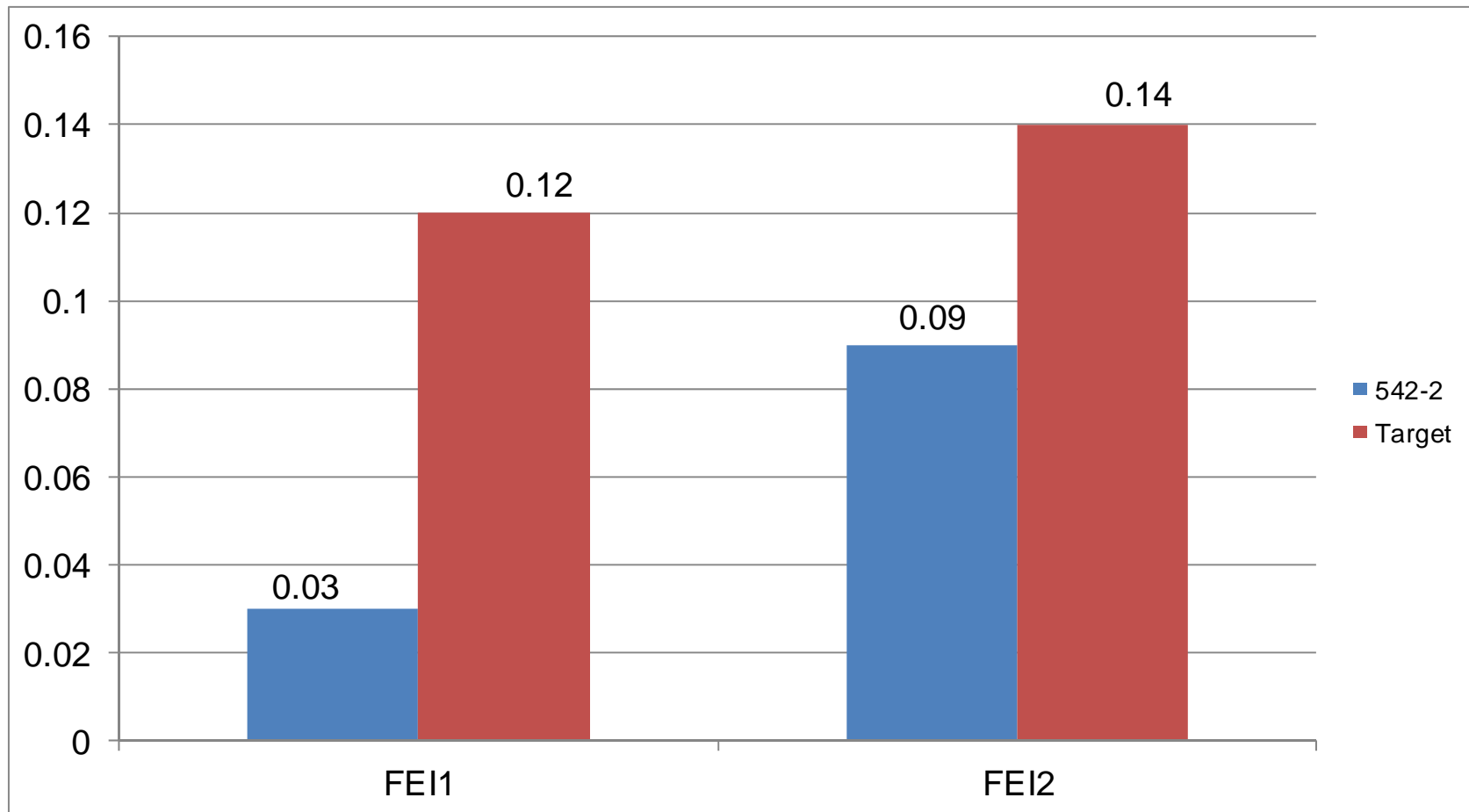
TESTKEY	LTMSLAB	IND	VAL	FEI1	FEI1yi	FEI2	FEI2yi
105703-VID	G	542-2	MC	1.74	2.0833	1.04	1.7143
105712-VID	B	542-2	AC	1.63	1.1667	0.7	-0.7143
105715-VID	A	542-2	AC	1.58	0.75	0.57	-1.6429
106082-VID	G	542-2	MC	1.7	1.75	1.11	2.2143
106141-VID	D	542-2	MC	1.84	2.9167	1.13	2.3571
106083-VID	G	542-2	MC	1.78	2.4167	1.08	2

Comparison of 542-2 Results with 542 Targets



Targets based on 2 tests

Comparison of 542-2 Results Standard Deviations with 542 Targets



Targets based on two tests

Summary

- FEI1 is mild relative to the target, approximately 1 standard deviation milder, but is less variable than target, based on limited data.
- FEI2 is severe of target, with less variability, again based on limited data.
- 542 and 542-1 inventory depleted at TMC.
- Results to date have been on new engines.
- Two of those engines have been abandoned.



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VIDBL and FO Survey

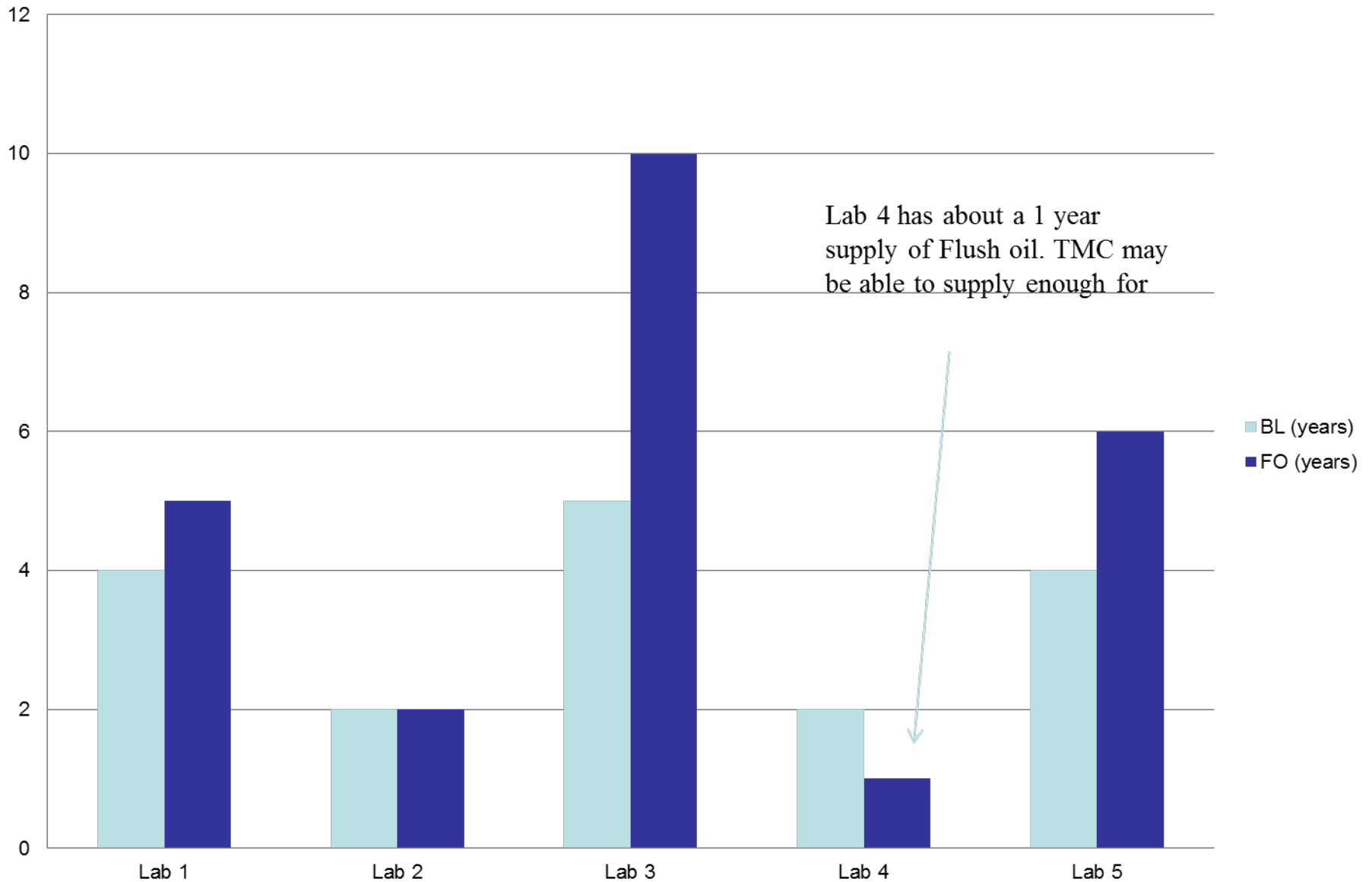
February 5, 2015 Conference Call

VIDBL and FO Survey

Survey conducted to establish need for new blend

Attached graph shows quantities and use of BL and FO for 5 of 6 laboratories.

Estimated BL4 & FO4 Life By Lab



VIDBL and FO Survey

One lab will run out of FO within a year, based on quantities available and current consumption levels.

This lab may be able to go another year using what remains at TMC

At least one other lab may be out of BL and FO in two years.



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