

**Sequence IVB Surveillance Panel
Teleconference Minutes**

Thursday December 20, 2018

11:00 a.m. EST

1.0) Attendance

See attachment 1 for a list of attendees.

2.0) Review of Reference Tests With Extended Breakin

The panel reviewed the presentation from the Stats Group regarding status of IVB reference tests run with the extended breakin (attachment 2). It appears that the extended break in has moved the difference between runs 1 and 2 from 44 ppm to 13 ppm. The panel agreed to run the remaining two reference tests on reference oil 300. The panel agreed to have the next reference in Intertek stand 102 run the extended break in and attempt calibration using reference oil 1012.

3.0) Next Meeting





To be held at the call of the chair, when additional data is available.

6.0) Meeting Adjourned

The meeting adjourned at 11:30 a.m.

**MEMBERSHIP
SEQUENCE IV SURVEILLANCE PANEL**

December 20, 2018

NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Bowden, Jason	OH Technologies, Inc. 9300 Progress Parkway P.O. Box 5039 Mentor, OH 44061-5039 Phone No.: 440-354-7007 Fax No.: 440-354-7080 Email: jhbowden@ohotech.com	
Buscher III, William	Intertek Automotive Research 5404 Bandera Road San Antonio, TX 78238 Phone No.: 210-647-9489 or 210-240-8990 cell Fax No.: 210-684-6074 Email: william.buscher@intertek.com	
Buscher, Jr., William	Buscher Consulting Services P.O. Box 112 Hopewell Jct., NY 12533 Phone No.: 914-897-8069 Fax No.: 914-897-8069 Email: buschwa@aol.com	
Grundza, Rich	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, PA 15206 Phone No.: 412-365-1031 Fax No.: 412-365-1047 Email: reg@astmtmc.cmu.edu	
Hopp, Meryn	GM Powertrain Mail Code 483-730-322 823 Joslyn Rd. Pontiac, MI 48340-2920 Phone No.: 228-318-7303 Fax No.: Email: Meryn.hopp@gm.com	
Hsu, Jeffery	Shell Global Solutions 3333 Highway 6 South Houston, TX 77082 Phone No.: 281-544-8619 Fax No.: 281-544-8150 Email: j.hsu@shell.com	
Kowalski, Teri	Toyota Motor North America, Inc. 1555 Woodridge Ann Arbor, MI 48105 Phone No.: 734- 995-4032 or 734-355-8082 cell Fax No.: 734- 995-9049 Email: teri.kowalski@tema.toyota.com	
Lancot, Dan	Test Engineering, Inc. 12718 Cimarron Path San Antonio, TX 78249 Phone No.: Fax No.: Email: DLancot@tei-net.com	




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NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Linden, Jim	Total 673 Campus Road Rochester Hills, MI 48309 Phone No.: 248-321-5343 Fax No.: Email: lindenjim@jlindenconsulting.com	
Maddock, Ben	Afton Chemical Corporation 500 Spring Street P.O. Box 2158 Richmond, VA 23217-2158 Phone No.: 804-788-5743 or 804-837-0666 cell Fax No.: 804-788- Email: Ben.Maddock@AftonChemical.com	✓
Proctor, Robert	Honda R&D Americas, Inc. Phone No.: 937-309-9321 Fax No.: Email: rproctor@oh.hra.com	
Rais, Khaled	Southwest Research Institute 6220 Culebra Road P.O. Drawer 28510 San Antonio, TX 78228-0510 Phone No.: 210-522-3842 Fax No.: 210-684-7523 Email: khaled.rais@swri.org	✓
Rieth, Ryan	Infineum USA L.P. 1900 E. Linden Avenue Linden, NJ 07036-0536 Phone No.: 908-474-7377 Fax No.: 908-474-3637 Email: Ryan.Rieth@Infineum.com	✓
Romano, Ron	Ford Motor Company 1800 Fairlane Drive Allen Park, MI 48101 Phone No.: 313-845-4068 Fax No.: 313-323-8042 Email: rromano@ford.com	✓
Sagawa, Takumaru	Nissan Motor Co., Ltd. 560-2, Okatsukoku, Atsugi city Kanagawa 243-0192 Phone No.: 046-270-1515 Fax No.: 046-270-1585 Email: t-sagawa@mail.nissan.co.jp	
Salvensen, Cliff	ExxonMobil Research & Engineering Co. 600 Billingsport Road P.O. Box 480 Paulsboro, NJ 08066-0480 Phone No.: 856-224-2954 Fax No.: Email: clifford.r.salvesen@exxonmobil.com	✓

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NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Savant, Amol	Valvoline 22 nd & Front Streets Ashland, KY 41114 Phone No. Fax No.: Email: ACSavant@valvoline.com	
Stevens, Andrew	Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092 Phone No.: 440-347-4020 Fax No.: 440-347-4096 Email: Andrew.Stevens@Lubrizol.com	
Stockwell, Robert	Chevron Oronite Company LLC Phone No.: Fax No.: Email: Robert.Stockwell@chevron.com	
Tang, Haiying	Chrysler Group LLC 800 Chrysler Drive Auburn Hills, MI Phone No.: Fax No.: Email: haiying.tang@fcagroup.com	
Tarry, Preston	BP 1500 Valley Road Wayne, NJ 07470 Phone No.: Fax No.: Email: Preston.Tarry@bp.com	
Tumati, Prasad	Haltermann Solutions 15635 Jacintoport Blvd. Houston, TX 77345 Phone No.: 313-300-8300 Fax No.: 281-457-1469 Email: ptumati@jhaltermann.com	
	Phone No.: Fax No.: Email:	
	Phone No.: Fax No.: Email:	

**NON-MEMBER MAILING LIST
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NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Adams, Mark	Tribology Testing Labs Phone No.: 989-980-4418 Fax No.: Email: mark@tribologytesting.com	
Affinito, Ricardo	Chevron Oronite Company LLC Phone No.: Fax No.: Email: Ricardo.Affinito@chevron.com	
Altman, Ed	Afton Chemical Corporation 500 Spring Street P.O. Box 2158 Richmond, VA 23217-2158 Phone No.: 804-788-5279 Fax No.: 804-788-6358 Email: ed.altman@aftonchemical.com	
Bean, Nathan	Valvoline Phone No.: Fax No.: Email:	
Boese, Doyle	Infineum USA L.P. 1900 E. Linden Avenue Linden, NJ 07036-0536 Phone No.: 908-474-3176 Fax No.: 908-474-3637 Email: doyle.boese@infineum.com	✓
Bowden, Dwight	OH Technologies, Inc. 9300 Progress Parkway P.O. Box 5039 Mentor, OH 44061-5039 Phone No.: 440-354-7007 Fax No.: 440-354-7080 Email: dhbowden@ohtech.com	
Bowden, Matt	OH Technologies, Inc. 9300 Progress Parkway P.O. Box 5039 Mentor, OH 44061-5039 Phone No.: 440-354-7007 Fax No.: 440-354-7080 Email: mbowden@ohtech.com	✓
Brys, Jerome	Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092 Phone No.: 440-347-2631 / 440-943-1200 Fax No.: 440-943-9013 Email: jabs@lubrizol.com	

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NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Campbell, Bob	Afton Chemical Corporation 500 Spring Street P.O. Box 2158 Richmond, VA 23217-2158 Phone No.: 804-788- Fax No.: 804-788-6358 Email: bob.campbell@aftonchemical.com	
Castanien, Chris	Neste Phone No.: Fax No.: Email: Chris.Castanien@nesteoil.com	
Clark, Sid	Southwest Research Institute 50481 Peggy Lane Chesterfield, MI 48047 Phone No.: 586-873-1255 Email: sidney.clark@swri.org	
Clark, Jeff	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, PA 15206 Phone No.: 412-365-1032 Fax No.: 412-365-1047 Email: jac@astmtmc.cmu.edu	
Coker, Carlton	Intertek Automotive Research 5404 Bandera Road San Antonio, TX 78238-1993 Phone No.: 210-647-9473 or 210-643-1817 cell Fax No.: 210-523-4607 Email: carlton.coker@intertek.com	✓
Collins, Chet	Southwest Research Institute 6220 Culebra Road P.O. Drawer 28510 San Antonio, TX 78228-0510 Phone No.: 210-522- Fax No.: Email: chet.collins@swri.org	
Dvorak, Todd	Afton Chemical Corporation 500 Spring Street P.O. Box 2158 Richmond, VA 23217-2158 Phone No.: 804-788- Fax No.: 804-788-6358 Email: todd.dvorak@aftonchemical.com	
Haumann, Karin	Shell Global Solutions Phone No.: 281-544-6986 Fax No.: Email: Karin.Haumann@shell.com	

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NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Hirano, Satoshi	Toyota Phone No.: Fax No.: Email: satoshi_hirano_aa@mail.toyota.co.jp	
Knight, Clayton	Test Engineering, Inc. 12718 Cimarron Path San Antonio, TX 78249 Phone No.: 210-862-5987 cell Fax No.: 210-690-1959 Email: cknight@tei-net.com	
Kostan, Travis	Southwest Research Institute 6220 Culebra Road P.O. Drawer 28510 San Antonio, TX 78228-0510 Phone No.: 210-522-2407 Fax No.: 210-684-7523 Email: travis.kostan@swri.org	✓
Lang, Patrick	Southwest Research Institute 6220 Culebra Road P.O. Drawer 28510 San Antonio, TX 78228-0510 Phone No.: 210-522-2820 or 210-240-9461 cell Fax No.: 210-684-7523 Email: patrick.lang@swri.org	✓
Leverett, Charlie	Infineum Phone No.: 210-414-5445 Fax No.: Email: charlie.leverett@yahoo.com	✓
Lochte, Michael	Southwest Research Institute 6220 Culebra Road P.O. Drawer 28510 San Antonio, TX 78228-0510 Phone No.: 210-522-5430 Fax No.: 210-684-7523 Email: michael.lochte@swri.org	
Lopez, Al	Intertek Automotive Research 5404 Bandera Road San Antonio, TX 78238-1993 Phone No.: 210-647-9465 or 210-862-7935 cell Fax No.: 210-523-4607 Email: al.lopez@intertek.com	✓
Martinez, Jo	Chevron Oronite Company LLC 100 Chevron Way, 71-7548 P.O. Box 1627 Richmond, CA 94802-0627 Phone No.: 510-242-5563 Fax No.: 510-242-1930 Email: jomartinez@chevron.com	✓


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NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Matasic, James	Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092 Phone No.: 440-347-2487 Fax No.: Email: James.Matasic@Lubrizol.com	
Meier, Adam	ExxonMobil Phone No.: Fax No.: Email: adam.r.meier@exxonmobil.com	
O'Malley, Kevin	Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092 Phone No.: 440-347-4141 Fax No.: Email: Kevin.OMalley@lubrizol.com	
Pastor, Jofran	Infineum Phone No.: Fax No.: Email: jofran.pastor@infineum.com	
Porter, Christian	Afton Chemical Corporation 500 Spring Street P.O. Box 2158 Richmond, VA 23217-2158 Phone No.: 804-788-5837 Fax No.: 804-788-6358 Email: christian.porter@aftonchemical.com	
Ritchie, Andrew	Infineum USA L.P. 1900 E. Linden Avenue Linden, NJ 07036-0536 Phone No.: 908-474-2097 Fax No.: 908-474-3637 Email: andrew.ritchie@infineum.com	
Schmid, Lesley	Afton Chemical Corporation 500 Spring Street P.O. Box 2158 Richmond, VA 23217-2158 Phone No.: 804-788- Fax No.: 804-788- Email: lesley.schmid@aftonchemical.com	
Taylor, Chris	VP Racing Fuels Phone No.: 210-710-4627 Fax No.: Email: chris.taylor@vpracing-fuels.com	

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NAME	COMPANY-ADDRESS-PHONE-FAX-EMAIL	SIGNATURE
Thompson, Hap	ASTM Facilitator Phone No.: 904-287-9596 Fax No.: Email: Hapjthom@aol.com	
Willis, Angela	Phone No.: Fax No.: Email:	
MICHAEL DEEGAN	FOND Phone No.: Fax No.: Email:	
	Phone No.: Fax No.: Email:	
	Phone No.: Fax No.: Email:	
	Phone No.: Fax No.: Email:	
	Phone No.: Fax No.: Email:	
	Phone No.: Fax No.: Email:	

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Sequence IVB Extended Break-In FEWMEOT Analysis

Statistics Group

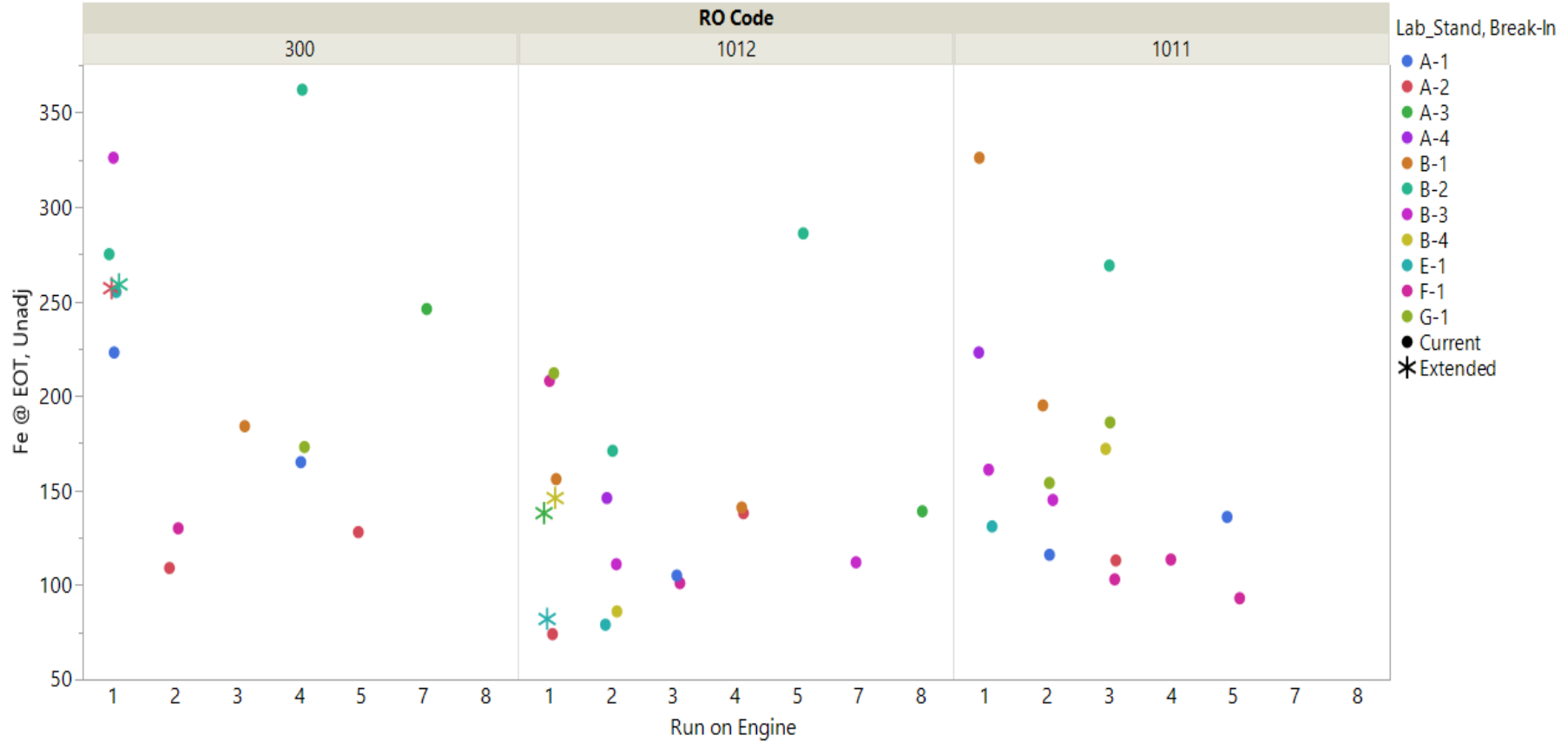
Dec. 19, 2018

Statistics Group

- Doyle Boese, Infineum
- Jo Martinez, Chevron Oronite
- Martin Chadwick, Intertek
- Travis Kostan, SwRI

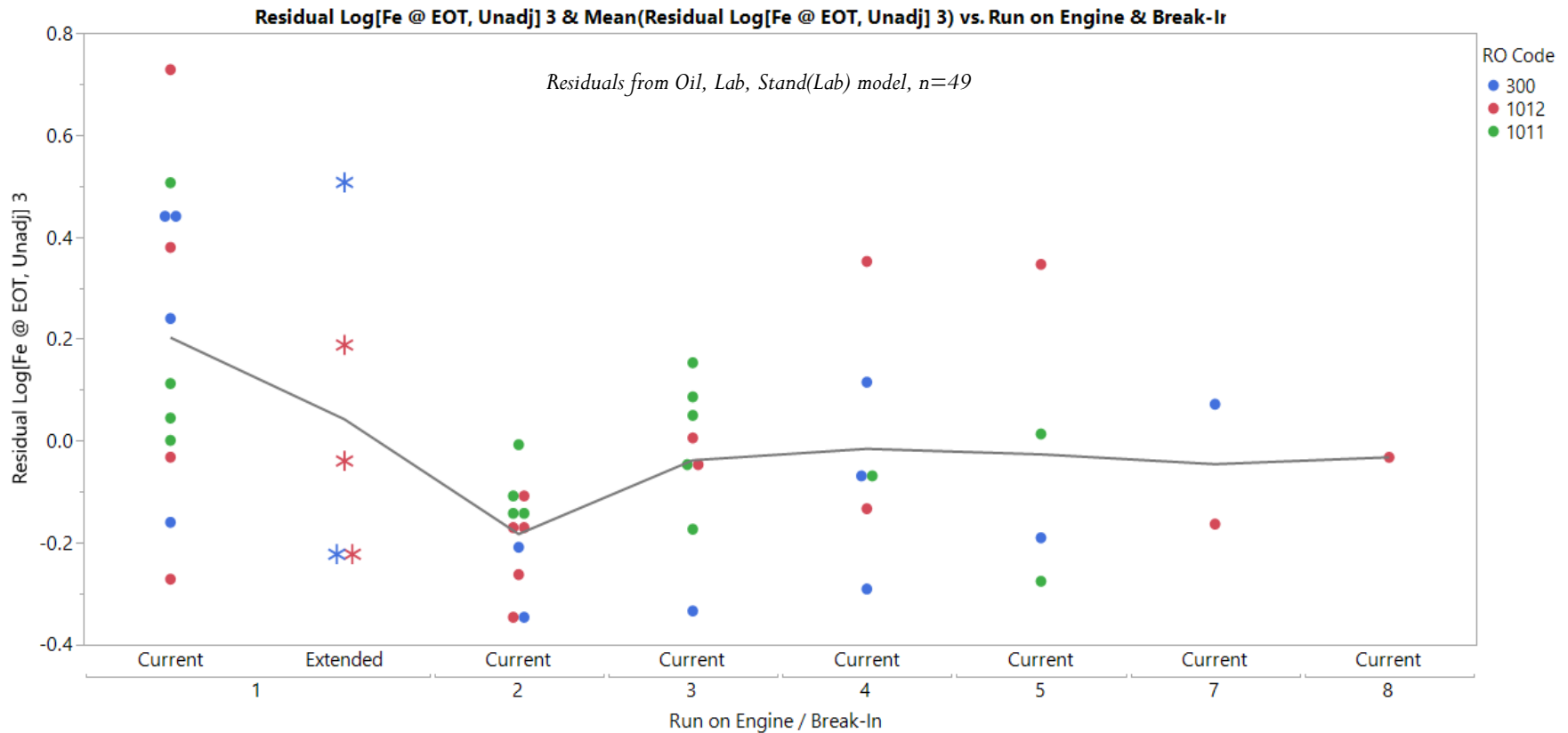
1012 (3) + 300 (2) Extended Break-in

Fe @ EOT, Unadj vs. Run on Engine



Residuals by Run on Engine

- With Extended Break-in, Run 1 severity is directionally lower than current break-in



Severity with Extended Break-in

- With Extended Break-in, the difference between Run 1 and Run 3+ is estimated to be reduced by more than half, but the difference is not statistically significant with this small data set.

LnFe Model

Summary of Fit					
RSquare			0.726706		
RSquare Adj			0.602482		
Root Mean Square Error			0.252754		
Mean of Response			5.059519		
Observations (or Sum Wgts)			49		
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Ratio	
Model	15	5.6058080	0.373721	5.8499	
Error	33	2.1081888	0.063885		Prob > F
C. Total	48	7.7139968			<.0001*
Effect Tests					
Source	Nparm	DF	Sum of Squares	F Ratio	Prob > F
Lab	4	4	1.2198214	4.7735	0.0038*
Stand[Lab]	6	6	1.2370268	3.2272	0.0132*
RO Code	2	2	1.3109281	10.2601	0.0003*
Break-In[Engine Run]	1	1	0.0907868	1.4211	0.2417
Engine Run	2	2	0.5710627	4.4695	0.0192*

Run, Break-In	LnFe LSMean	Fe LSMean	Difference from Run 3+
[1]Current	5.2470	190	44
[1]Extended	5.0688	159	13
[2]Current	4.8420	127	
[3+]Current	4.9843	146	