Sequence III Surveillance Panel
Teleleconference
Meeting MInutes

March 16, 2016 11:00 – 12:30 EDT

1.0) Attendance

The attendance is shown in Attachment 1.

2.0) Approval of minutes

2.1) Minutes from 03/09/2016 Conference Call

The minutes were approved without objection.

3.0) Action Item Review

3.1) Solicit labs to determine critical hardware remaining for Sequence IIIF/IIIG testing. **Glaenzer, underway**

The solicitation has been sent and the results will be presented at the March 29, 2016 meeting.

3.2) Review change implemented to IIIG LTMS at March 09, 2016 meeting. Review after four months. Due 07/23/2016. **Glaenzer**

This action item will be reviewed in July.

4.0) Old Business

4.1) Test Improvement Task Force report. **Szappanos**

George Szappanos reported; the list of revisions and clarifications are shown in Attachment 2. There is intent to run on RO 434-2 at each lab once the procedure has been finalized. It is possible that tests may start within a week. ***George Szappanos moved (Altman second) that the first six items shown in Attachment 2 be accepted.*** The motion passed 15-0-2, with comment by Rich Grundza that no assumptions should be made regarding calibration status possibilities from the RO 434-2 runs. This will be discussed further at the upcoming meeting.

4.2) Test Procedure update. **Haumann**

Karin Haumann reported that the refinements will be worked into the procedure asap and posted to the TMC website.

5.0) New Business

5.1) Determine if Precision Matrix stands can be considered calibrated based on their matrix tests in light of test procedure enhancements. **All**

This will be discussed once the LTMS has been devised.

5.2) Review and finalize the Qi Limits **Szappanos Group**

Rich Grundza is currently preparing a presentation for the task force to review.

5.3) IIIG Equivalent Limit in IIIH. **Martinez**

Chair Glaenzer distributed (Attachment 3) a presentation that Jo Martinez will be making to CLOG. The panel will likely take this up in the future once a proposal has been brought forth.

5.4) Update on LTMS plans for Sequence IIIH. **Face-to-face meeting in SAT March 29**

6.0) **Work Remaining**

6.1 Set up LTMS. **Underway SAT March 29**

6.2) Determine calibration and referencing protocols. **Discuss at SAT March 29**

6.3) Appendix K Update. **Martinez**

6.4) Surveillance Panel recommendation regarding test readiness for the category. **June, 2015**

6.5) Publish research report **TBD**

7.0) **Clarification of LTMS/SA Change**

It was noted that the motion from the March 9 teleconference to change the IIIG LTMS to use continuous severity adjustments lacked sufficient clarity regarding the implementation. ***After brief discussion, Ed Altman moved (Stockwell second) that the use of continuous SAs goes into effect with all tests that EOT on or after March 23, 2016.*** This motion passed without objection and no waives.

8.0) **Next Meeting**

8.1) 8:00 a.m., March 29, 2016 at SwRI.

9.0) **Meeting Adjourned :** 11:45 a.m.

ATTACHMENT 1

ASTM Sequence III Surveillance Panel (22 Voting members) date: 3/16/16

Name/Address	Phone/Fax/Email			Signature
		MOTION		
Ed Altman	ed.altman@aftonchemical.com	A	Voting Member	Present ✓
Jeff Betz	jeff.betz@fcagroup.com	A	Voting Member	Present
Jason Bowden	jhbowden@ohtech.com	A	Voting Member	Present ✓
Timothy L. Caudill	tlcaudill@ashland.com	A	Voting Member	Present ✓
Richard Grundza	reg@astmtmc.cmu.edu	A	Voting Member	Present ✓
Jeff Hsu, PE	j.hsu@shell.com	A	Voting Member	Present K. HALLMAN Rep.
Teri Kowalski	teri.kowalski@tema.toyota.com	—	Voting Member	Present
Dan Lanctot	dlanctot@tei-net.com	W	Voting Member	Present ✓
Patrick Lang	plang@swri.org	A	Voting Member	Present ✓
Bruce Matthews	bruce.matthews@gm.com	W	Voting Member	Present ✓
Mark Overaker	mhoveraker@jhaltermann.com	—	Voting Member	Present
Andrew Ritchie	andrew.ritchie@infineum.com	A	Voting Member	Present ✓
Ron Romano	rromano@ford.com	—	Voting Member	Present
Cliff Salvesen	clifford.r.salvesen@exxonmobil.com	A	Voting Member	Present ✓
Addison Schweitzer	addison.schweitzer@intertek.com	A	Voting Member	Present ✓
Greg Shank	greg.shank@volvo.com	—	Voting Member	Present
Kaustav Sinha, Ph.D.	LFNQ@chevron.com	A	Voting Member	Present ✓
Thomas Smith	trsmith@ashland.com	A	Voting Member	Present ✓
Scott Stap	scott.stap@tgidirect.com	—	Voting Member	Present
George Szappanos	george.szappanos@lubrizol.com	A	Voting Member	Present ✓
Haiying Tang	HT146@chrysler.com	A	Voting Member	Present ✓
David Tsui	david.tsui@bp.com	A	Voting Member	Present ✓

15-0-2

ASTM Sequence III Surveillance Panel (22 Voting members) date:

Name/Address	Phone/Fax/Email		Signature
Ricardo Affinito	affinito@chevron.com	N-V Member	Present_____
Art Andrews	arthur.t.andrews@exxonmobil.com	N-V Member	Present_____
Robert Bacchi	robert.bacchi@basf.com	N-V Member	Present_____
Terry Bates	batesterryw@aol.com	N-V Member	Present_____
Doyle Boese	doyle.boese@infineum.com	N-V Member	Present_____
Adam Bowden	adbowden@ohtech.com	N-V Member	Present_____
Dwight H. Bowden	dhbowden@ohtech.com	N-V Member	Present_____
Matt Bowden	mjbowden@ohtech.com	N-V Member	Present_____
Jerome A. Brys	jerome.brys@lubrizol.com	N-V Member	Present_____
Jessica Buchanan	jessica.buchanan@lubrizol.com	N-V Member	Present_____
Bill Buscher III	william.buscher@intertek.com	N-V Member	Present ✓
Bob Campbell	bob.campbell@aftonchemical.com	N-V Member	Present_____
Chris Castanien	chris.castanien@nesteoil.com	N-V Member	Present_____
Martin Chadwick	martin.chadwick@intertek.com	N-V Member	Present_____
Ankit Chaudhry	ankit.chaudhry@swri.org	N-V Member	Present_____
Jeff Clark	jac@astmtmc.cmu.edu	N-V Member	Present ✓
Sid Clark	sidney.clark@swri.org	N-V Member	Present ✓
Phil Davies	daviesjp@bp.com	N-V Member	Present_____
Todd Dvorak	todd.dvorak@aftonchemical.com	N-V Member	Present ✓
Frank Farber	fmf@astmtmc.cmu.edu	N-V Member	Present_____
Joe Franklin	joe.franklin@intertek.com	N-V Member	Present_____
Gordon Farnsworth	gordon.farnsworth@infineum.com	N-V Member	Present ✓
David L. Glaenzer	dave.glaenzer@aftonchemical.com	N-V Member	Present ✓
Karin E. Haumann	karin.haumann@shell.com	N-V Member	Present ✓
Martin Heimrich	martin.heimrich@swri.org	N-V Member	Present_____
Jason Holmes	jason.holmes@basf.com	N-V Member	Present_____
Walter Lerche	walt.lerche@gm.com	N-V Member	Present_____
Jim Linden	lindenjim@jlindenconsulting.com	N-V Member	Present_____

ASTM Sequence III Surveillance Panel (22 Voting members) date:

Name/Address	Phone/Fax/Email		Signature
Scott Lindholm	scott.lindholm@shell.com	N-V Member	Present_____
Jo Martinez	jogm@chevrontexaco.com	N-V Member	Present_____
James Matasic	james.matasic@lubrizol.com	N-V Member	Present_____
Mike McMillan	mmcmillan123@comcast.net	N-V Member	Present ✓
Bob Olree	olree@netzero.net	N-V Member	Present_____
Kevin O'Malley	kevin.omalley@lubrizol.com	N-V Member	Present_____
Dave Passmore	dpassmore@imtsind.com	N-V Member	Present ✓
Christian Porter	christian.porter@aftonchemical.com	N-V Member	Present_____
Phil Rabbat	phil.rabbit@basf.com	N-V Member	Present_____
Allison Rajakumar	allison.rajakumar@lubrizol.com	N-V Member	Present_____
Scott Rajala	srajala@ilacorp.com	N-V Member	Present_____
Jim Rutherford	jaru@chevrontexaco.com	N-V Member	Present_____
Bob Salgueiro	bob.salgueiro@infineum.net	N-V Member	Present_____
Elisa Santos	elisa.santos@infineum.com	N-V Member	Present_____
Hirano Satoshi	satoshi_hirano_aa@mail.toyota.co.jp	N-V Member	Present_____
Amol Savant	acsavant@ashland.com	N-V Member	Present_____
Philip R. Scinto	prs@lubrizol.com	N-V Member	Present_____
Robert Stockwell	robert.stockwell@chevron.com	N-V Member	Present ✓
Chris Taylor	chris.taylor@vpracingfuels.com	N-V Member	Present_____
Ben Weber	bweber1@sat.rr.com	N-V Member	Present_____
Angela Willis	angela.p.willis@gm.com	N-V Member	Present_____
Tom Wingfield	wingftm@cpchem.com	N-V Member	Present_____

ATTACHMENT 2

IIIH Task Force suggested revisions and clarifications to the Draft Test procedure:

Revision	Expected impact	status
Crankcase ventilation system standardized; some sizes and fittings were revised; standardization of the use of the J-TEC blow-by meter.	Potential improvement in oil consumption consistency as well as blowby measurement	Diagram finalized, along with associated installation instructions
Honing procedure changed during the first stage of honing so that the cylinder bore size and cylindricity is achieved automatically. This should correspond to less total strokes to achieve the final bore size.	Potential improvement in surface finish consistency	Engine assembly manual has been updated.
Cylinder bore diameter measurement to be performed by a standardized gauge; Standardized Bore Standards to be used for gauge calibration	Improved consistency between labs on bore diameter (~5µ)	Engine assembly manual has been updated
Chattering of head bolts and main cap bolts eliminated by way of cleaning procedure modification	More consistent bore distortion during engine assembly	Engine assembly manual has been updated
An 8 oz limit was put on the amount of EF411 assembly lubricant	Less contamination/dilution of the test oil leading to more consistent initial viscosity between labs.	Engine assembly manual has been updated
Stress plates are to be installed on the build cart instead of the honing machine prior to honing	More consistent bore distortion during engine assembly	Engine assembly manual has been updated
The cylinder bore surface finish limits are to be adjusted	Less chance for blocks to be unusable / out of spec	Capability analysis has been done; revised limits are still being finalized
Intake air pressure and fuel temperature QI limits are to be adjusted	Reduce likelihood of negative Qis on parameters that have minimal impact on test performance	New limits are being considered
Additional ECU-based parameters are to be included in the data recorded during the test	Improved understanding of engine control consistency	Shakedown work in progress

IIIG Equivalent Limit in IIIH

Statistics Group

March 14, 2016

Statistics Group

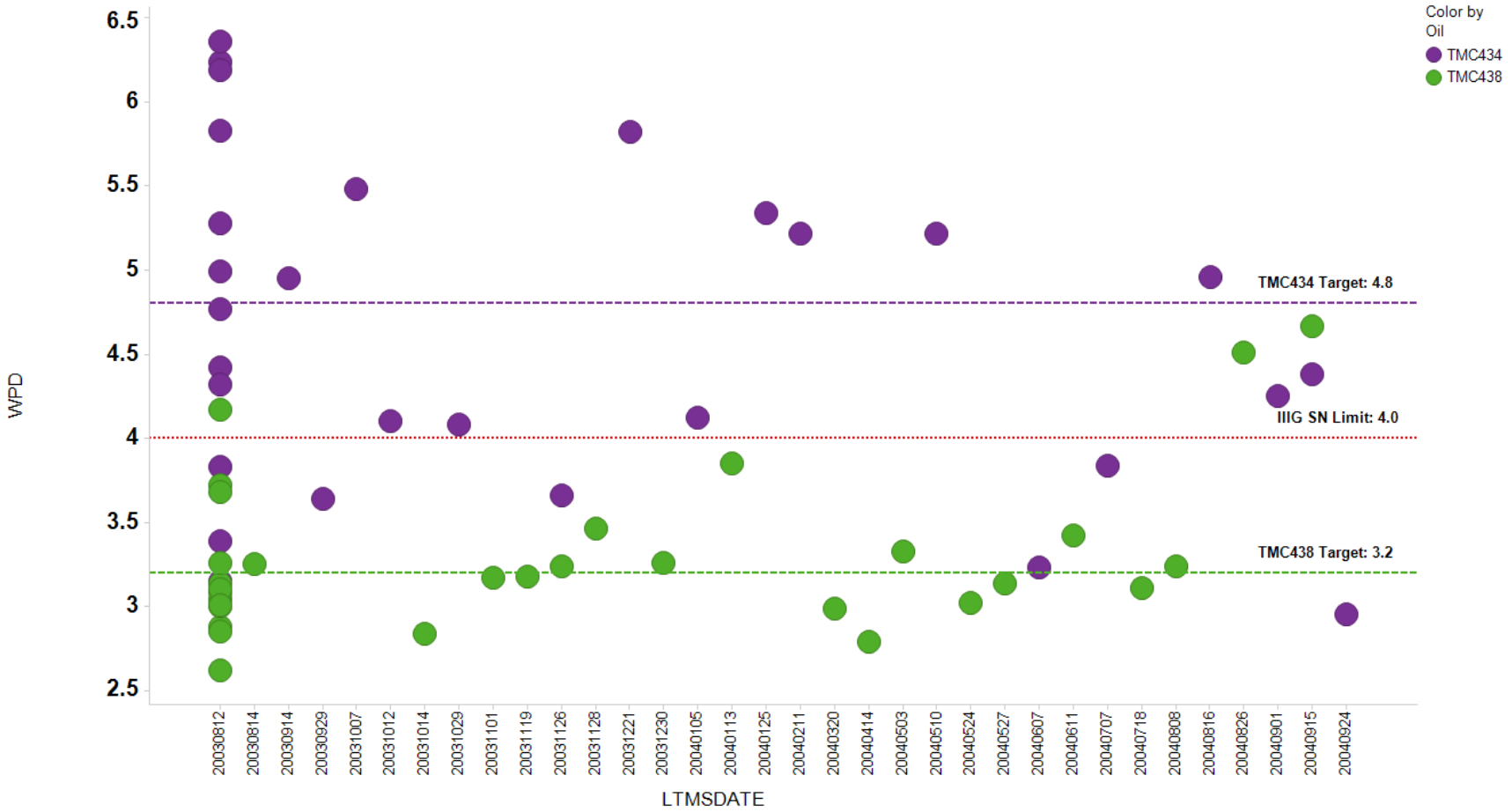
- Art Andrews, Exxon Mobil
- Martin Chadwick, Intertek
- Jo Martinez, Chevron Oronite
- Richard Grundza, TMC
- Travis Kostan, SwRI
- Lisa Dingwell, Afton Chemical
- Todd Dvorak, Afton Chemical
- Doyle Boese, Infineum
- Kevin O'Malley, Lubrizol

Summary

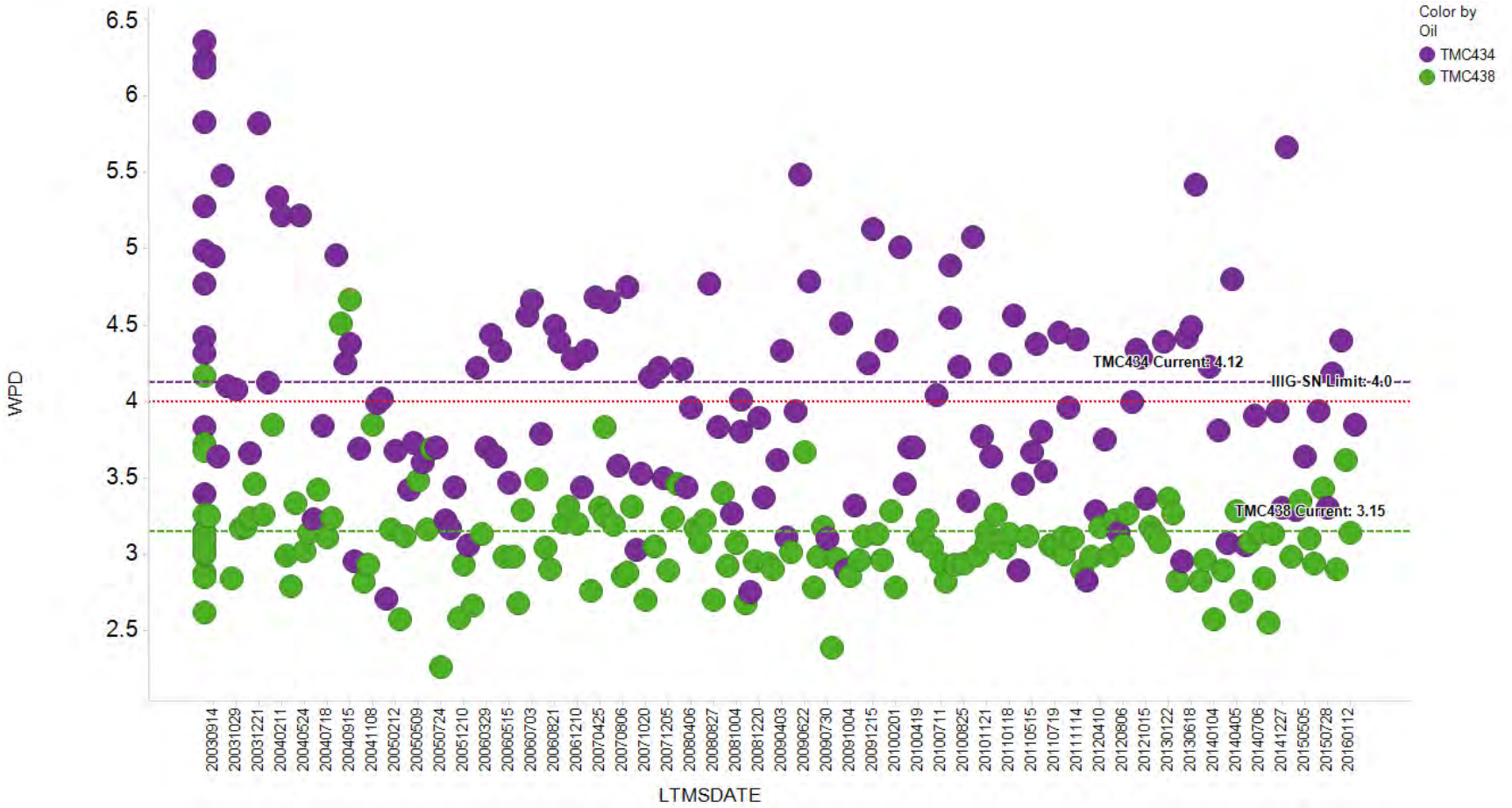
	IIIG Period	WPD	PVIS
IIIG SN Limit	2009-present	4.0	150
IIIG Effective Limit		3.7	154
IIIG SN Limit in IIIH			
Based on 434-2 only	20141220 to 20150728	3.7	73
Based on 434 blends	20030812 to 20160119	3.7	126
Based on 434 and 438 blends	20030812 to 20160119	4.0	150
Probability of Pass (TMC434)	2003-2004	3.8	151

WPD

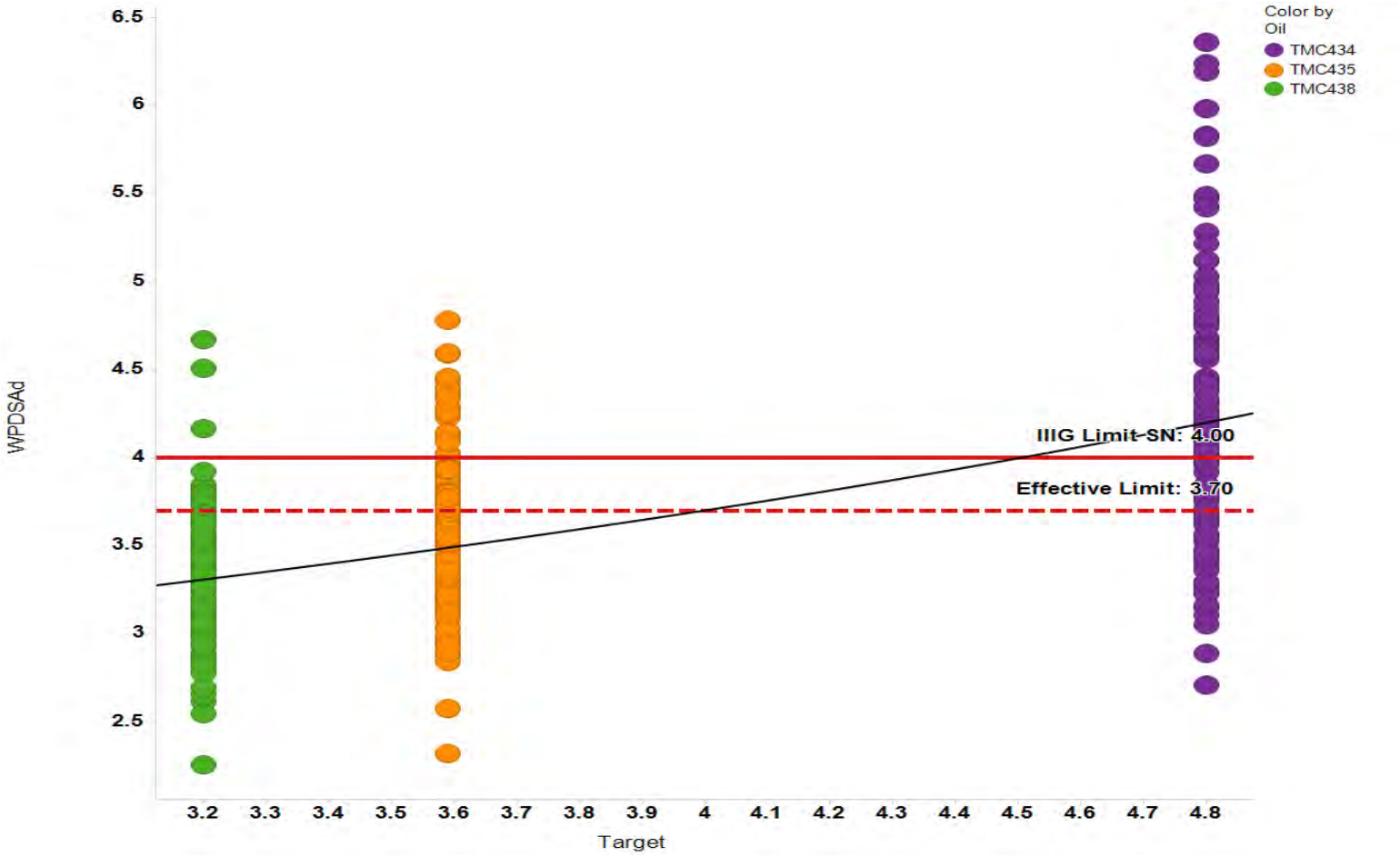
IIIG WPD Original Target Setting (2003-2004)



IIIG WPD (20030812 to 20160119)



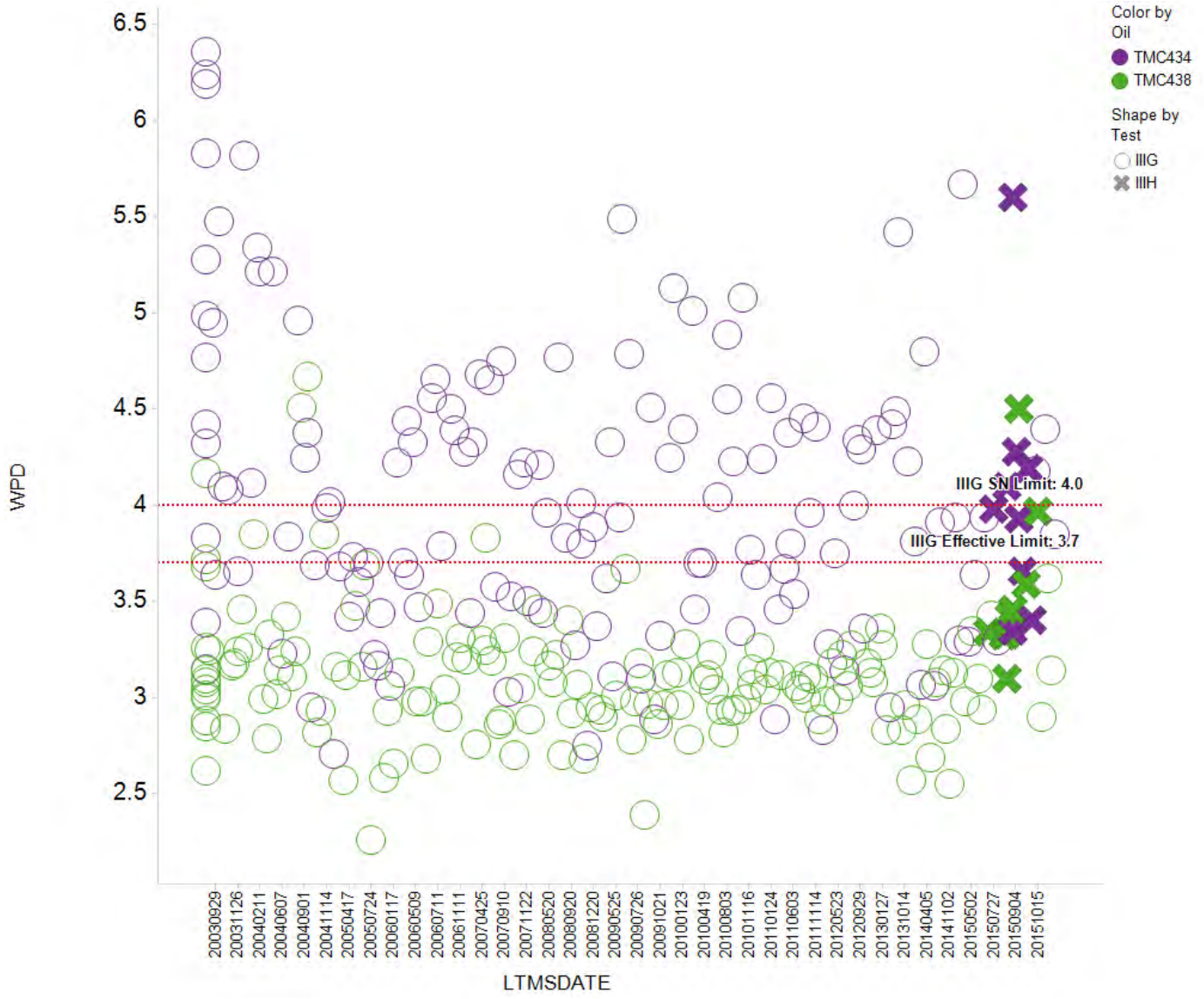
WPD Effective SN Limit



- Data used in analysis includes all chartable data from Aug. 2003 to Jan. 2016.
- By regressing WPD Severity Adjusted results against LTMS targets, determine the corresponding result for a WPD of 4.0, the IIIG SN Limit.
- Effective Limit – An oil that gives 4.0 in 2003 will give 3.7 on average over the life of the test.

IIIG WPD Effective Limit

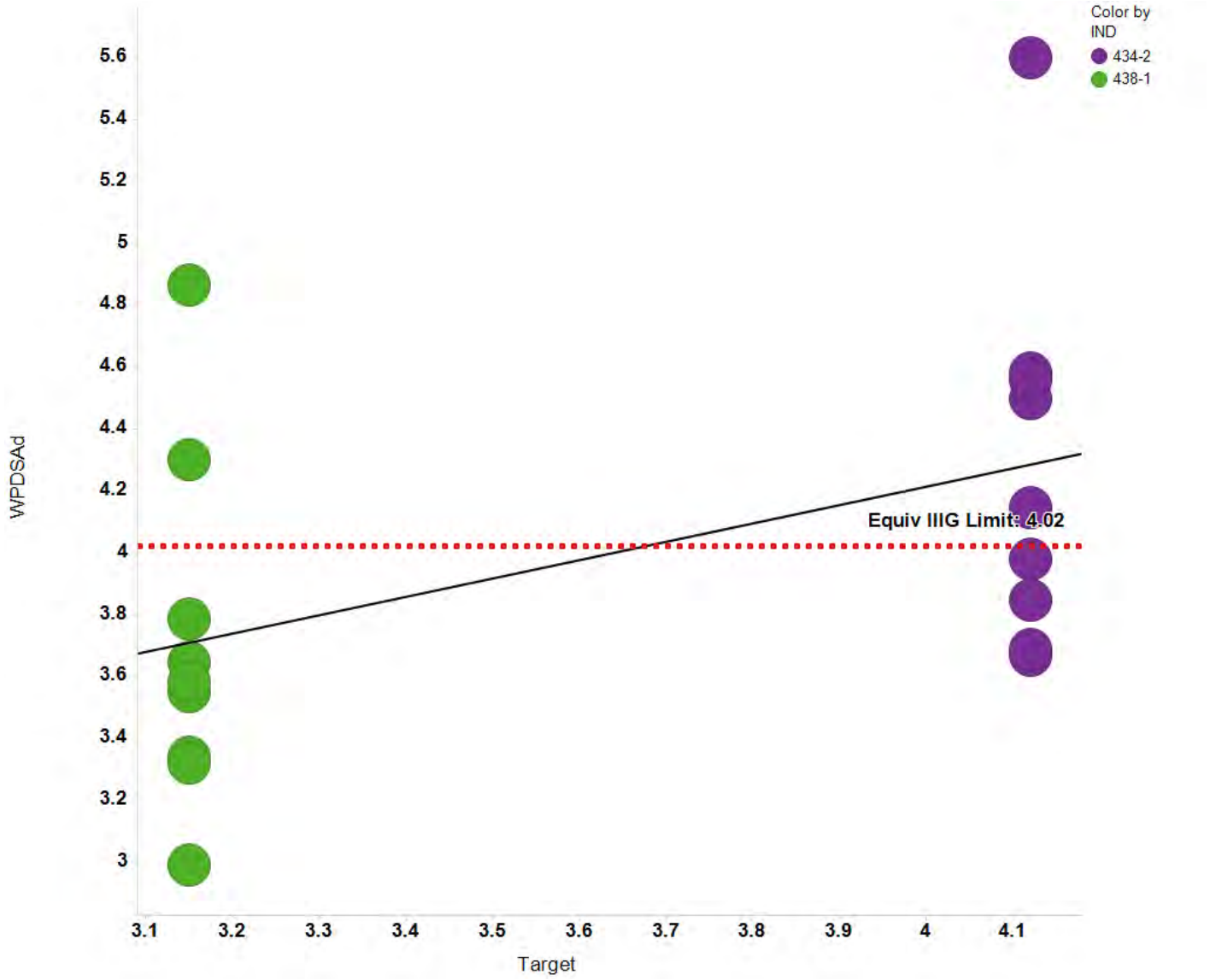
IIIG WPD (20030812 to 20160119) with IIIH



Using 434-2 only, the means are the same for IIIG and IIIH so the IIIG Equivalent SN Limit in IIIH is 3.7

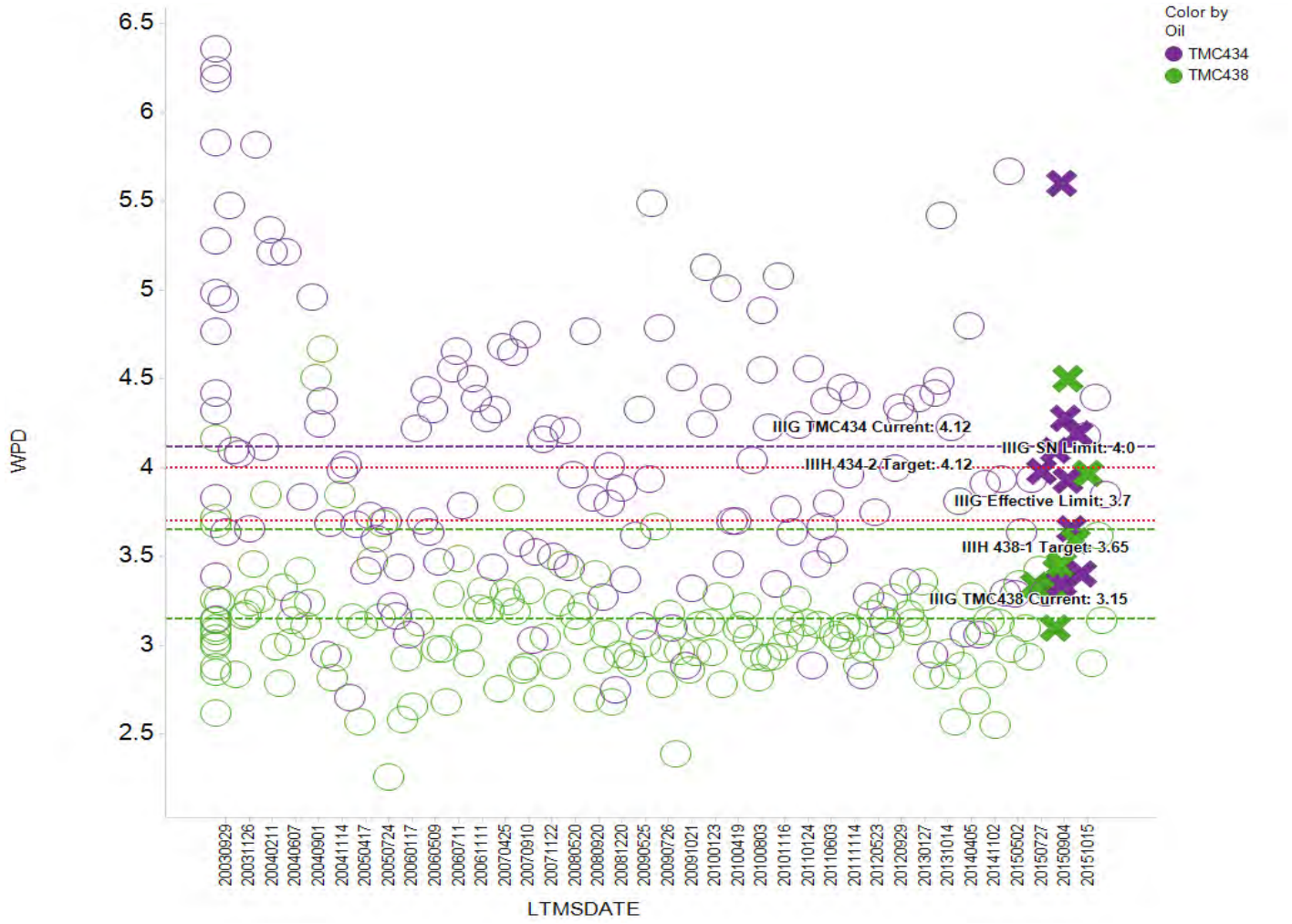
Using 434 blends, the means are the same for IIIG and IIIH so the IIIG Equivalent SN Limit in IIIH is 3.7

IIIG WPD Equivalent Limit in IIIH using 434-2 and 438-1



By regressing IIIH WPD Severity Adjusted results against IIIG current targets, determine the corresponding result for a WPD of 3.7, the IIIG Effective SN Limit.

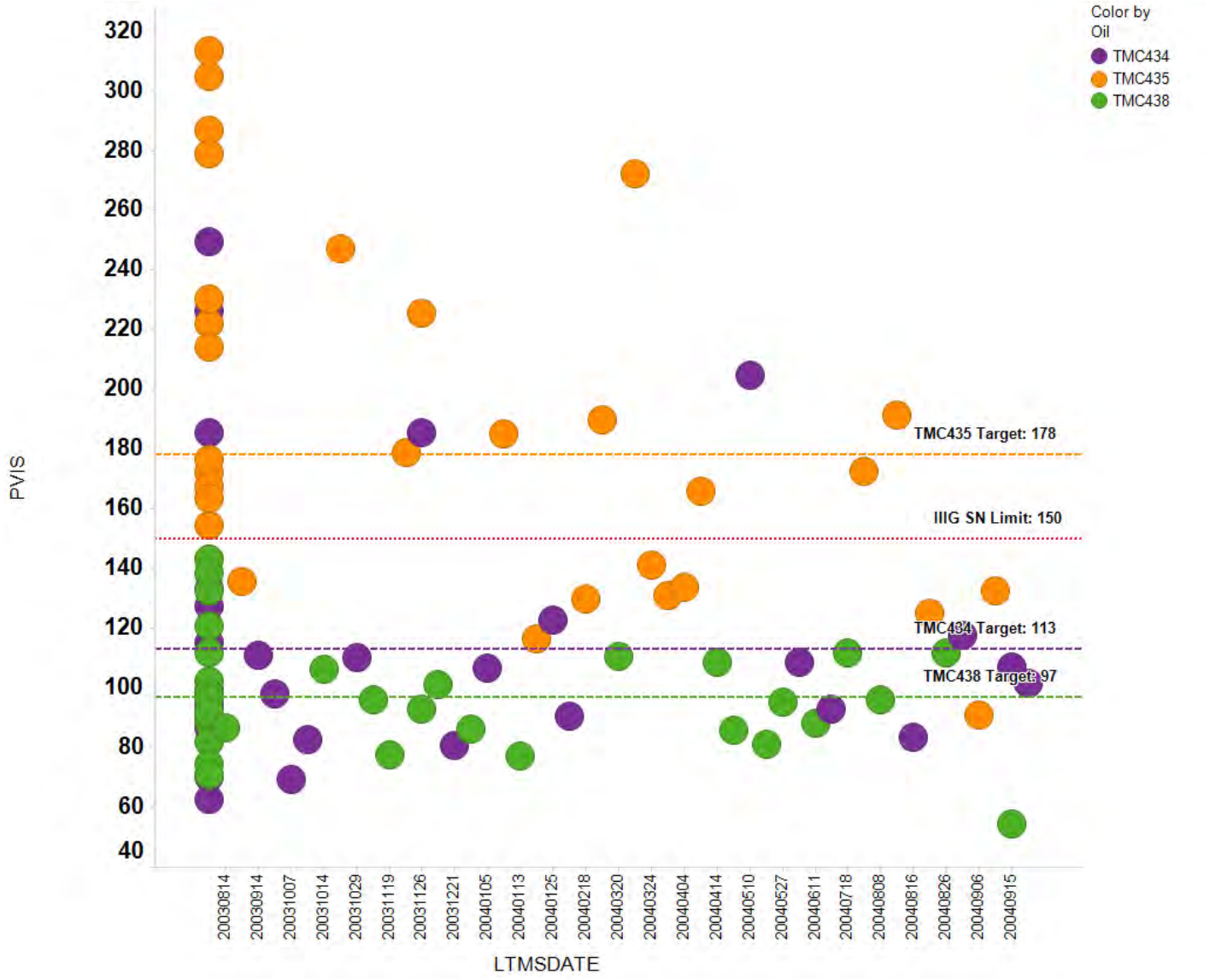
Using 434 and 438 blends, interpolation from linear equation suggests IIIG Equivalent SN Limit in IIIH is 4.0



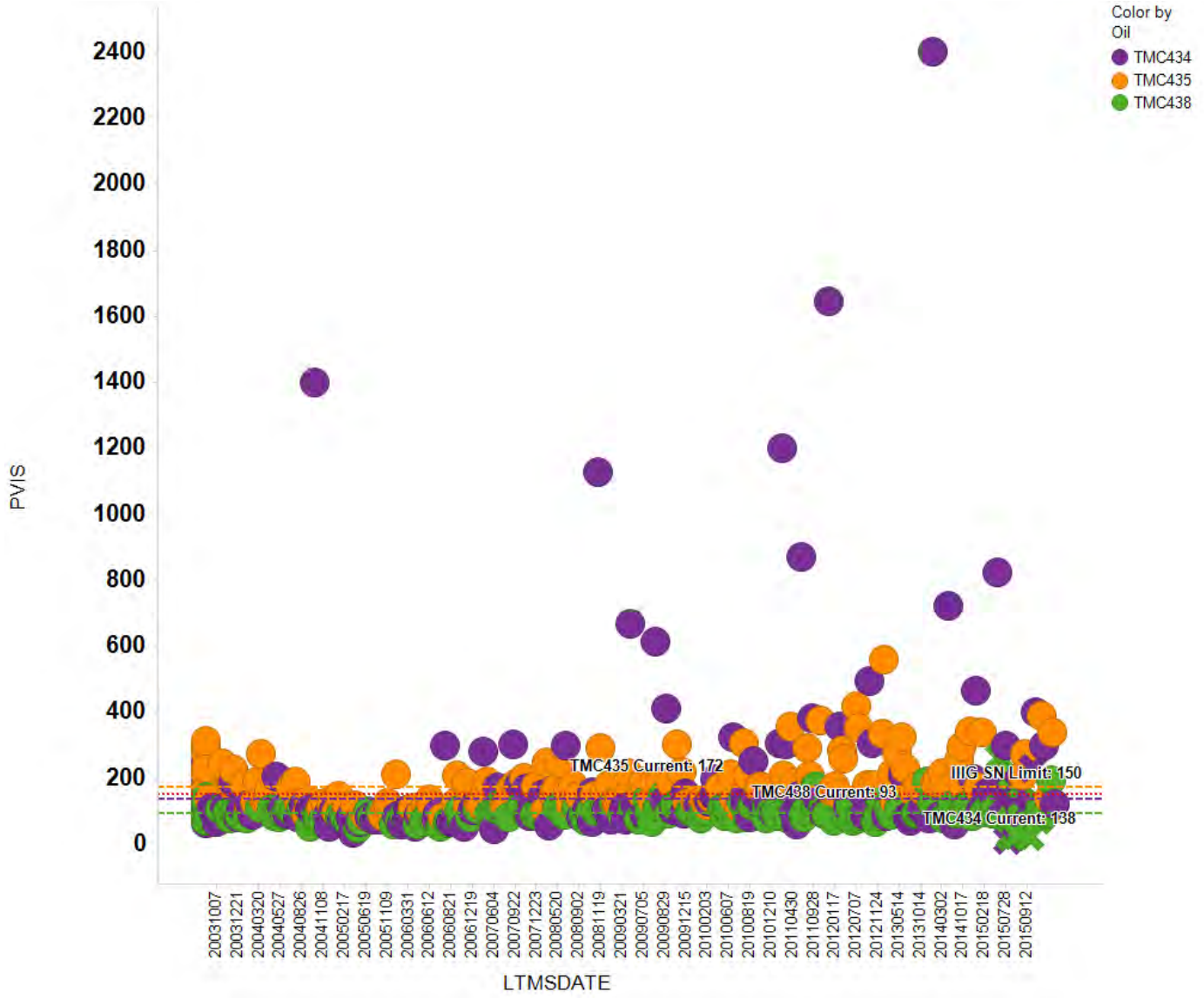
Although no 438-1 results in the IIIG, assume 438 and 438-1 blends are equivalent

PVIS

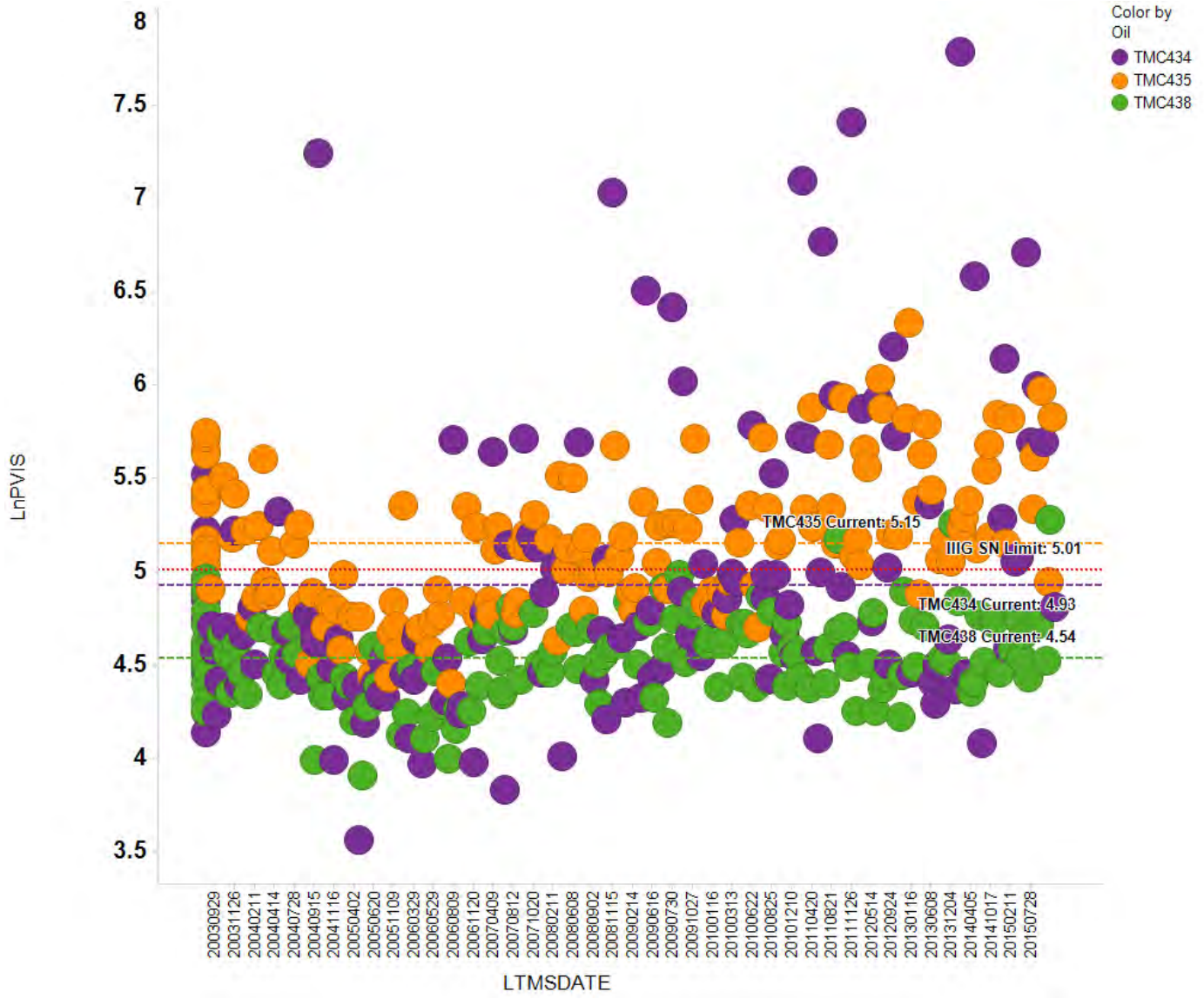
IIIG PVIS Original Target Setting (2003-2004)



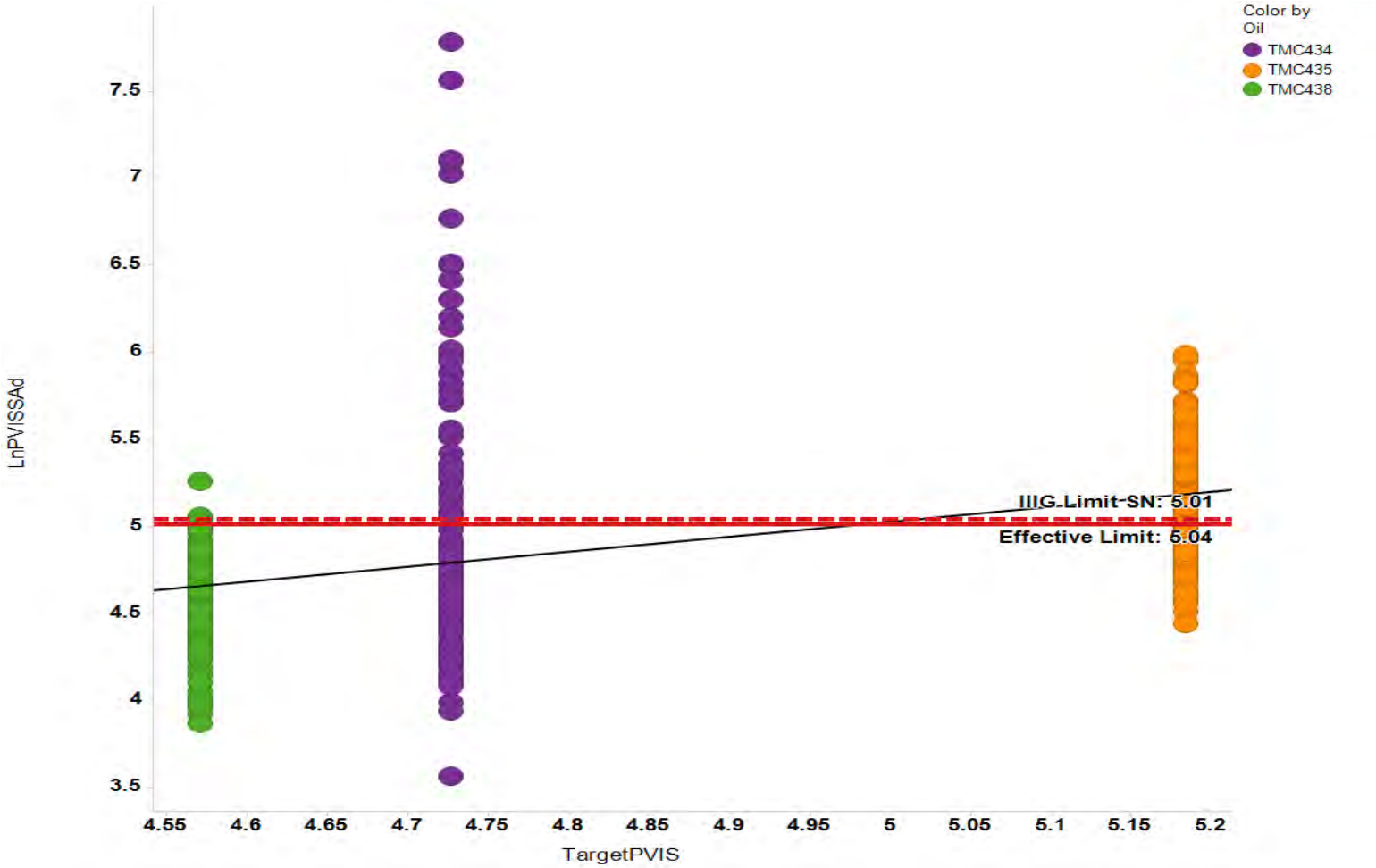
IIIG PVIS (20030812 to 20160119)



IIIG LnPVIS (20030812 to 20160119)

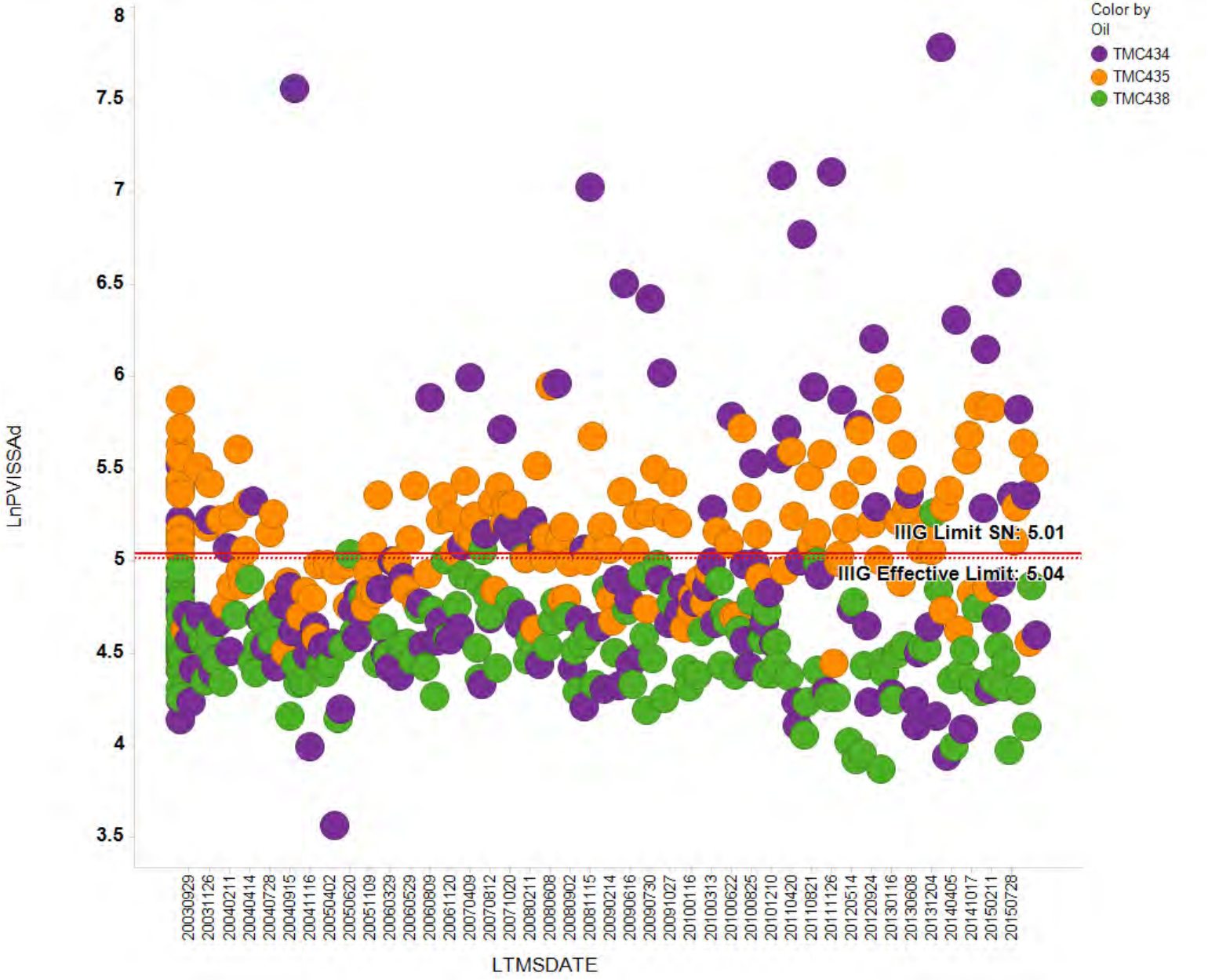


LnPVIS Effective SN Limit

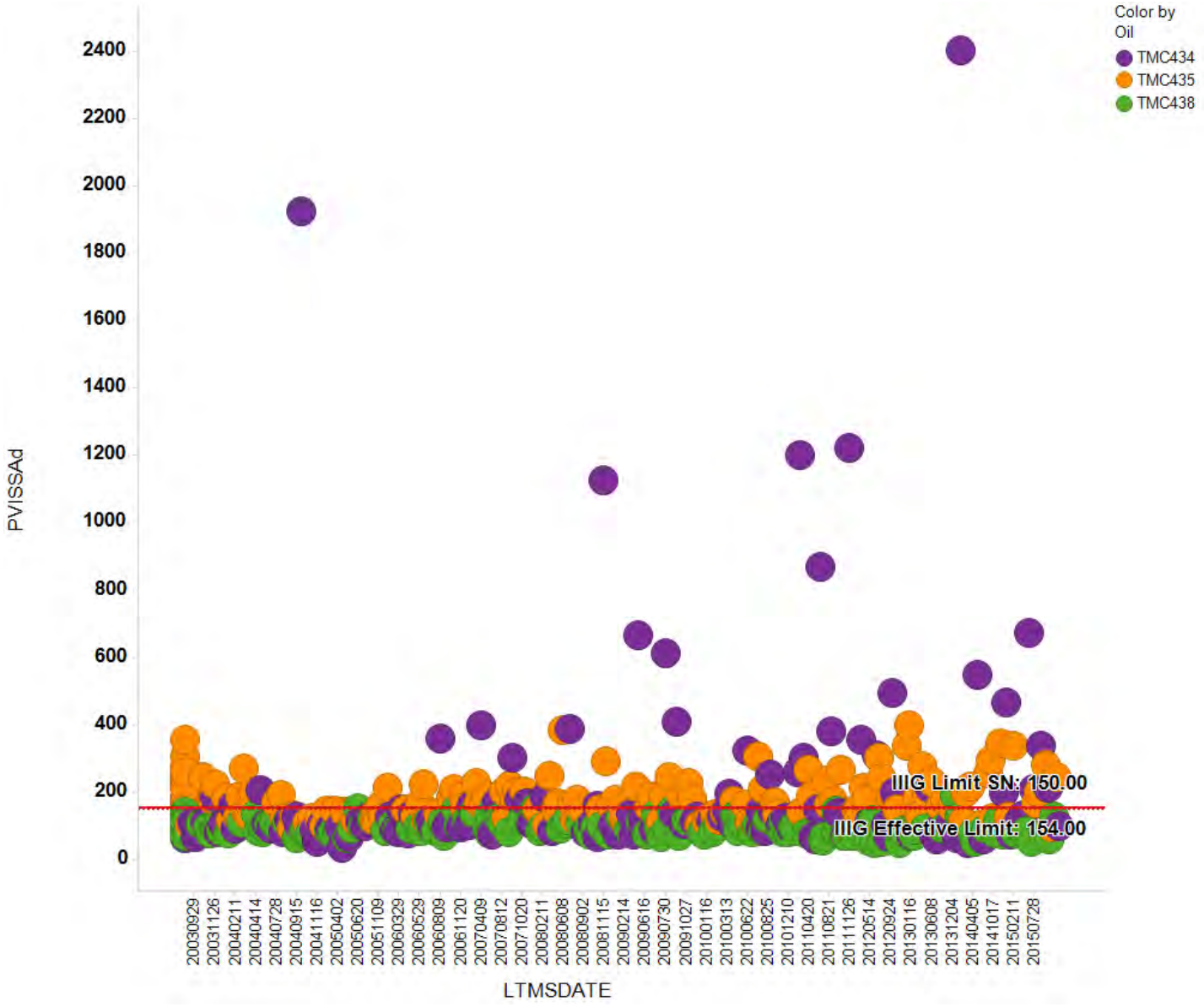


- Data used in analysis includes all chartable data from Aug. 2003 to Jan. 2016.
- By regressing LnPVIS Severity Adjusted results against limit setting targets, determine the corresponding result for a LnPVIS of 5.01, the IIIG SN Limit.
- Effective Limit – An oil that gives 5.01 (150%) in 2003 will give 5.04 (154%) on average over the life of the test.

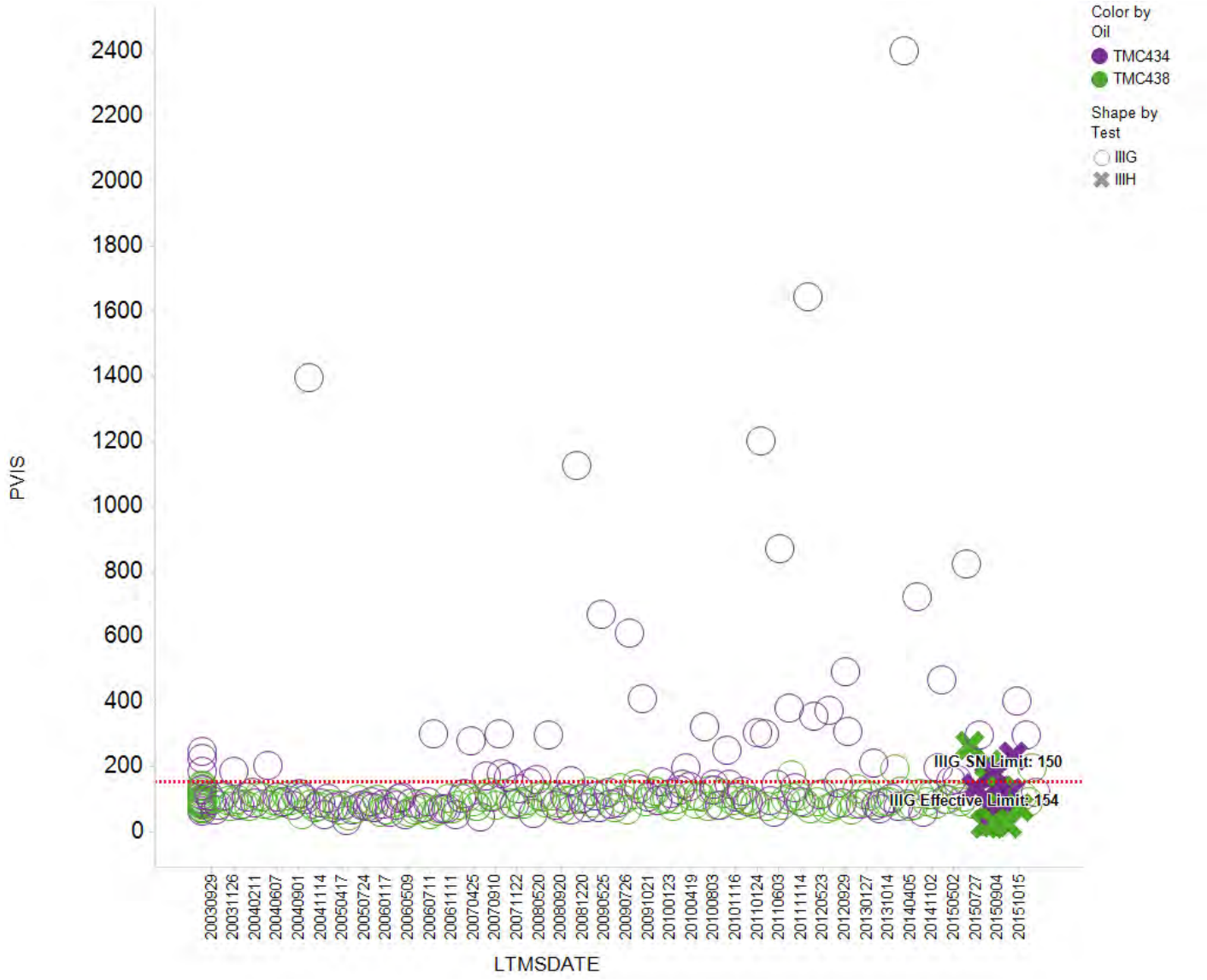
IIIG LnPVIS Effective SN Limit



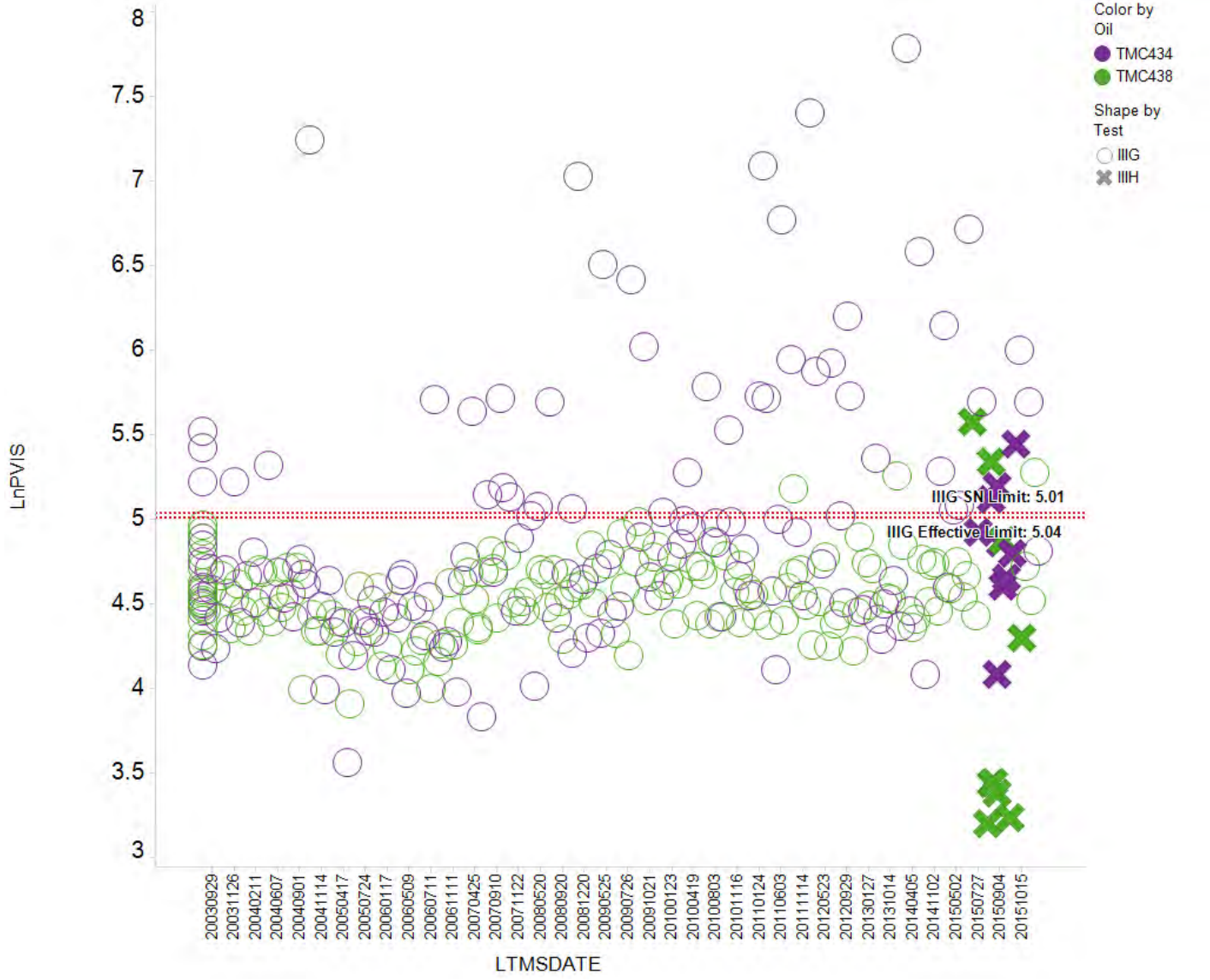
IIIG PVIS Effective SN Limit



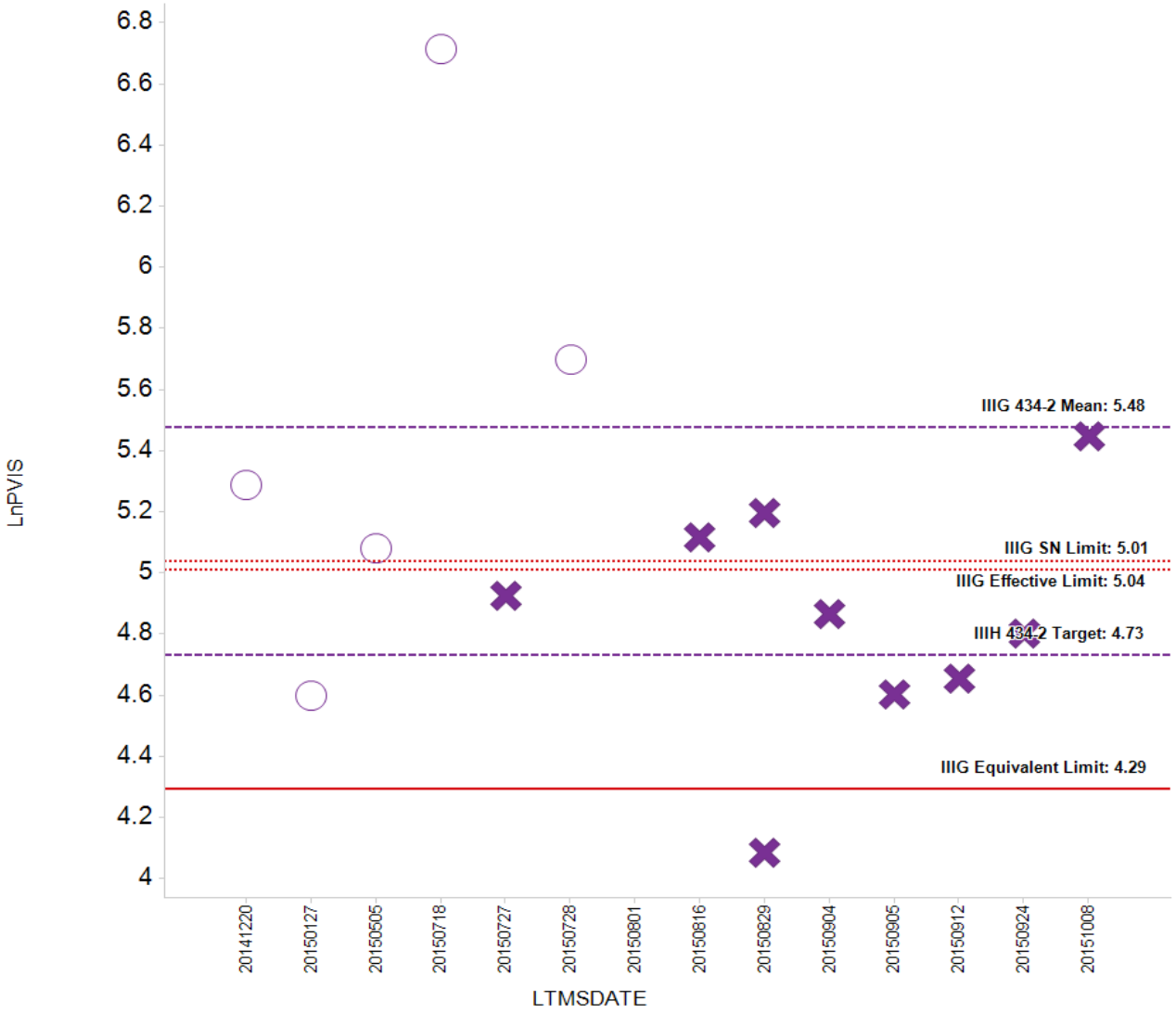
IIIG PVIS (20030812 to 20160119) with IIIH



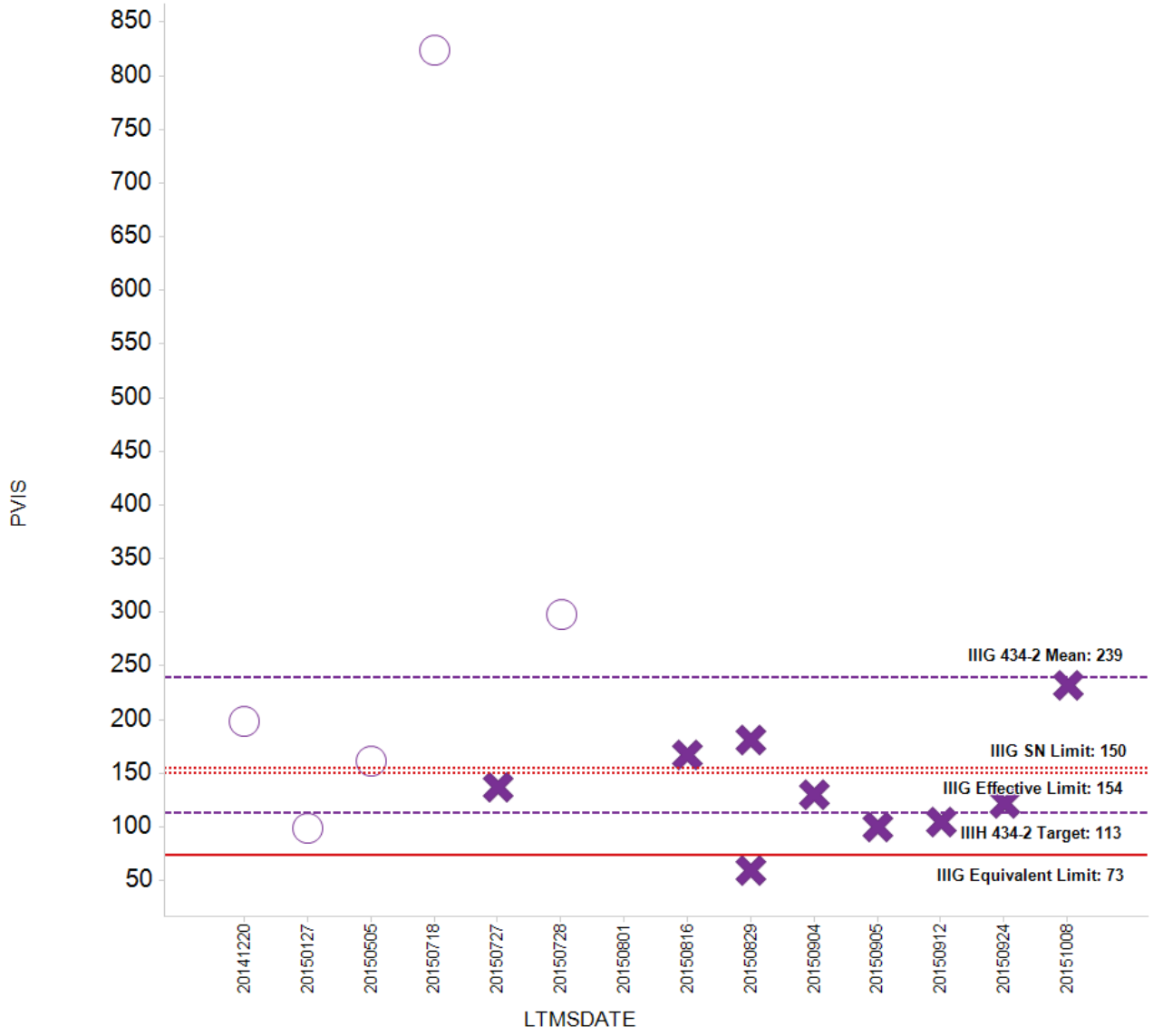
IIIG LnPVIS (20030812 to 20160119) with IIIH



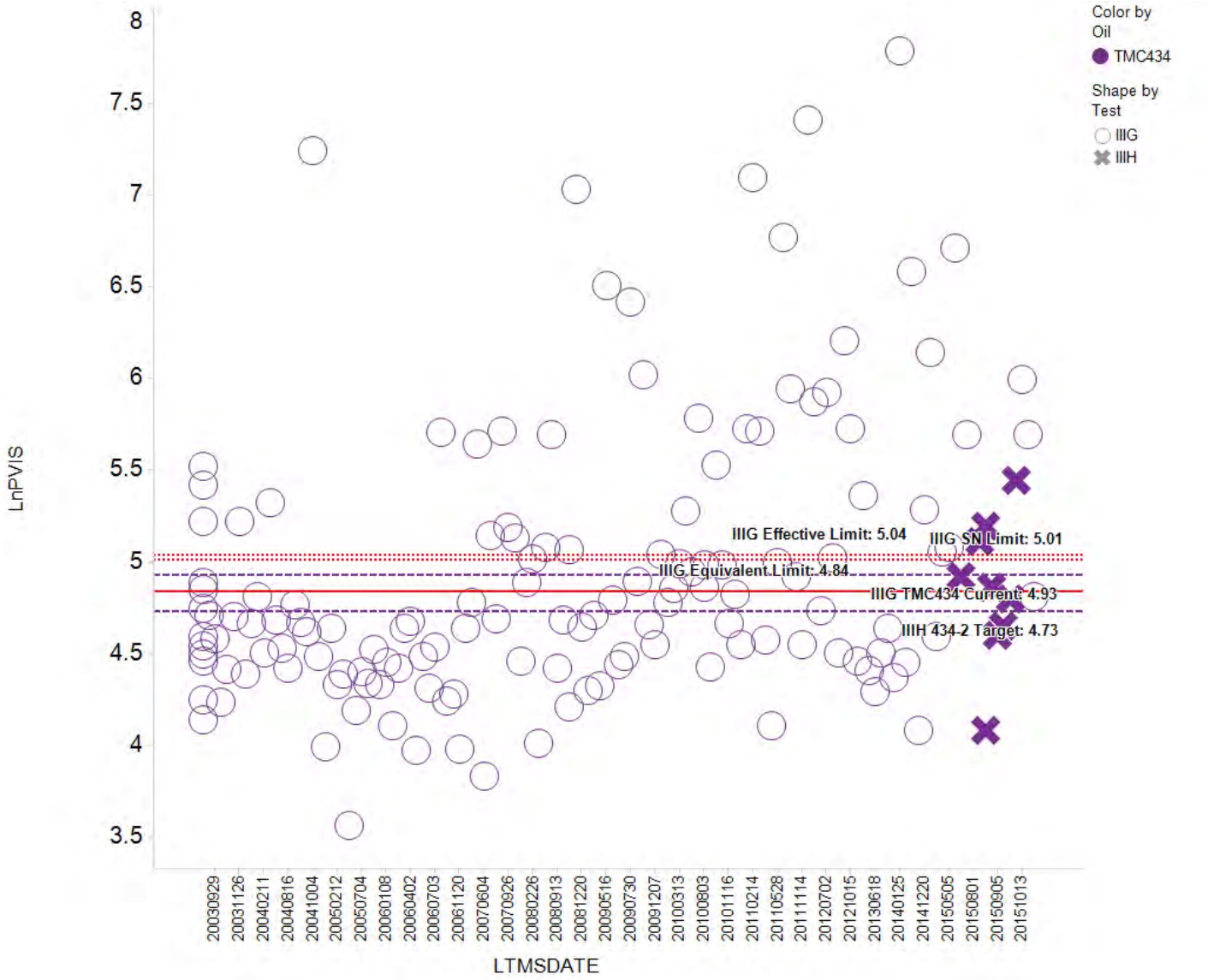
Using 434-2 only, the mean for IIIG is higher than the IIIG Effective Limit by 0.44. Using the same distance from the IIIH mean, IIIG LnPVIS Equivalent Limit in IIIH is 4.29.



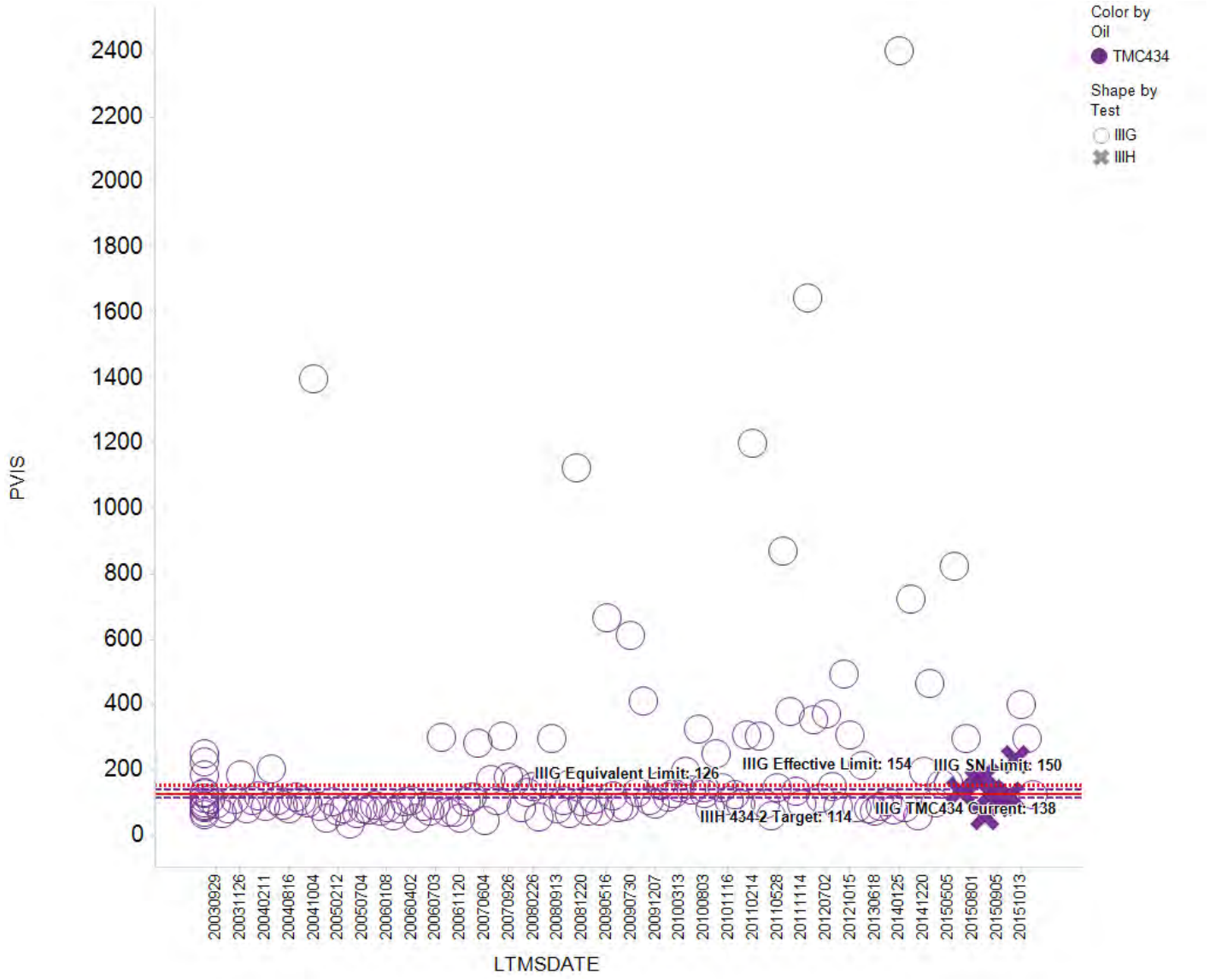
Using 434-2 only, IIIG PVIS Equivalent Limit in IIIH is 73



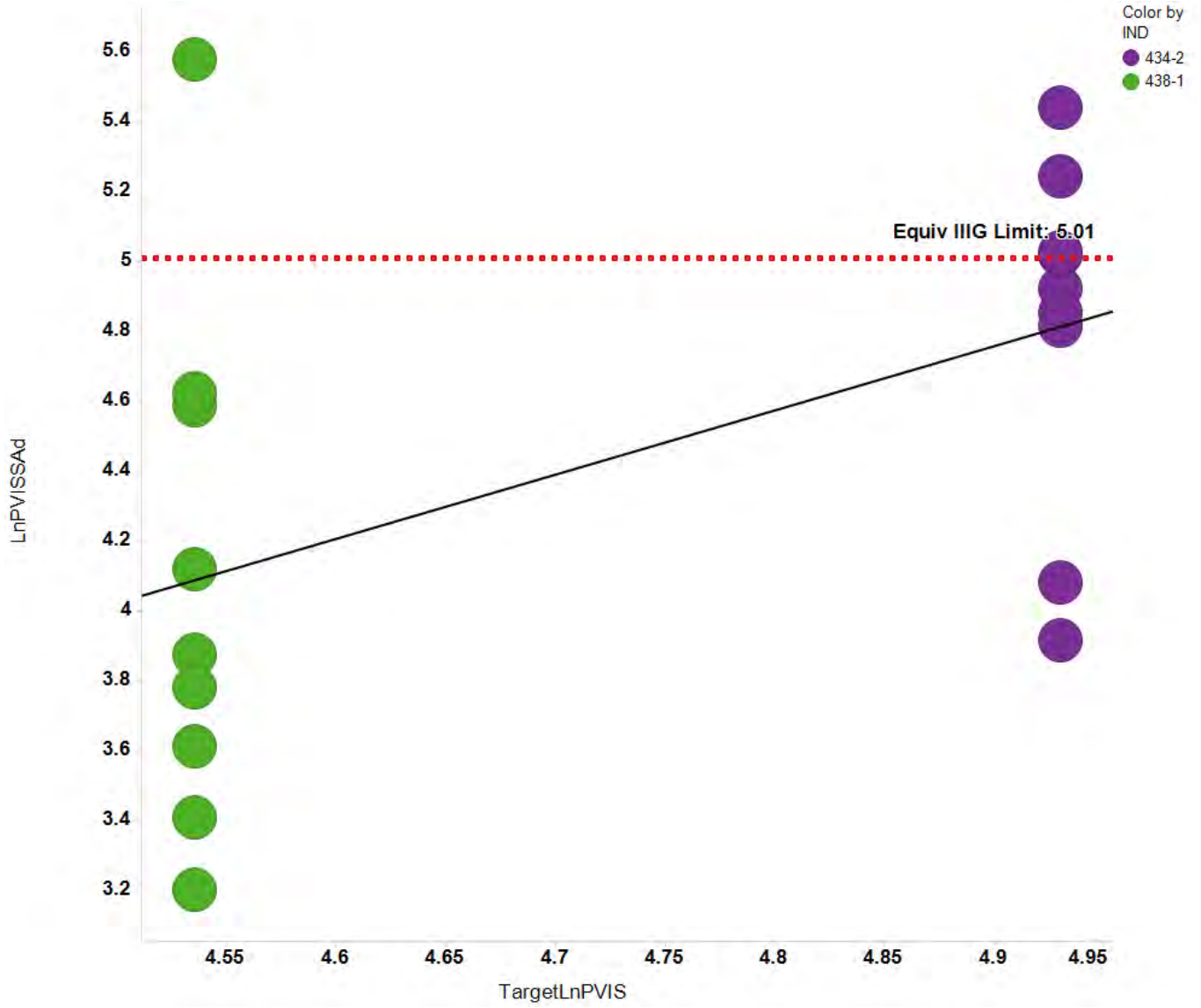
Using 434-2 blends, the mean for IIIG is lower than the IIIG Effective Limit by 0.11. Using the same distance from the IIIH mean, IIIG LnPVIS Equivalent Limit in IIIH is 4.84.



Using 434-2 blends, IIIG PVIS Equivalent Limit in IIIH is 126

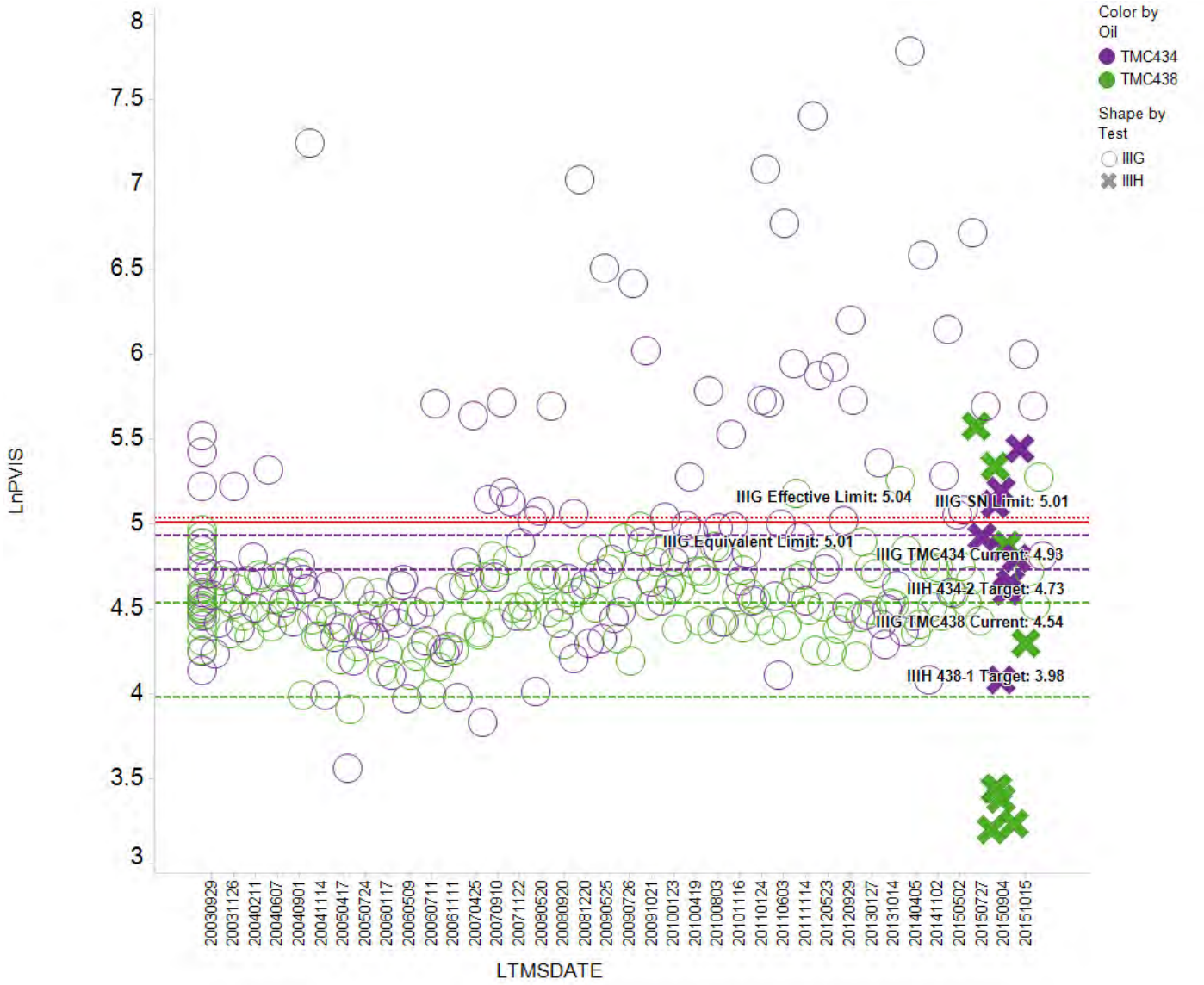


IIIG LnPVIS Equivalent Limit in IIIH using 434-2 and 438-1

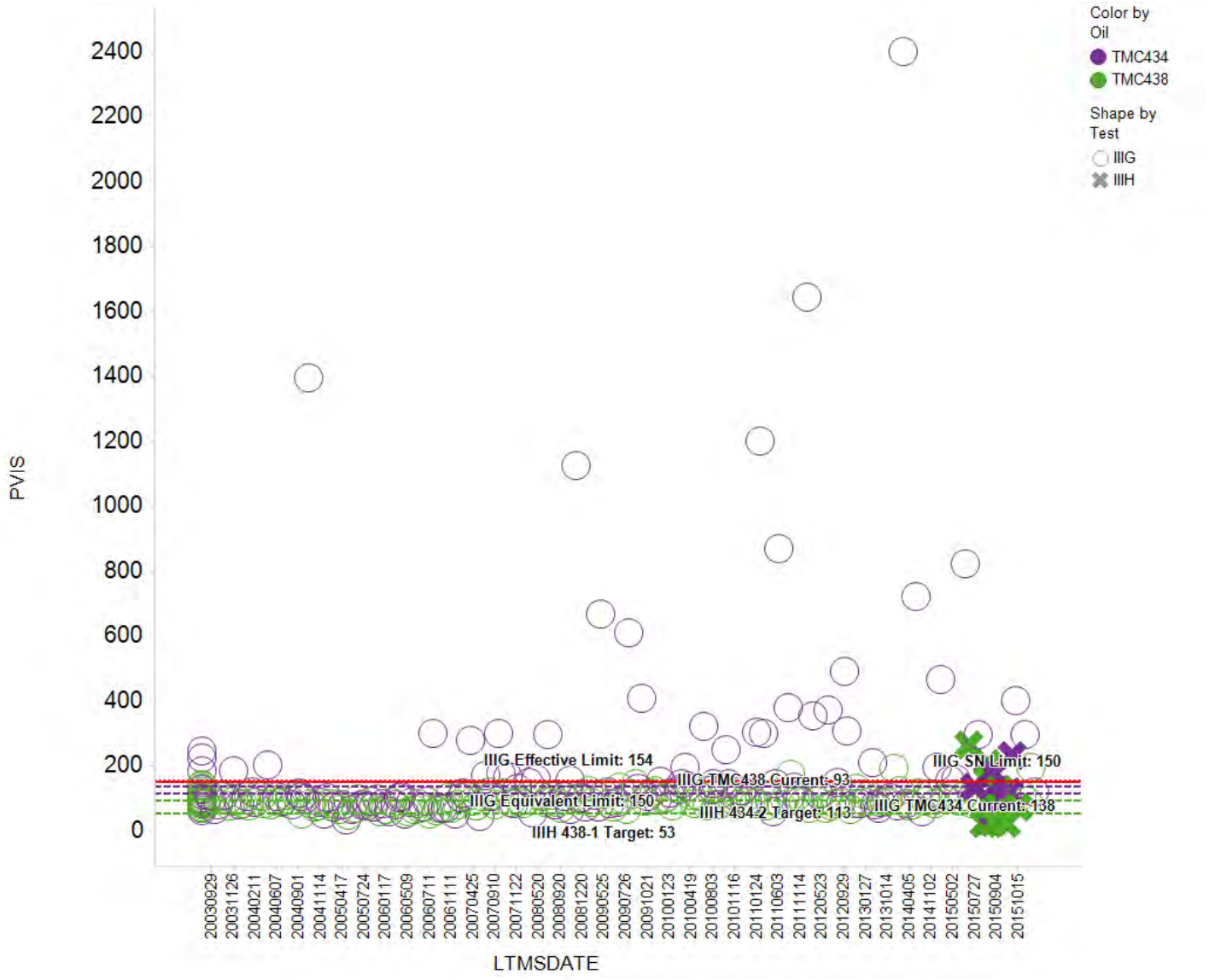


By regressing IIIH LnPVIS Severity Adjusted results against IIIG current targets, determine the corresponding result for a LnPVIS of 5.04, the IIIG Effective SN Limit.

Using 434 and 438 blends, extrapolation from linear equation suggests IIIG LnPVIS Equivalent Limit in IIIH is 5.01

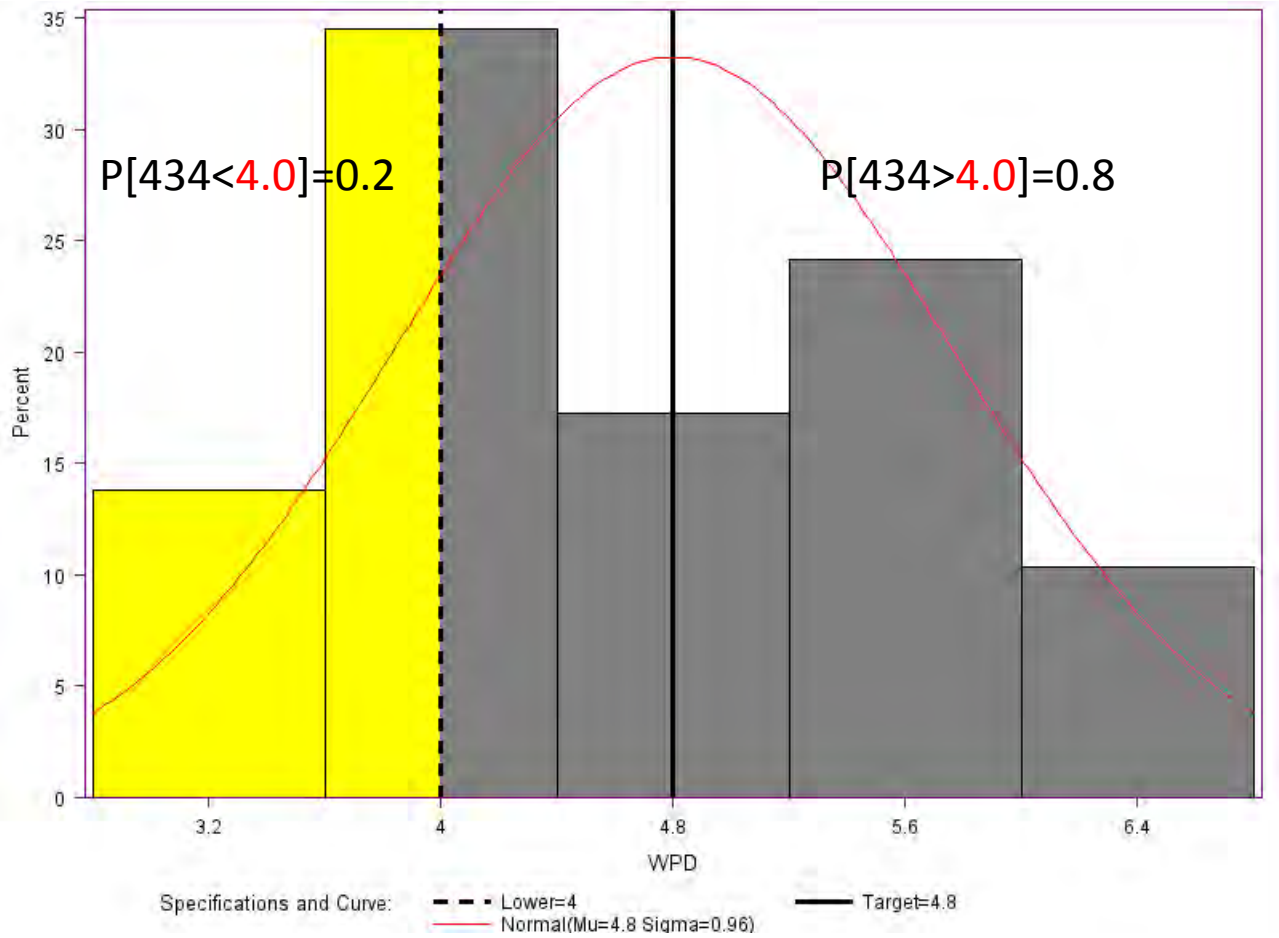


Using 434 and 438 blends, IIIG LnPVIS Equivalent Limit in IIIH is 150



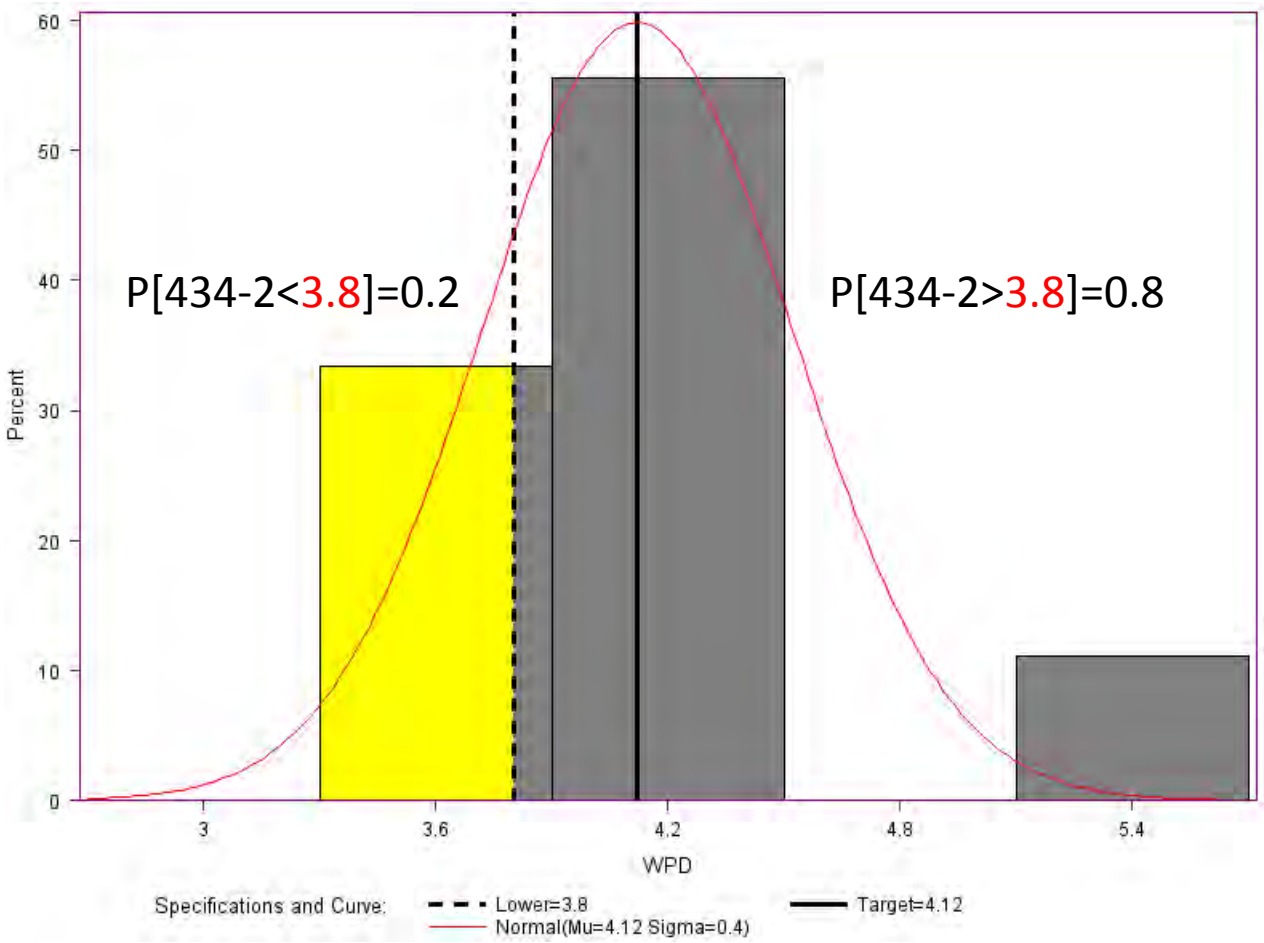
PROBABILITY OF PASS APPROACH

IIIG WPD Oil 434



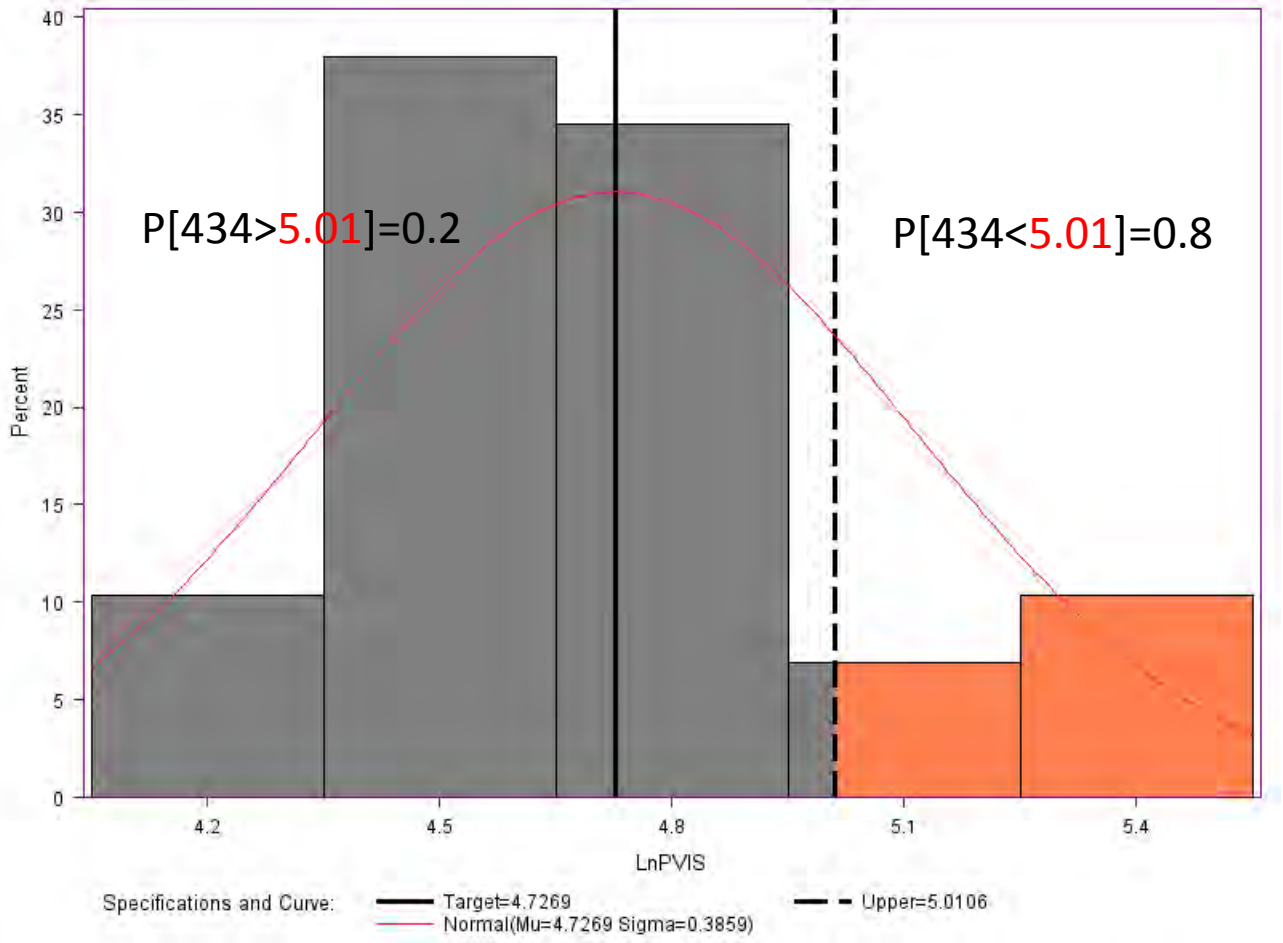
Given the IIIG SN WPD limit of 4.0, the probability of oil 434 passing is 0.80.

IIIH WPD Oil 434-2



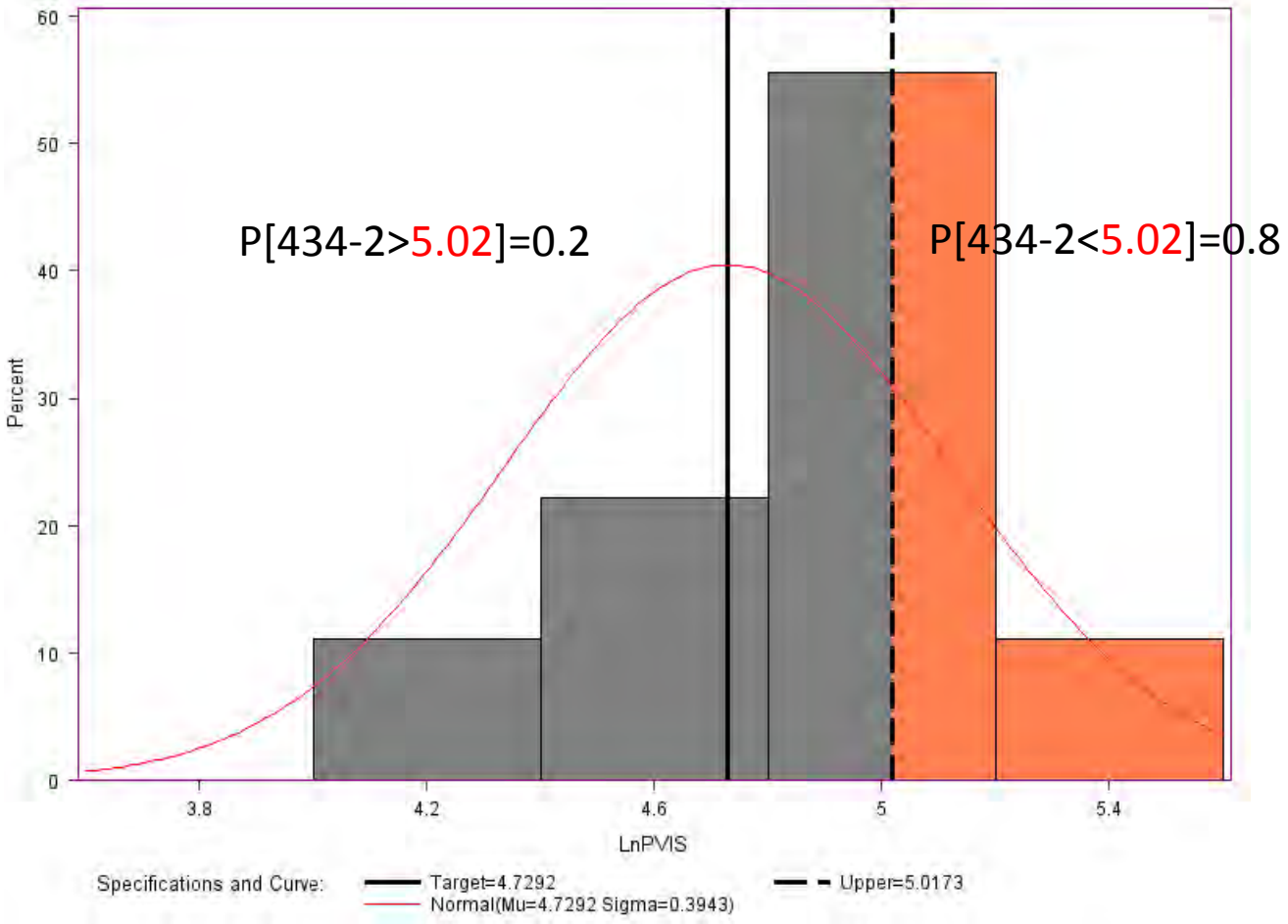
To allow 434-2 to pass 80% of the time, the IIIG Equivalent Limit in the IIIH should be 3.8.

IIIG LnPVIS Oil 434



Given the IIIG SN PVIS limit of 150, the probability of oil 434 passing is 0.80.

IIIH LnPVIS Oil 434-2



To allow 434-2 to pass 80% of the time, the IIIG Equivalent Limit in the IIIH should be 151.

Other analytical approaches could include:

1. Utilizing reference oil data from the time period corresponding to when SN limits were established

2. Incorporating continuous severity adjustments to correct reference results over time

3. Using an exponentially weighted average of the adjusted reference results