C13: 2nd Ring Top Carbon Reference data

Elisa Santos

12/5/2014 (few updated slides from last SP meeting)

Performance you can rely on.

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Summary

- After analyzing the R2TC data, I would like to share with you a few thoughts
  - I would like to show you a few plots again
  - I would like to ask the TMC to post piston data for 2014 tests (3 tests plus 1 from Lab G that did not EOT yet)
  - Before we discuss potential correction factors, please, wait to get the test result from Lab G expected to EOT on Friday, 21st.

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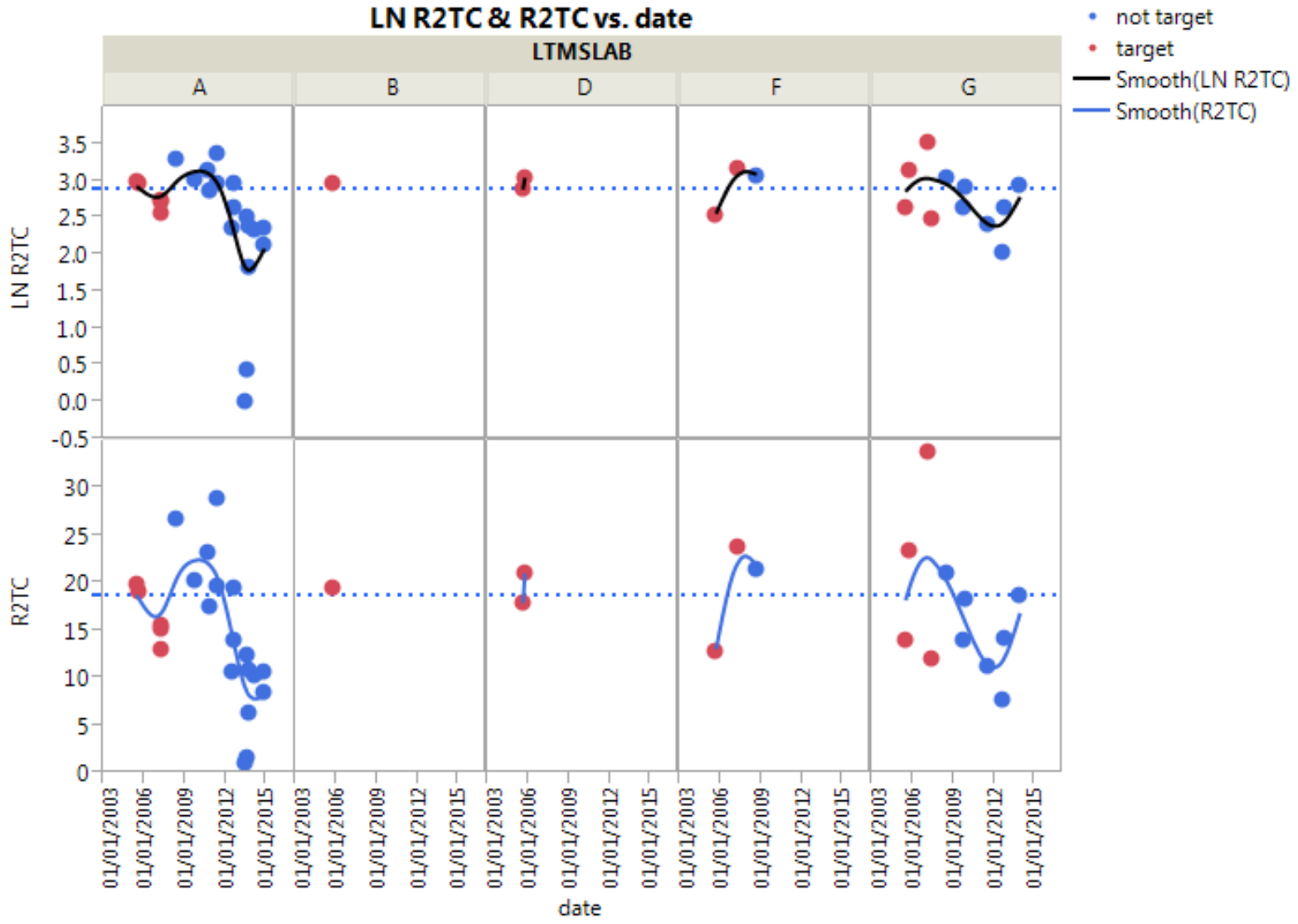
Recent data are generated by Labs A and G



Means and Standard deviations

Oil 831
Chart = Yes
Removing
Two tests
From lab A

factor 2	LTMSLAB	N Rows	Mean(LN(R2TC))	Std Dev(LN(R2TC))
target	A	5	2.7913	0.1779
target	B	1	2.9642	
target	D	2	2.9662	0.1135
target	F	2	2.8550	0.4421
target	G	4	2.9491	0.4751
before 2013	A	9	2.9570	0.3103
before 2013	F	1	3.0662	
before 2013	G	6	2.6140	0.3590
after	A	6	2.2532	0.2426
after	G	1	2.9291	

From LTMS

SECOND RING TOP CARBON
Unit of Measure: LN (Demerits)

Reference Oil	Mean	Standard Deviation
831	2.8828	0.2900
831-1	2.8828	0.2900
831-2	2.8828	0.2900

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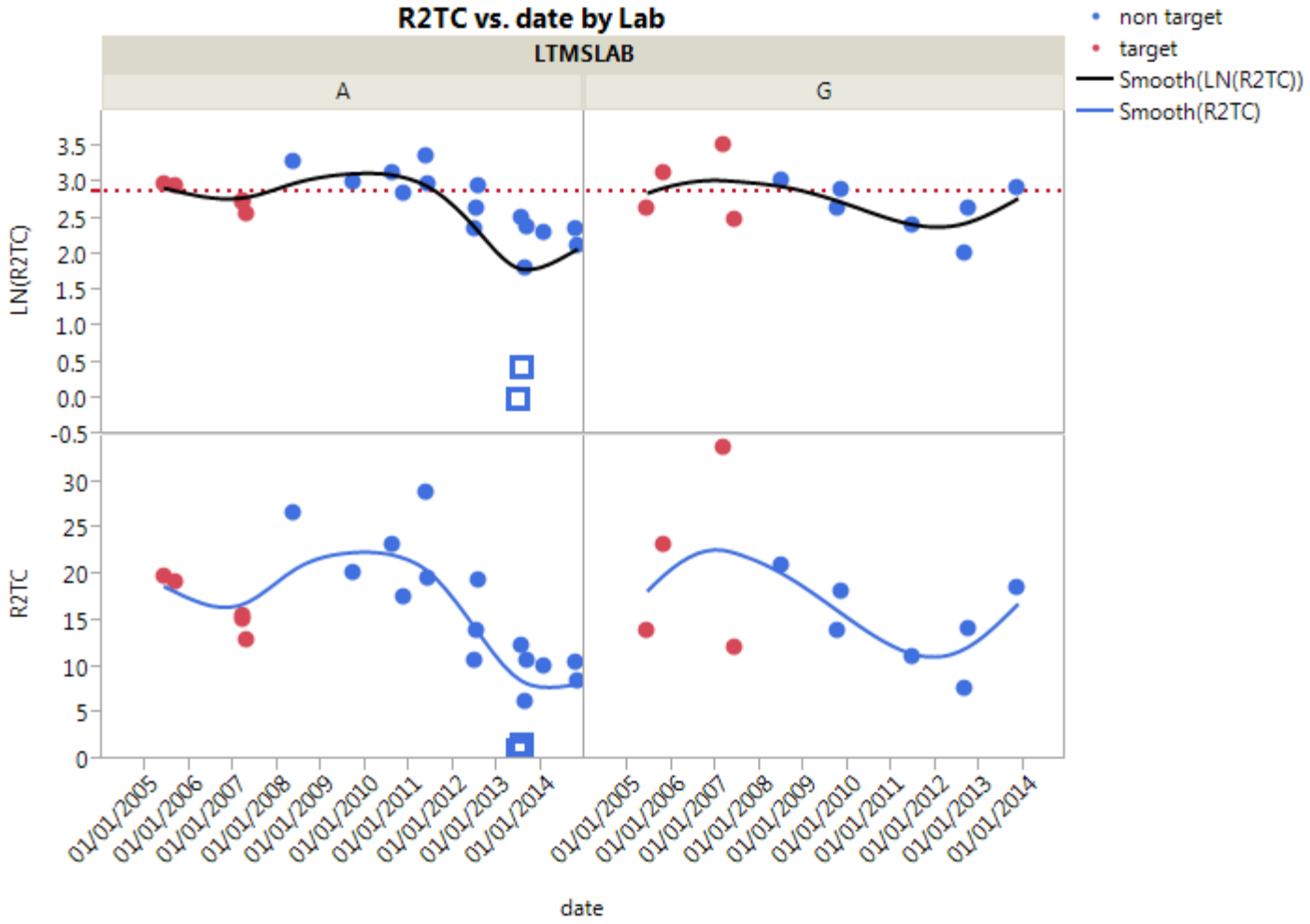
Labs A and G only:
PC-10B, 831, 831-1 and 831-2



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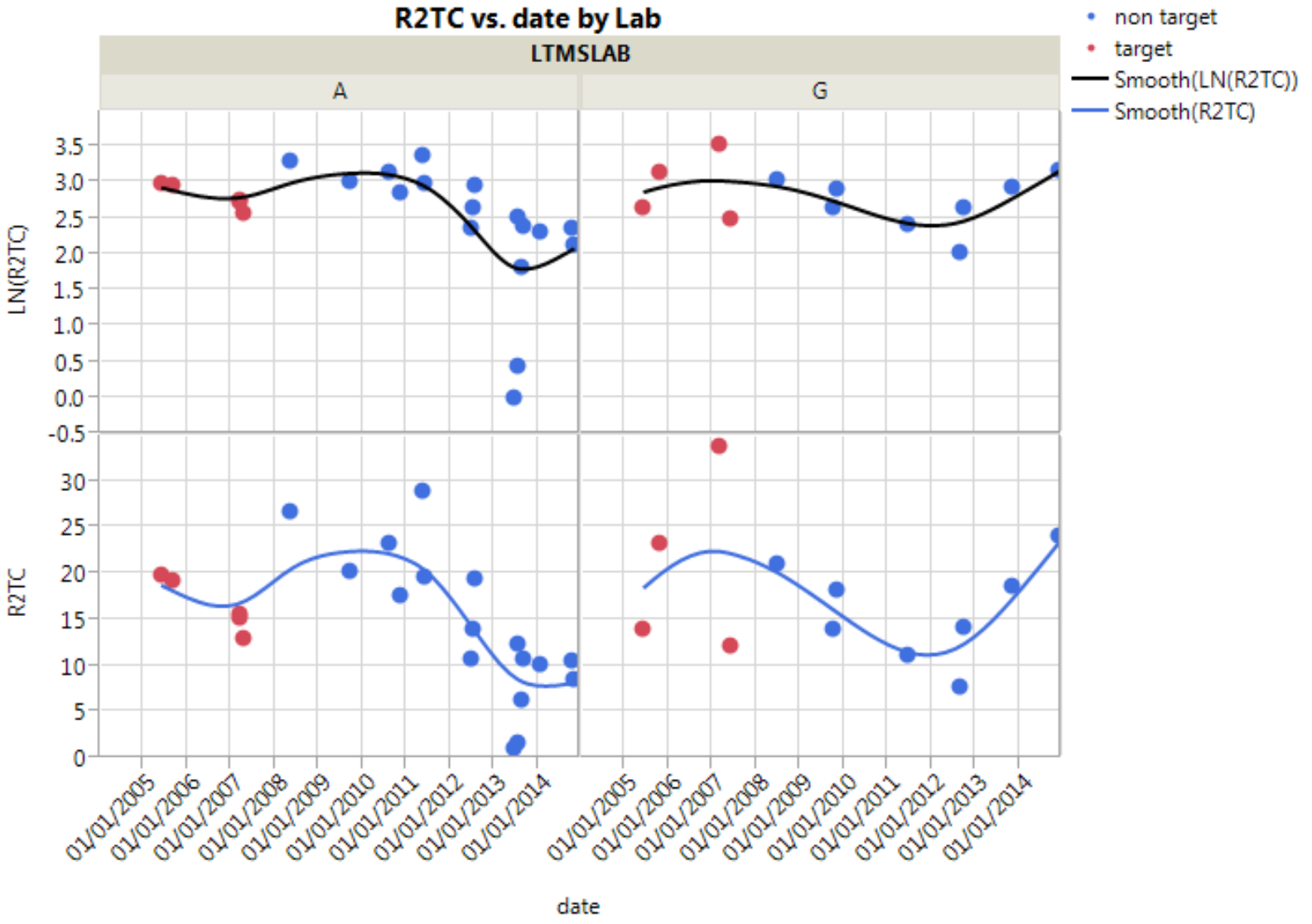
Updated plot



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Labs A and G only:
PC-10B, 831, 831-1 and 831-2

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before 2013	G	6	2.6140	0.3590
after	A	6	2.2532	0.2426
after	G	1	2.9291	

factor 3	LTMSLAB	N Rows	Mean(LN(R2TC))	Std Dev(LN(R2TC))
target	A	5	2.7913	0.1779
target	G	4	2.9491	0.4751
before 2011	A	4	3.0759	0.1813
before 2011	G	3	2.8629	0.2035
2011	A	2	3.1695	0.2758
2011	G	1	2.4159	
2012	A	3	2.6569	0.2988
2012	G	2	2.3397	0.4314
2013	A	5	1.4290	1.1469
2013	G	1	2.9291	
2014	A	3	2.2687	0.1210
2014	G	1	3.1797	

New table

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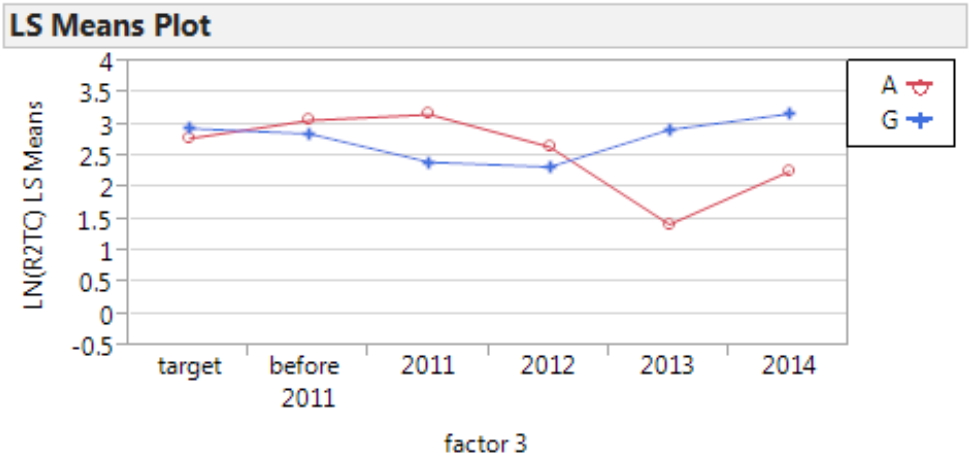
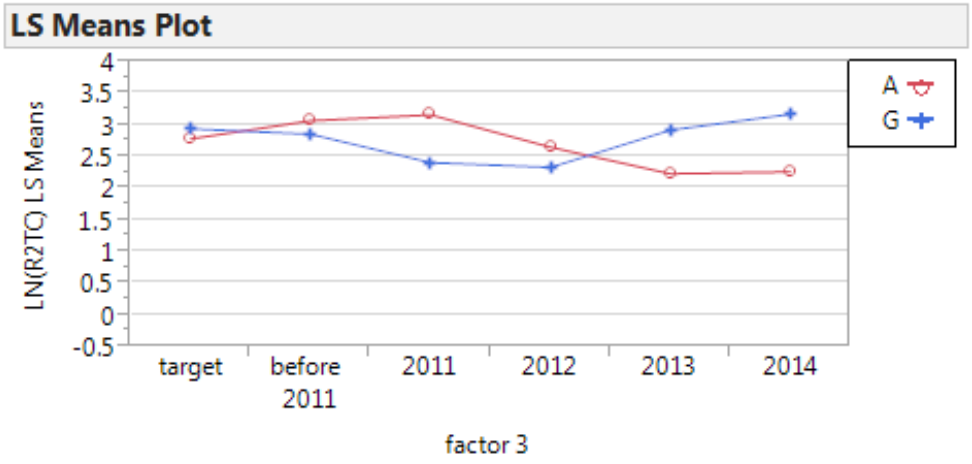
Similar analysis… but with more levels for time… (new slide)

All data



Removing tests with R2TC= 1 and 1.54 from Lab A



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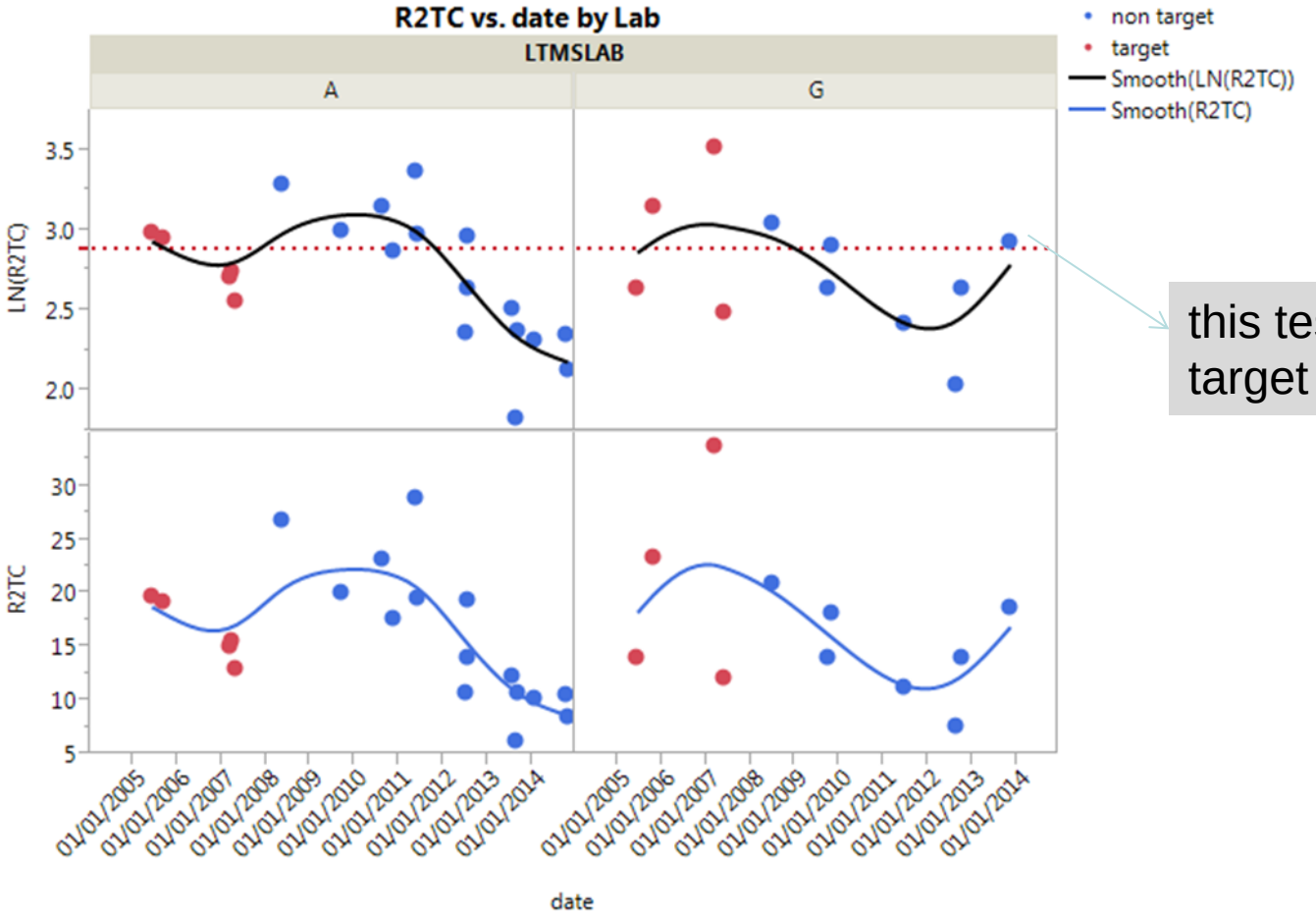
Labs A and G only – after removing the highlighted lower test results



this test result is on target

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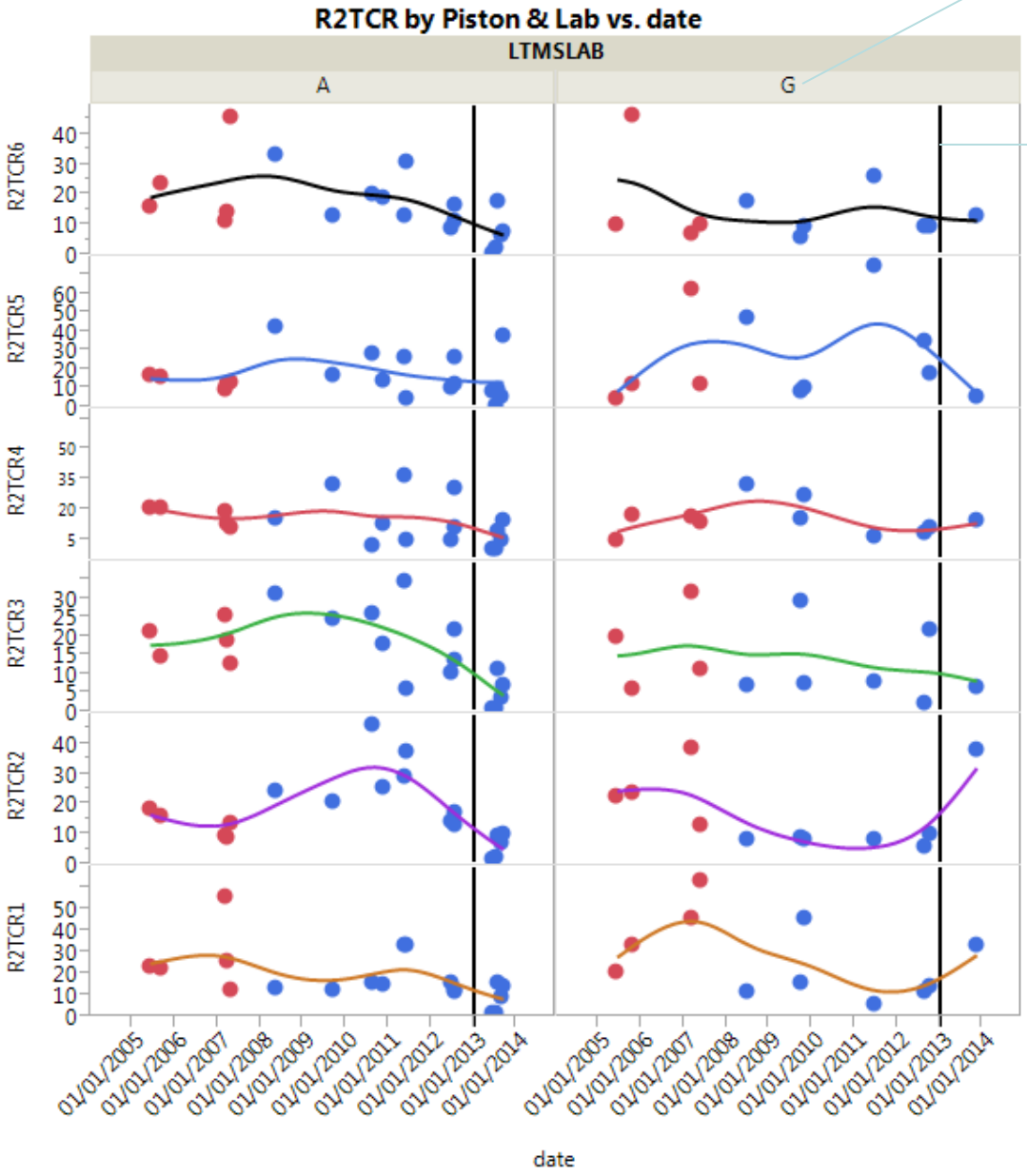
Piston data up to end of 2013



One test in 2013

2013 starts

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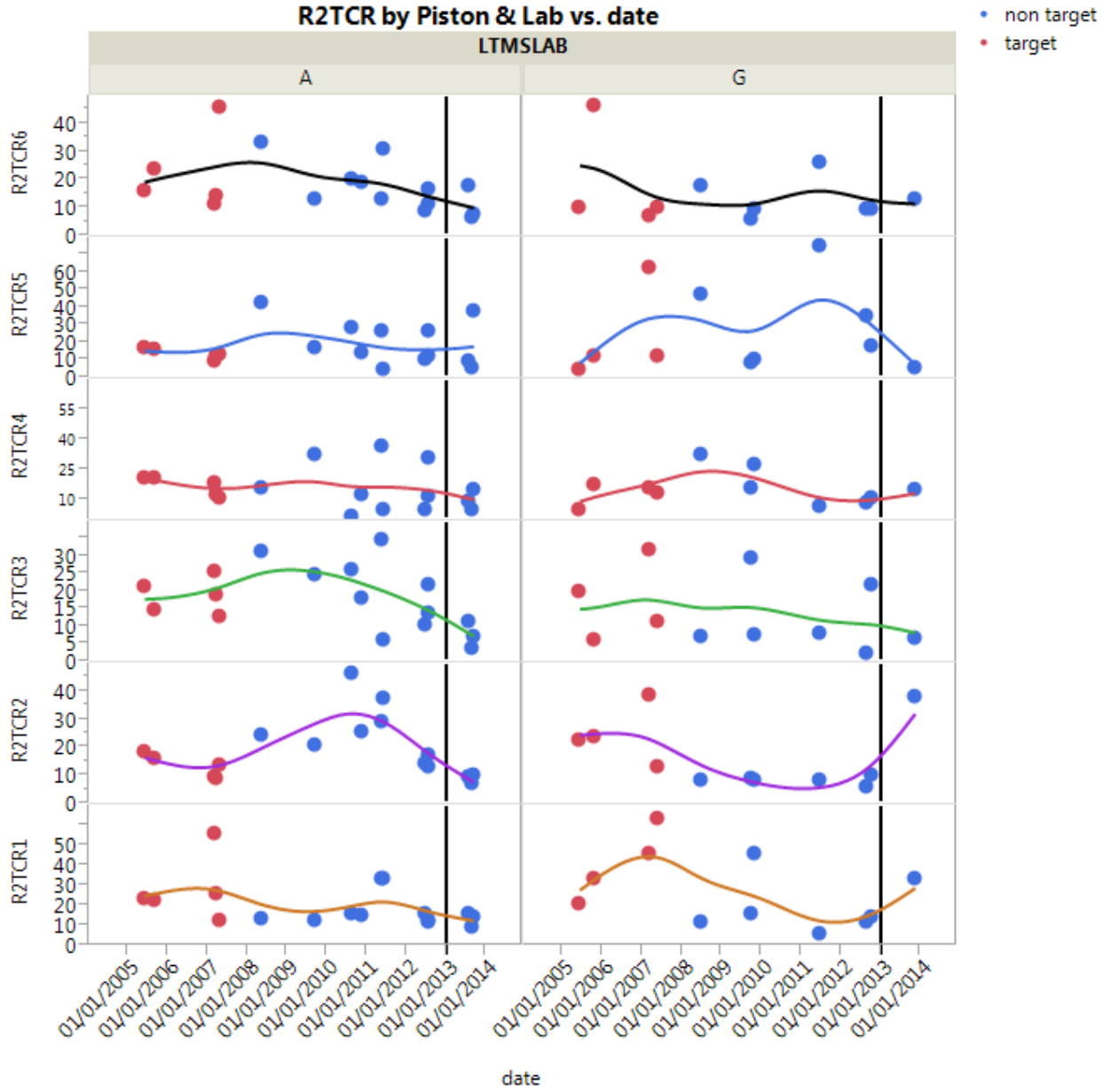
Piston data up to end of 2013



After removing the highlighted low tests results

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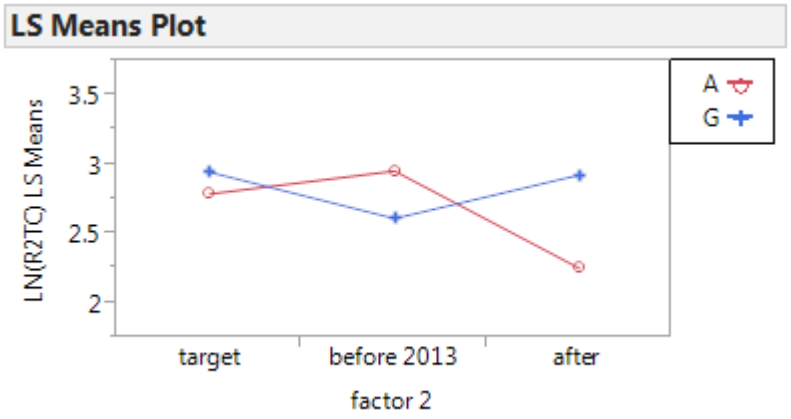
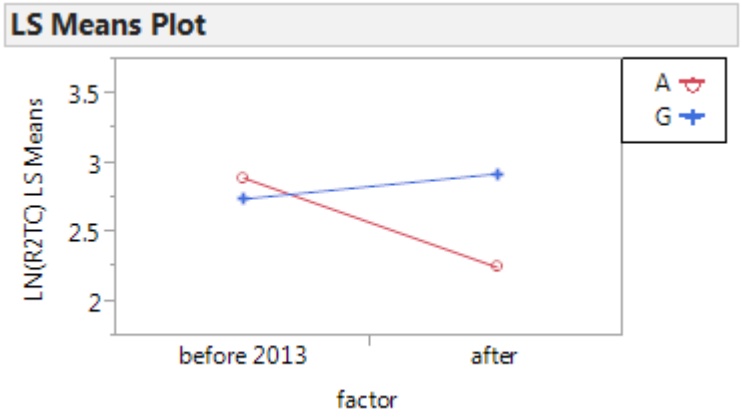
Average differences (LN R2TC): eliminating two tests highlighted earlier

Models: Lab, time factor and interaction Lab * time factor
Time factor: (one with three levels -- “Target”, “Before 2013” and “2013 or later”; the other with two levels “Before 2013” and “2013 or later”)



Level		Least Sq Mean
A,before 2013	A	2.9570386
G,target	A	2.9490872
G,after	A B	2.9290581
A,target	A B	2.7912867
G,before 2013	A B	2.6140110
A,after	B	2.2532133

Levels not connected by same letter are significantly different.



Level		Least Sq Mean
G,after	A B	2.9290581
A,before 2013	A	2.8978415
G,before 2013	A	2.7480415
A,after	B	2.2532133

Levels not connected by same letter are significantly different.

0.644

Lab A, not G

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Appendix: Target

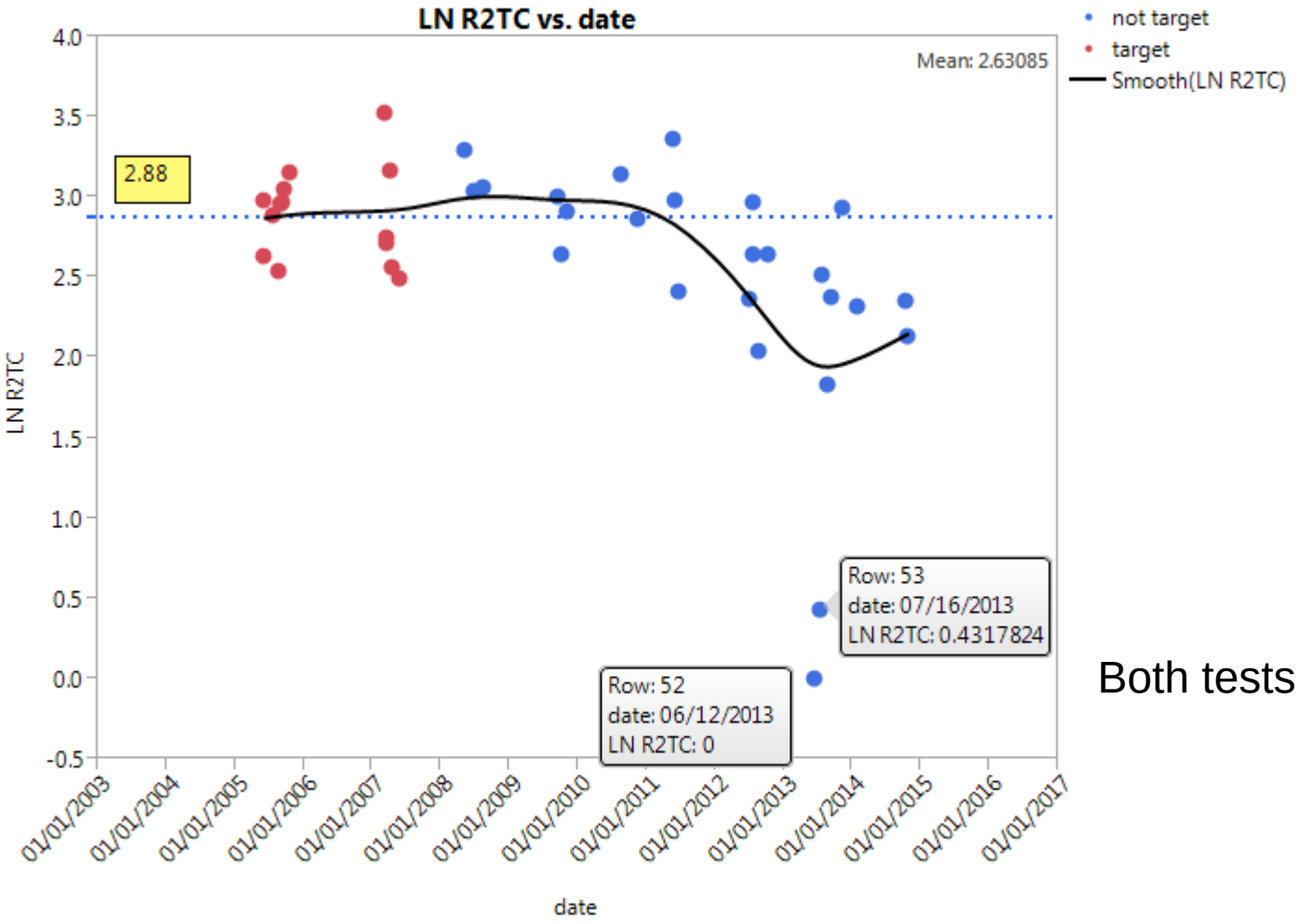
SECOND RING TOP CARBON
Unit of Measure: LN (Demerits)

Reference Oil	Mean	Standard Deviation
831	2.8828	0.2900
831-1	2.8828	0.2900
831-2	2.8828	0.2900

Usable data for analysis

LTMSLAB	factor 2	N Rows
A	target	5
A	before 2013	9
A	after	6
B	target	1
D	target	2
F	target	2
F	before 2013	1
G	target	4
G	before 2013	6
G	after	1
H	before 2013	1

2nd Ring Top Carbon: transformed values over time



Both tests in lab A

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