



A Program of ASTM International

Test Monitoring Center

<http://astmtmc.cmu.edu>

GMOD Reference Test Activity

Reference tests completed 10/1/2020 – 3/31/2021

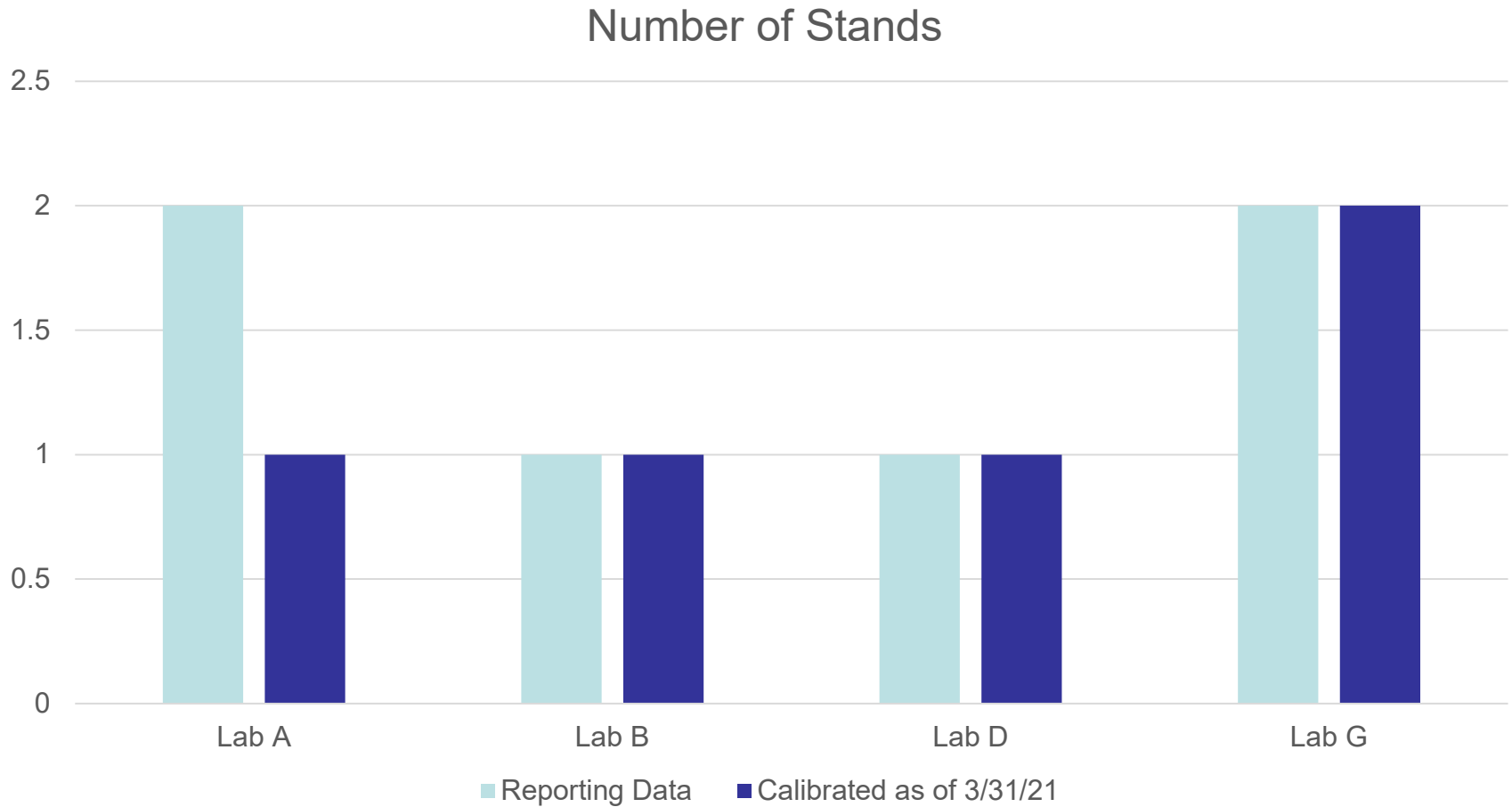
Summary of Activity

- Five calibrated stands in four laboratories
- Reference oil
 - Sufficient quantities of reference oils available
 - RO 434-3 being introduced.
 - GMOD Test Team agreed to continue to use 434-2 targets for calibration purposes.
- All parameters in control for severity and precision
- Gen 2 Blocks also approved by GMOD Test Team.

GMOD Activity

Test Status	Validity Code	#
Acceptable Calibration Test	AC	8
Statistically Unacceptable Calibration Test	OC	2
Not for Industry Statistics Test (Gen2 block proveout)	NN	4
Total		14

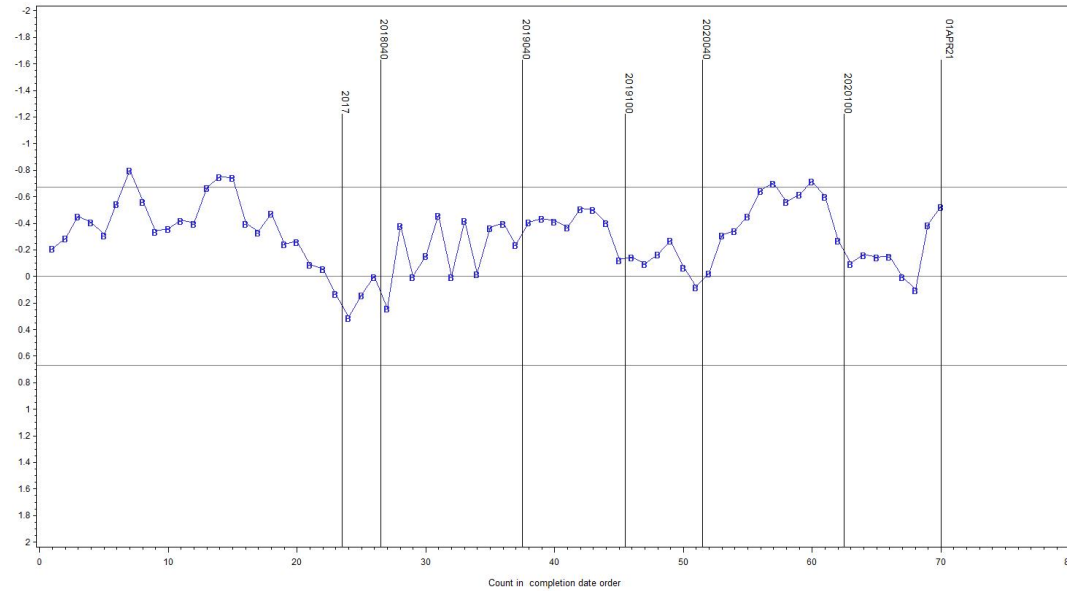
GMOD Test Stands



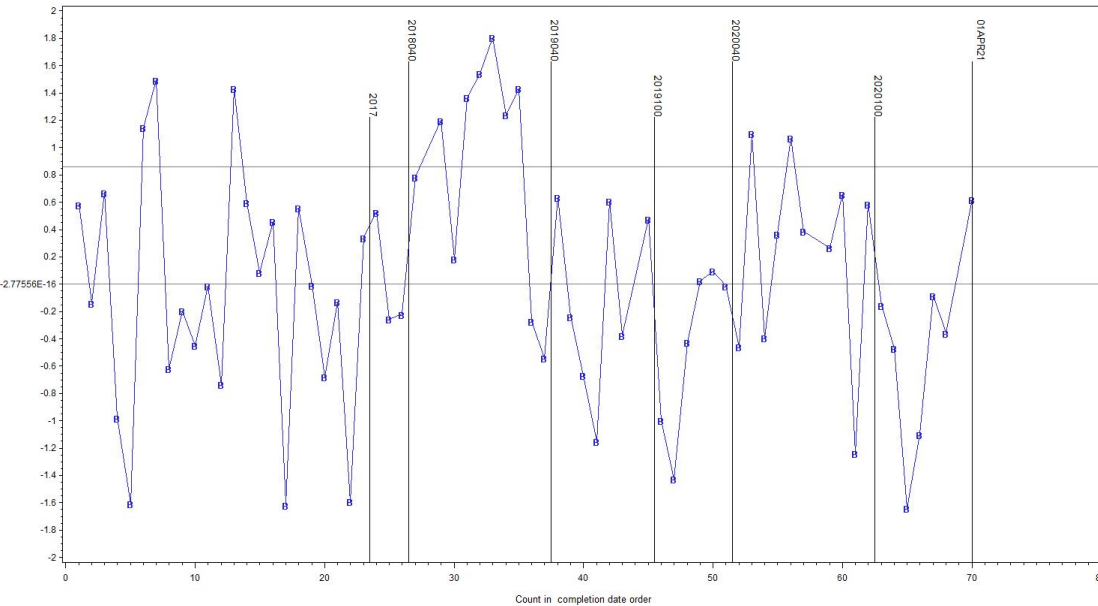
GMOD - Failed Tests

Test Status	#
Mild PVIS	2
Total	2

PVIS LTMS Severity Analysis



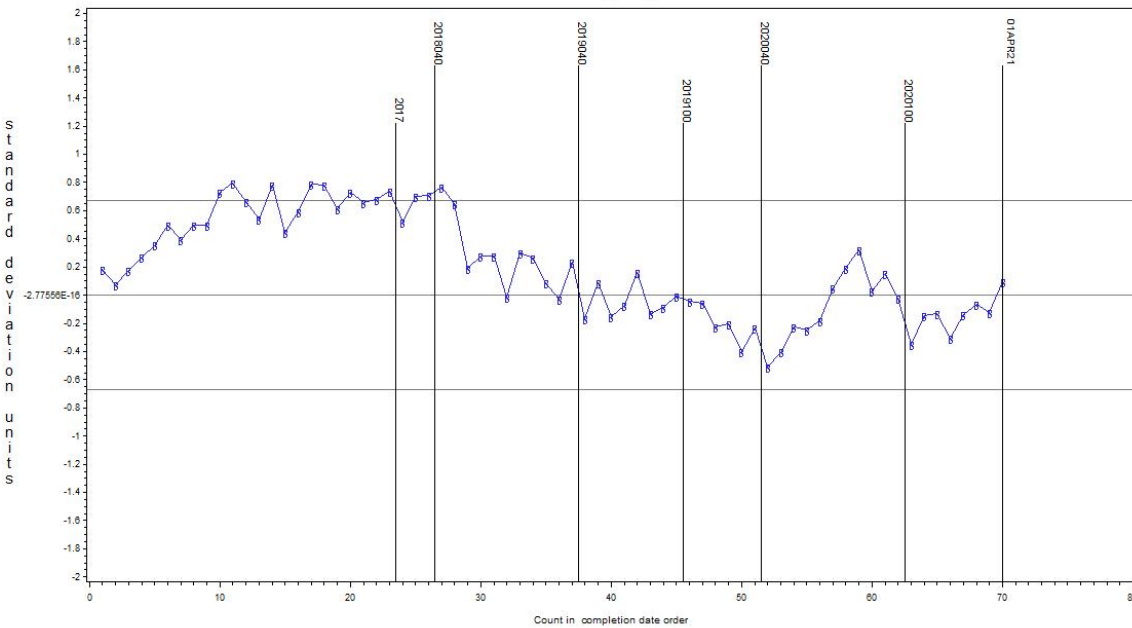
PVIS LTMS Precision Analysis



PVIS Severity / Precision

- PVIS is in control for severity and precision
- Trending slightly mild relative to precision matrix targets

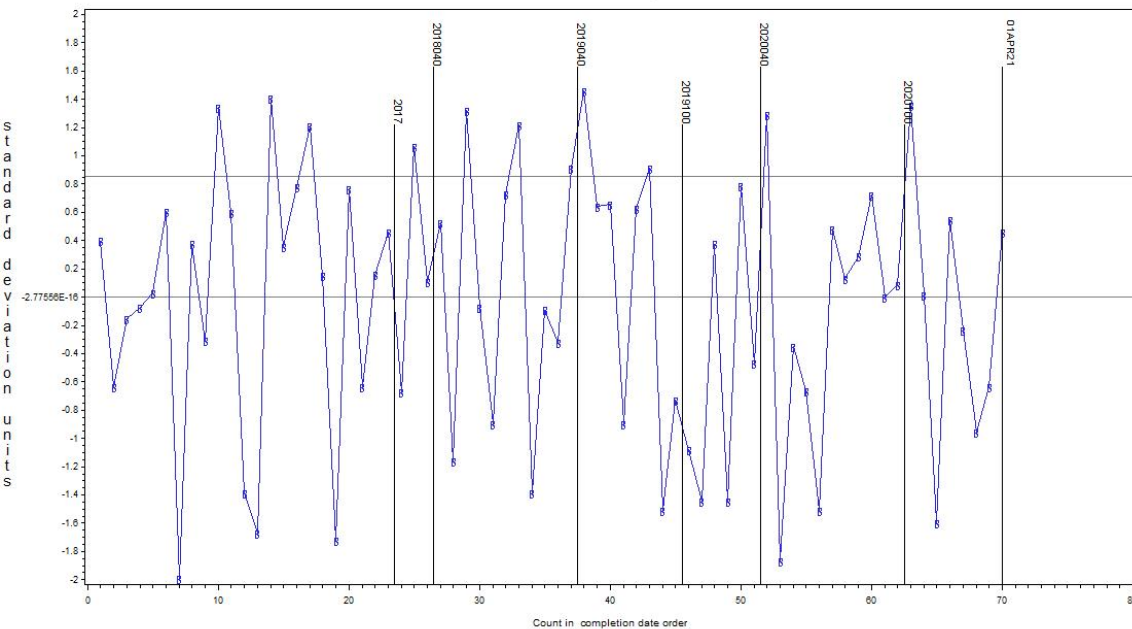
WPD LTMS Severity Analysis



WPD Severity / Precision

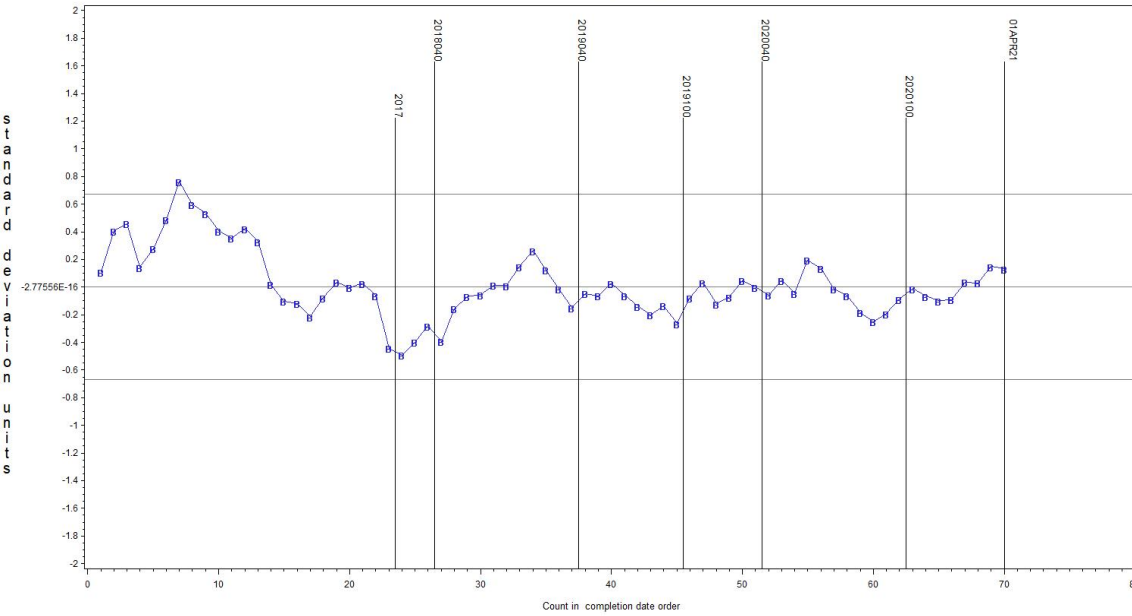
- WPD is in control for severity and precision

WPD LTMS Precision Analysis



- Trending on or near target relative to precision matrix targets

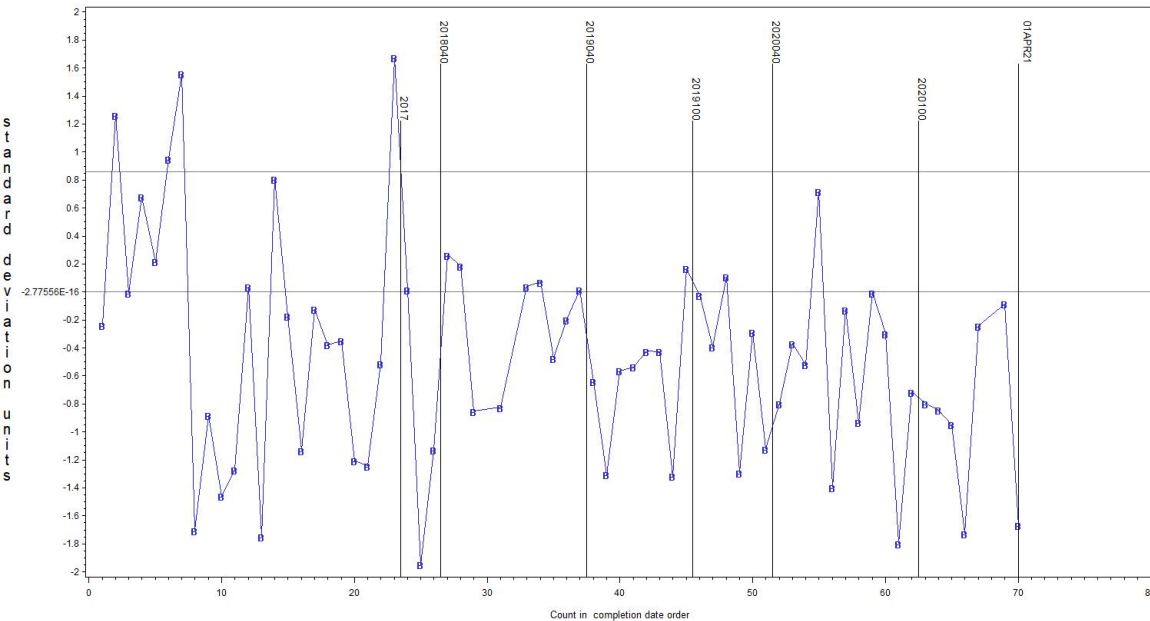
PHOS LTMS Severity Analysis



PHOS Severity / Precision

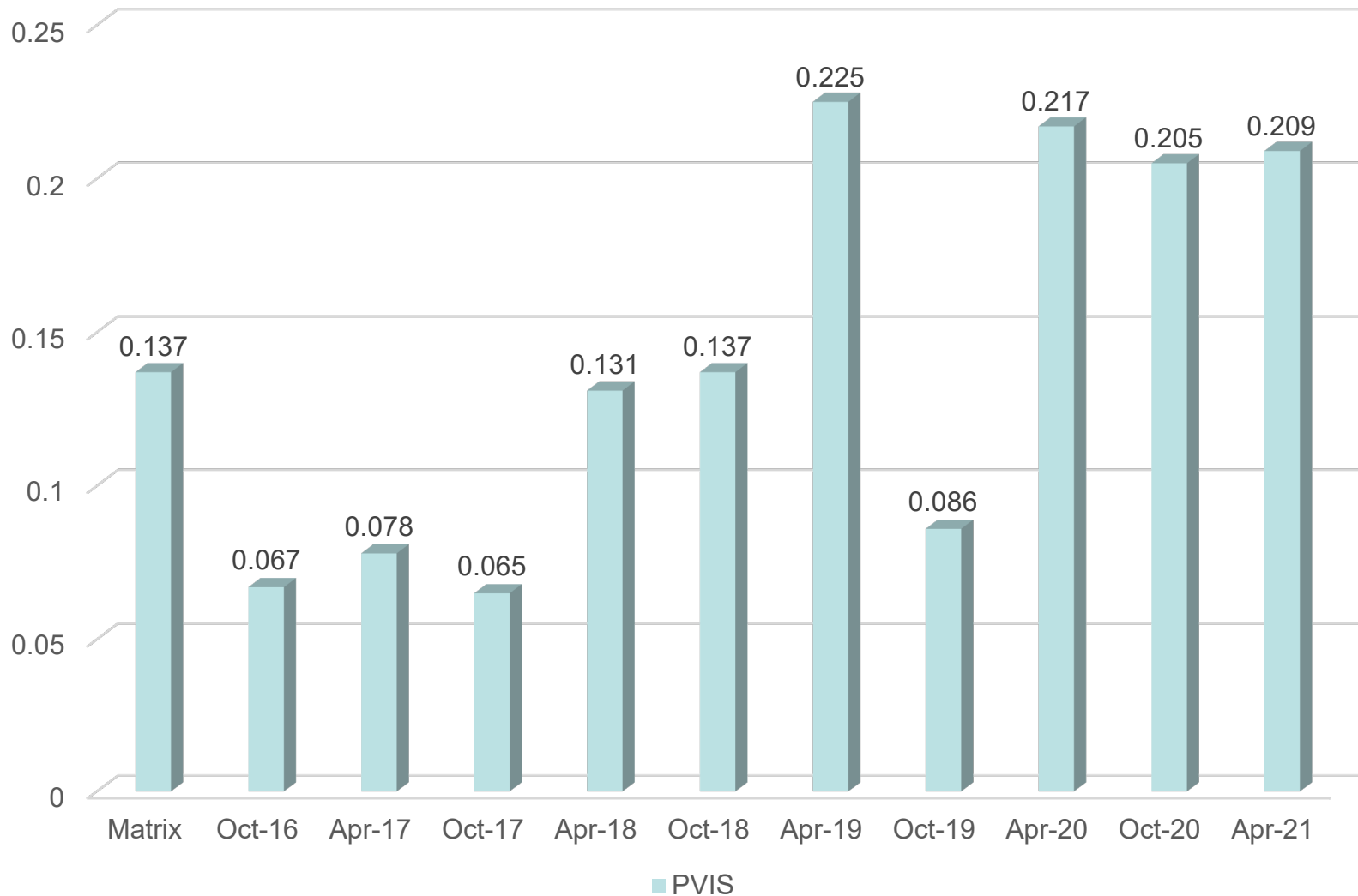
- PHOS is in control for severity and precision

PHOS LTMS Precision Analysis



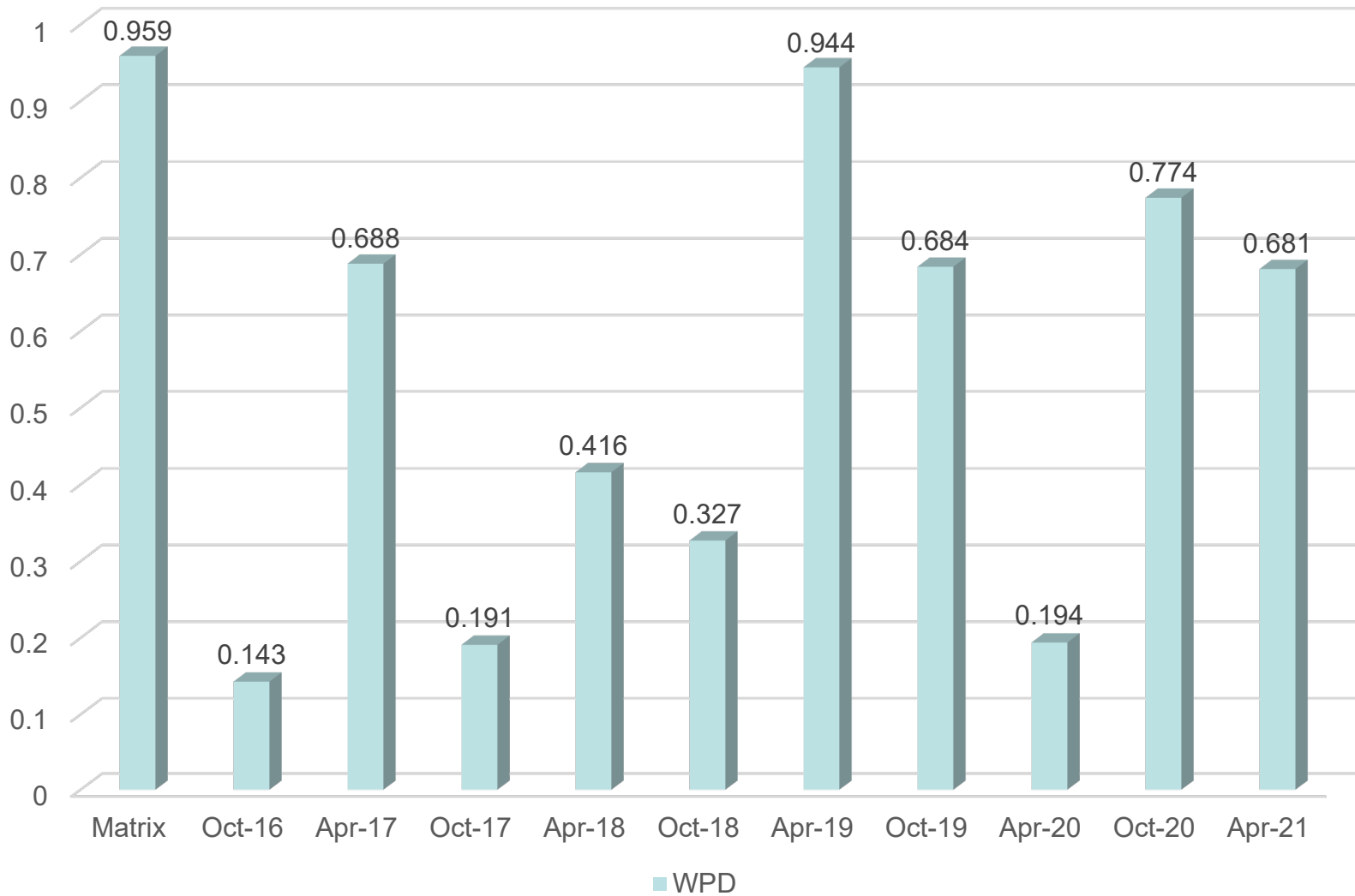
- On or near target relative to precision matrix targets (not a calibration criteria)

PVIS – Pooled s Values by Report Period

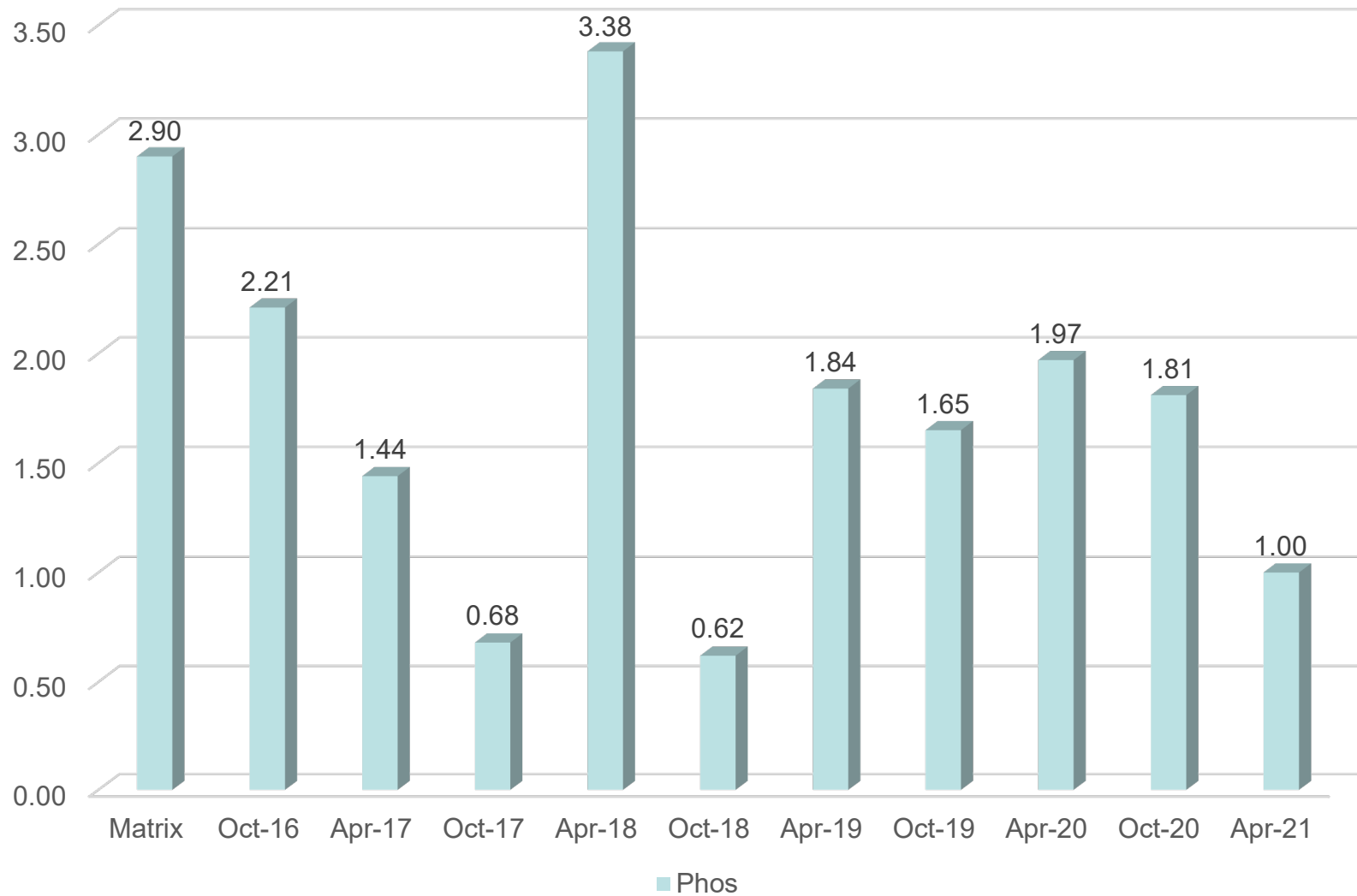


PVIS estimates calculated in transformed units

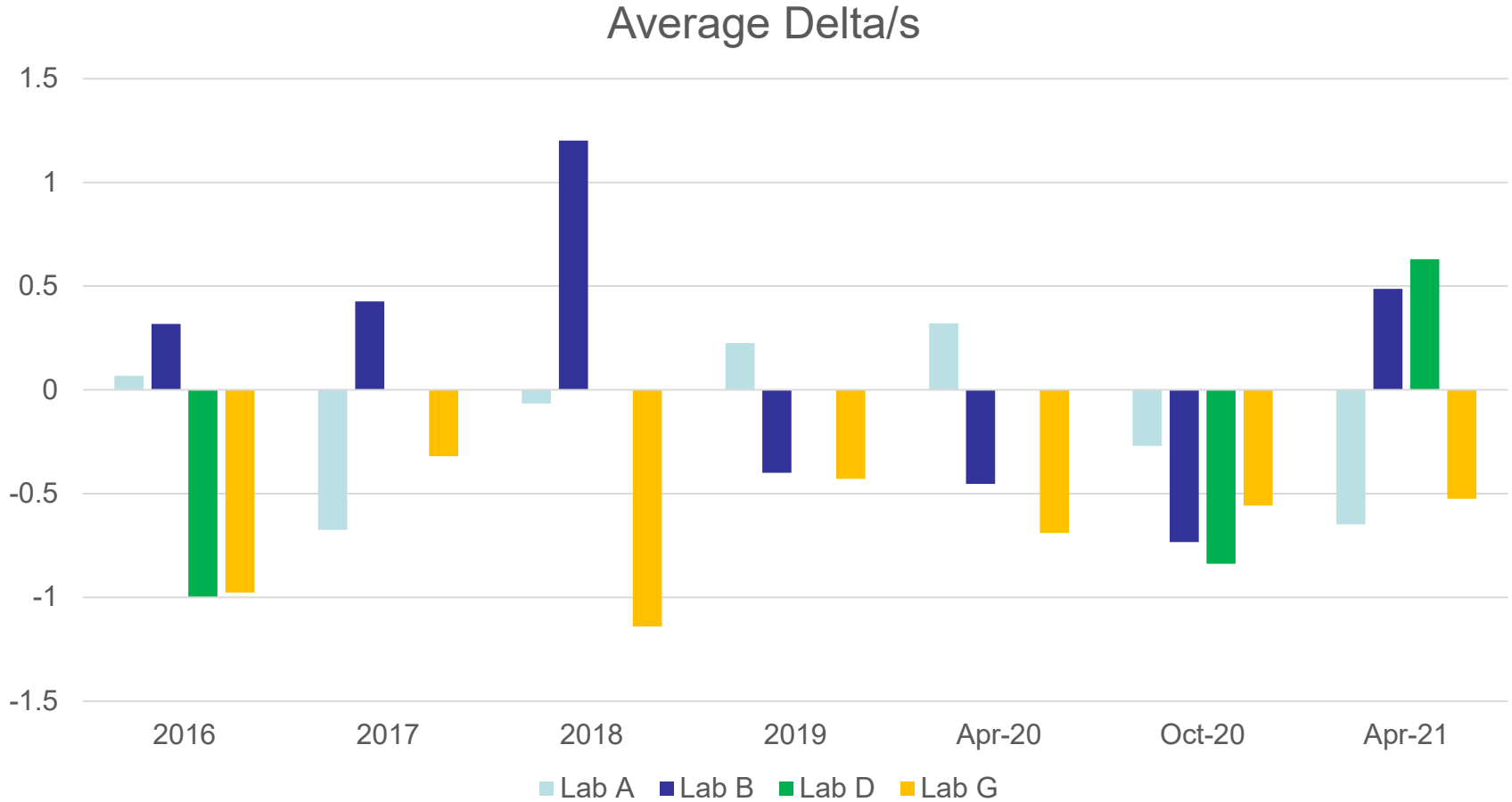
WPD – Pooled s Values by Report Period



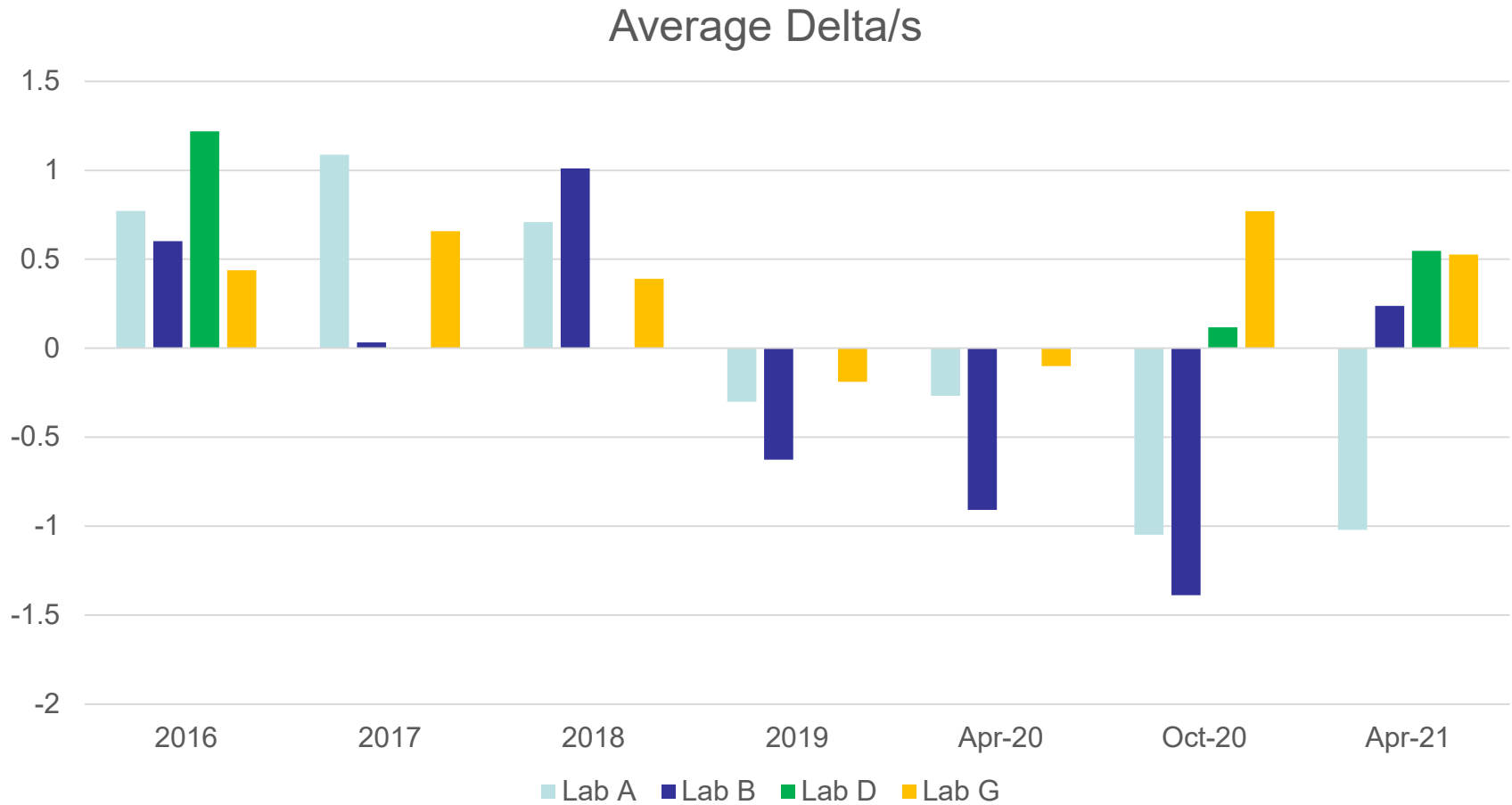
PHOS – Pooled s Values by Report Period



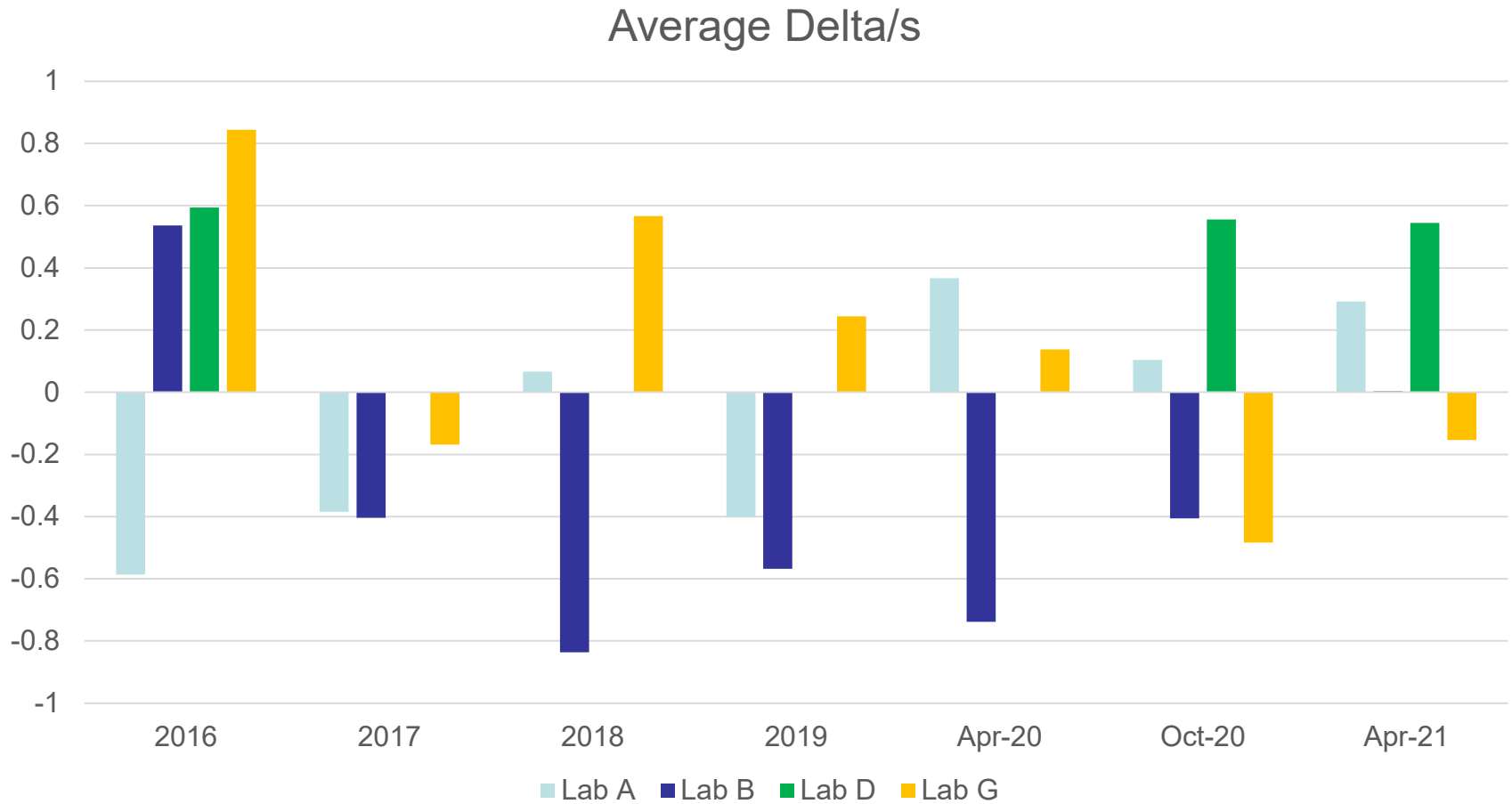
Average delta/s by Lab % Viscosity Increase



Average delta/s by Lab Weighted Piston Deposits



Average delta/s by Lab % Phosphorus Retention



Reference Oil Inventory Estimated Life

Oil	Tests	Original Blend Amount (gallons)	Quantity Shipped in last 6 months	TMC Inventory (gallons)	Lab Inventory (gallons)	Estimated Life
GMOD01-1	GMOD	320	37	82	22.5	3 years
GMOD02-1	GMOD	320	30	113.5	22.5	3 years
434-2	IIIH/GMOD	550	0	0	12.5	depleted
434-3*	IIIH/GMOD	980	56	712	22.5	5+ years

* The inventory of 434-3 should last considerably longer as IIH has decreased quantity shipped from 4 gallons to 2.5 gallons.



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