

The Effects of Gasoline Sulfur Level on Emissions from Tier 2 Vehicles in the In-Use Fleet

Appendix E Plots of All Pollutants and Bags

Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

NOTICE

This technical report does not necessarily represent final EPA decisions or positions. It is intended to present technical analysis of issues using data that are currently available. The purpose in the release of such reports is to facilitate the exchange of technical information and to inform the public of technical developments.

Appendix E. Plots of all pollutants and bags

E.1. Effect of Clean-out at 28ppm

Figure E-1-1 Bag 1 NOx

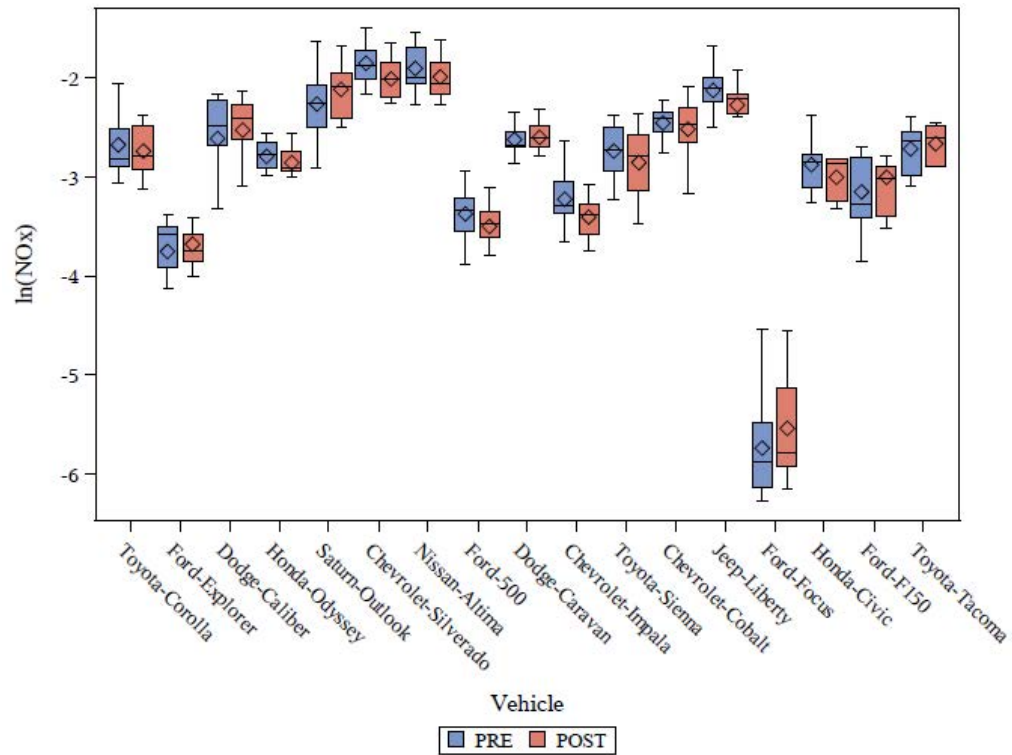


Figure E-1-2 Bag 2 NOx

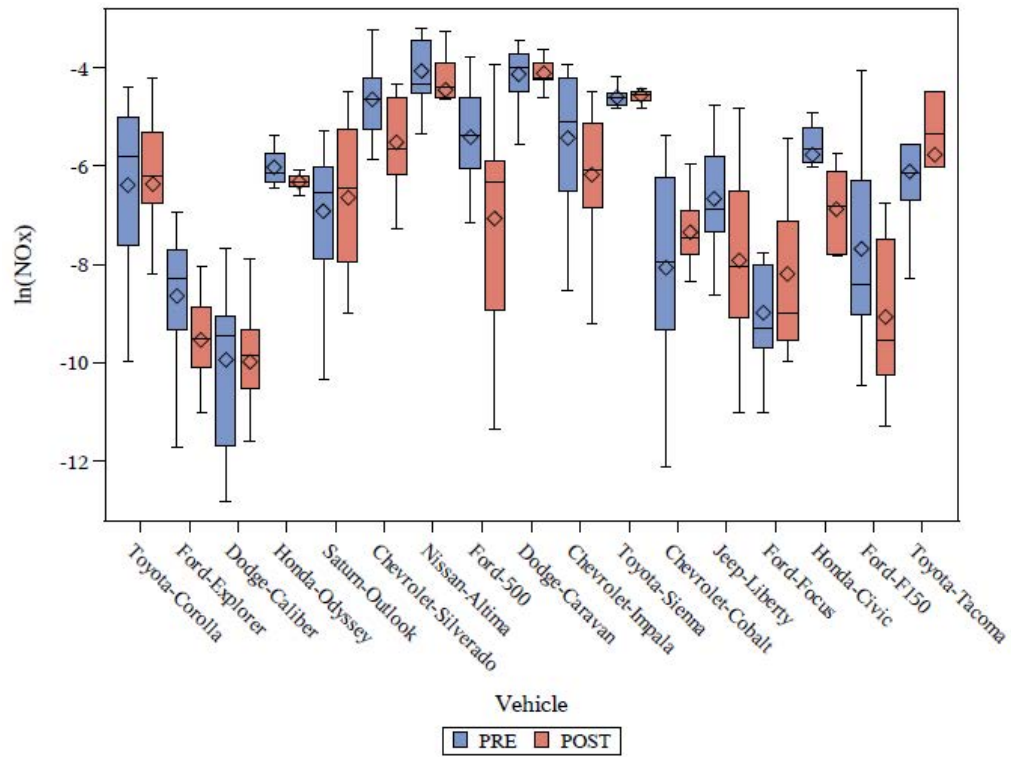


Figure E-1-3 Bag 3 NOx

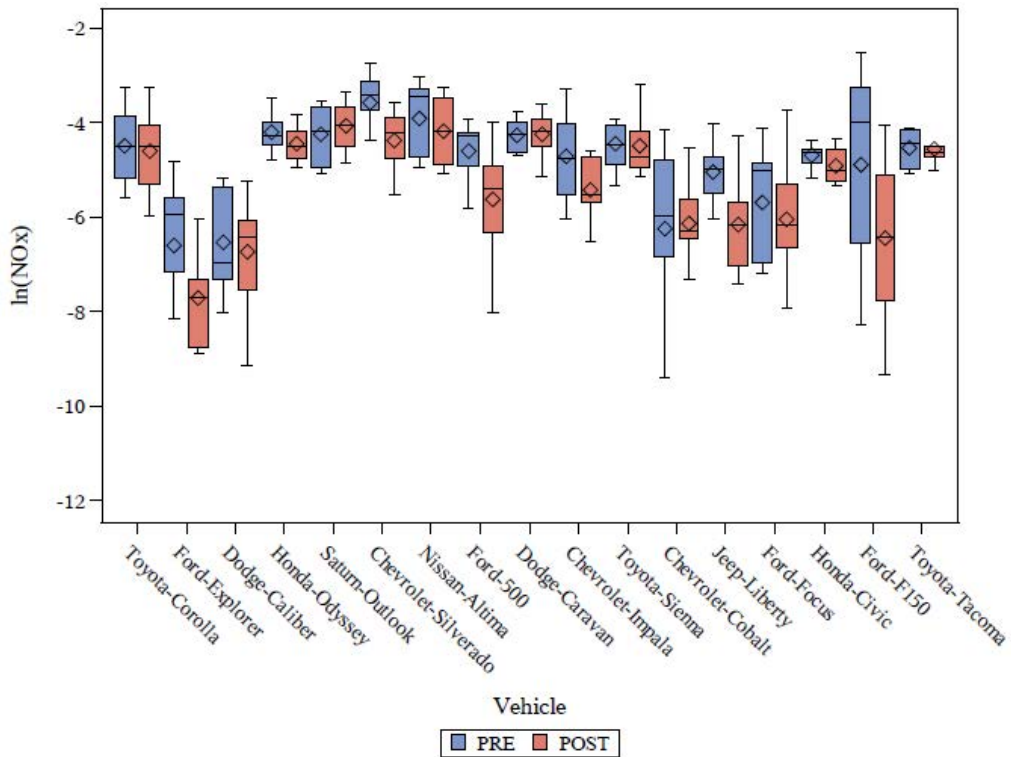


Figure E-1-4 Bag 1-Bag 3 NOx

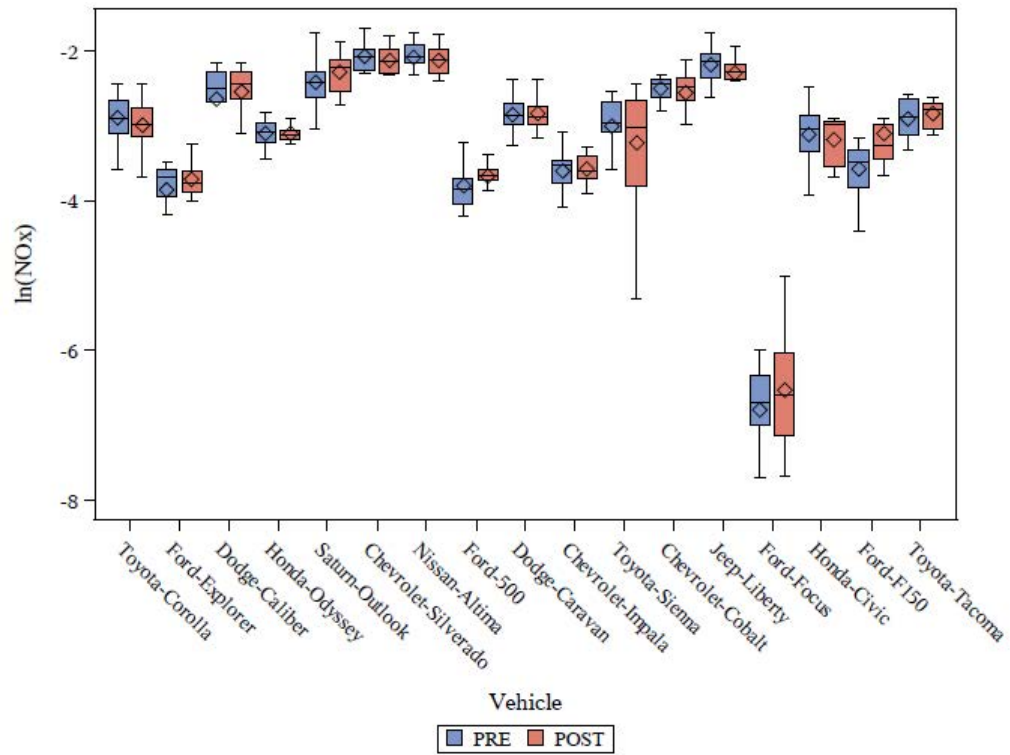


Figure E-1-5 FTP Composite NOx

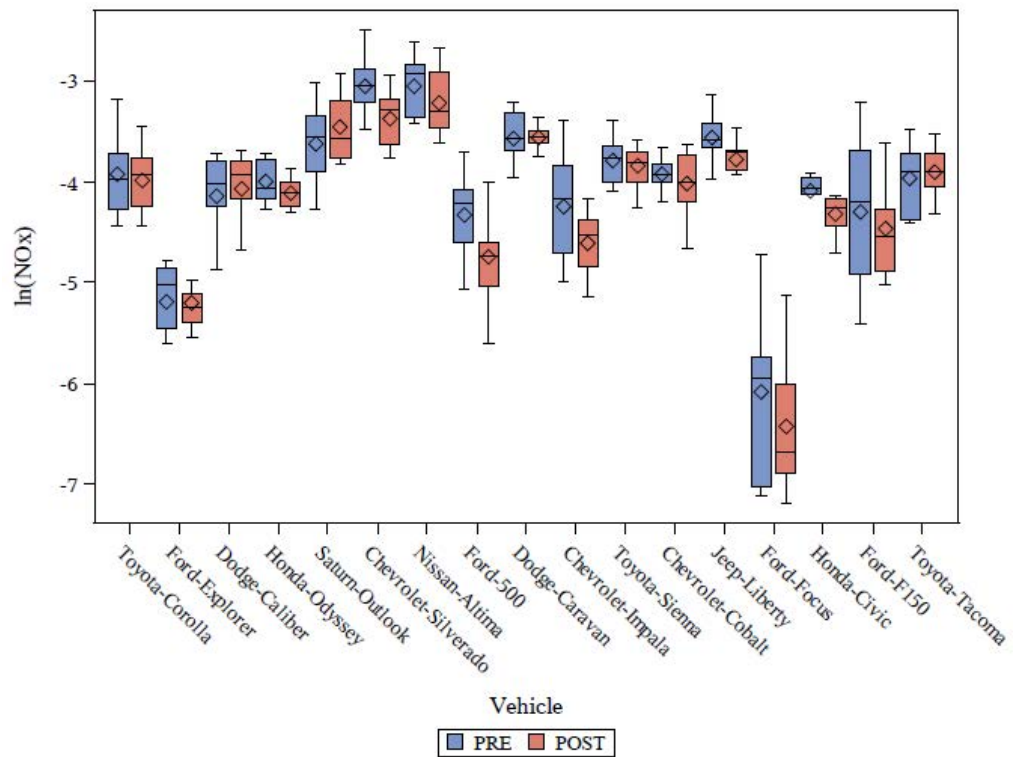


Figure E-1-6 Bag 1 THC

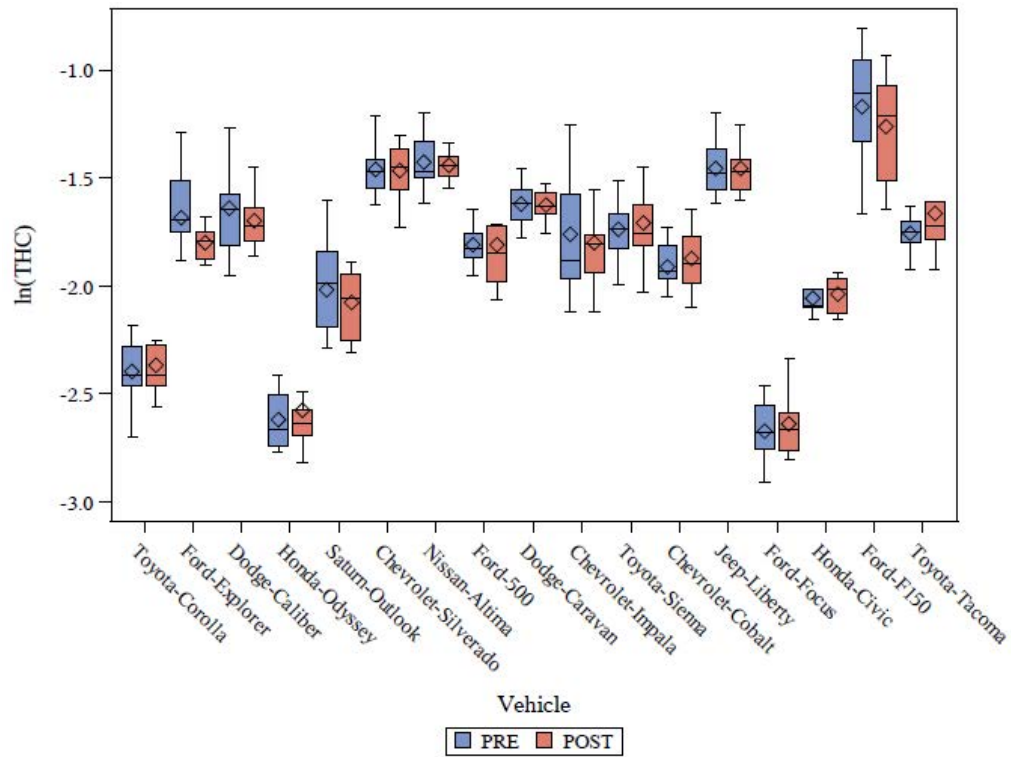


Figure E-1-7 Bag 2 THC

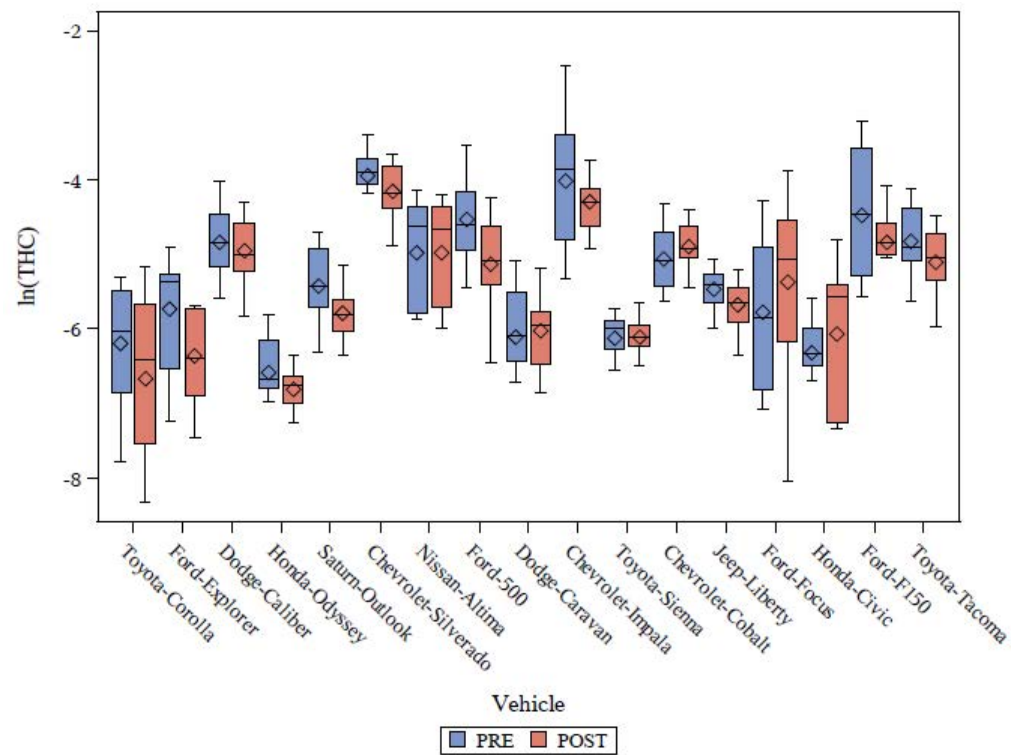


Figure E-1-8 Bag 3 THC

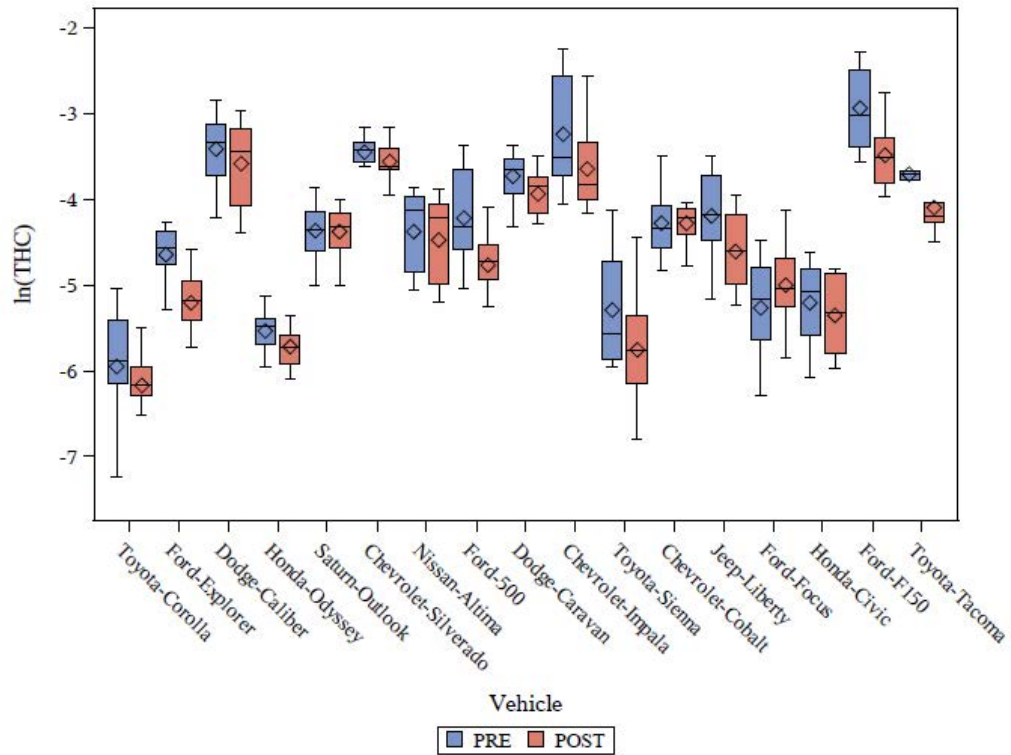


Figure E-1-9 Bag 1-Bag 3 THC

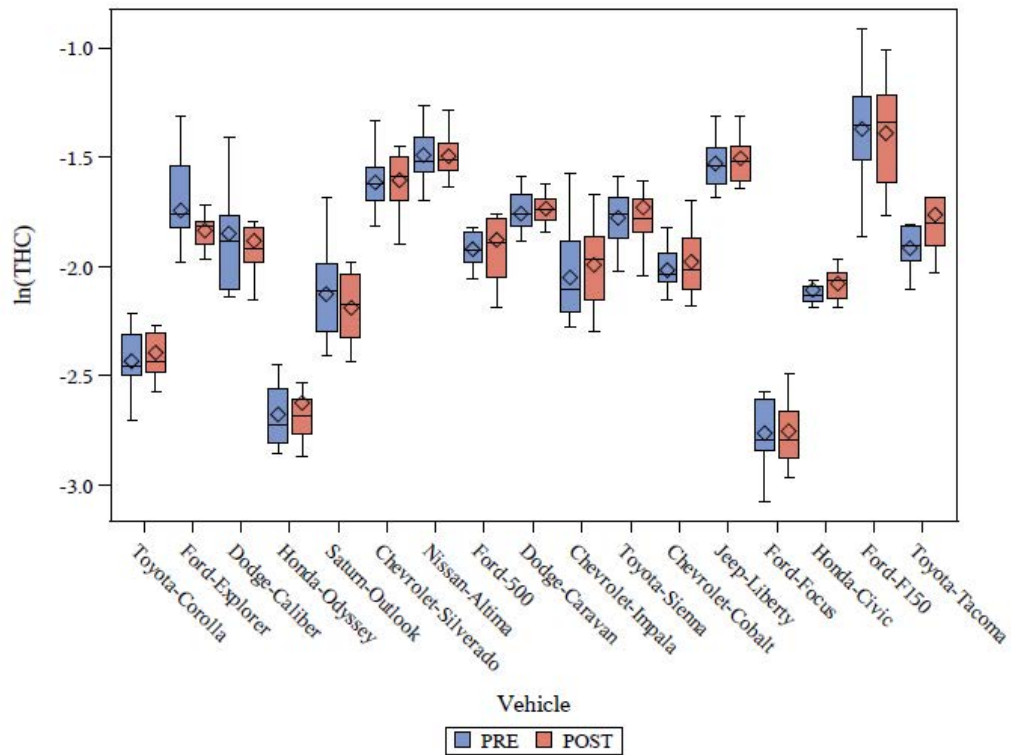


Figure E-1-10 FTP Composite THC

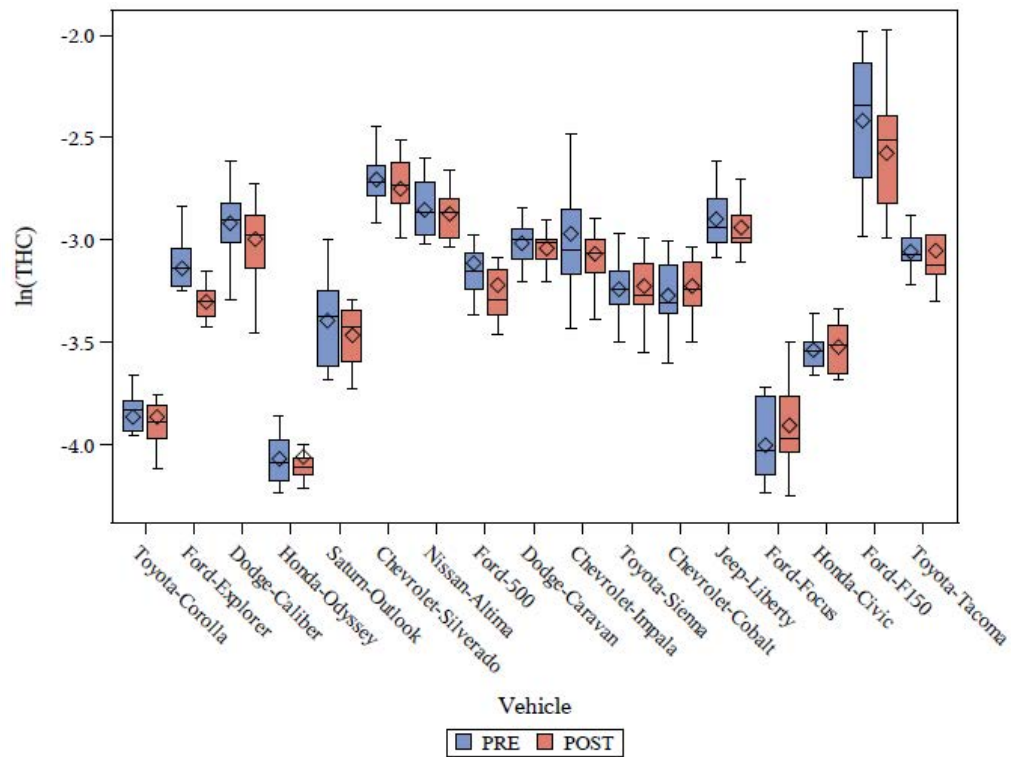


Figure E-1-11 Bag 1 CO

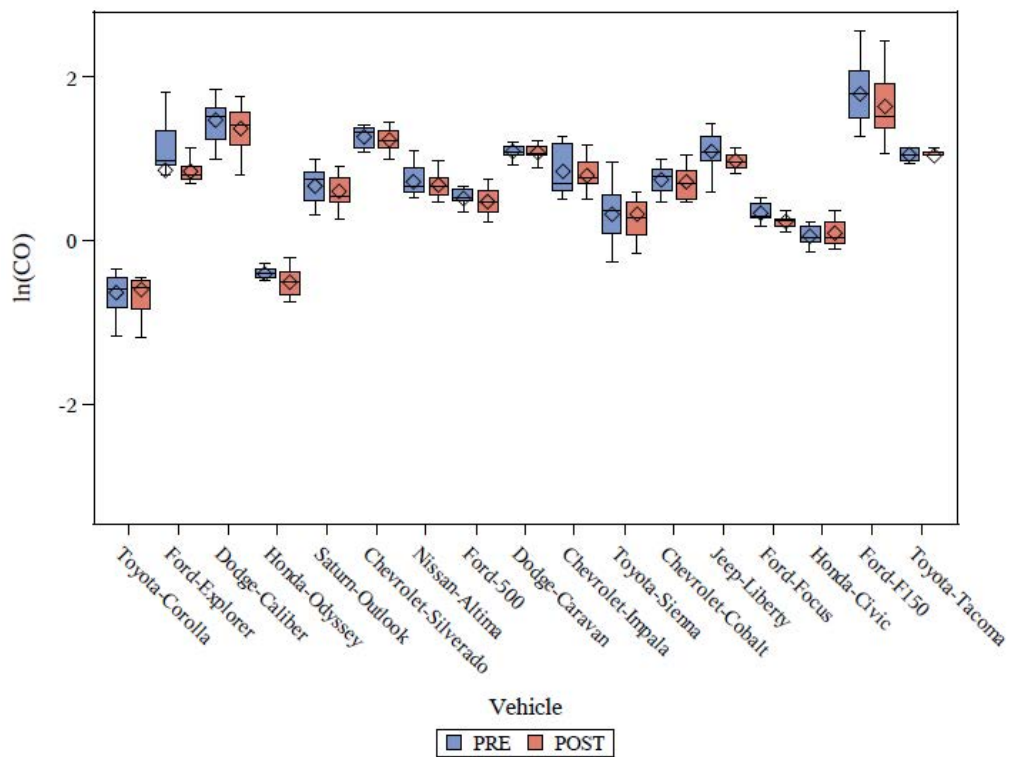


Figure E-1-12 Bag 2 CO

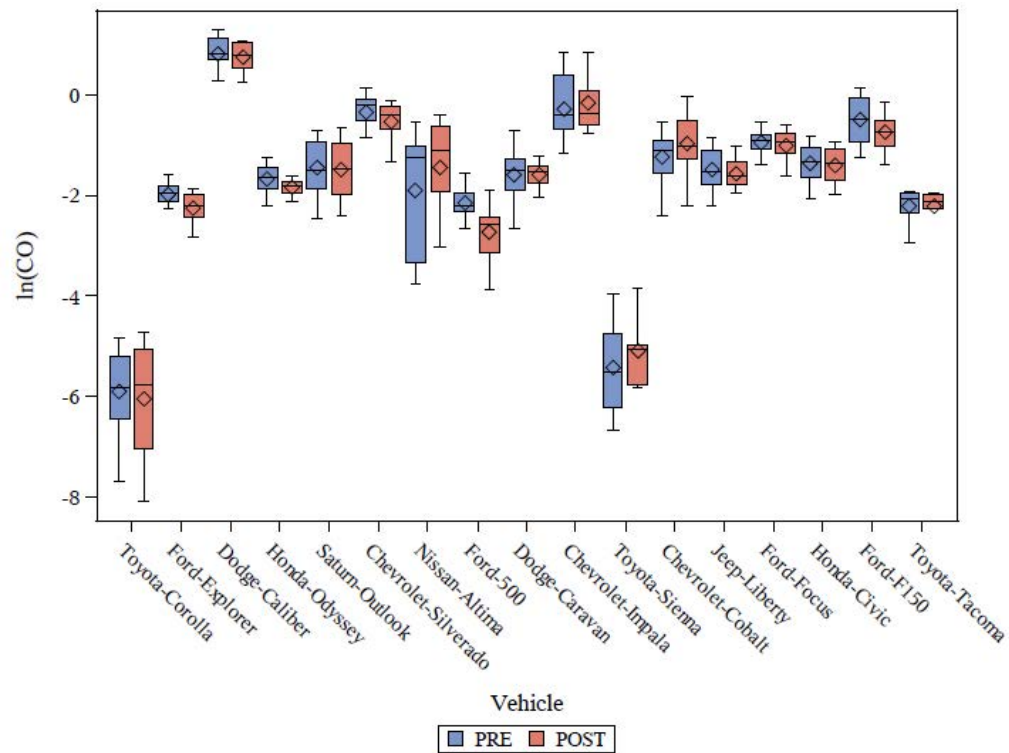


Figure E-1-13 Bag 3 CO

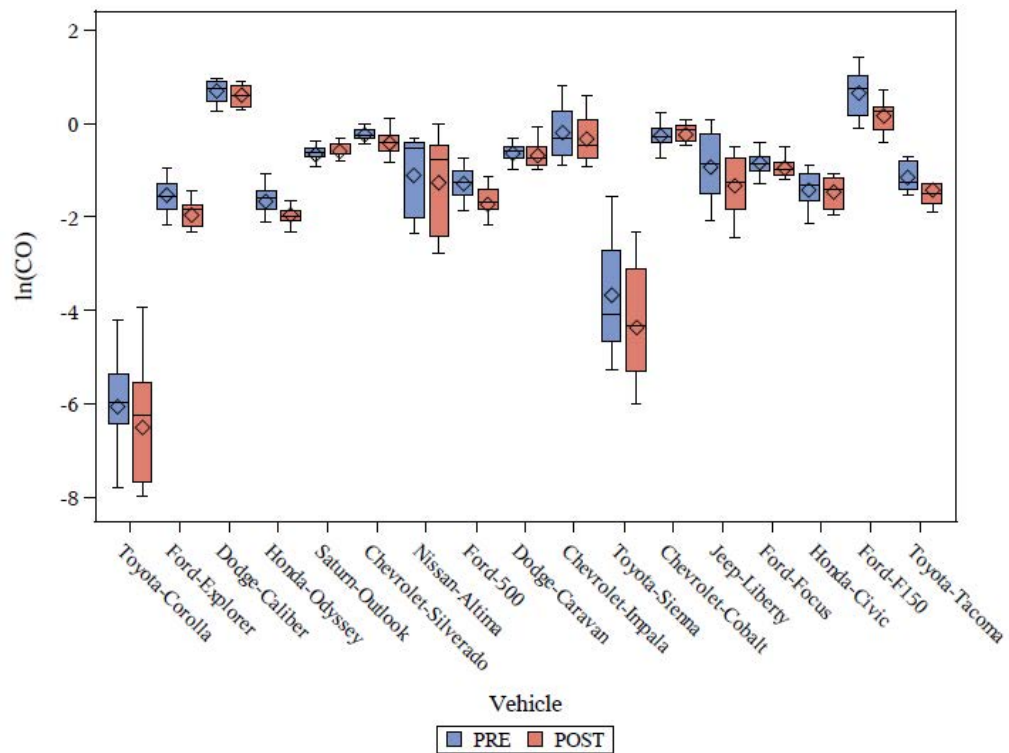


Figure E-1-14 Bag 1-Bag 3 CO

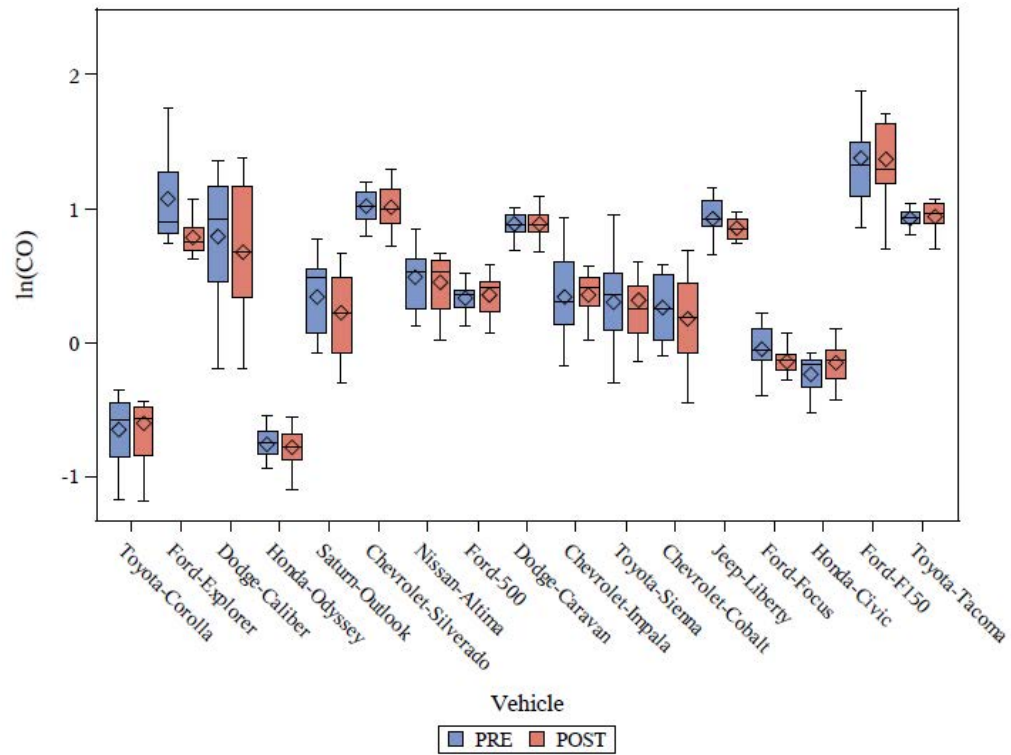


Figure E-1-15 FTP Composite CO

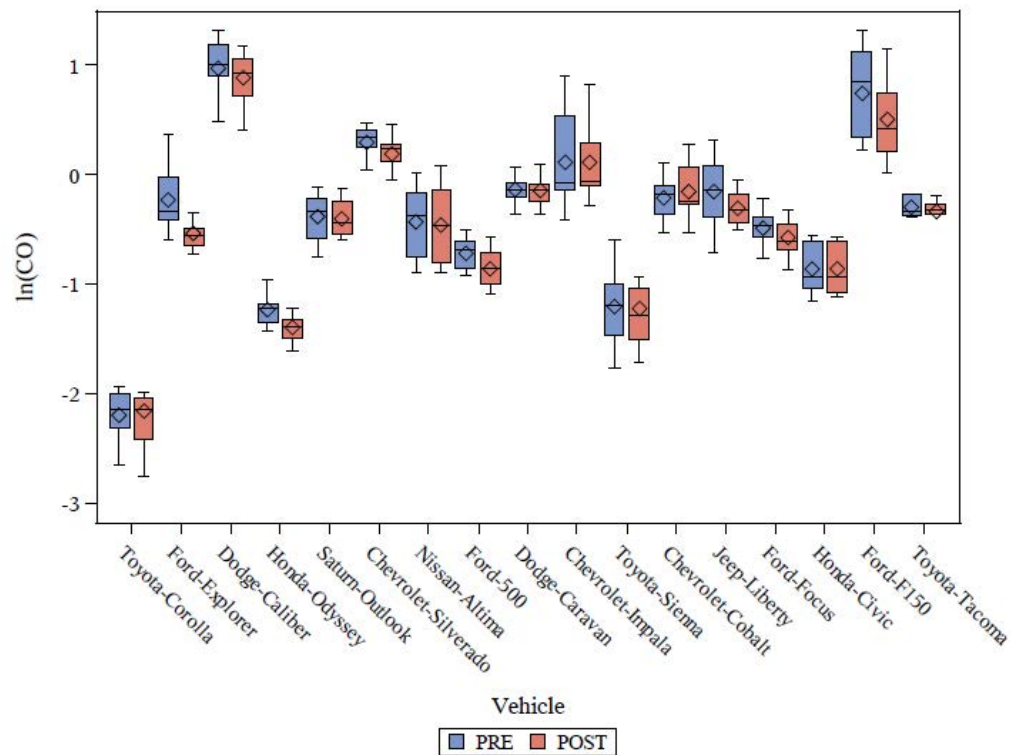


Figure E-1-16 Bag 1 NMHC

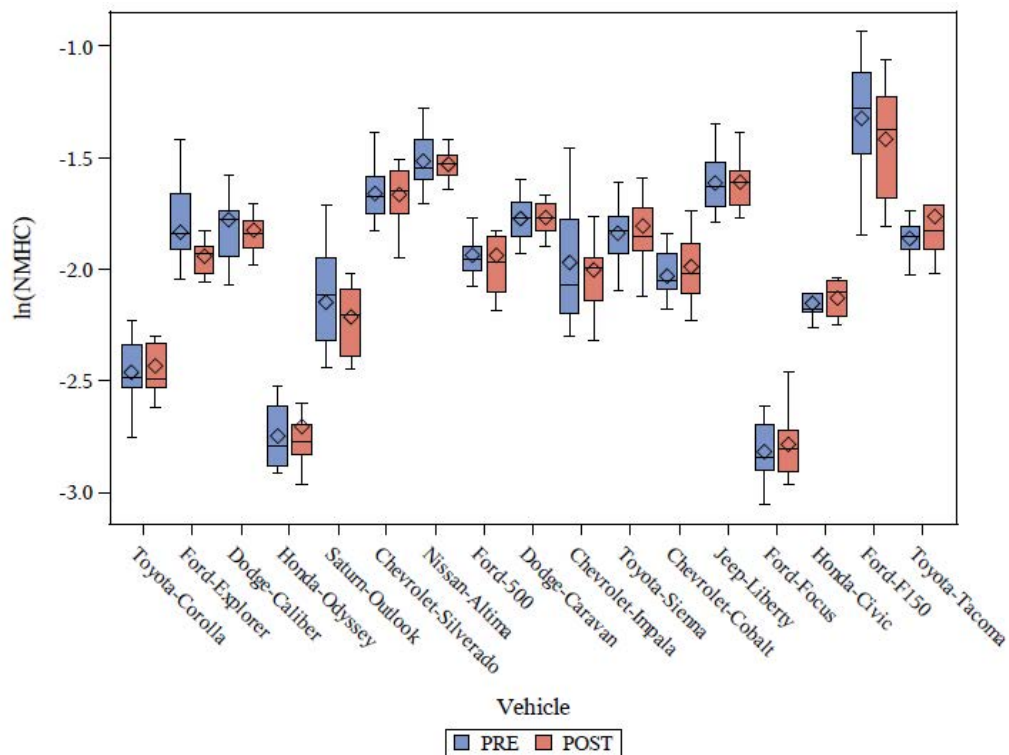


Figure E-1-17 Bag 2 NMHC

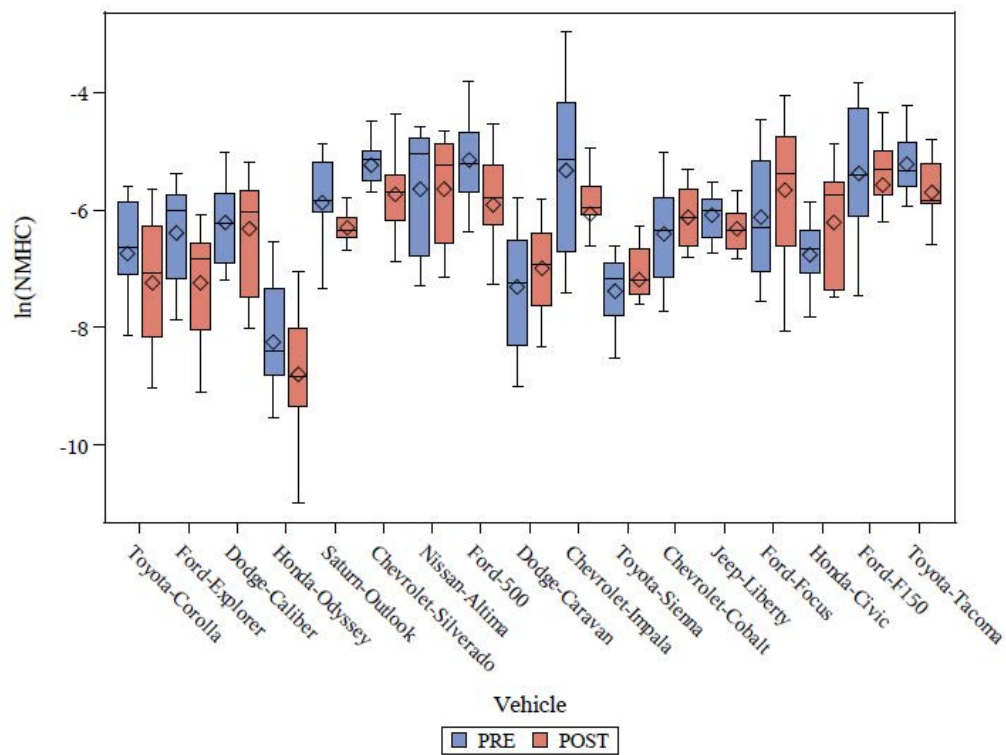


Figure E-1-18 Bag 3 NMHC

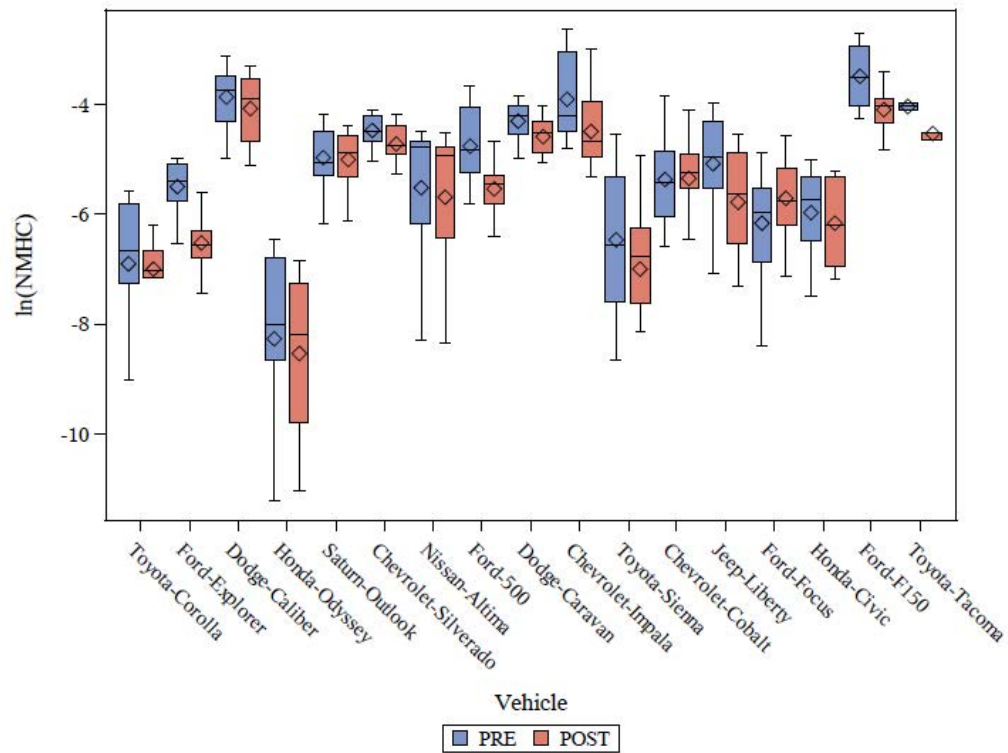


Figure E-1-19 Bag 1-Bag 3 NMHC

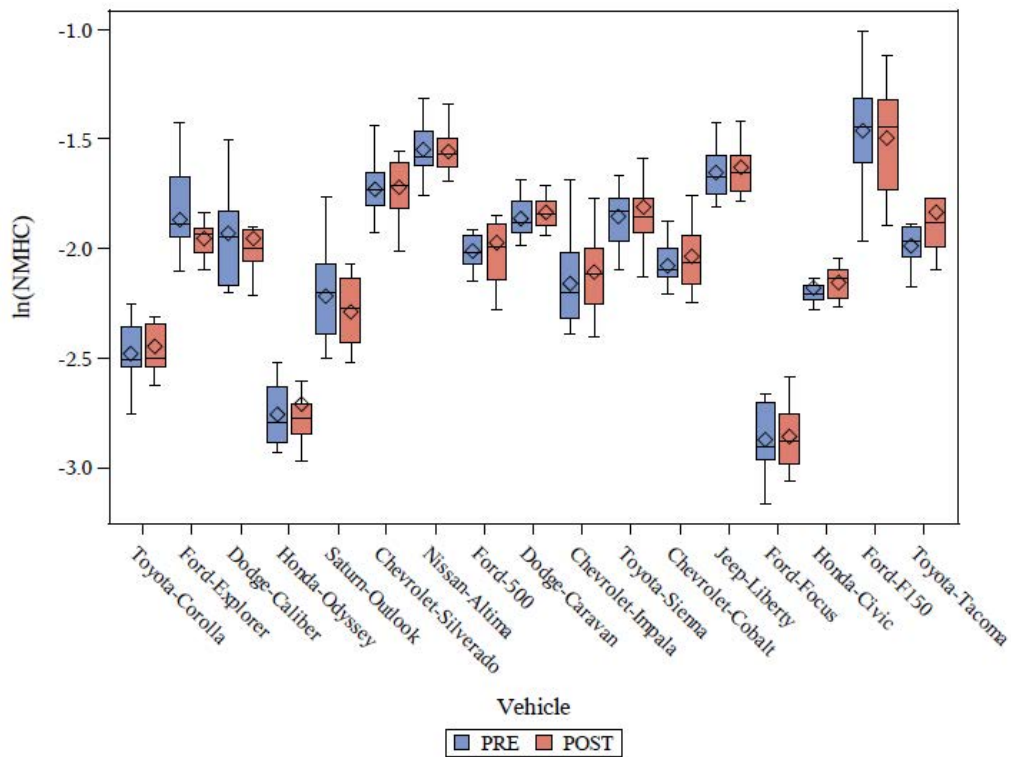


Figure E-1-20 FTP Composite NMHC

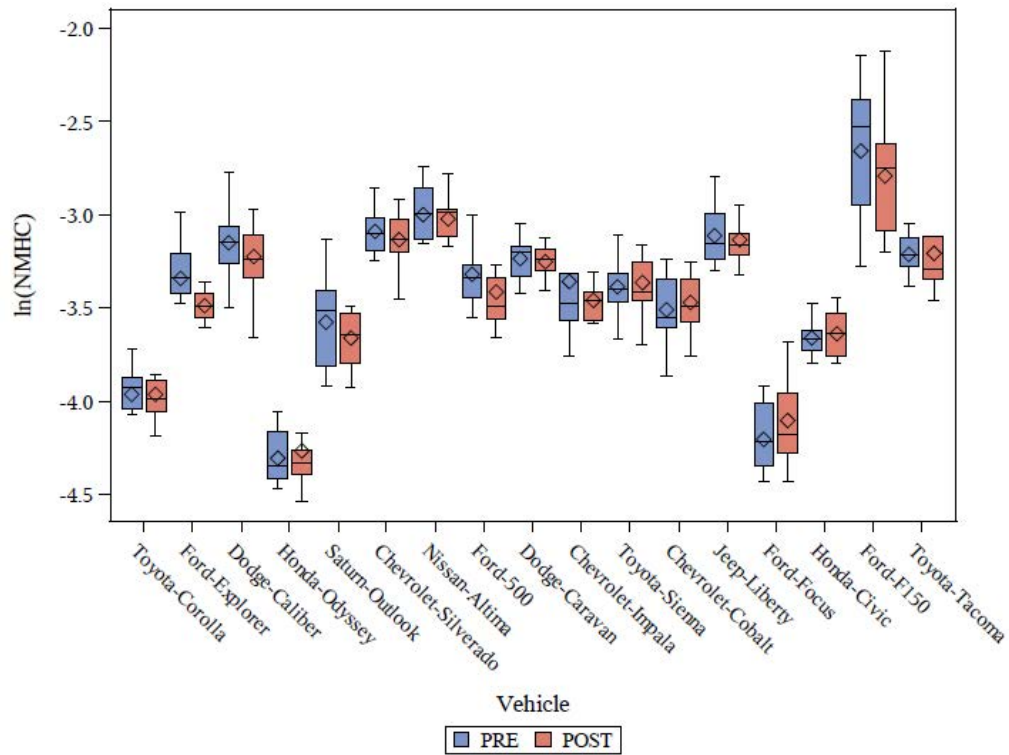


Figure E-1-21 Bag 1 CH₄

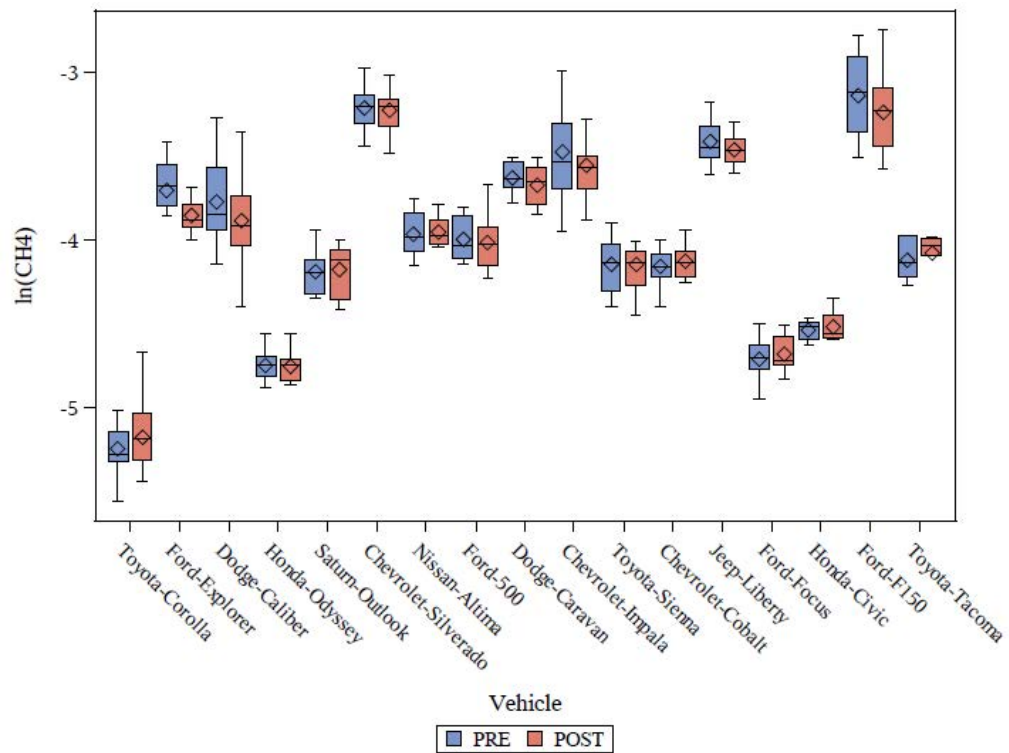


Figure E-1-22 Bag 2 CH4

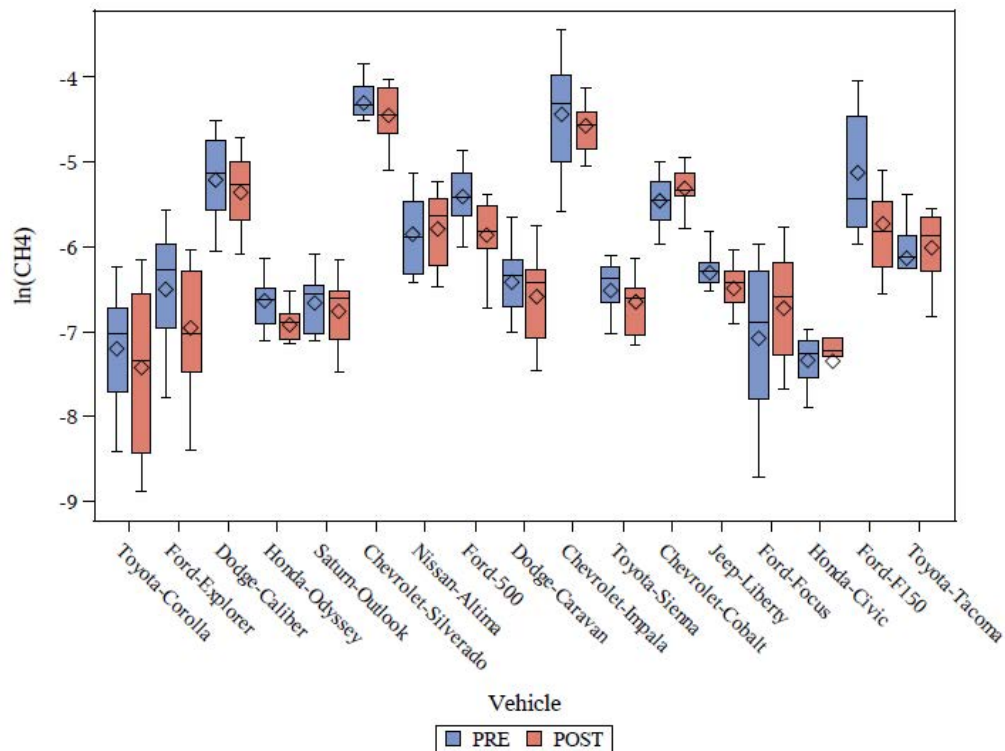


Figure E-1-23 Bag 3 CH4

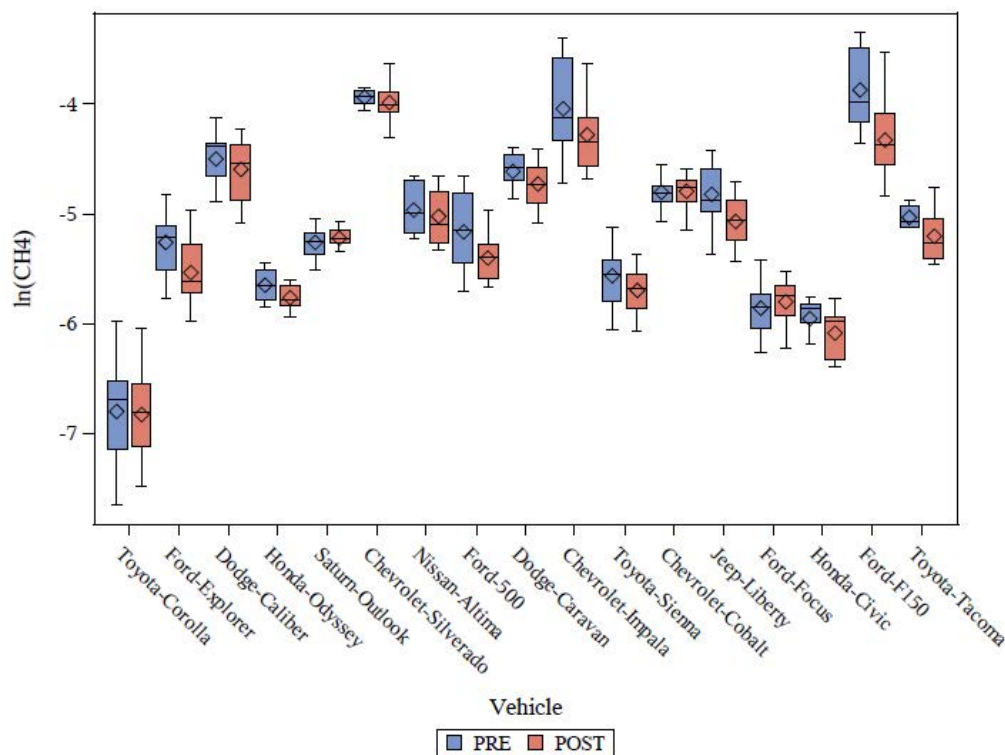


Figure E-1-24 Bag 1-Bag 3 CH4

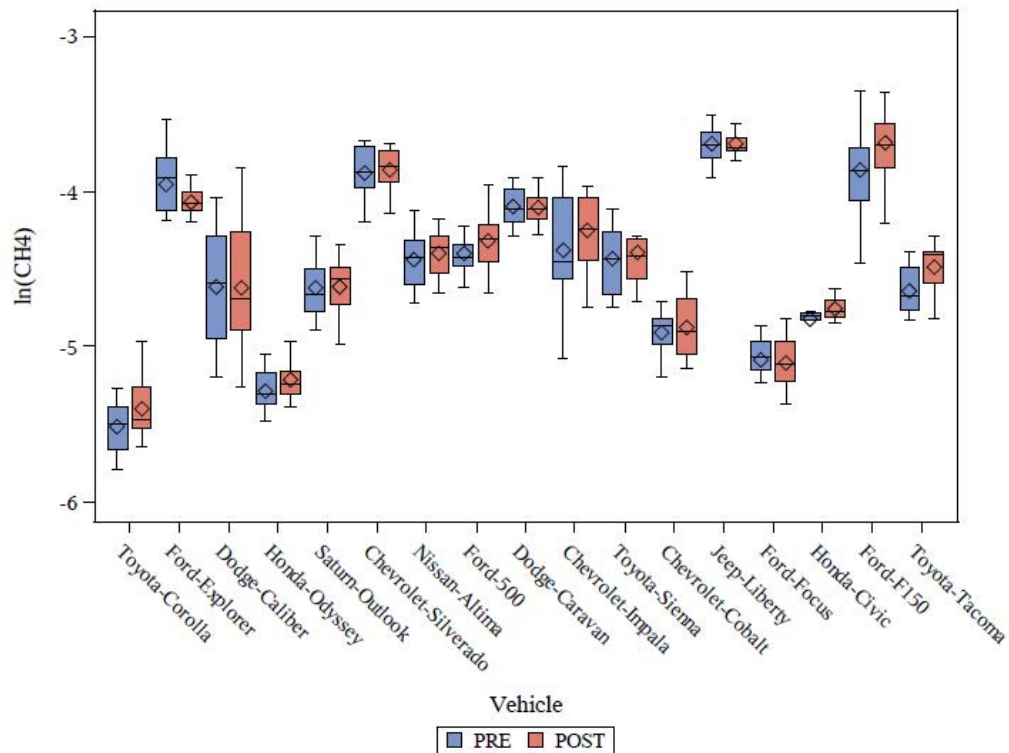


Figure E-1-25 FTP Composite CH4

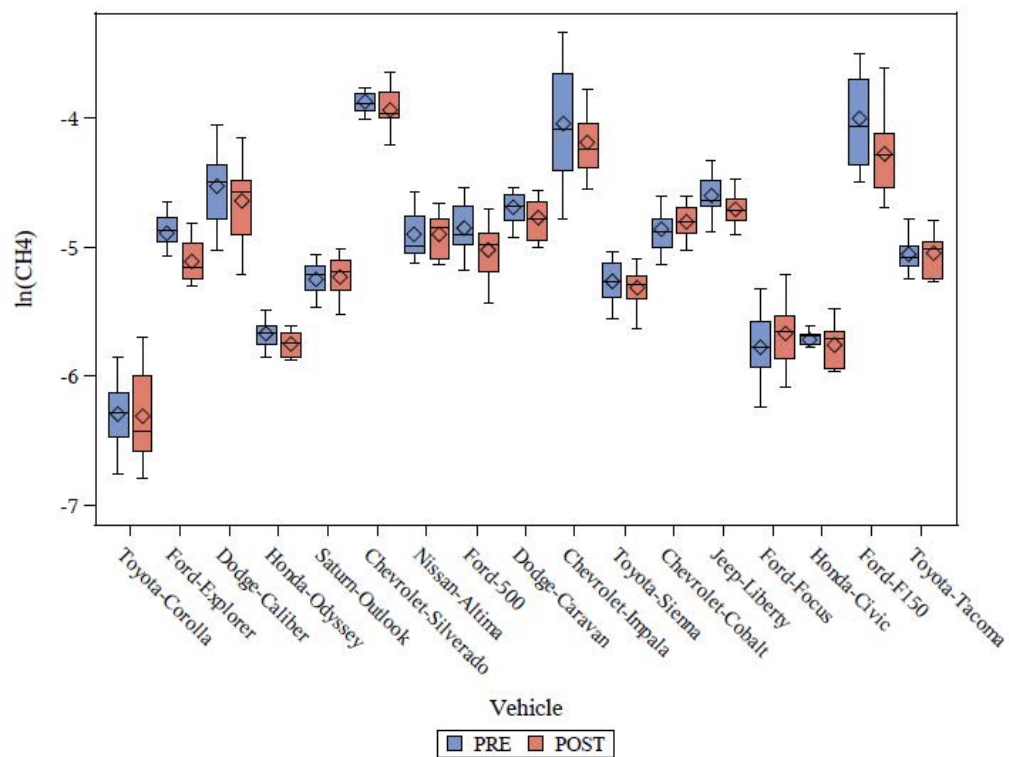


Figure E-1-26 Bag 1 PM

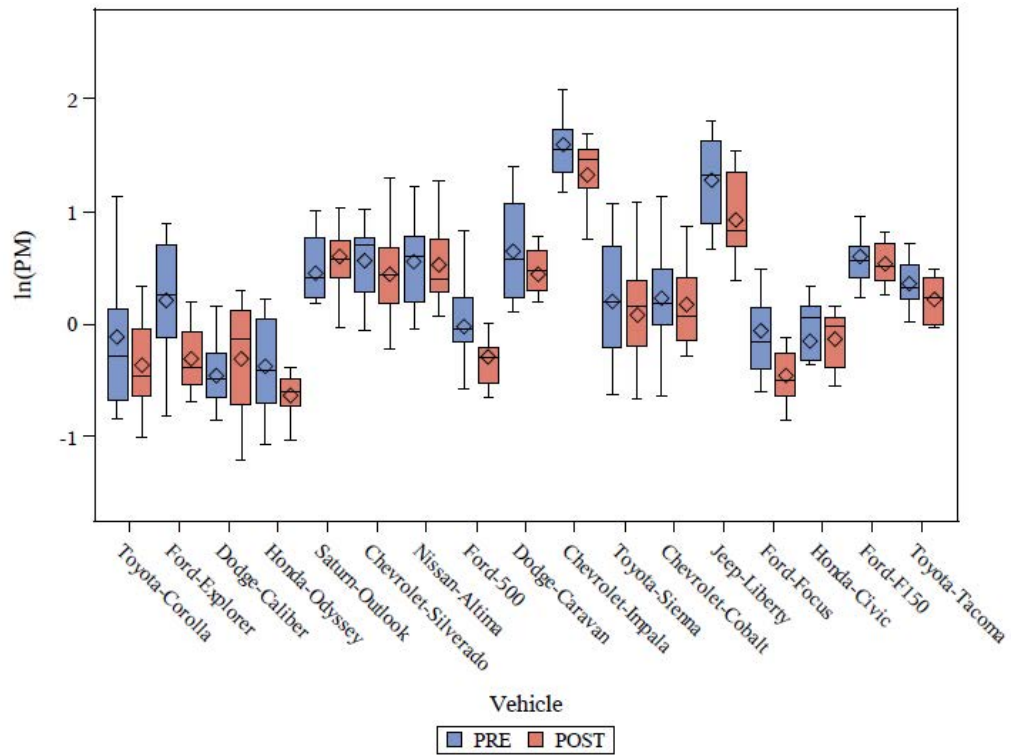


Figure E-1-27 Bag 2 PM

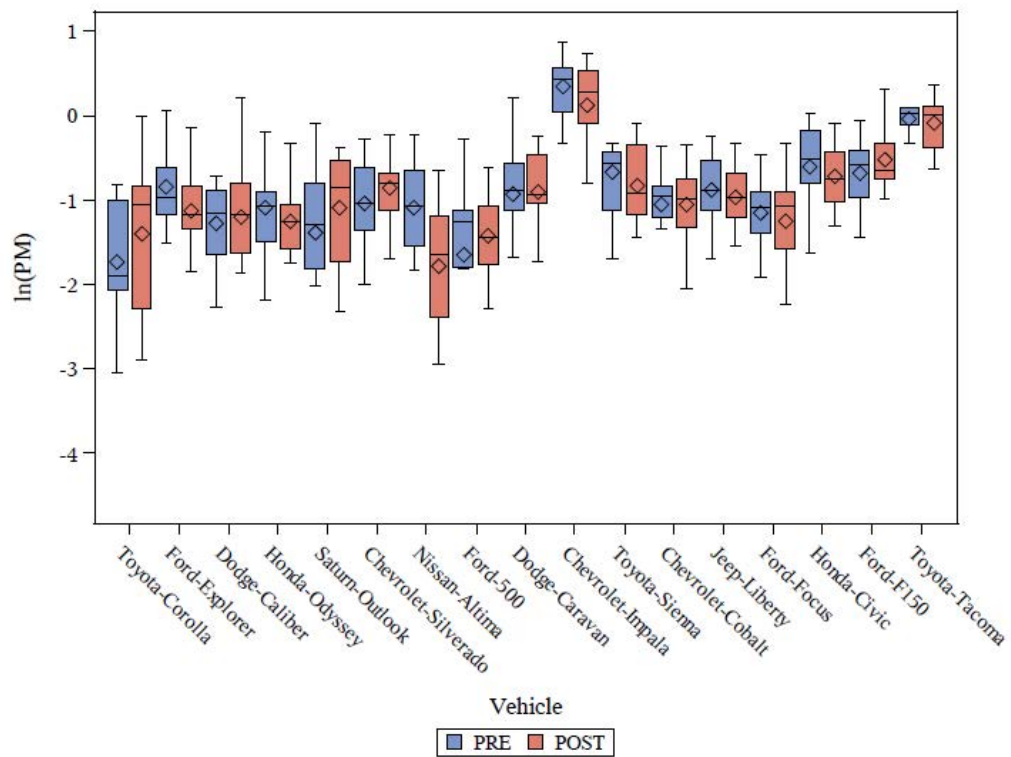


Figure E-1-28 Bag 3 PM

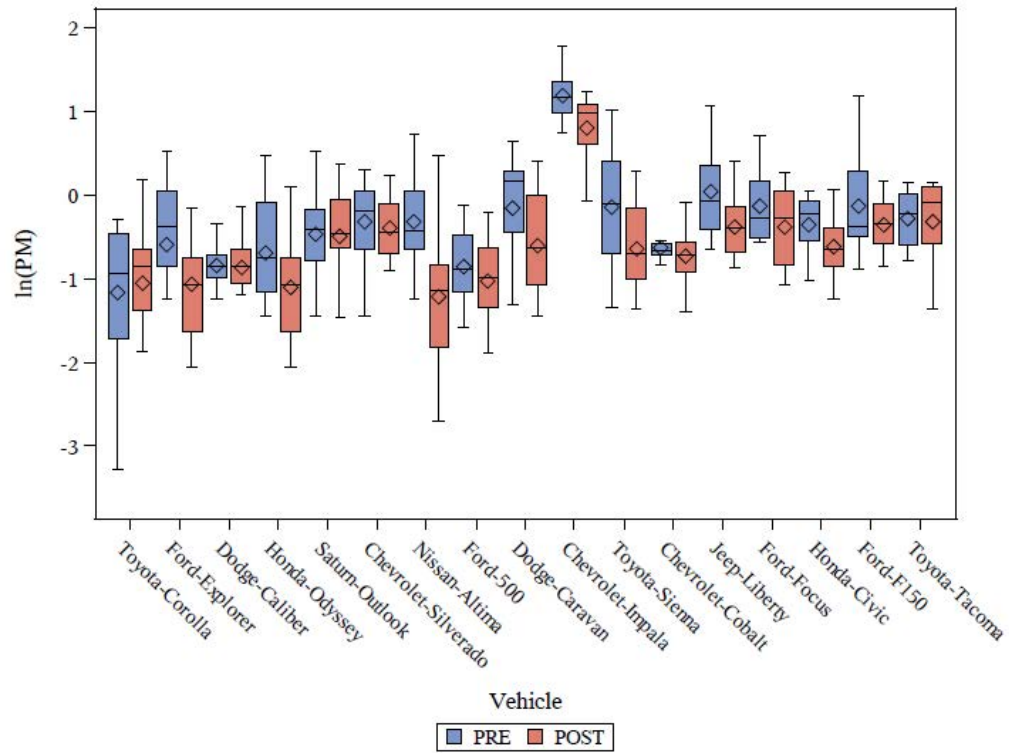


Figure E-1-29 Bag 1-Bag 3 PM

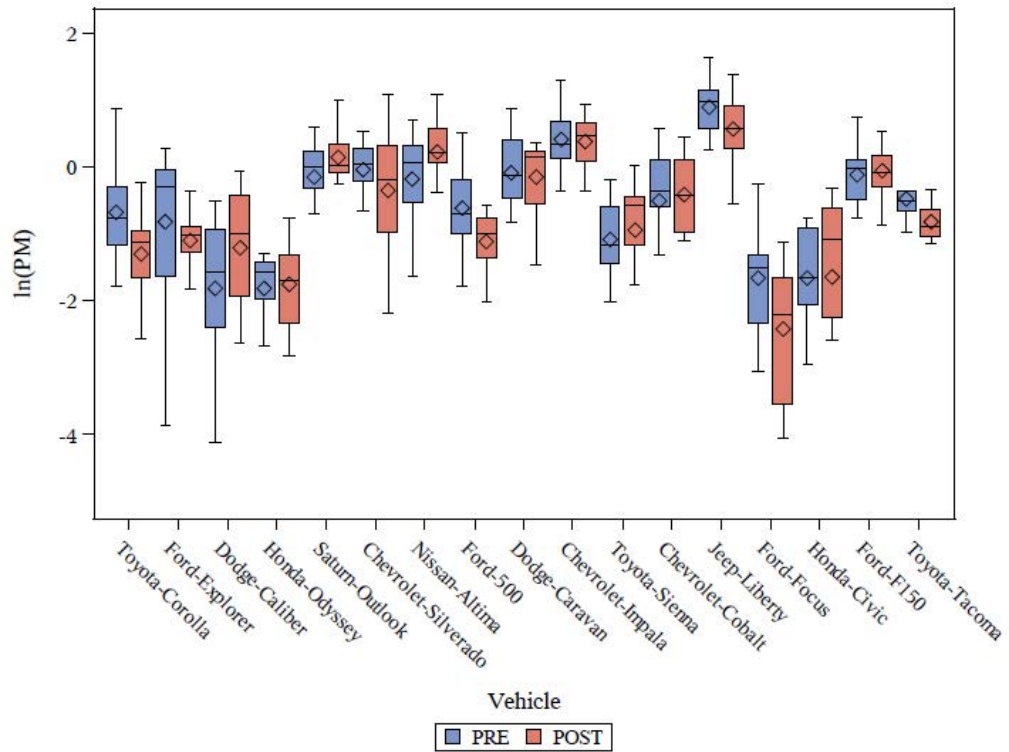
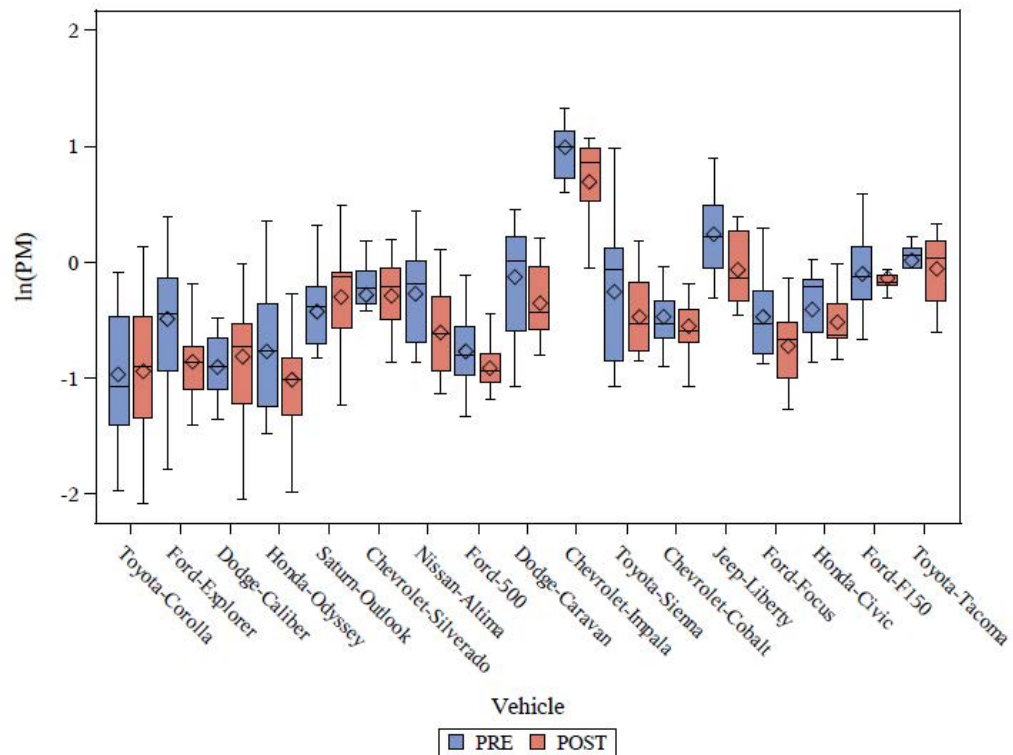


Figure E-1-30 FTP Composite PM



E.2. Effect of Clean-out at 5ppm

Figure E-2-1 Bag 1 NOx

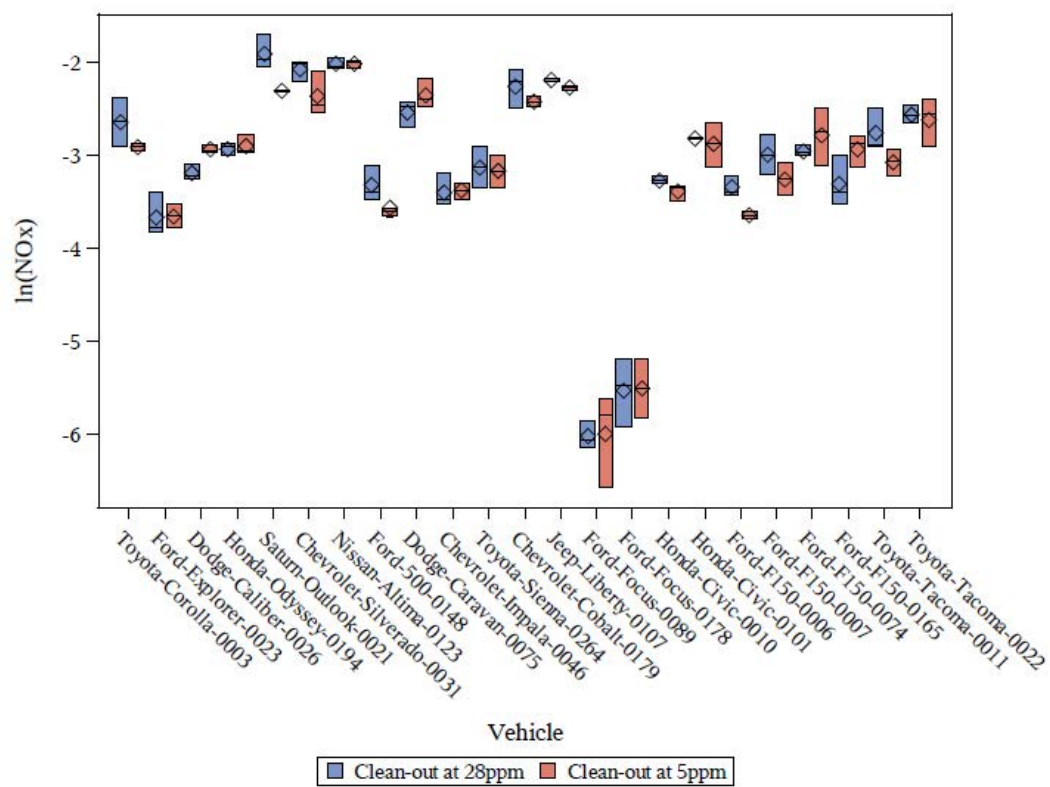


Figure E-2-2 Bag 2 NOx

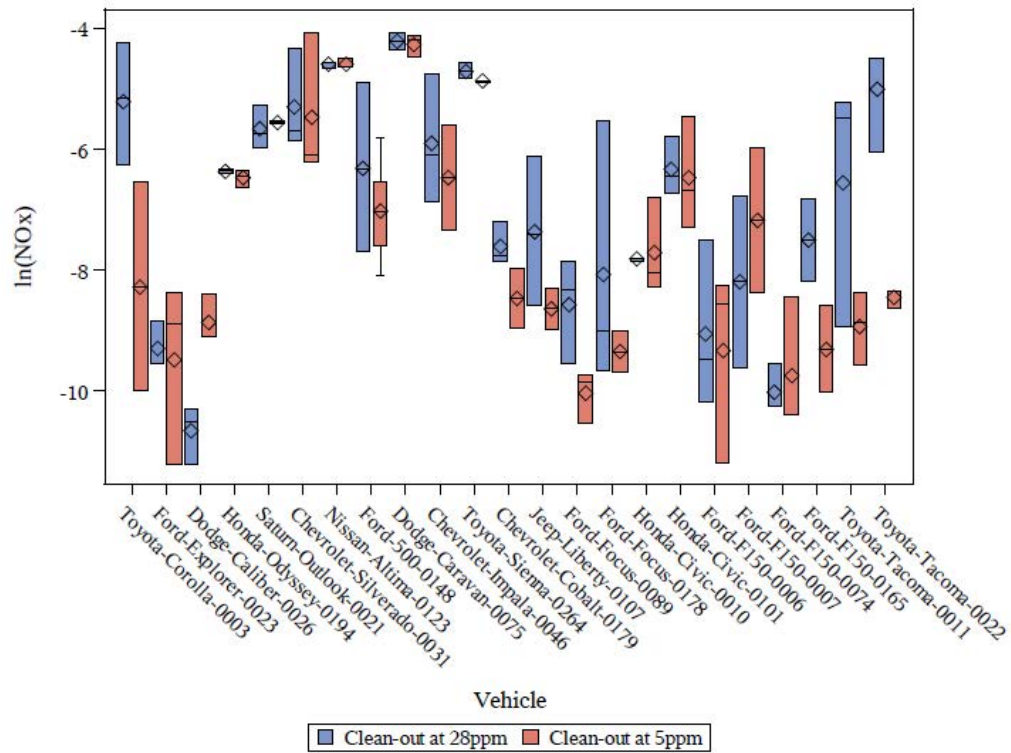


Figure E-2-3 Bag 3 NOx

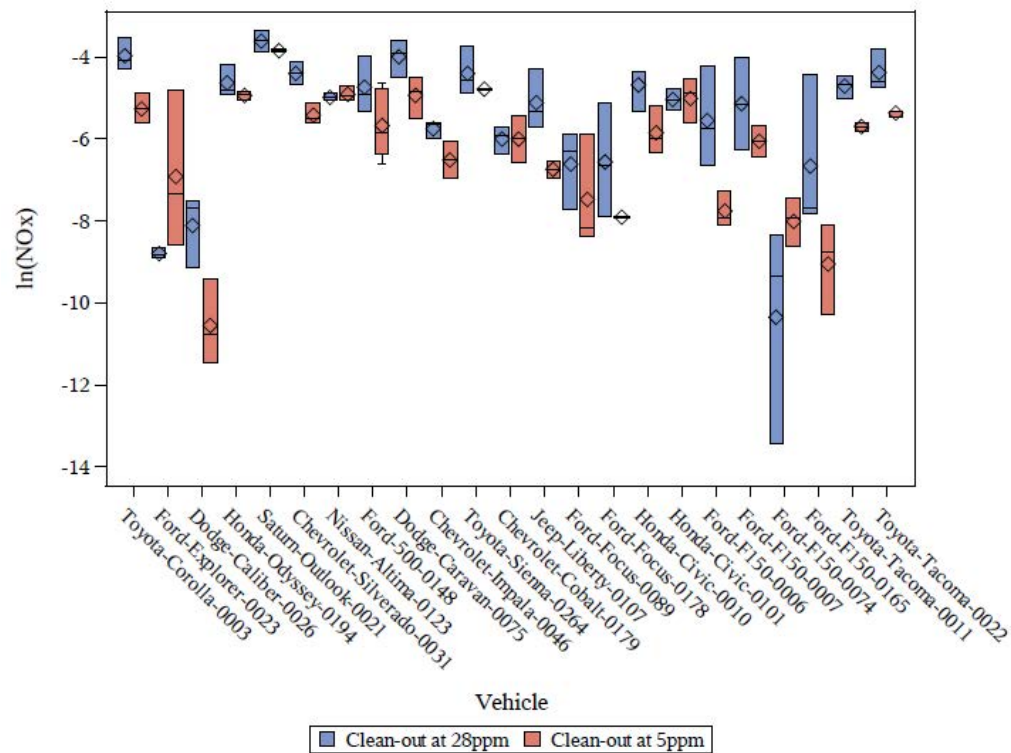


Figure E-2-4 Bag 1-Bag 3 NOx

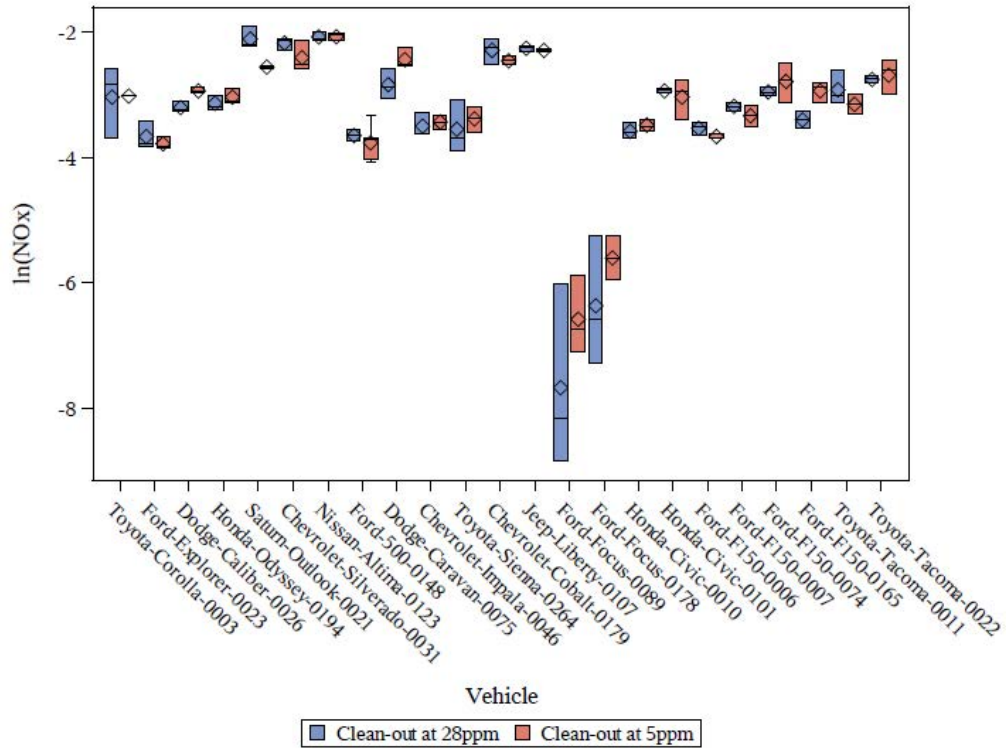


Figure E-2-5 FTP Composite NOx

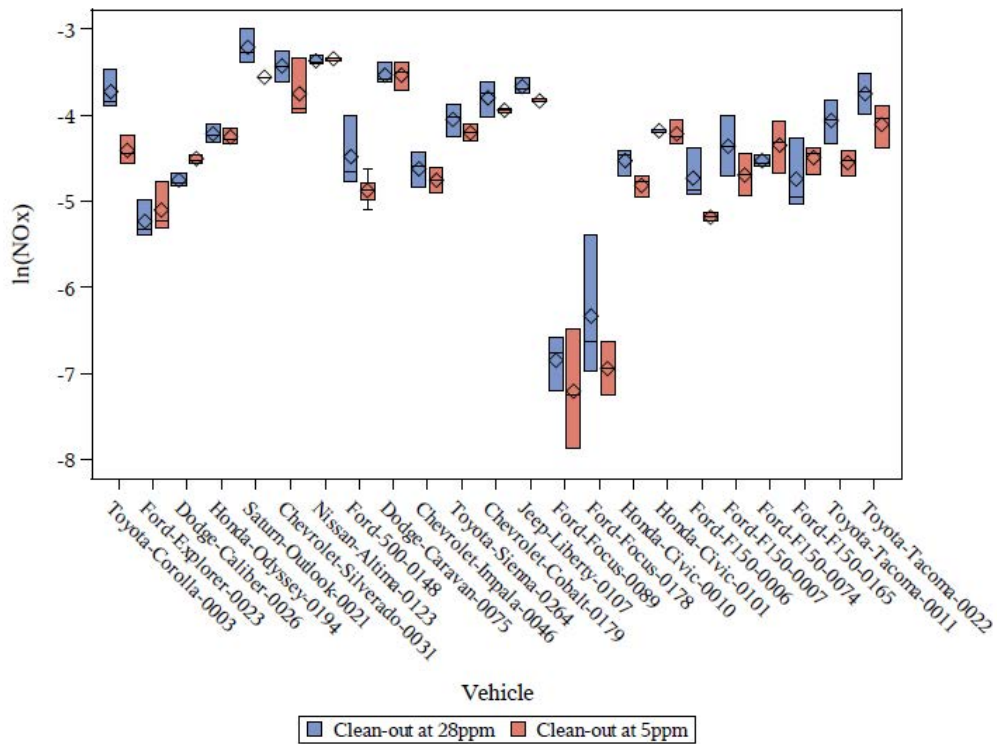


Figure E-2-6 Bag 1 THC

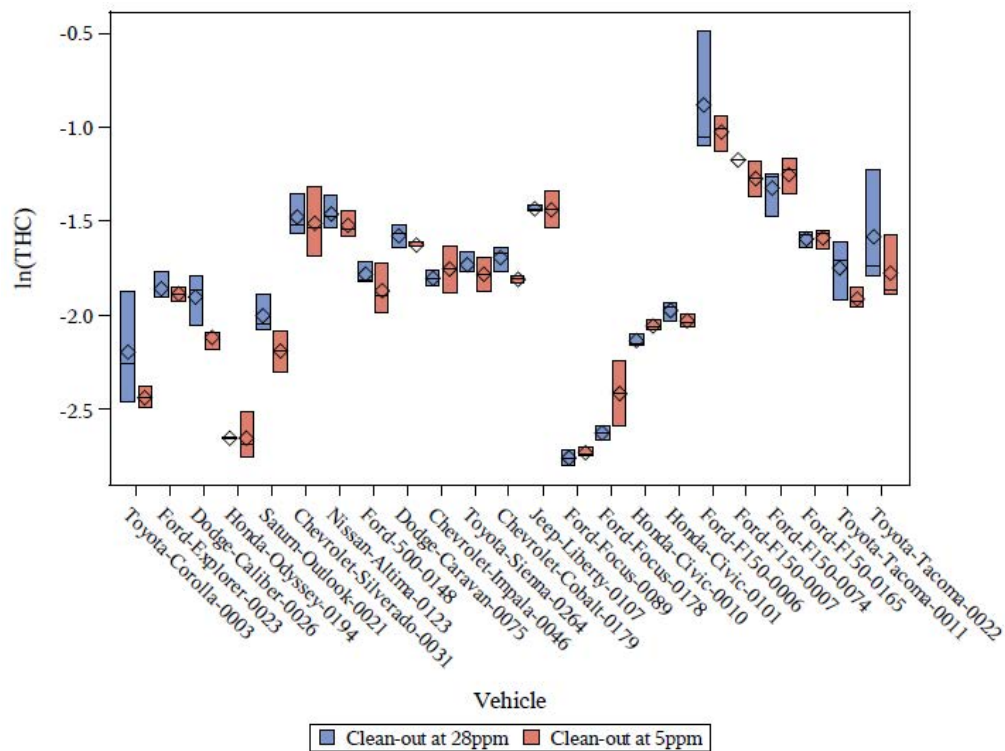


Figure E-2-7 Bag 2 THC

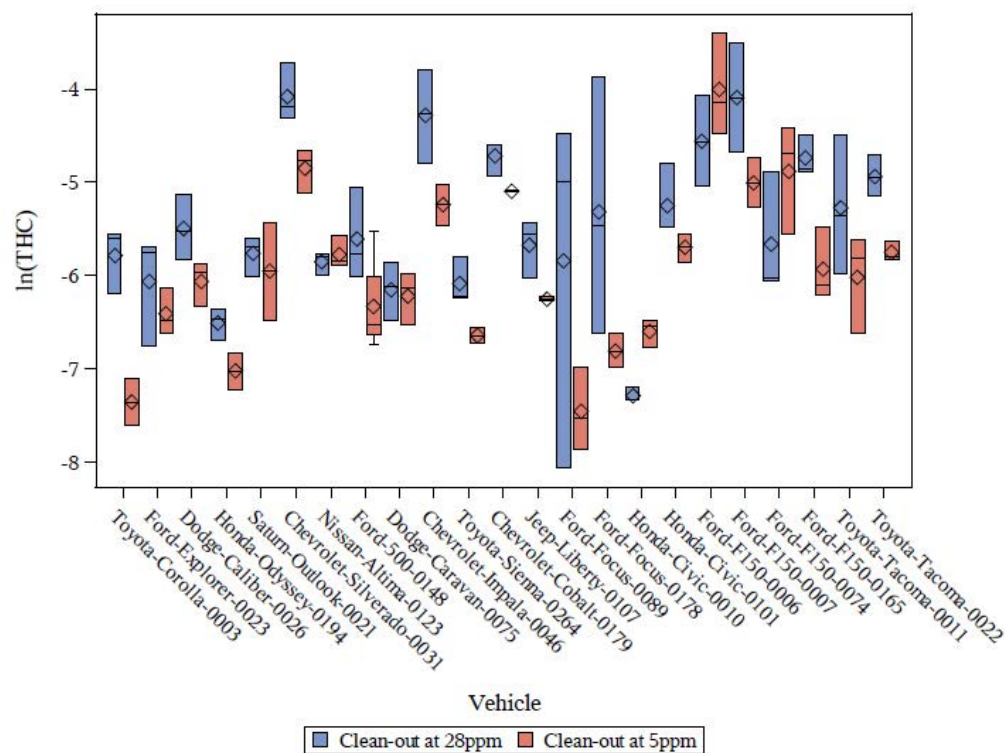


Figure E-2-8 Bag 3 THC

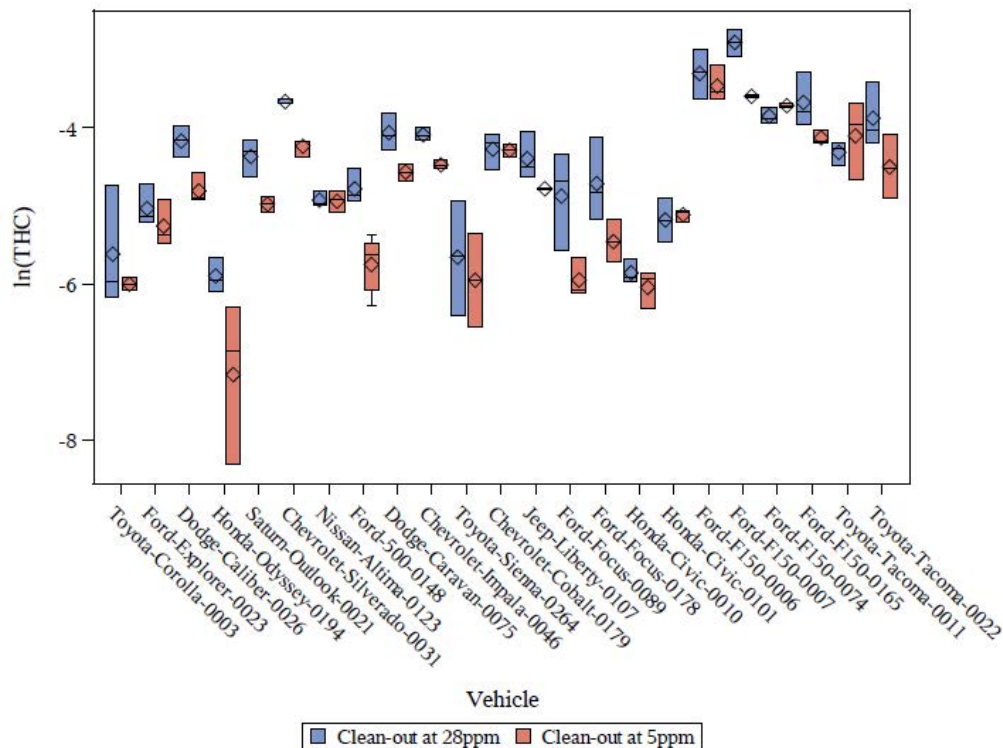


Figure E-2-9 Bag 1-Bag 3 THC

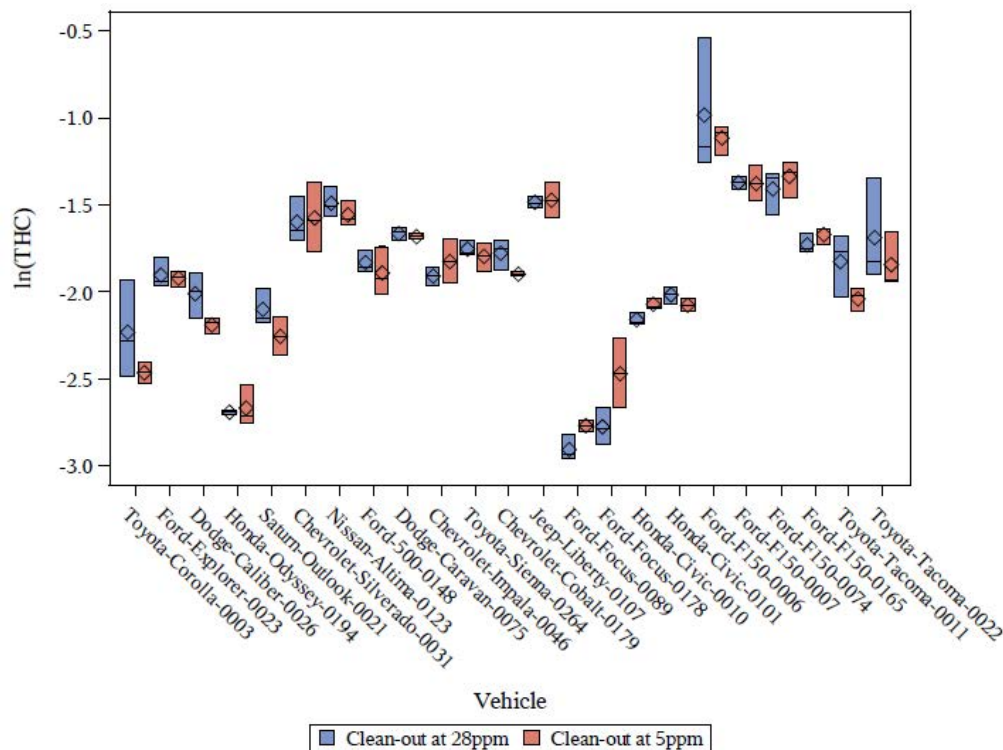


Figure E-2-10 FTP Composite THC

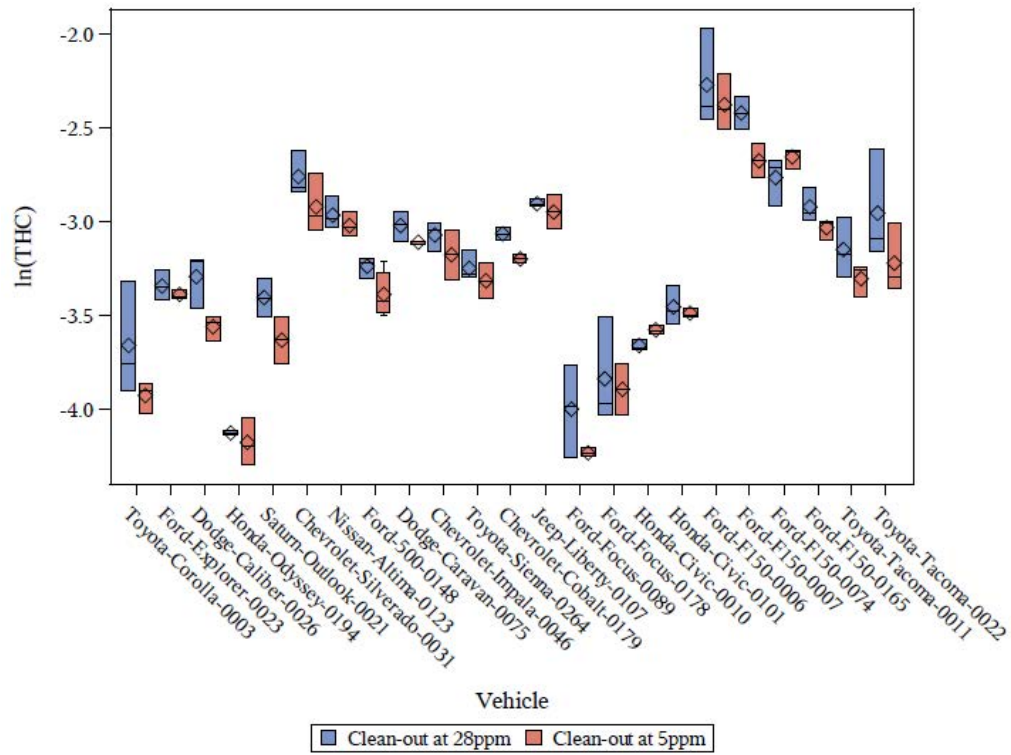


Figure E-2-12 Bag 2 CO

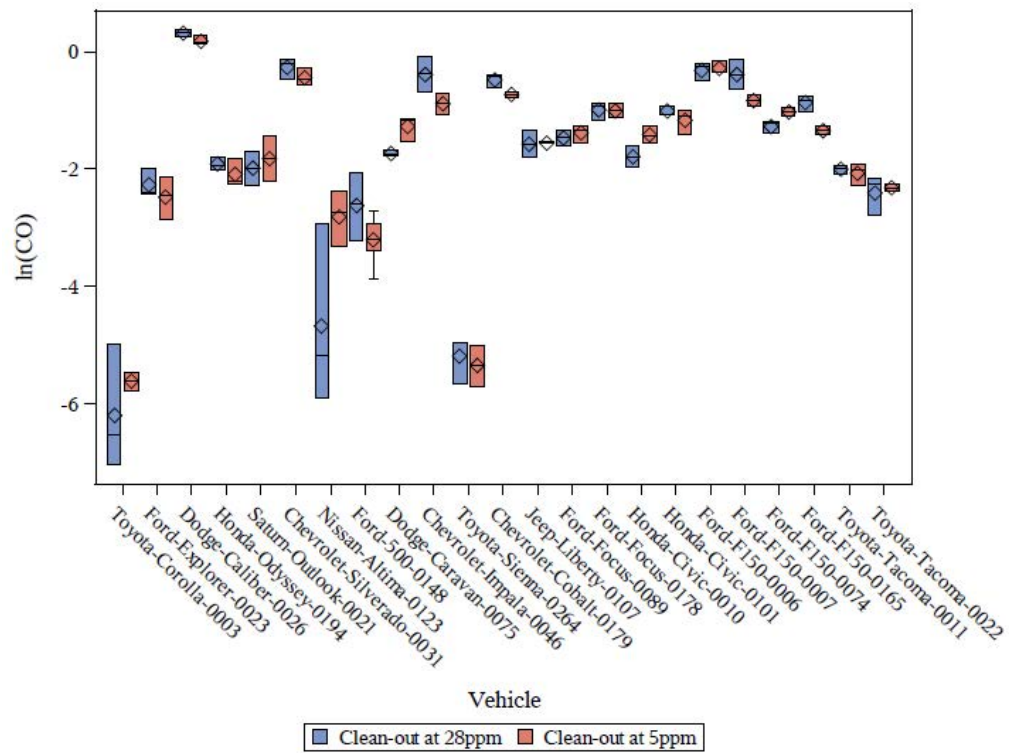


Figure E-2-13 Bag 3 CO

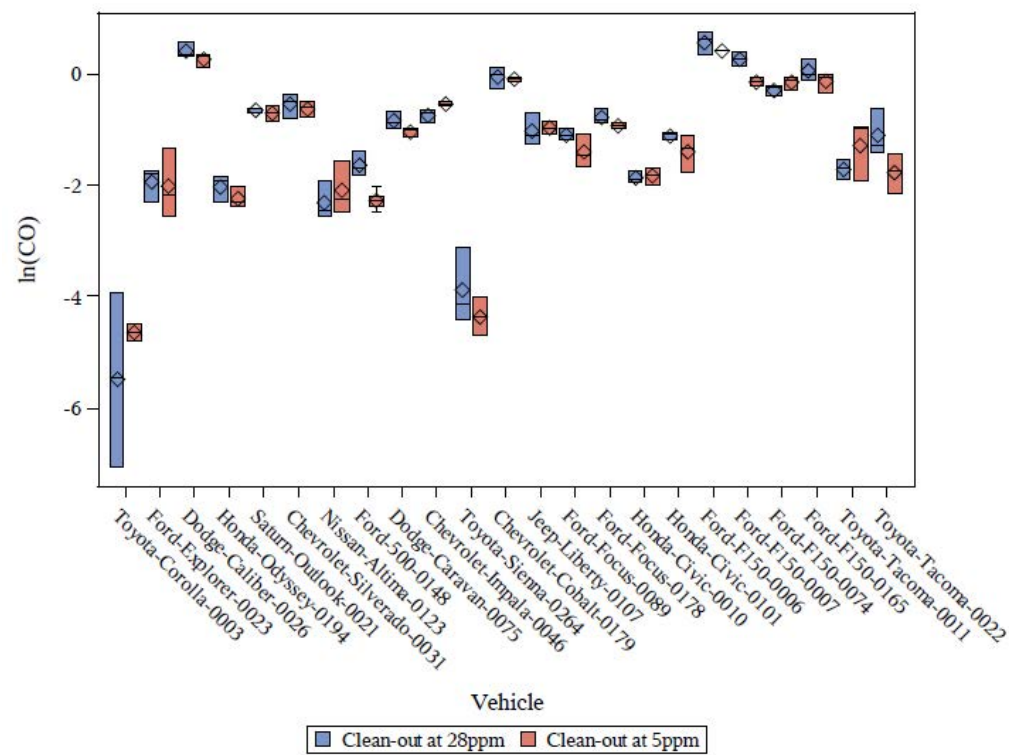


Figure E-2-14 Bag 1-Bag 3 CO

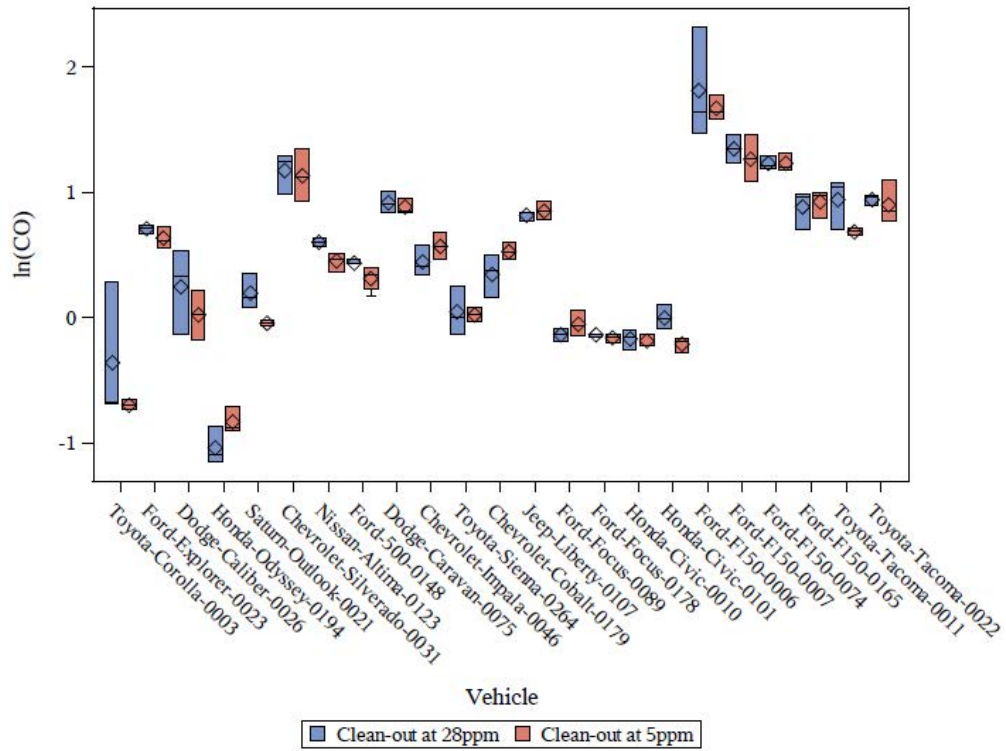


Figure E-2-15 FTP Composite CO

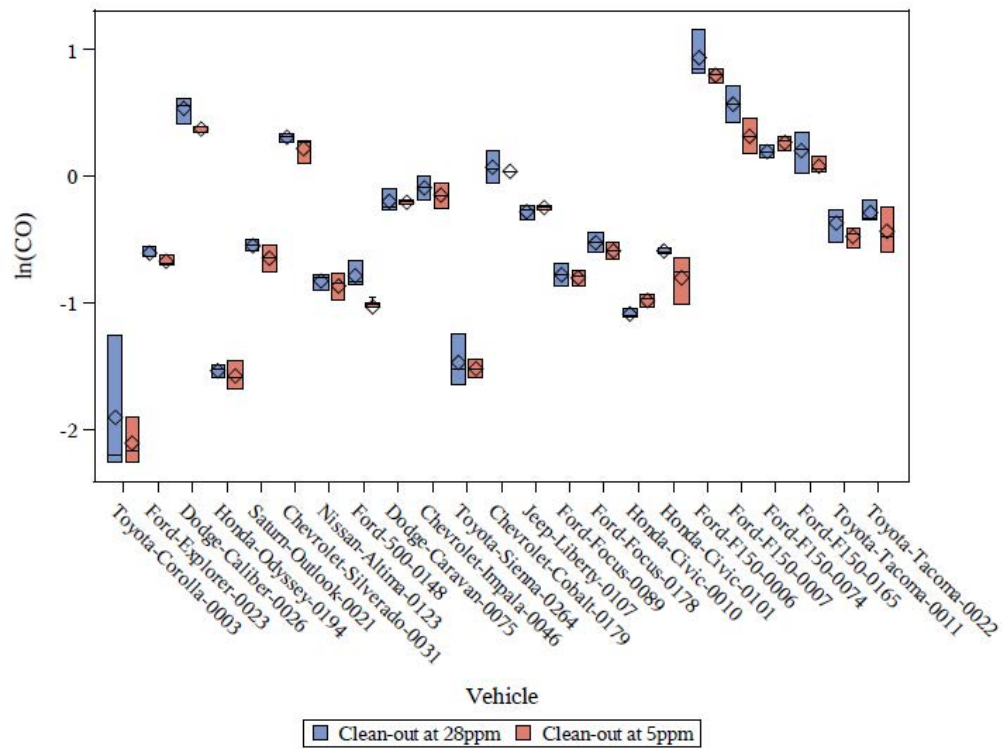


Figure E-2-16 Bag 1 NMHC

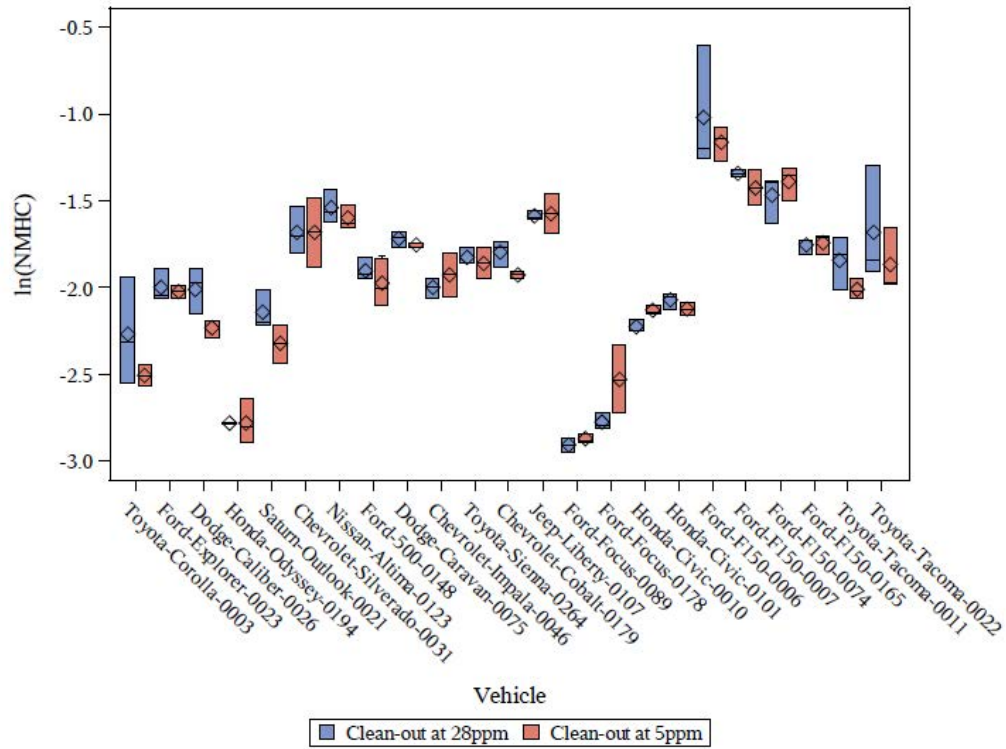


Figure E-2-17 Bag 2 NMHC

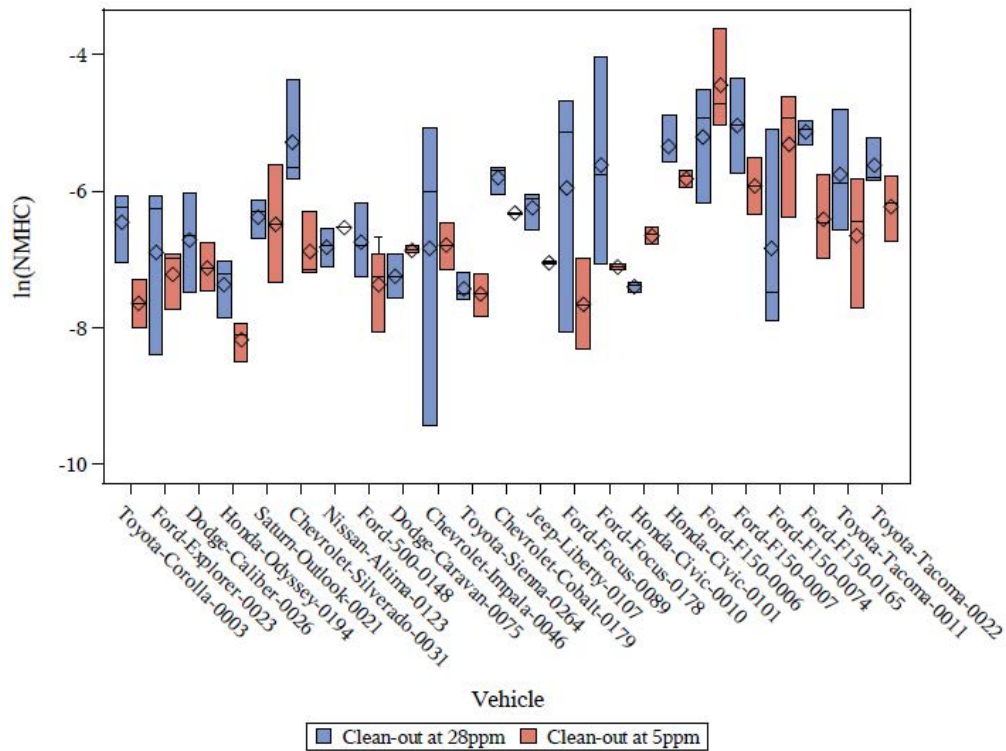


Figure E-2-18 Bag 3 NMHC

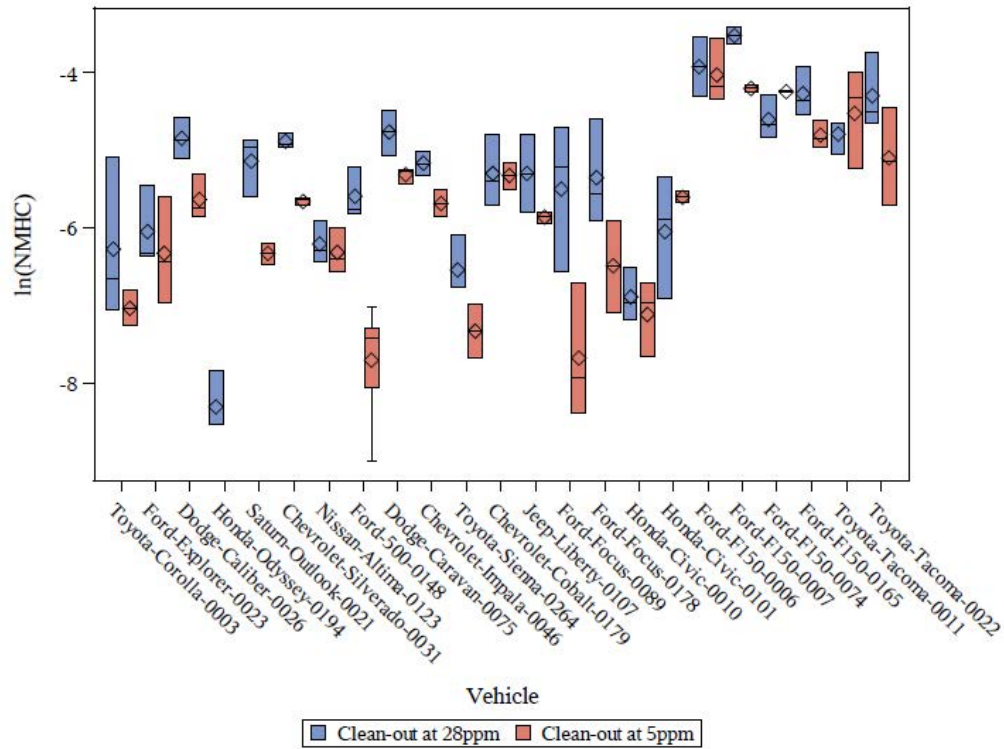


Figure E-2-19 Bag 1-Bag 3 NMHC

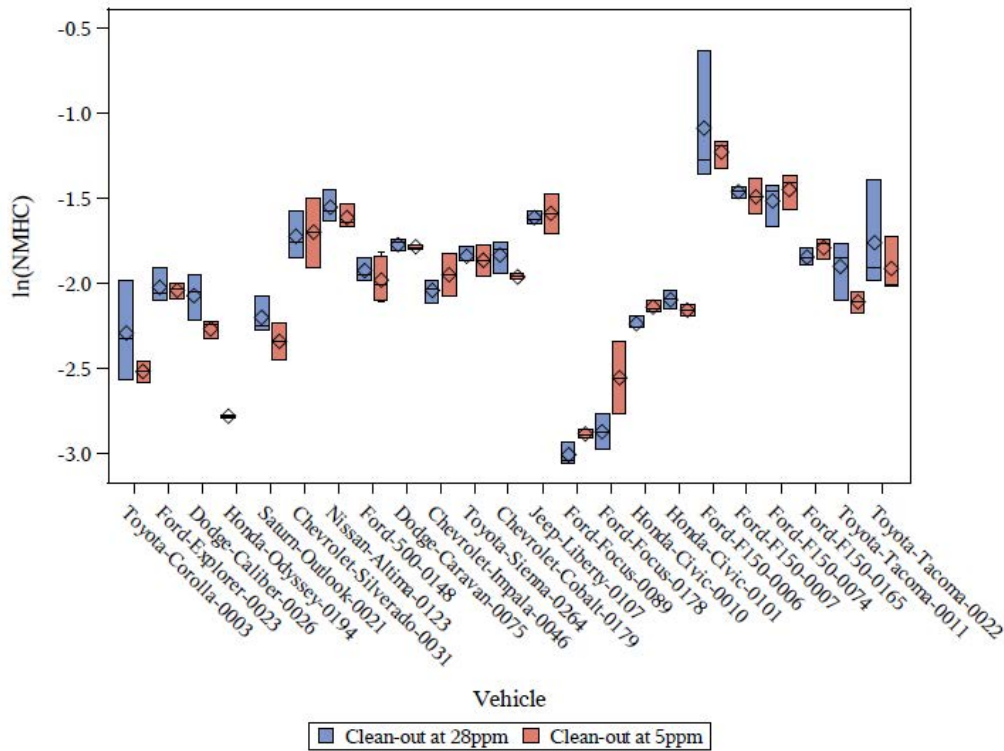


Figure E-2-20 FTP Composite NMHC

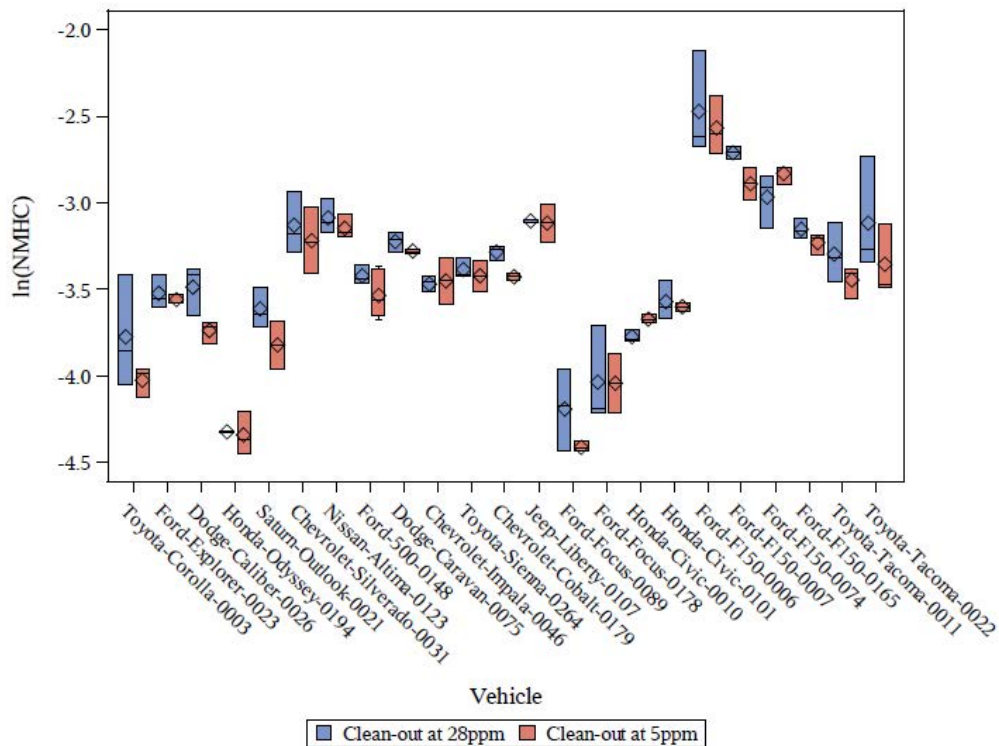


Figure E-2-21 Bag 1 CH4

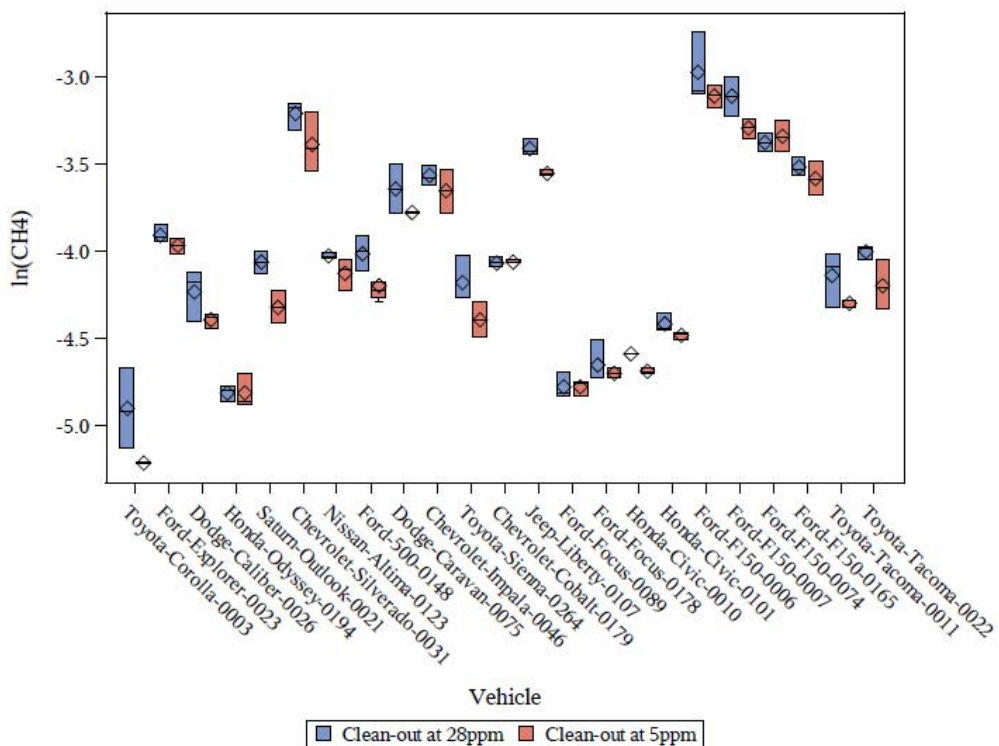


Figure E-2-22 Bag 2 CH4

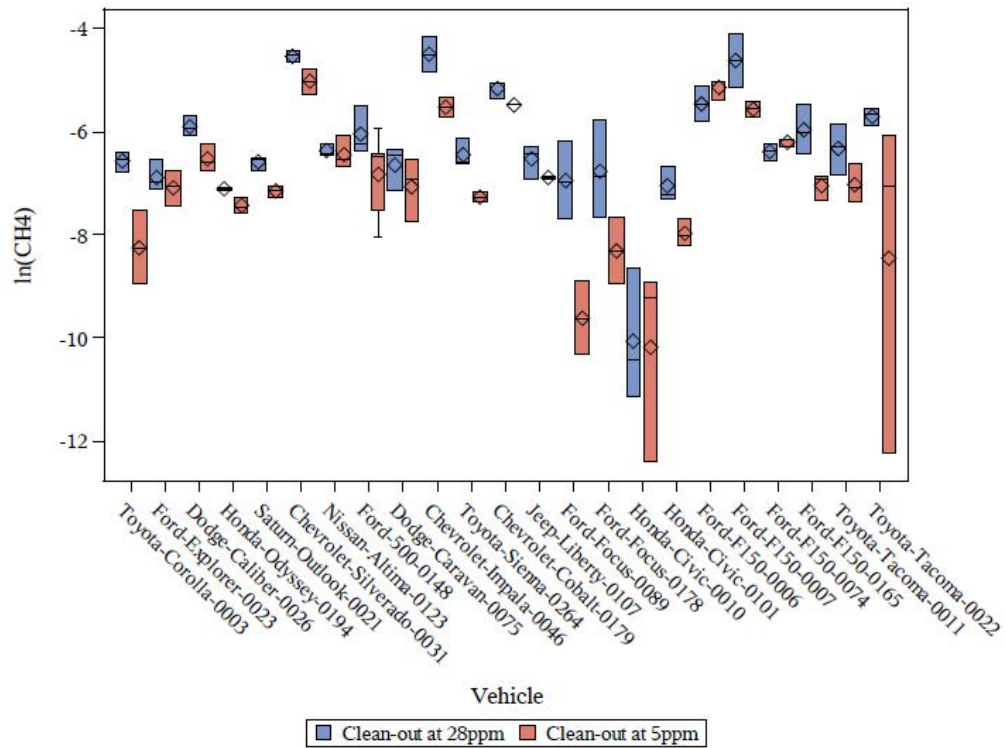


Figure E-2-23 Bag 3 CH4

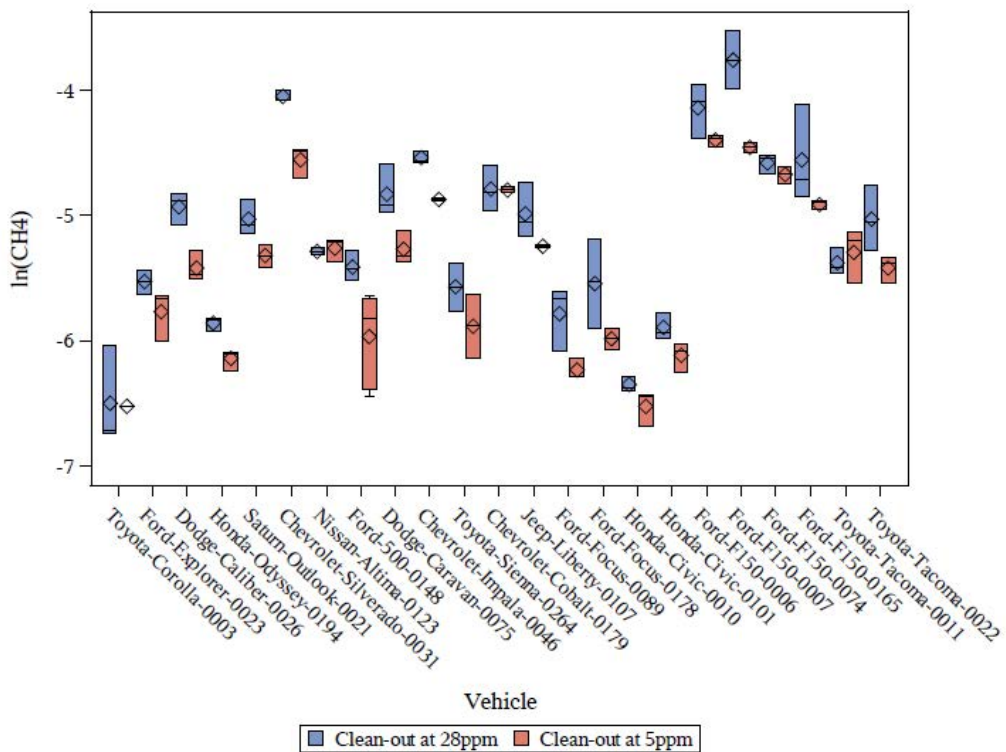


Figure E-2-24 Bag 1-Bag 3 CH4

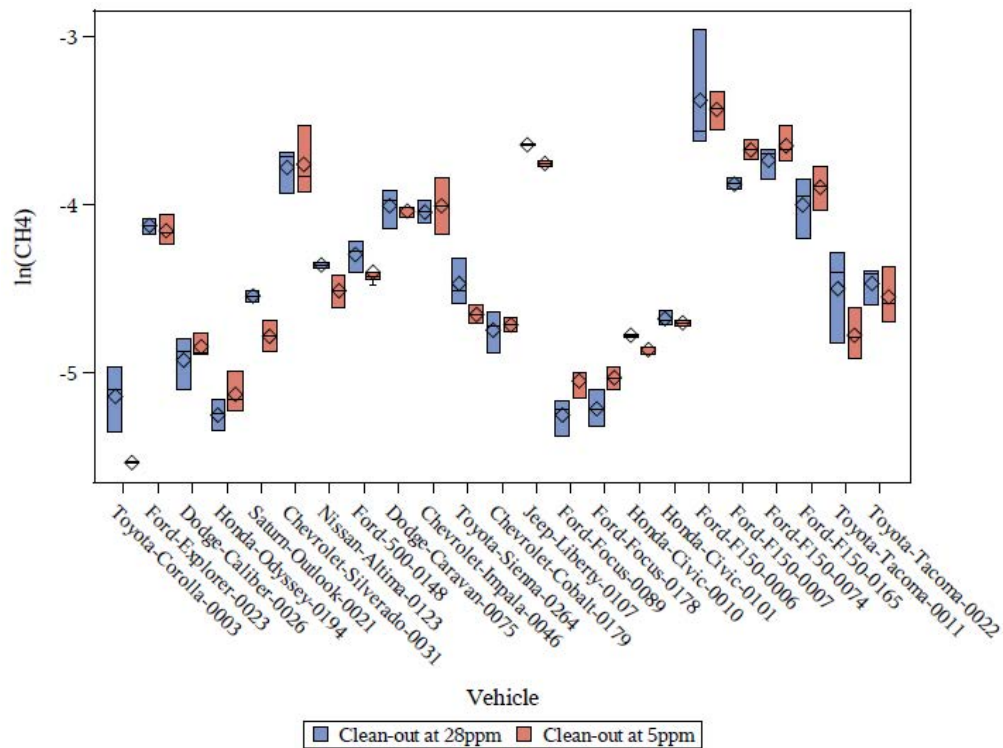


Figure E-2-25 FTP Composite CH4

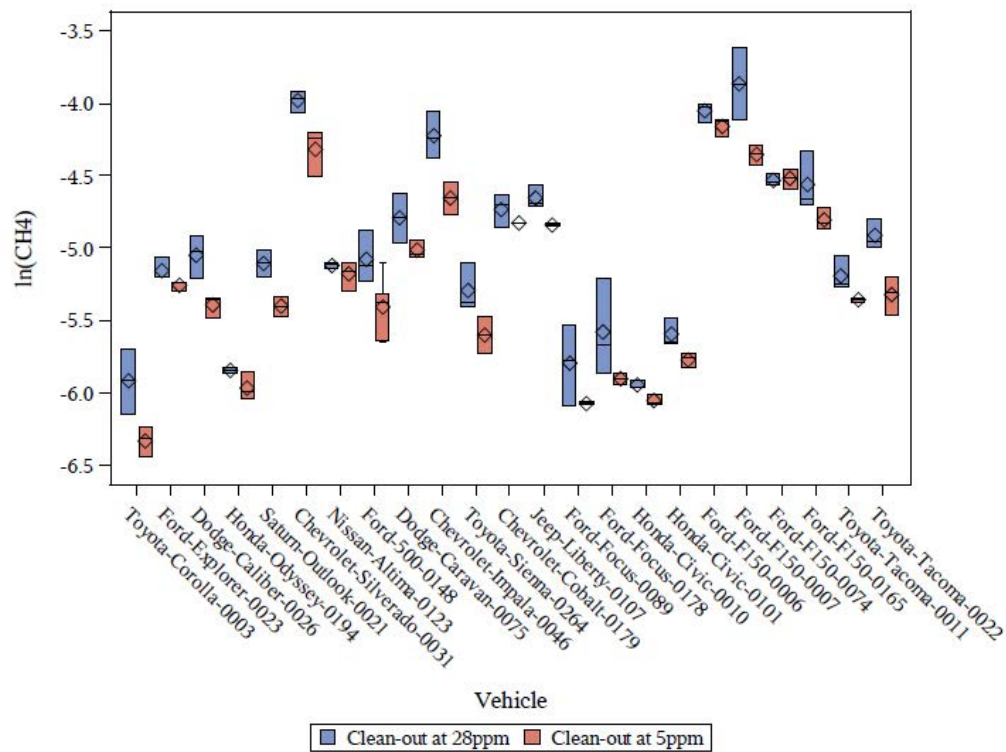


Figure E-2-26 Bag 1 PM

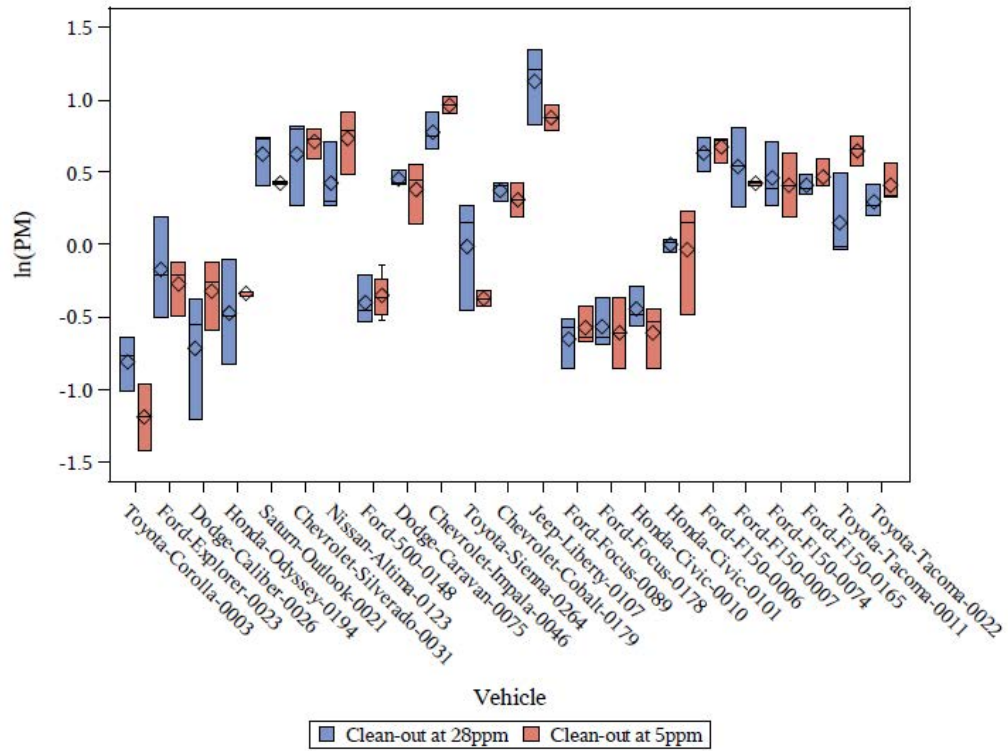


Figure E-2-27 Bag 2 PM

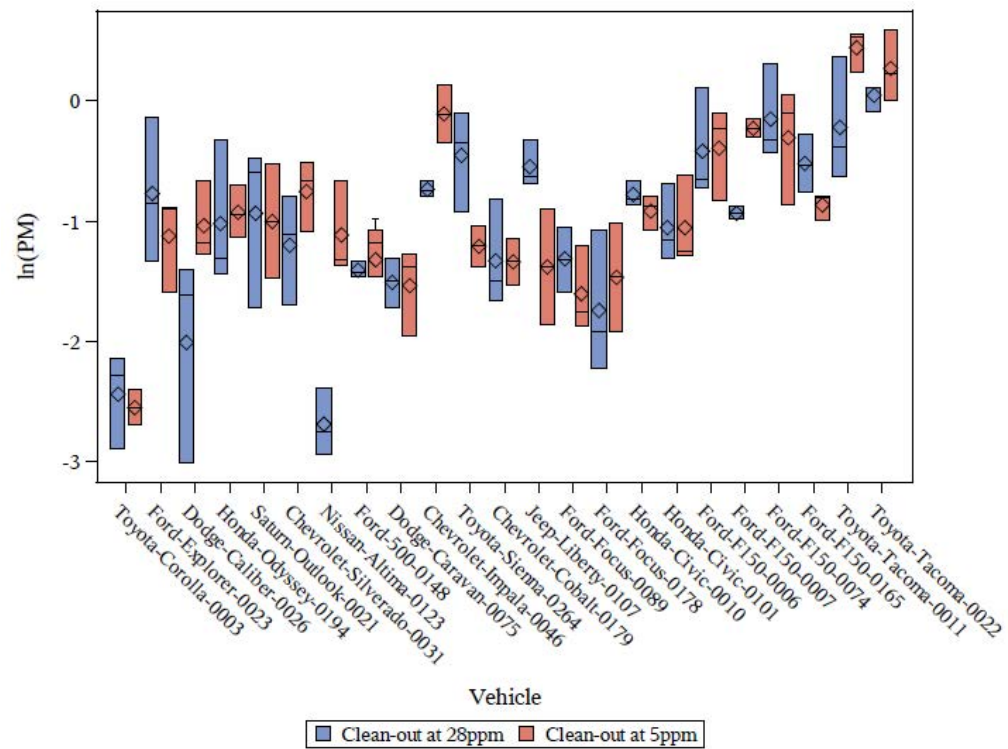


Figure E-2-28 Bag 3 PM

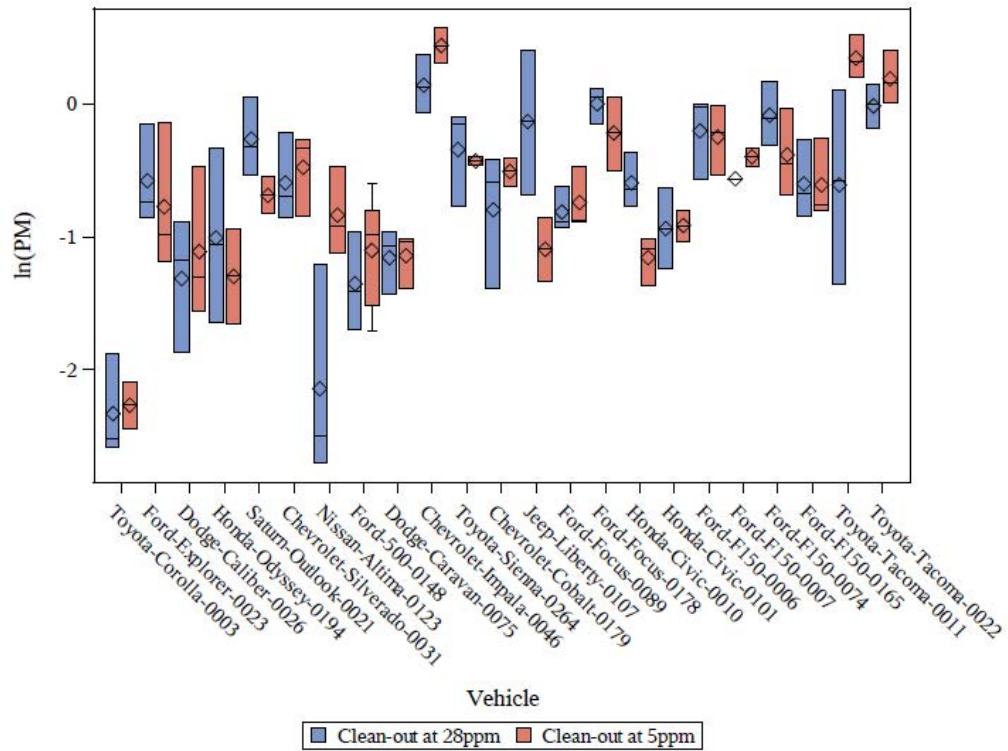


Figure E-2-29 Bag 1-Bag 3 PM

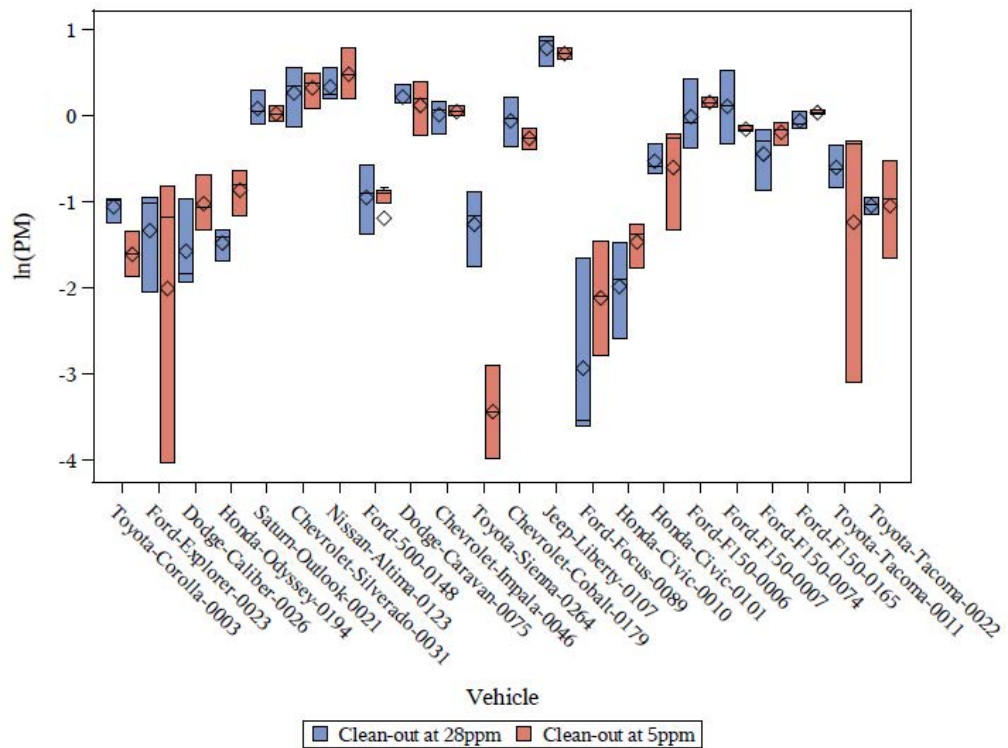
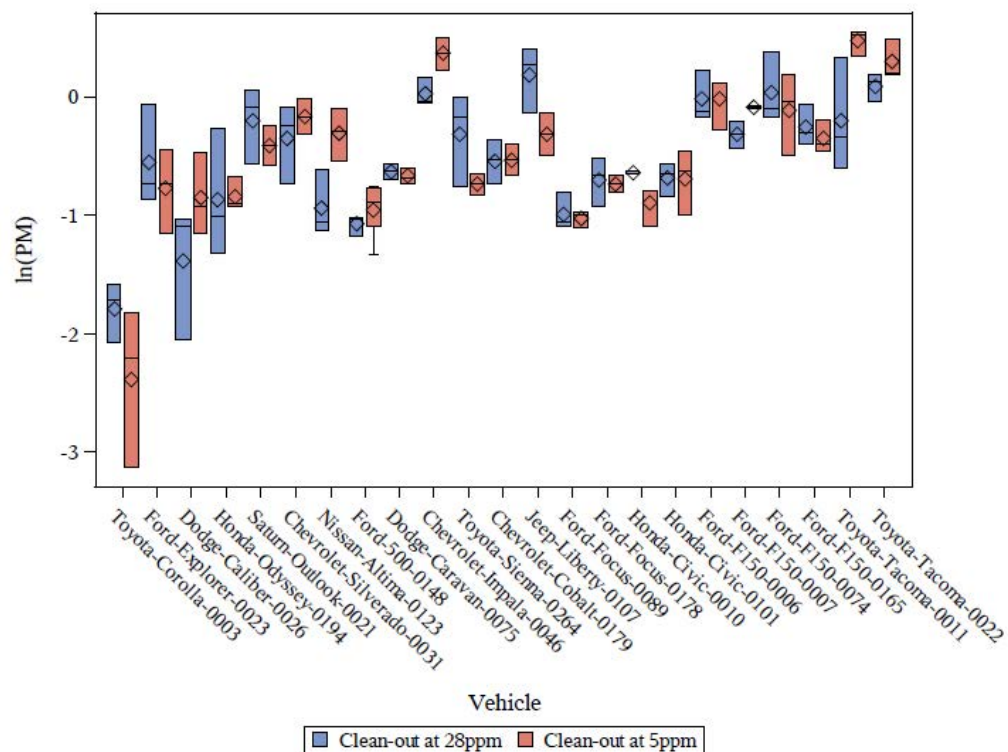


Figure E-2-30 FTP Composite PM



E.3. Effect of sulfur level

Figure E-3-1 Box-plot of Bag 1 NO_x

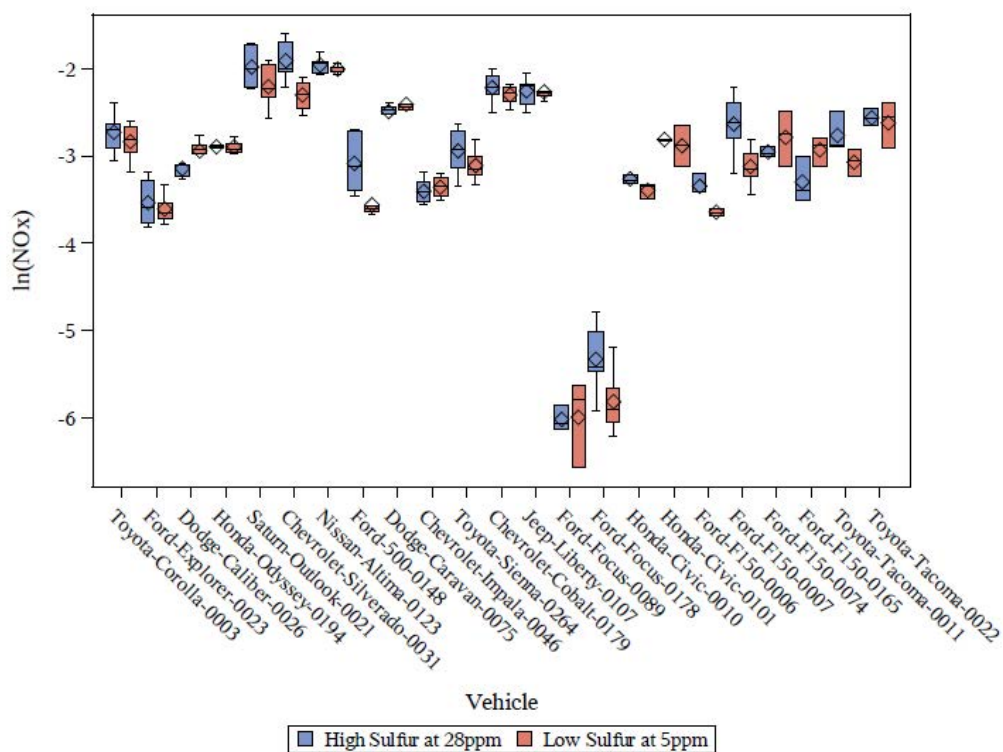


Figure E-3- 2 Log-transformed emissions from individual vehicles by sulfur level (NO_x Bag 1)

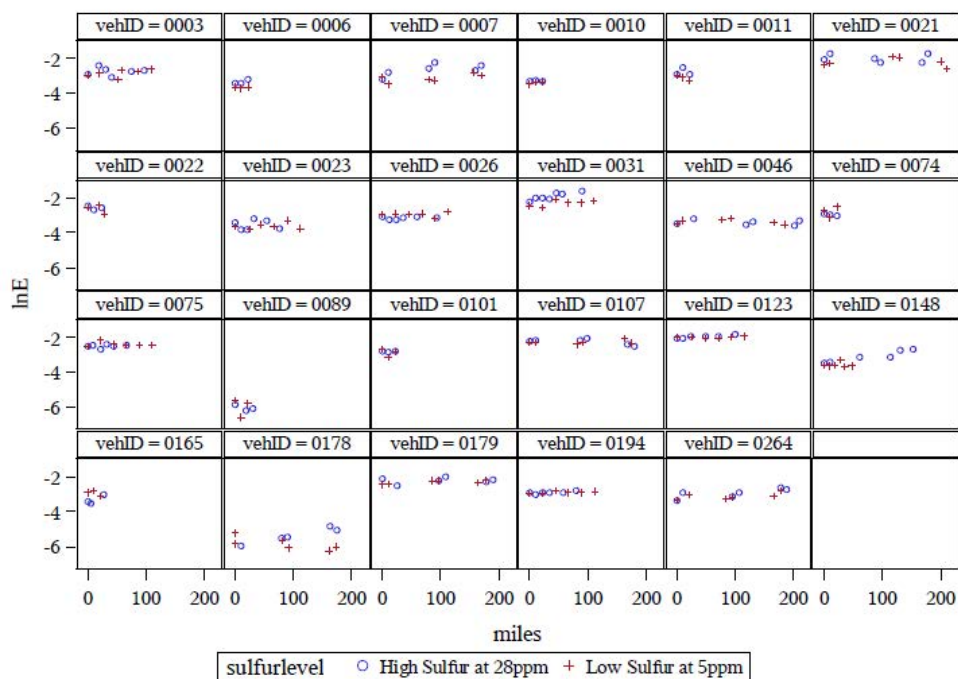


Figure E-3- 3 Data vs. predicted (log-transformed NO_x Bag 1)

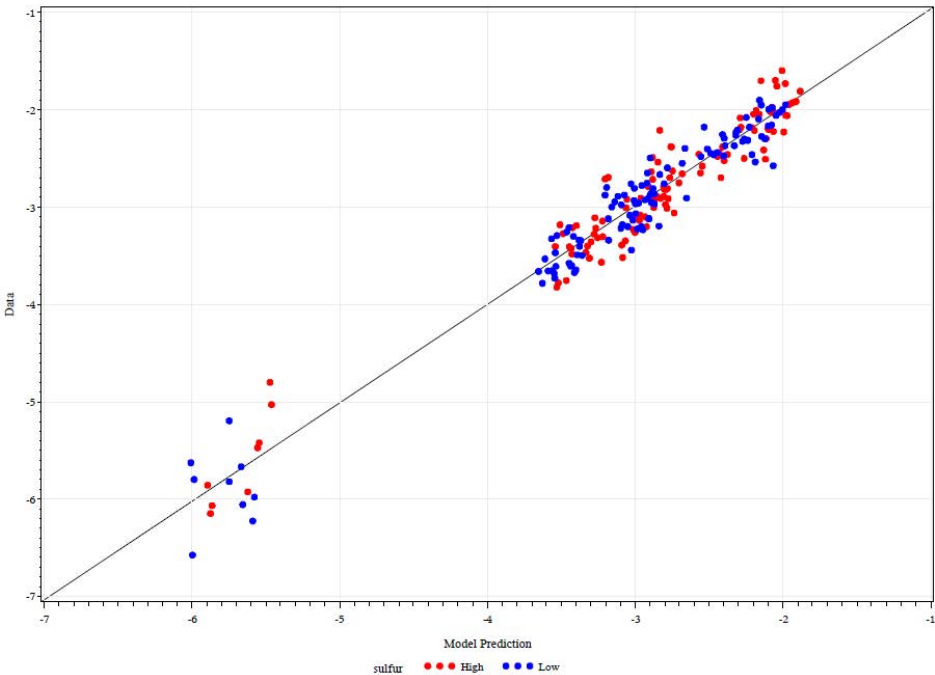


Figure E-3- 4 Box-plot of Bag 2 NO_x

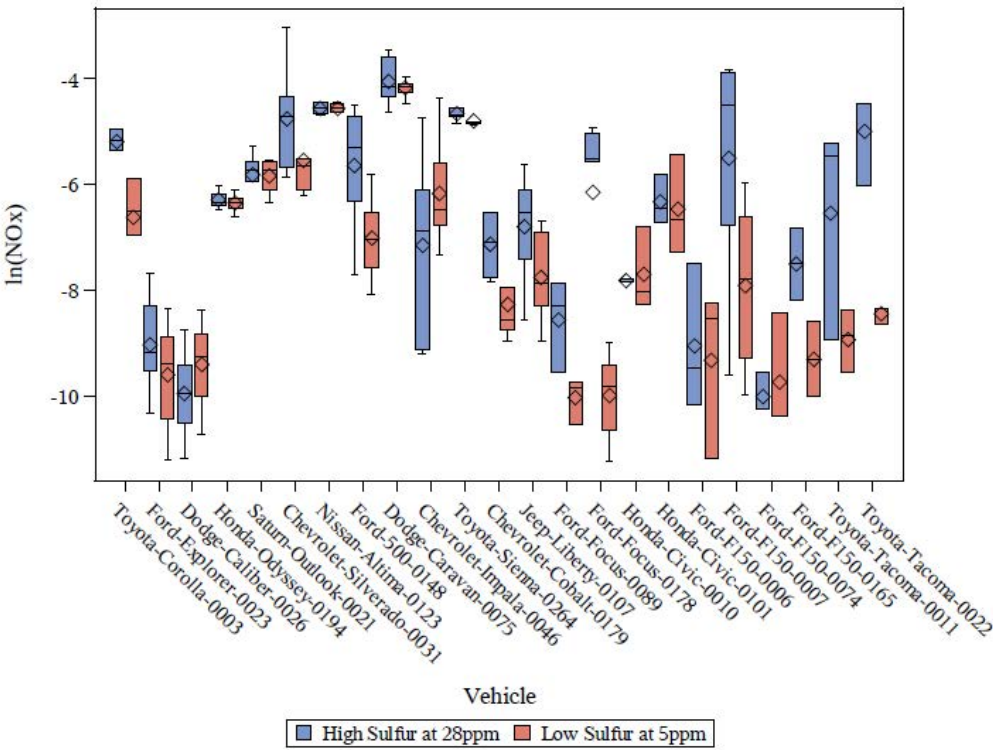


Figure E-3- 5 Log-transformed emissions from individual vehicles by sulfur level (NO_x Bag 2)

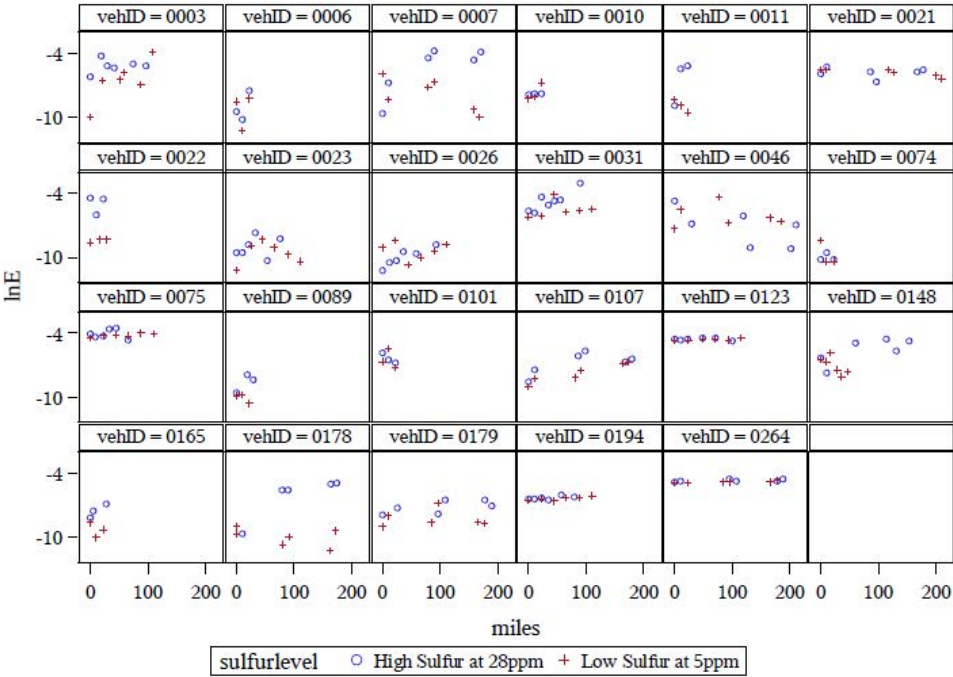


Figure E-3- 6 Data vs. predicted (log-transformed NO_x Bag 2)

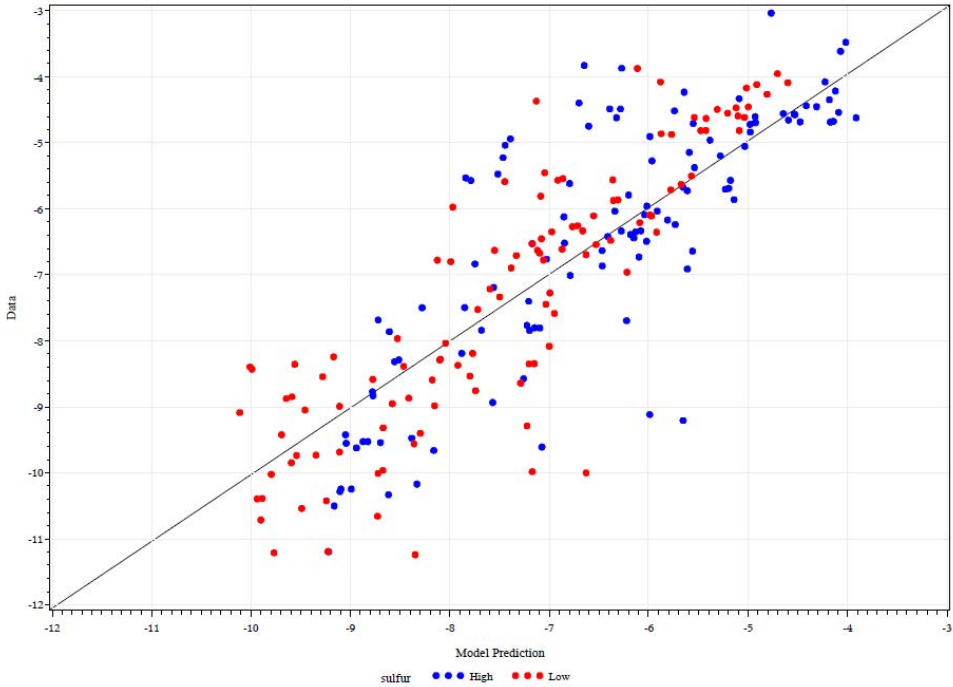


Figure E-3- 7 Box-plot of Bag 3 NO_x

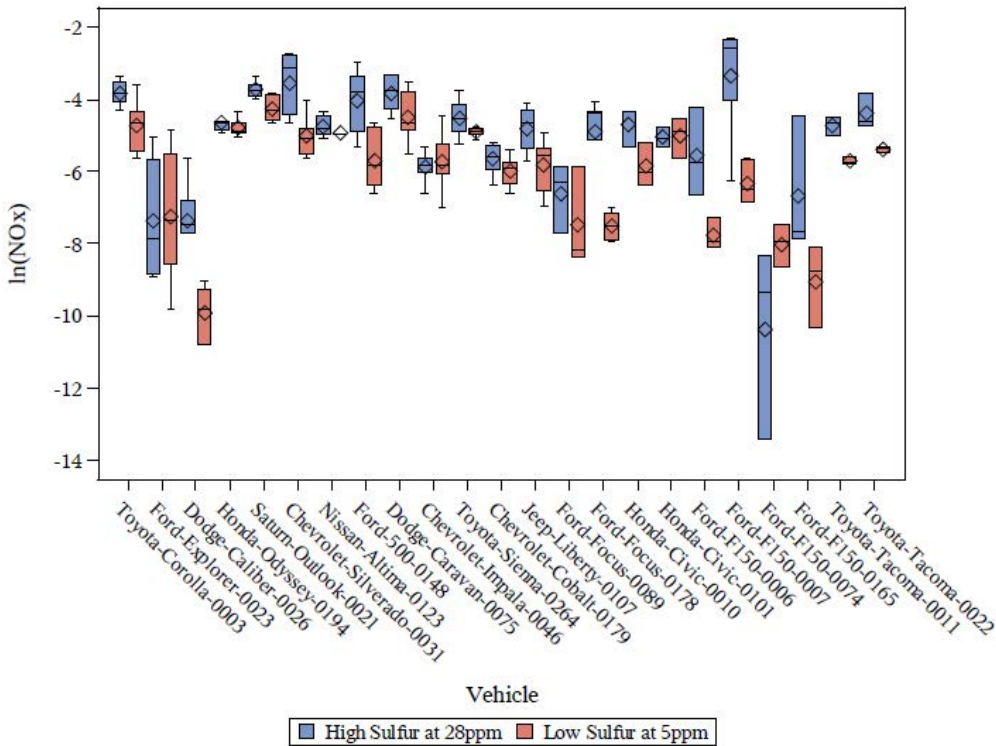


Figure E-3- 8 Log-transformed emissions from individual vehicles by sulfur level (NO_x Bag 3)

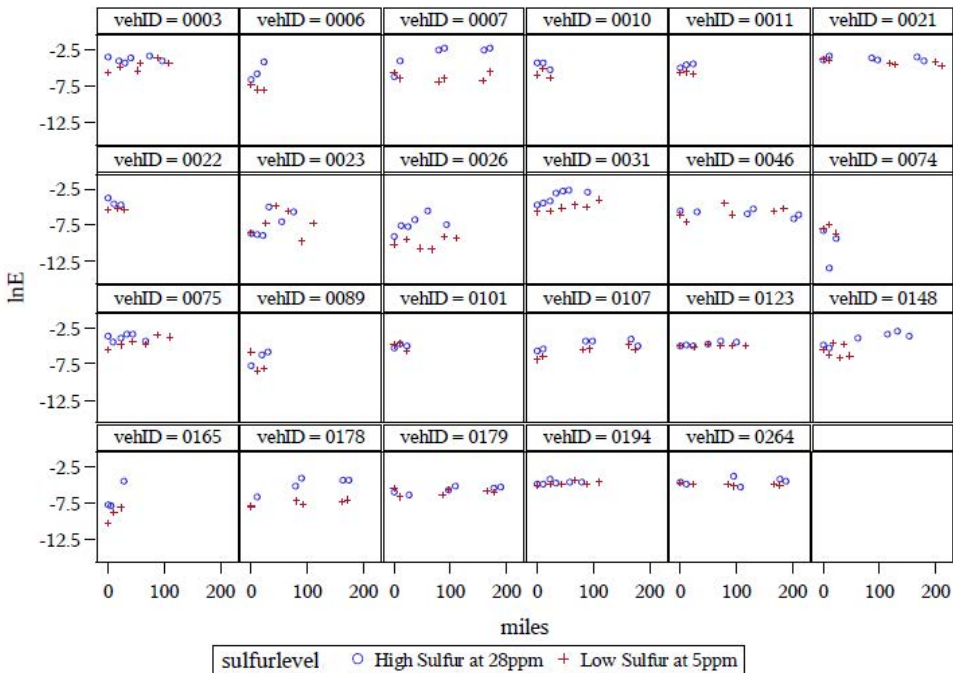


Figure E-3- 9 Data vs. predicted (log-transformed NO_x Bag 3)

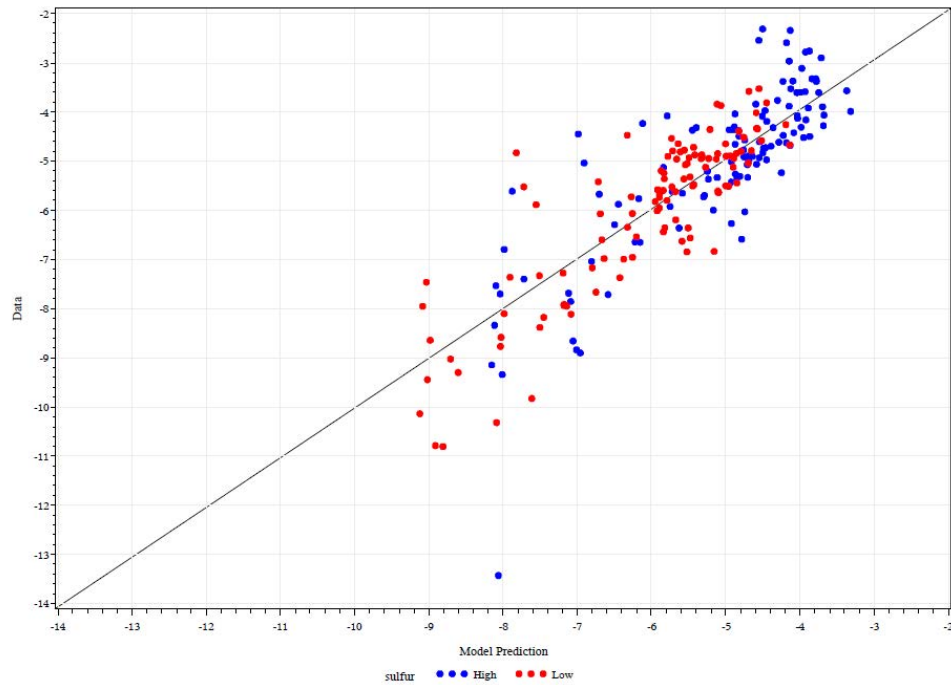


Figure E-3- 10 Box-plot of Bag 1-Bag 3 NO_x

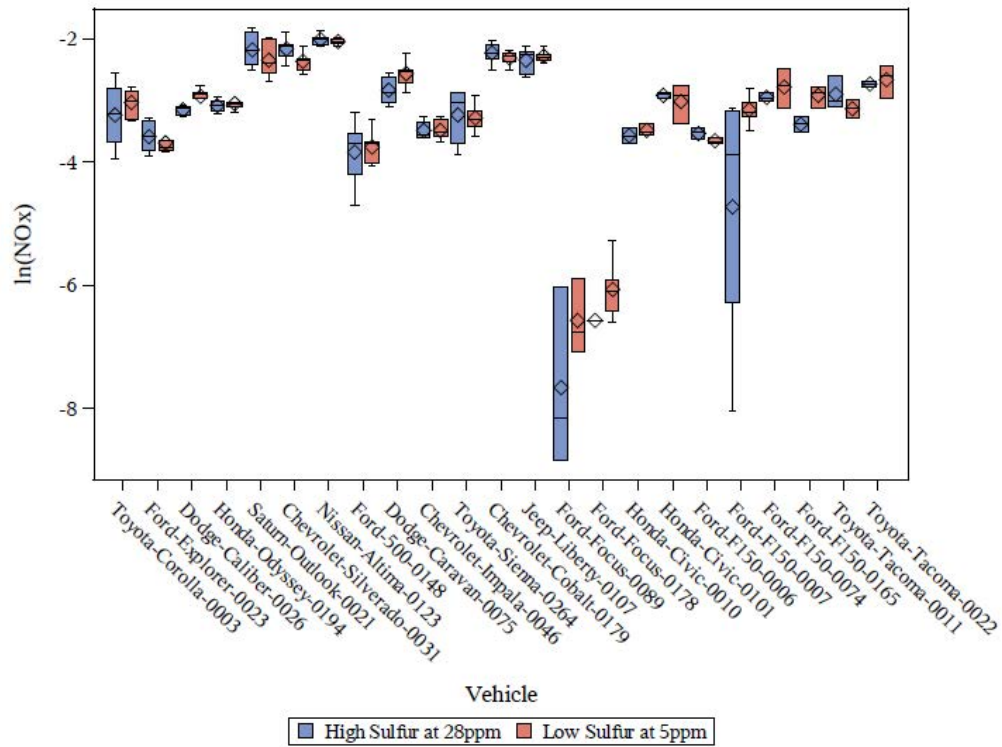


Figure E-3- 11 Log-transformed emissions from individual vehicles by sulfur level (NO_x Bag 1-Bag 3)

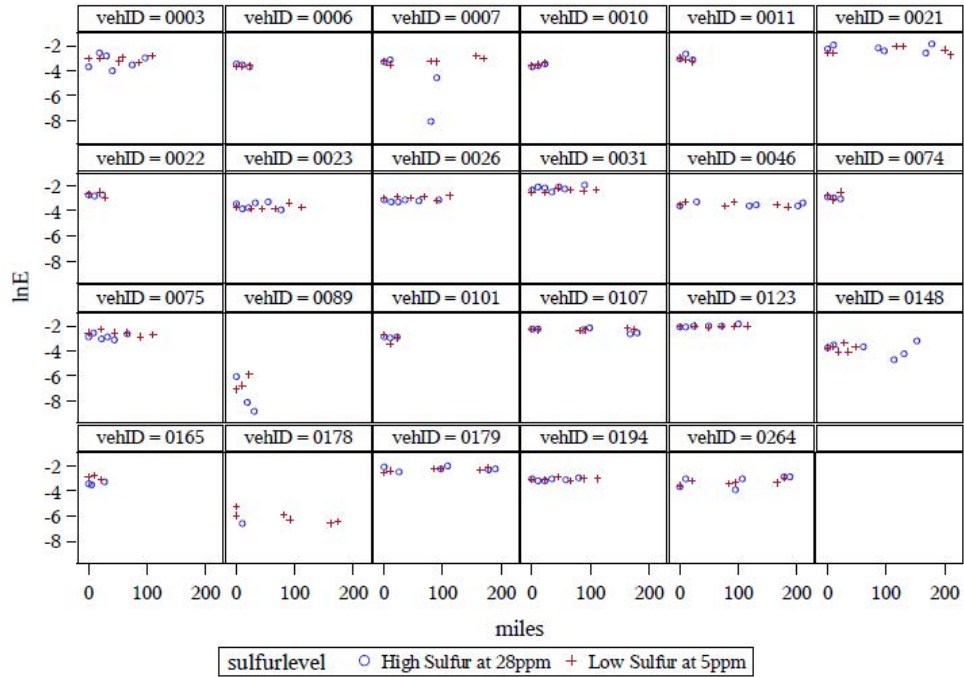


Figure E-3- 12 Data vs. predicted (log-transformed NO_x Bag 1-Bag 3)

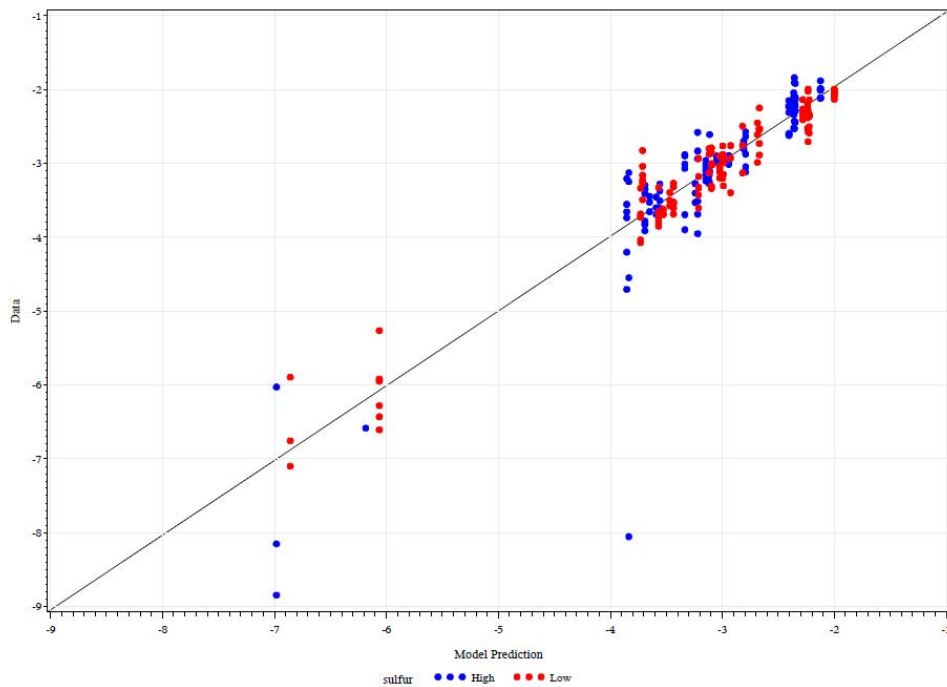


Figure E-3- 13 Box-plot of FTP Composite NO_x

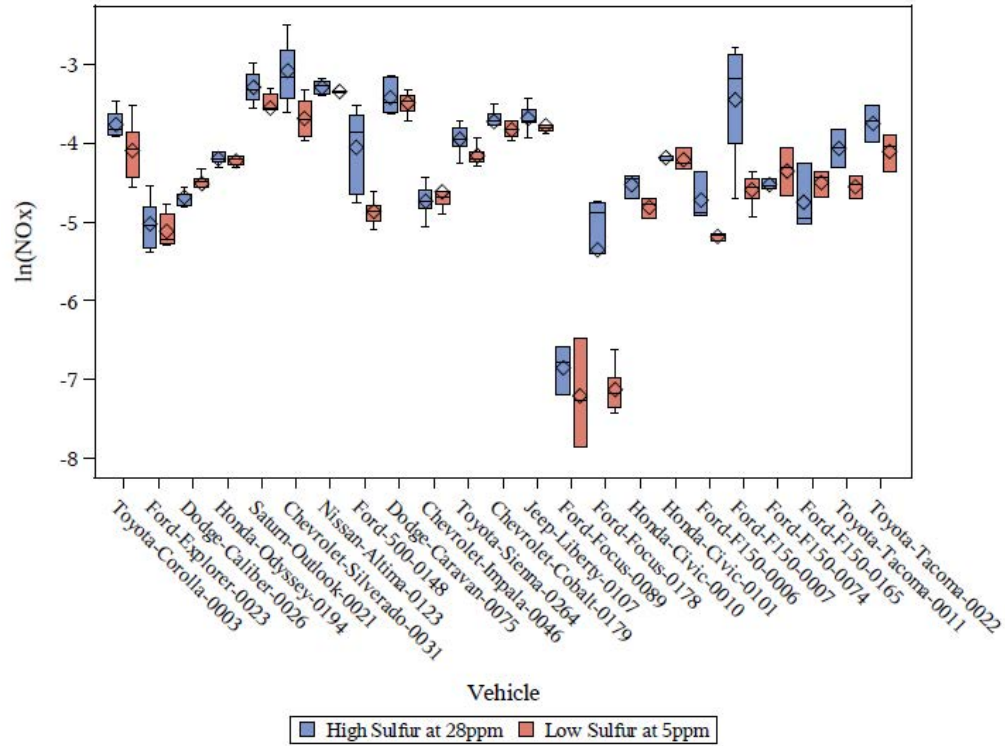


Figure E-3- 14 Log-transformed emissions from individual vehicles by sulfur level (NO_x FTP Composite)

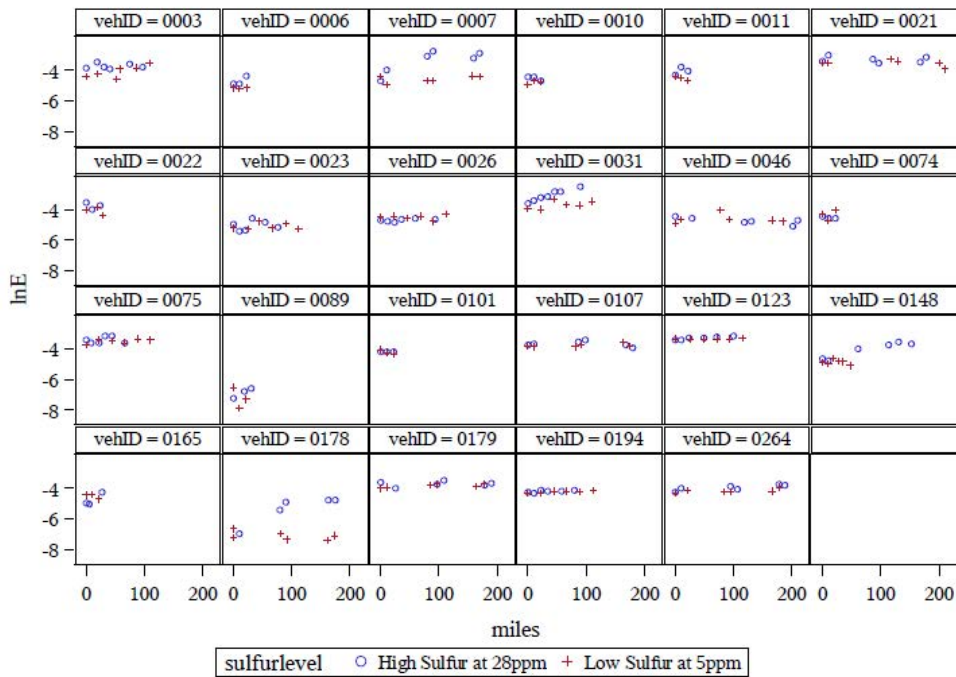


Figure E-3- 15 Data vs. predicted (log-transformed NO_x FTP Composite)

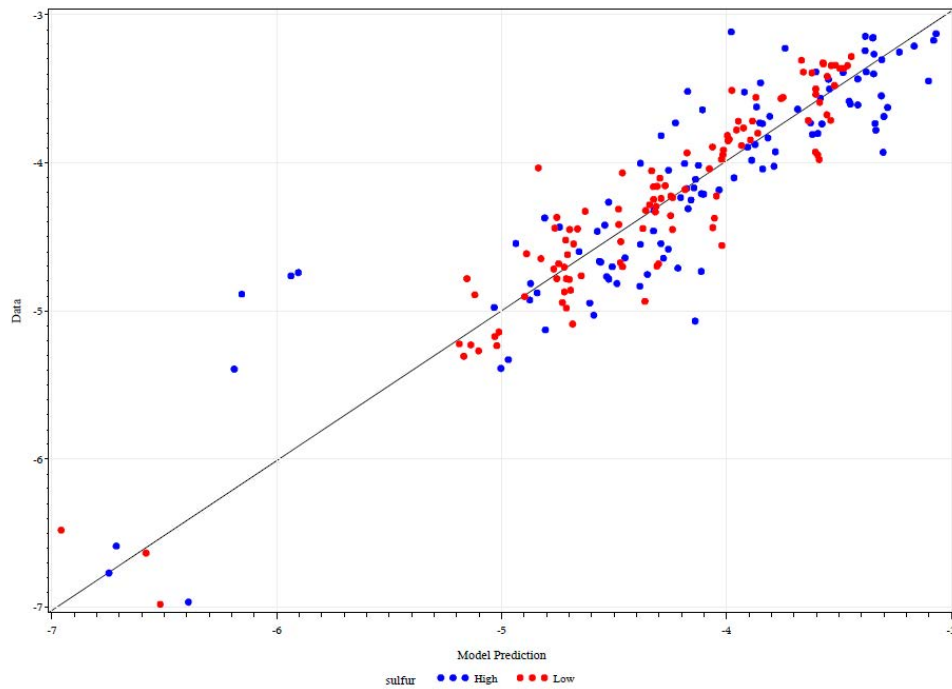


Figure E-3- 16 Box-plot of Bag 1 THC

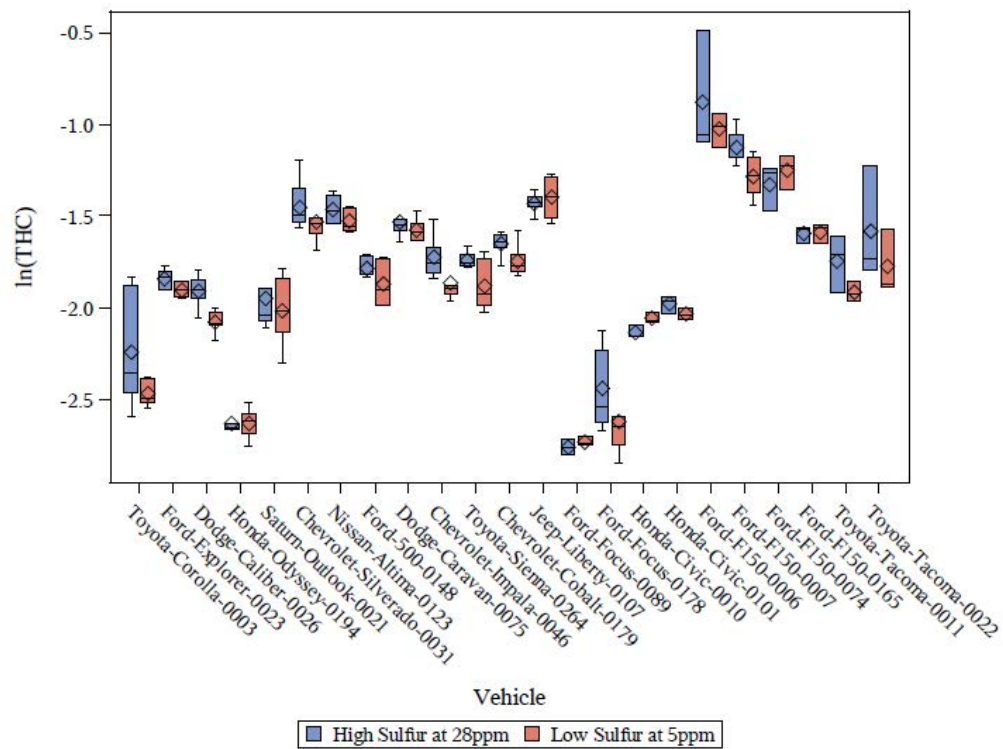


Figure E-3- 17 Log-transformed emissions from individual vehicles by sulfur level (THC Bag 1)

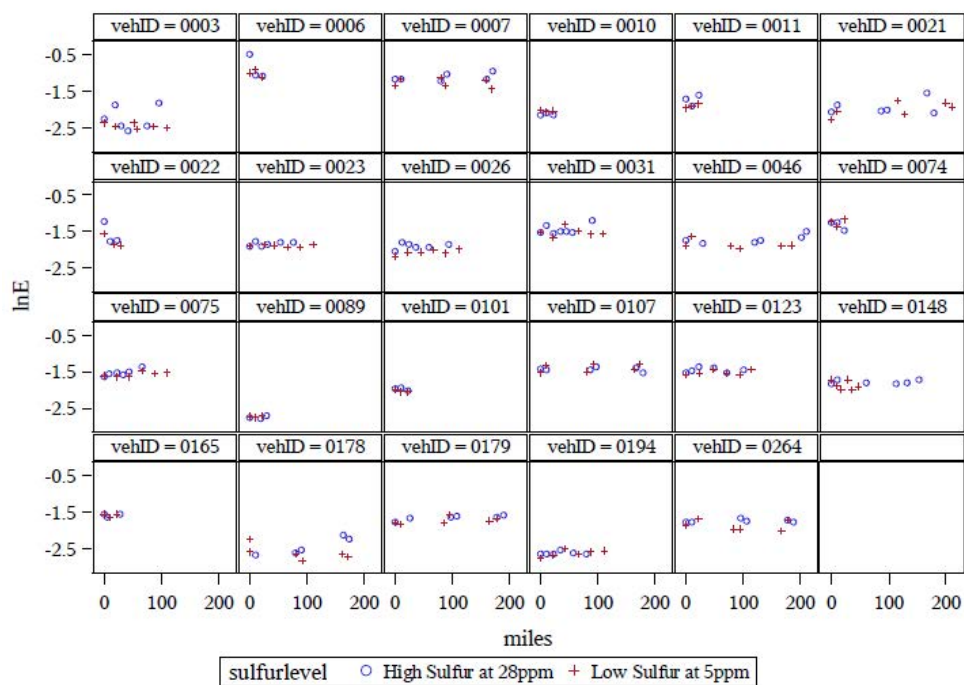


Figure E-3- 18 Data vs. predicted (log-transformed THC Bag 1)

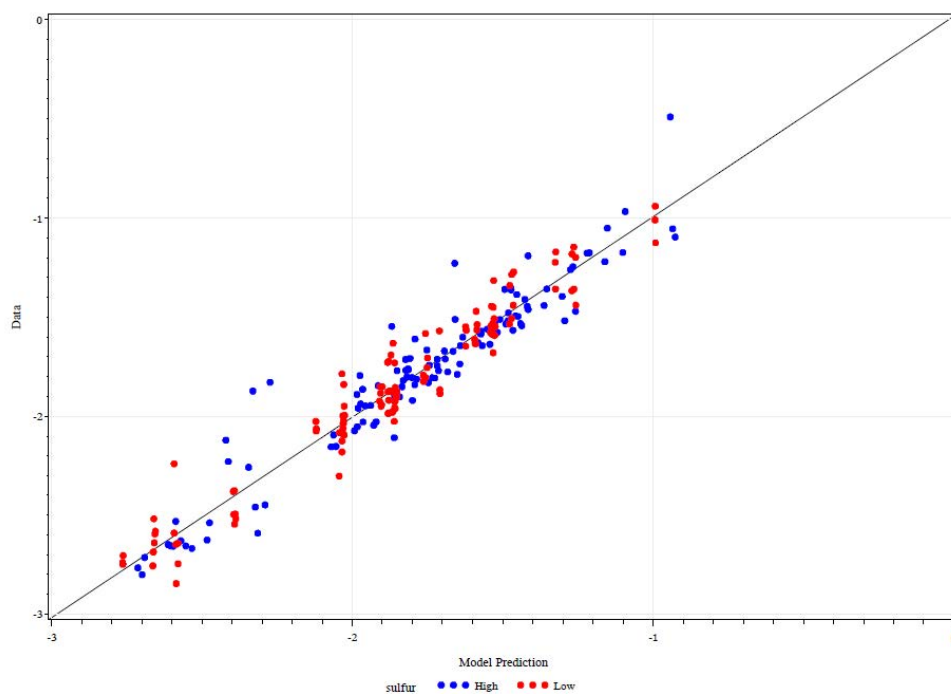


Figure E-3- 19 Box-plot of Bag 2 THC

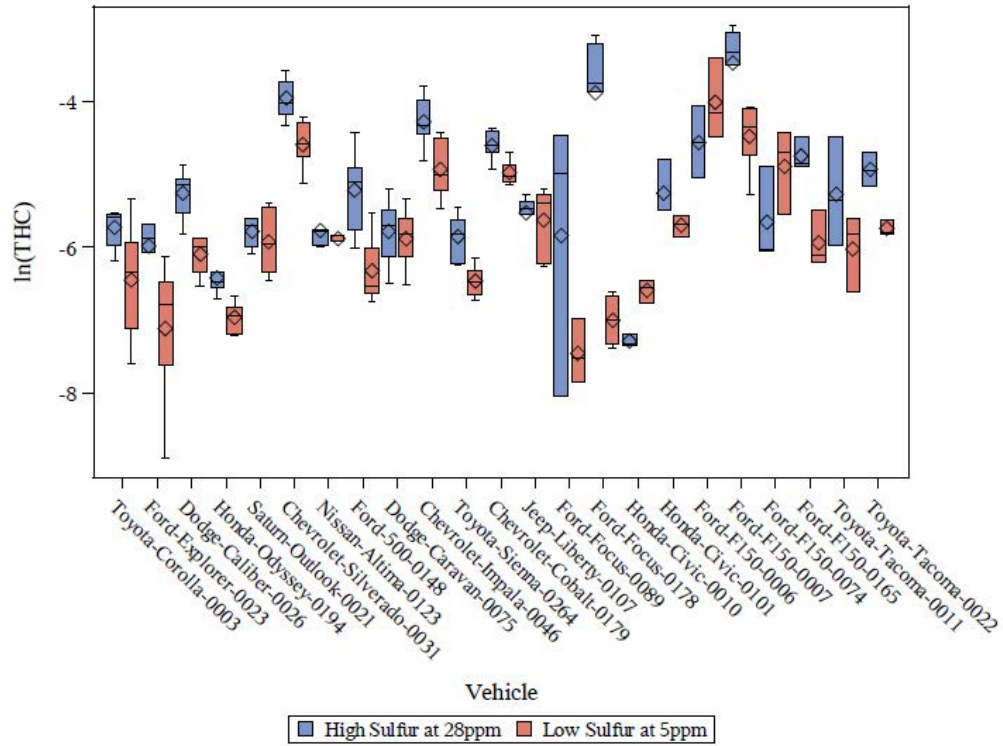


Figure E-3- 20 Log-transformed emissions from individual vehicles by sulfur level (THC Bag 2)

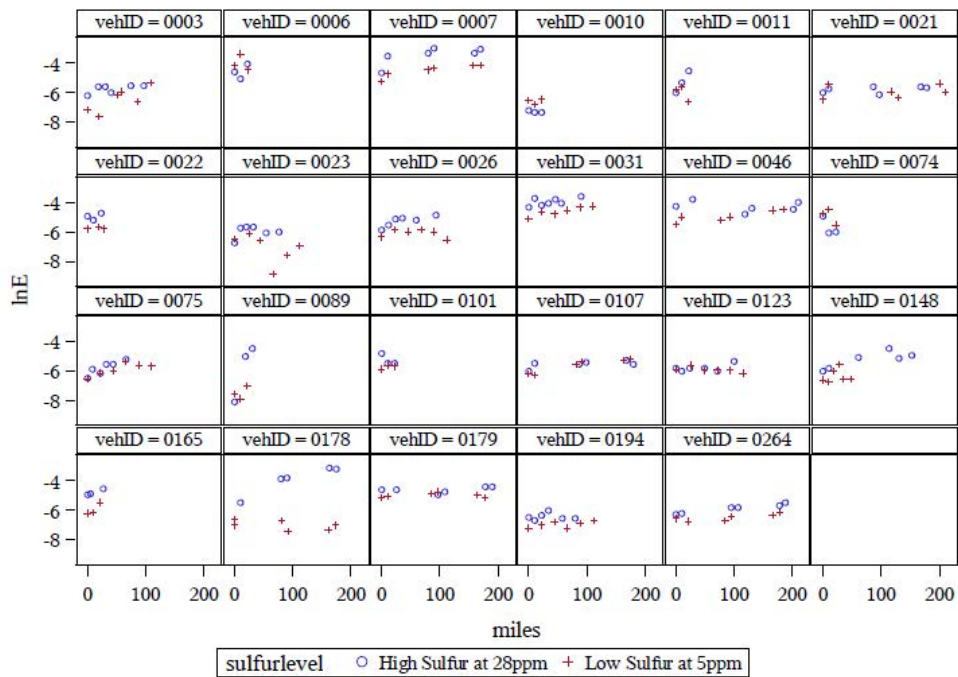


Figure E-3- 21 Data vs. predicted (log-transformed THC Bag 2)

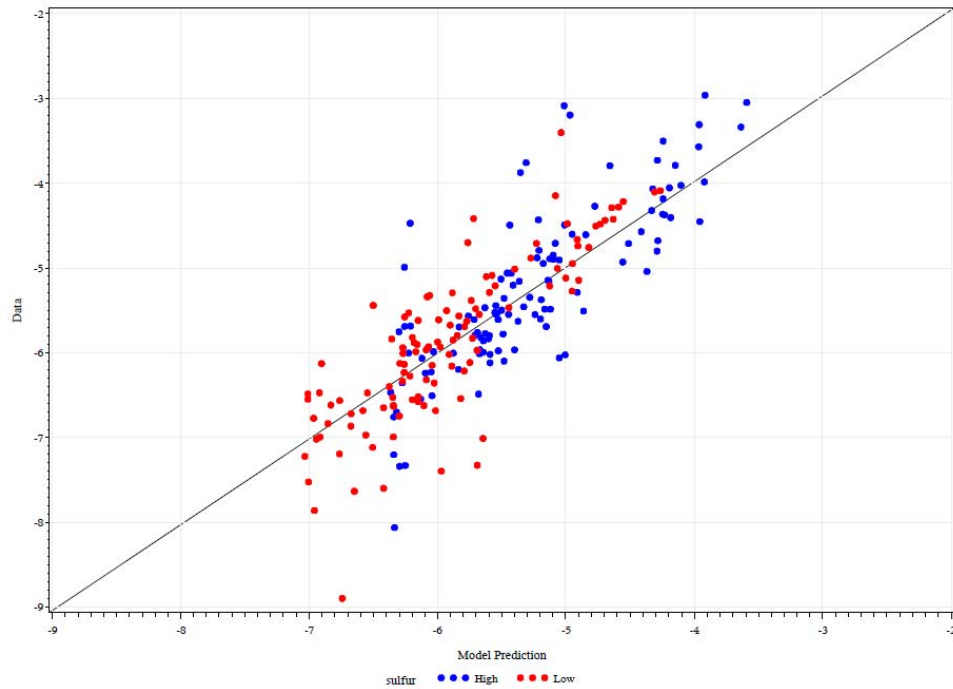


Figure E-3- 22 Box-plot of Bag 3 THC

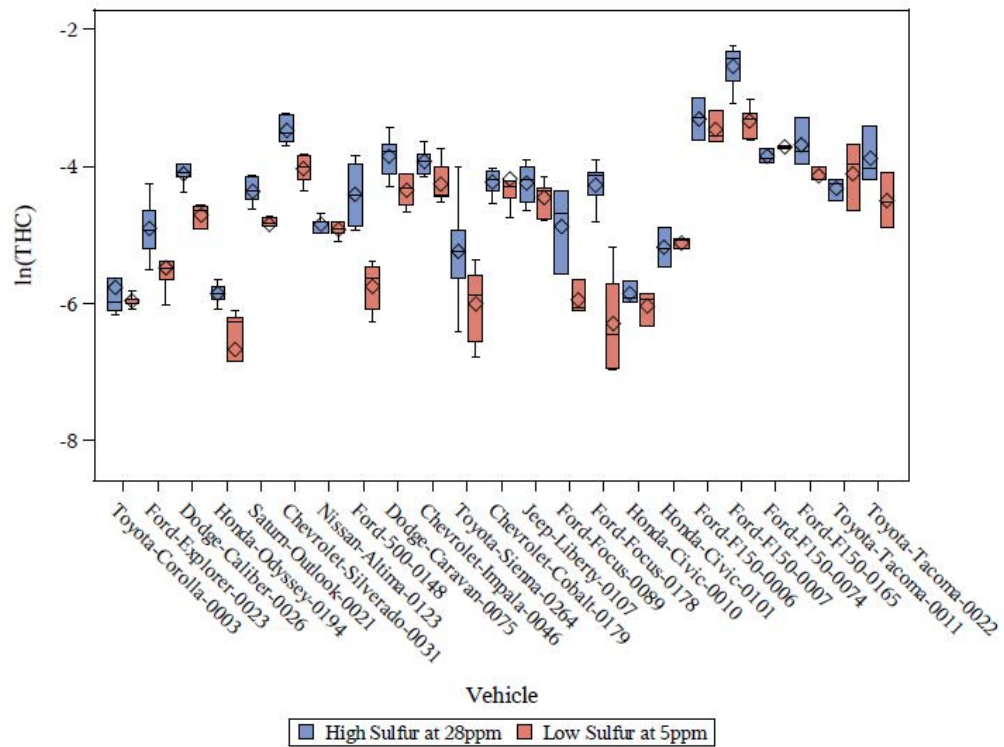


Figure E-3- 23 Log-transformed emissions from individual vehicles by sulfur level (THC Bag 3)

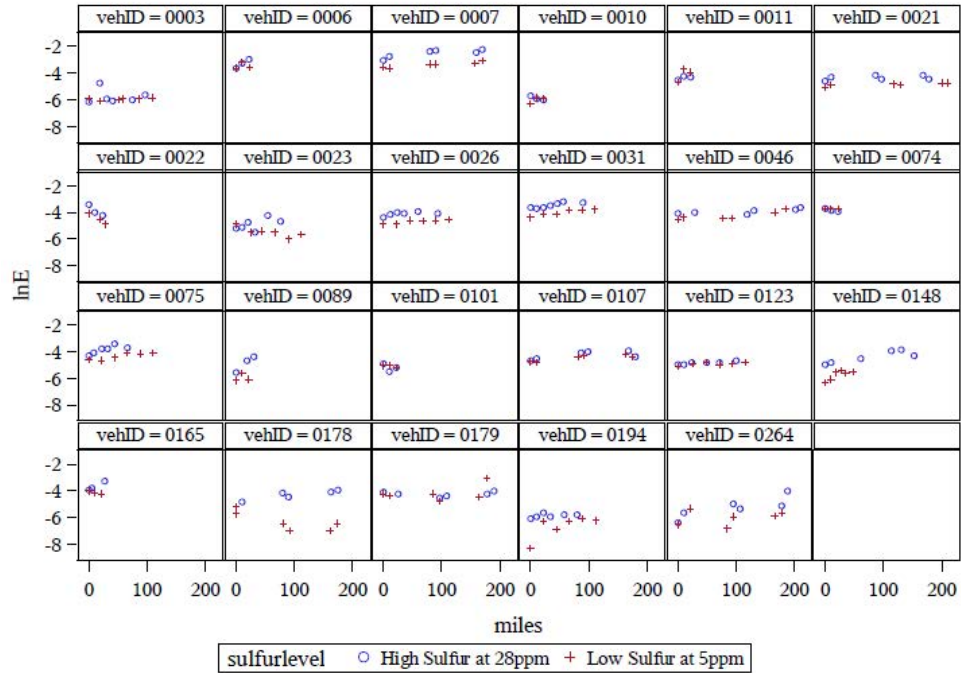


Figure E-3- 24 Data vs. predicted (log-transformed THC Bag 3)

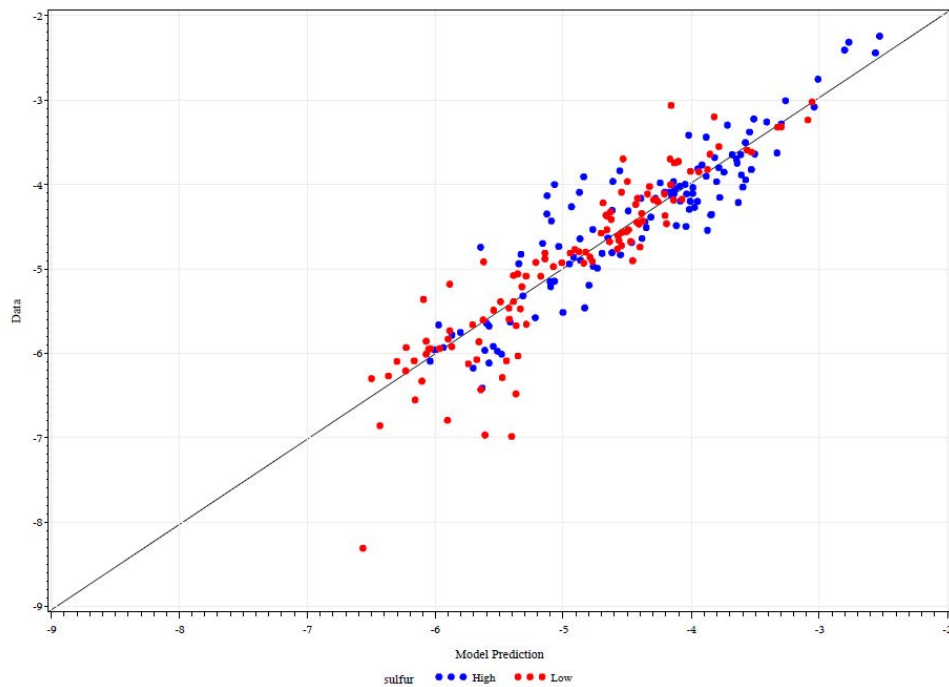


Figure E-3- 25 Box-plot of Bag 1-Bag 3 THC

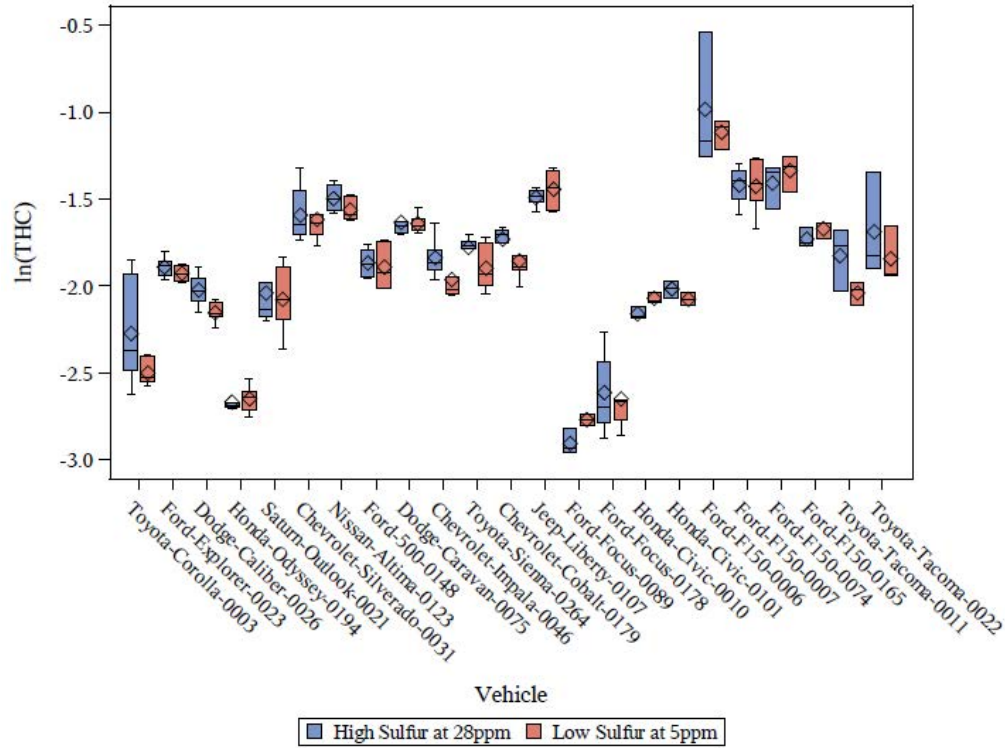


Figure E-3- 26 Log-transformed emissions from individual vehicles by sulfur level (THC Bag 1-Bag 3)

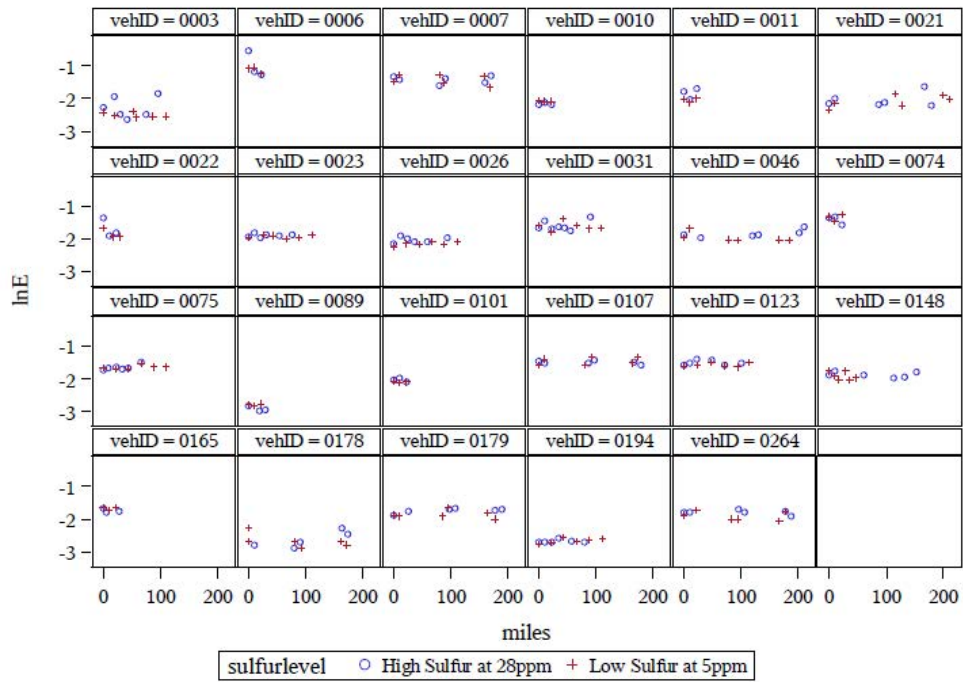


Figure E-3- 27 Data vs. predicted (log-transformed THC Bag 1-Bag 3)

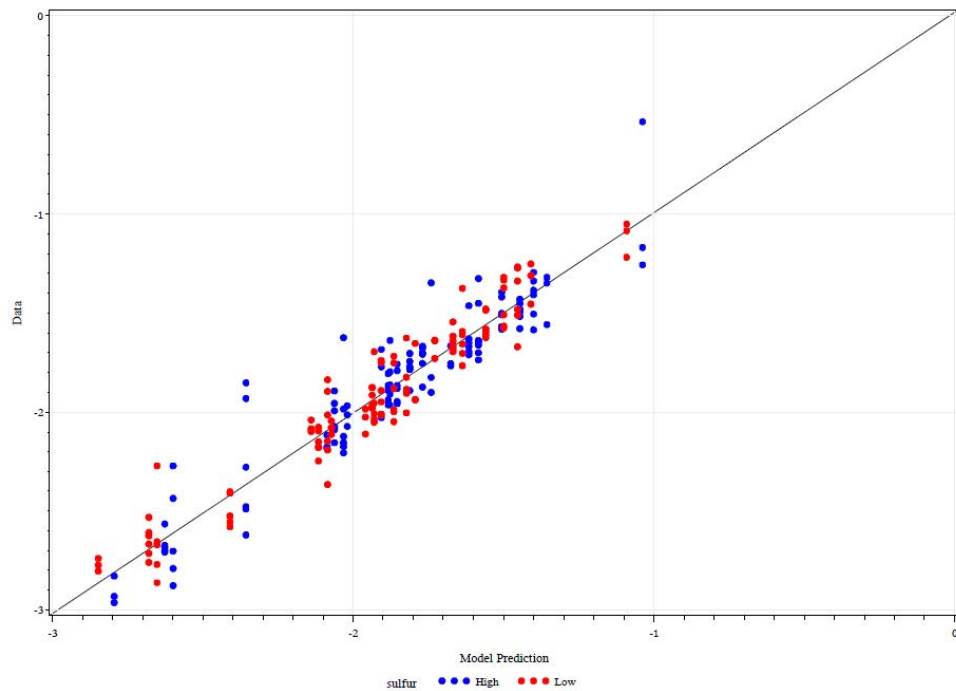


Figure E-3- 28 Box-plot of FTP Composite THC

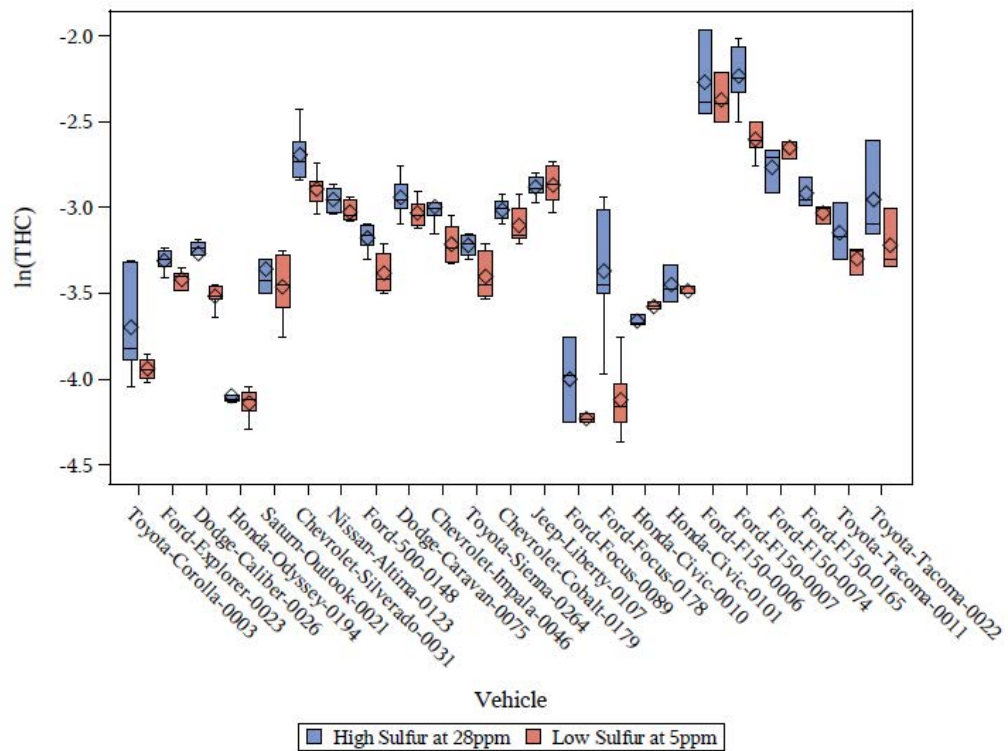


Figure E-3- 29 Log-transformed emissions from individual vehicles by sulfur level (THC FTP Composite)

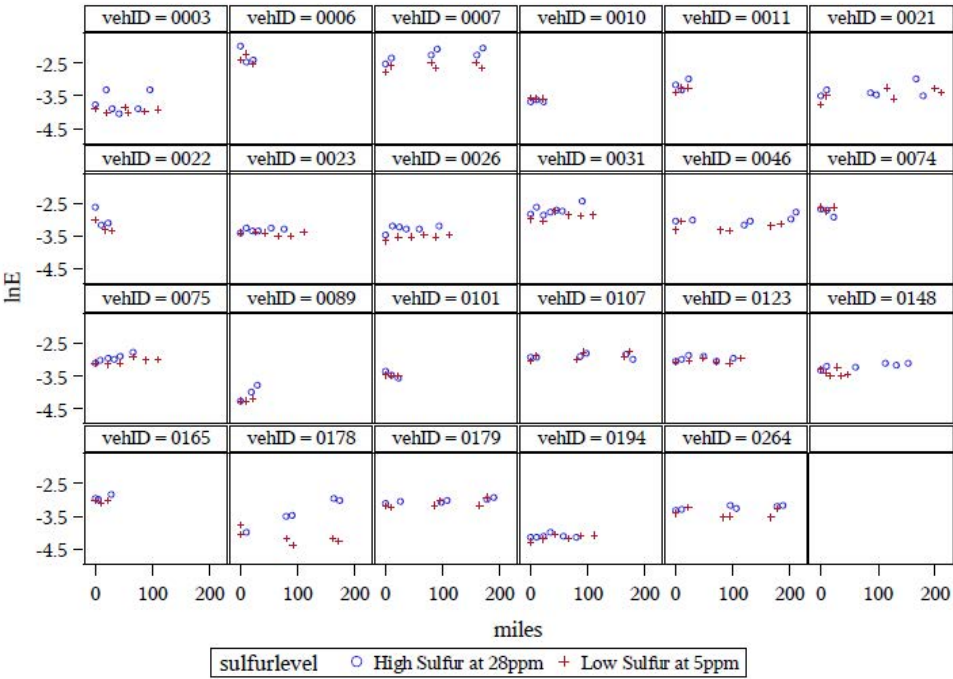


Figure E-3- 30 Data vs. predicted (log-transformed THC FTP Composite)

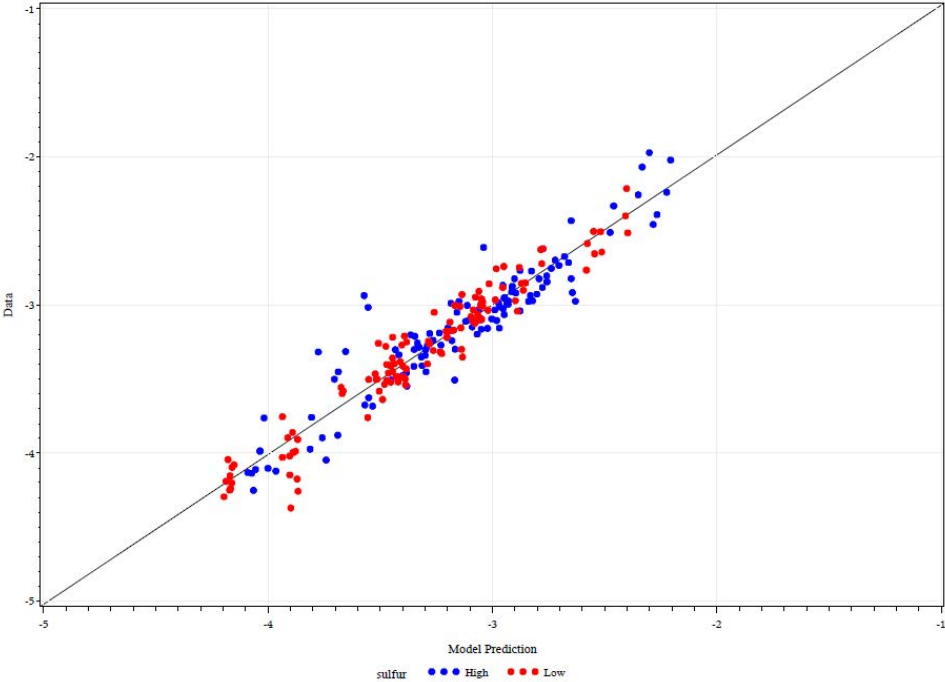


Figure E-3- 31 Box-plot of Bag 1 CO

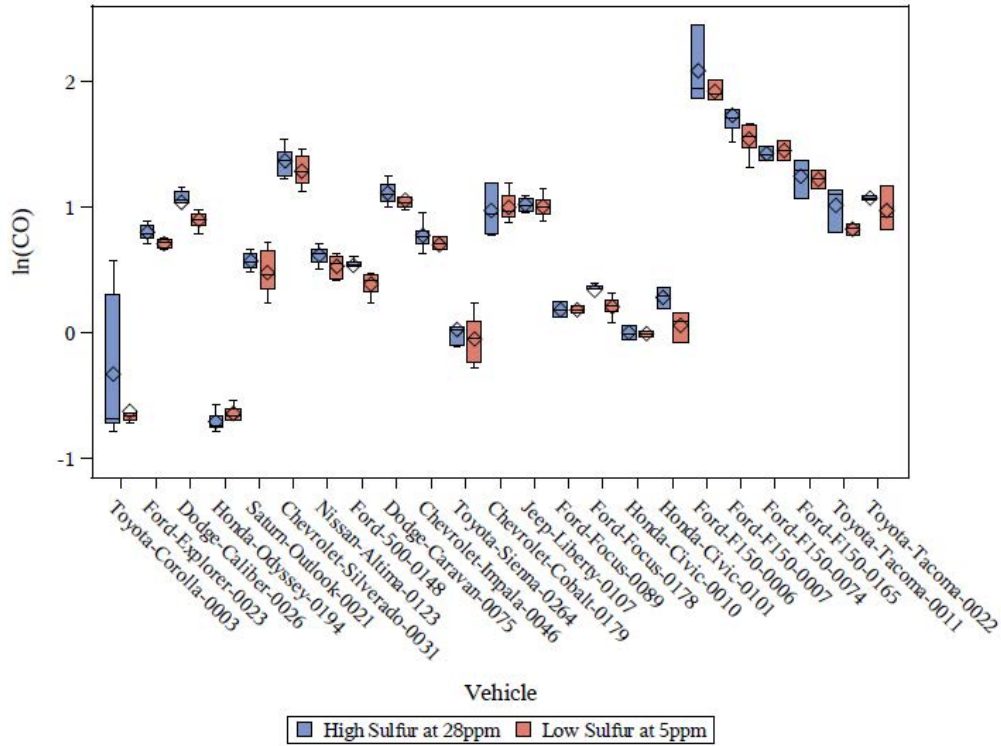


Figure E-3- 32 Log-transformed emissions from individual vehicles by sulfur level (CO Bag 1)

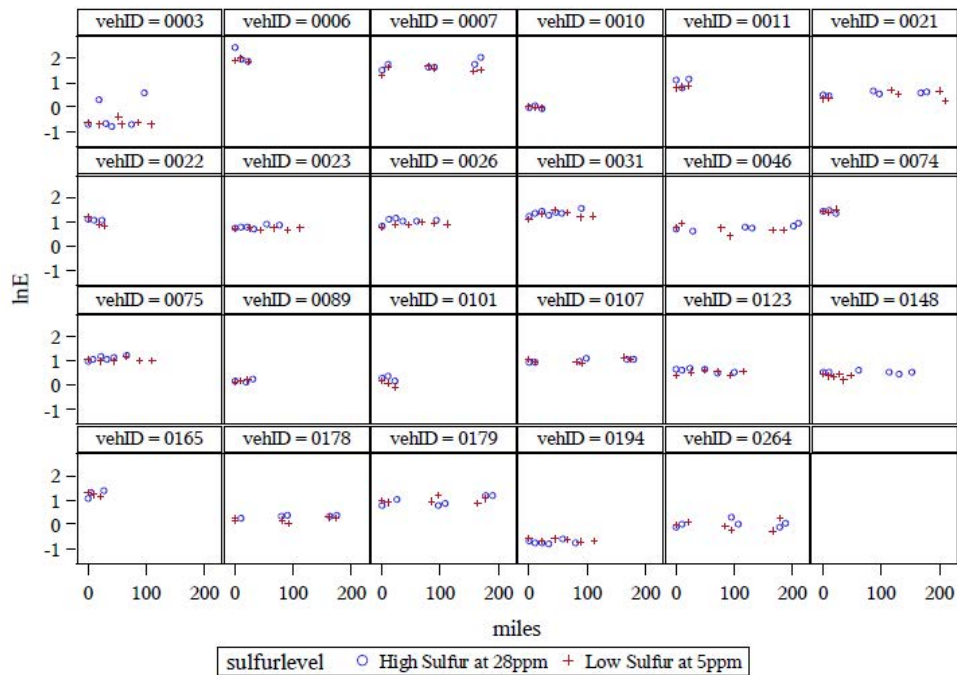


Figure E-3- 33 Data vs. predicted (log-transformed CO Bag 1)

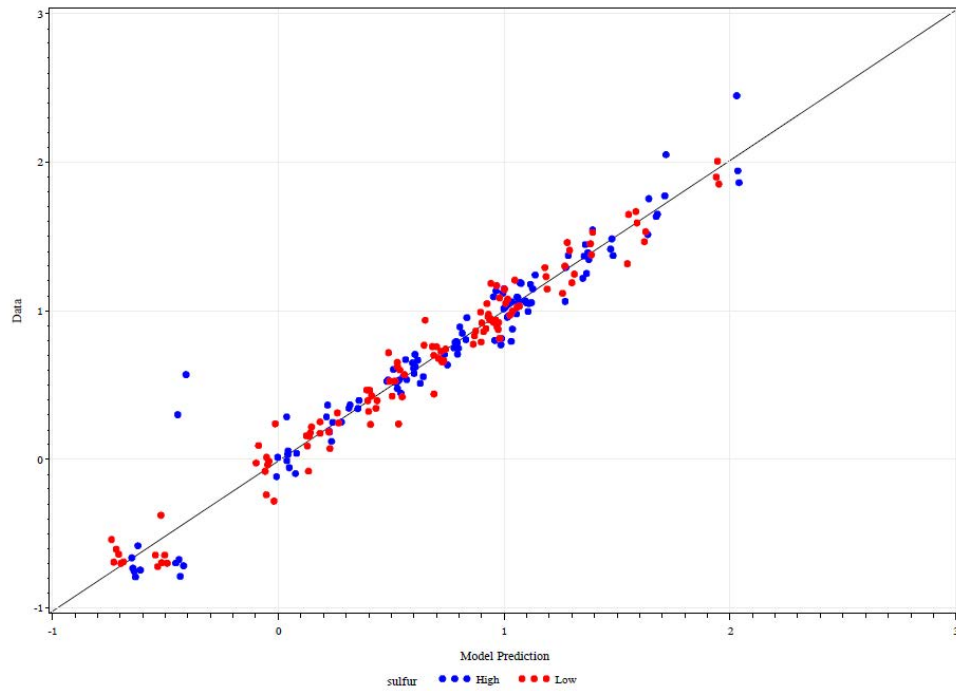


Figure E-3- 34 Box-plot of Bag 2 CO

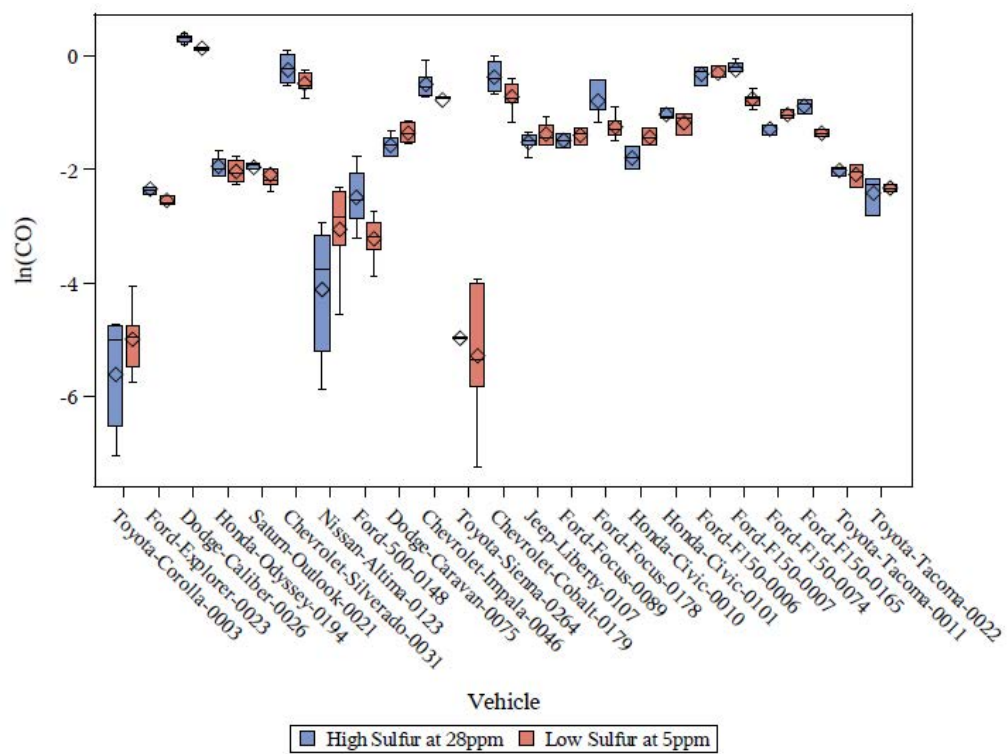


Figure E-3- 35 Log-transformed emissions from individual vehicles by sulfur level (CO Bag 2)

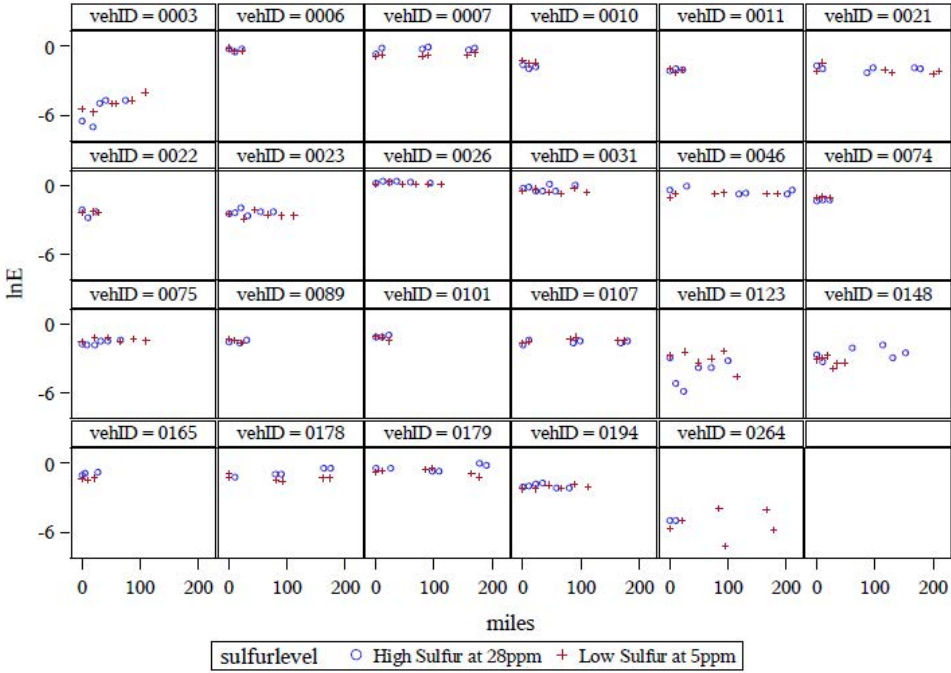


Figure E-3- 36 Data vs. predicted (log-transformed CO Bag 2)

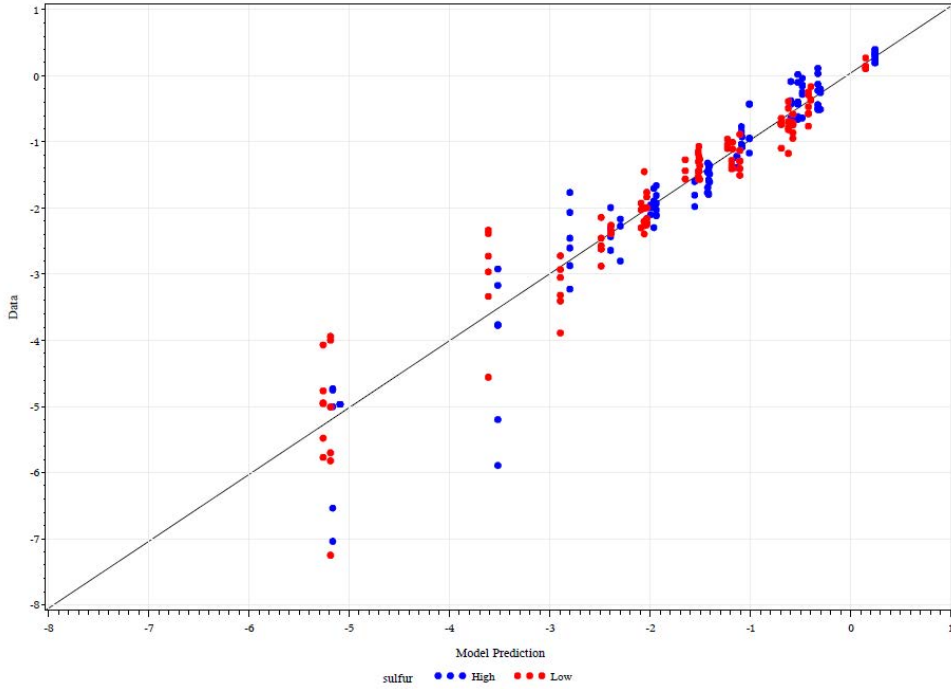


Figure E-3- 37 Box-plot of Bag 3 CO

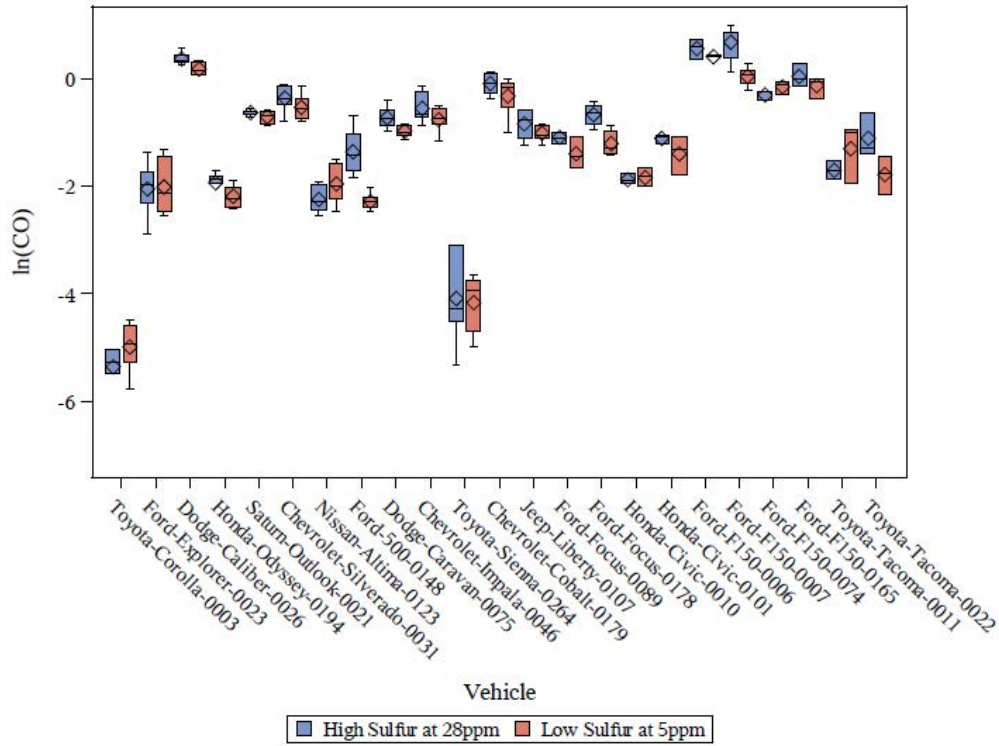


Figure E-3- 38 Log-transformed emissions from individual vehicles by sulfur level (CO Bag 3)

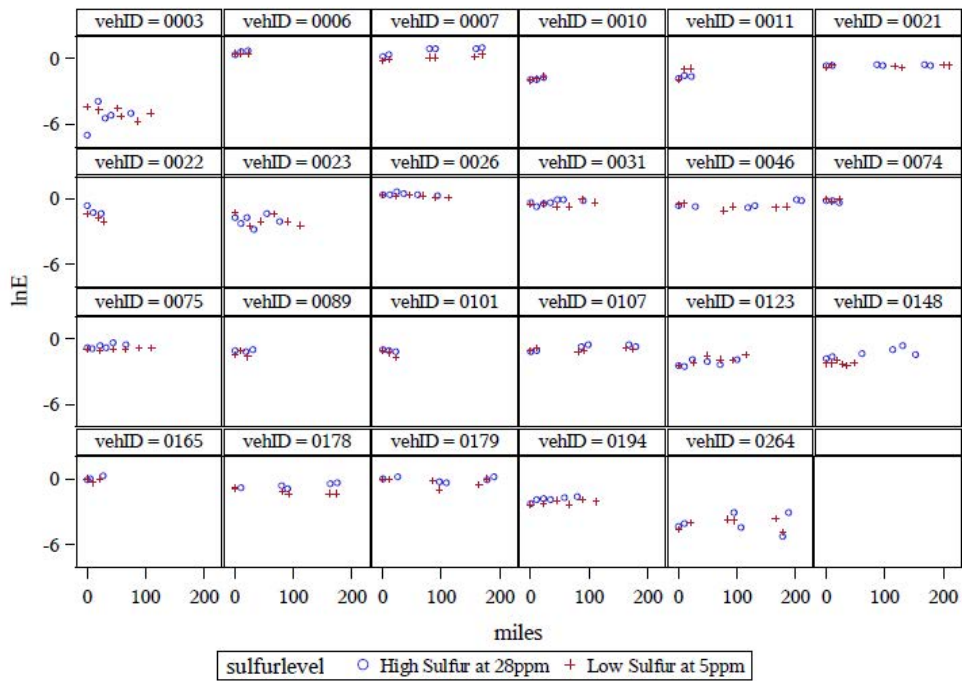


Figure E-3- 39 Data vs. predicted (log-transformed CO Bag 3)

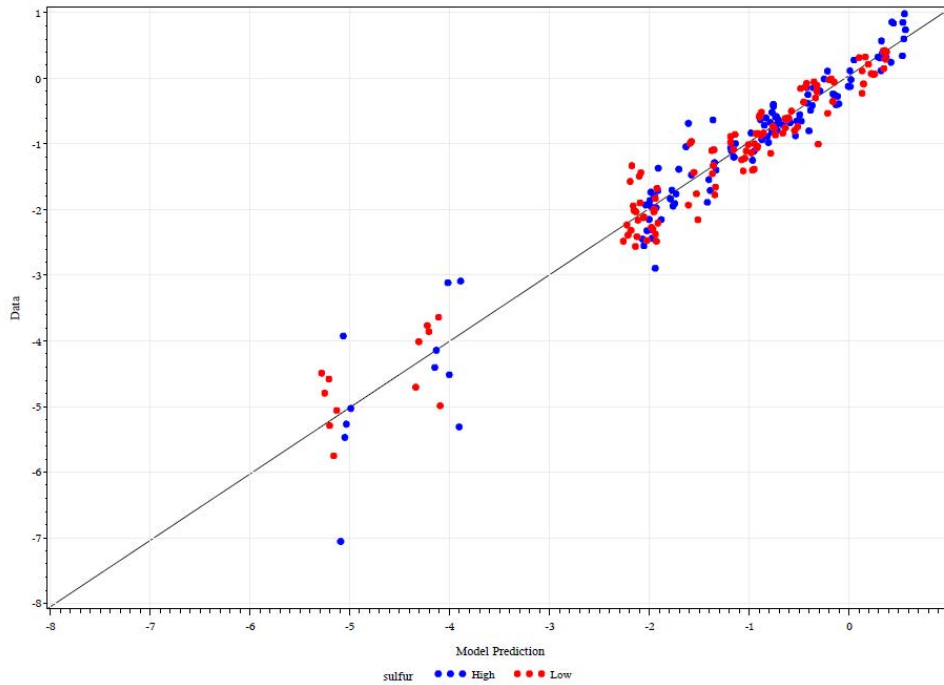


Figure E-3- 40 Box-plot of Bag 1-Bag 3 CO

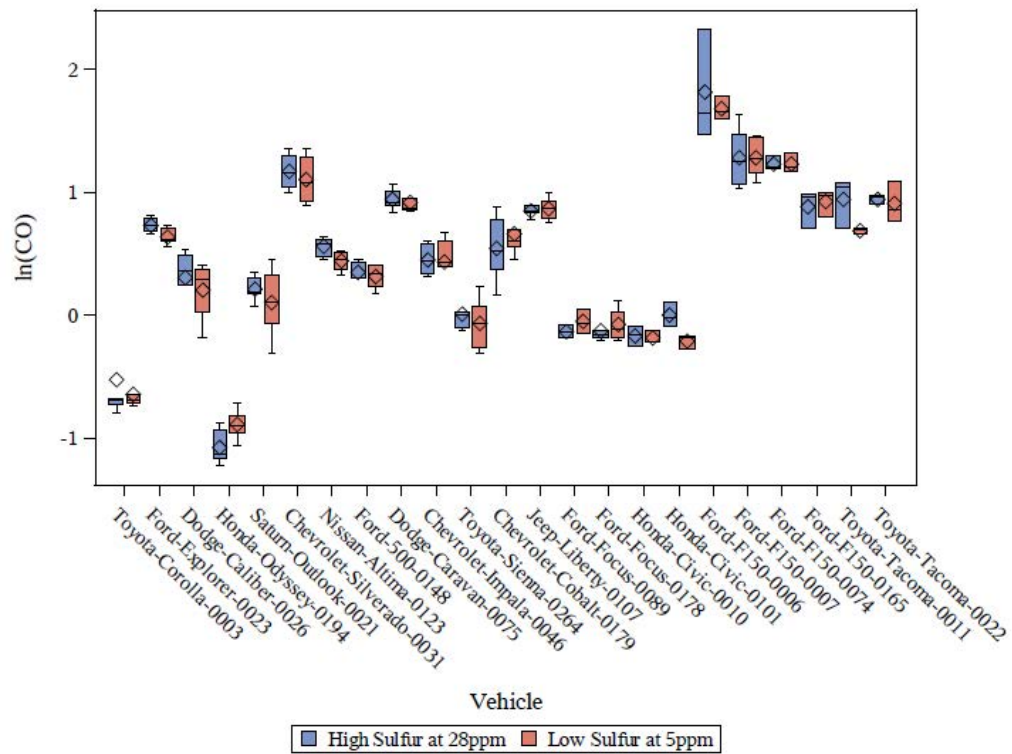


Figure E-3- 41 Log-transformed emissions from individual vehicles by sulfur level (CO Bag 1-Bag 3)

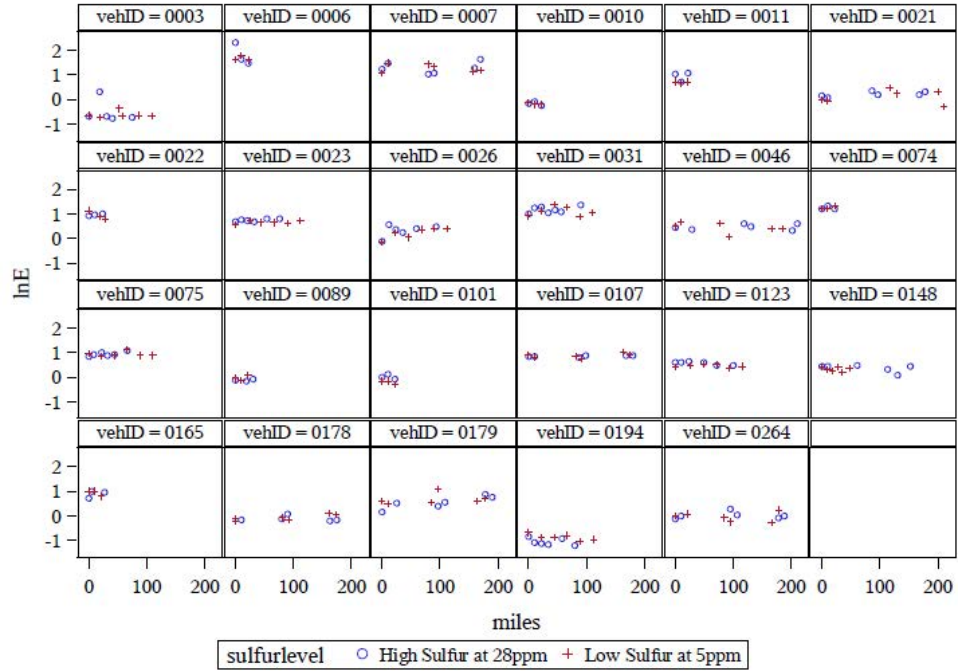


Figure E-3- 42 Data vs. predicted (log-transformed CO Bag 1-Bag 3)

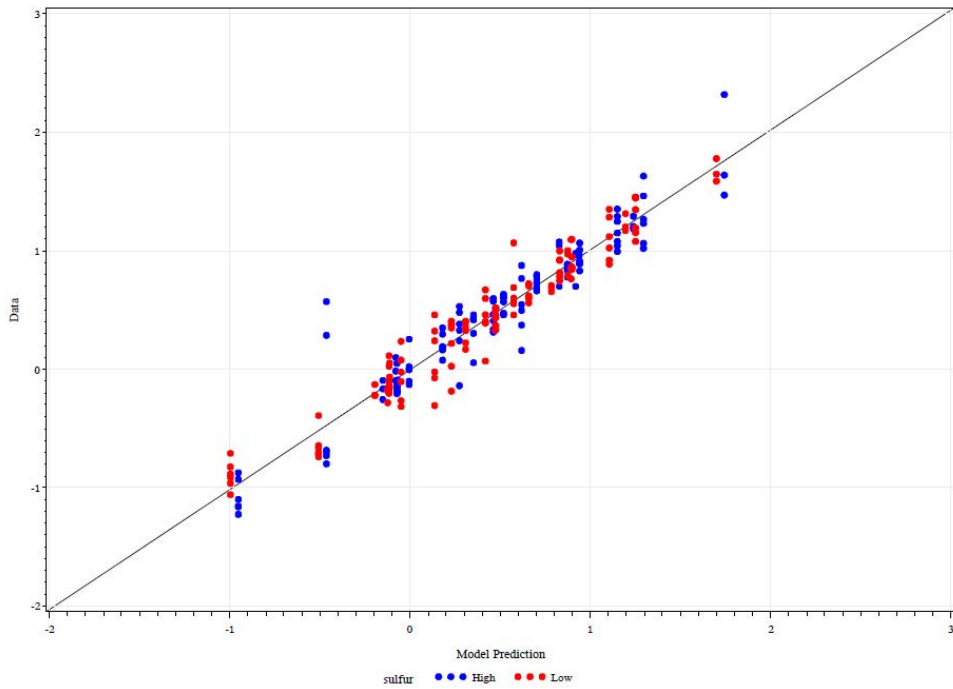


Figure E-3- 43 Box-plot of FTP Composite CO

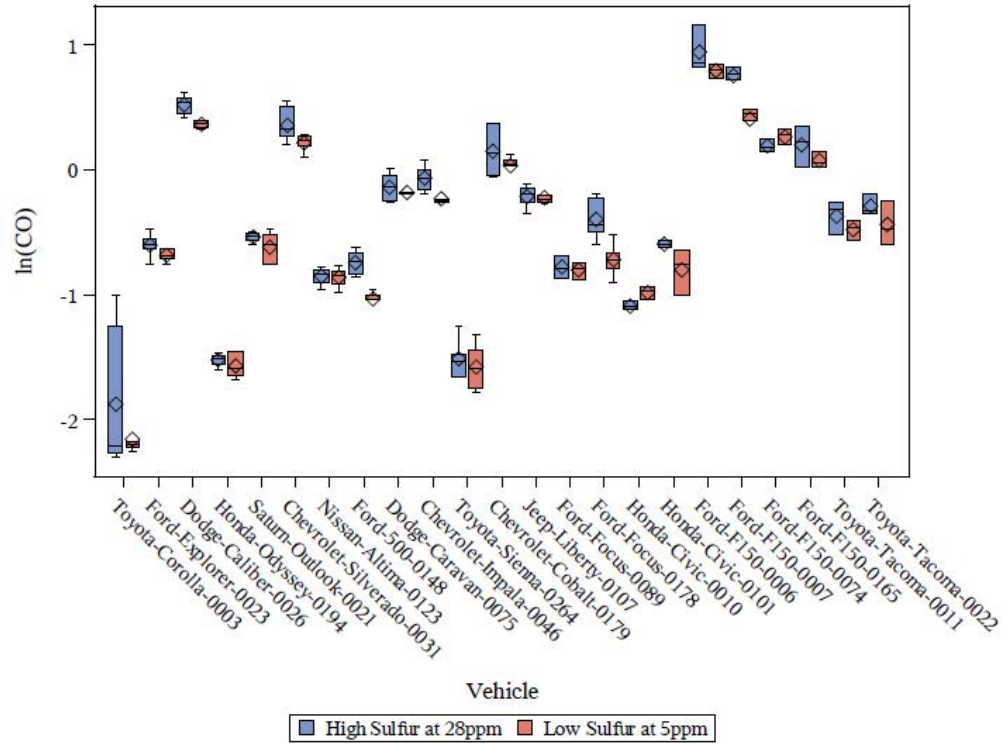


Figure E-3- 44 Log-transformed emissions from individual vehicles by sulfur level (CO FTP Composite)

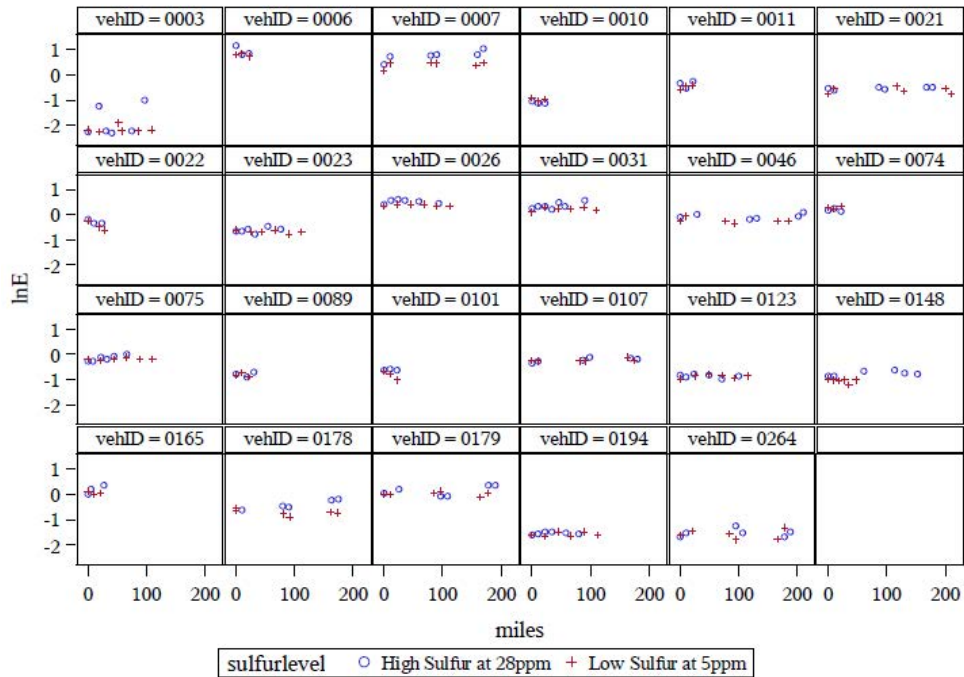


Figure E-3- 45 Data vs. predicted (log-transformed CO FTP Composite)

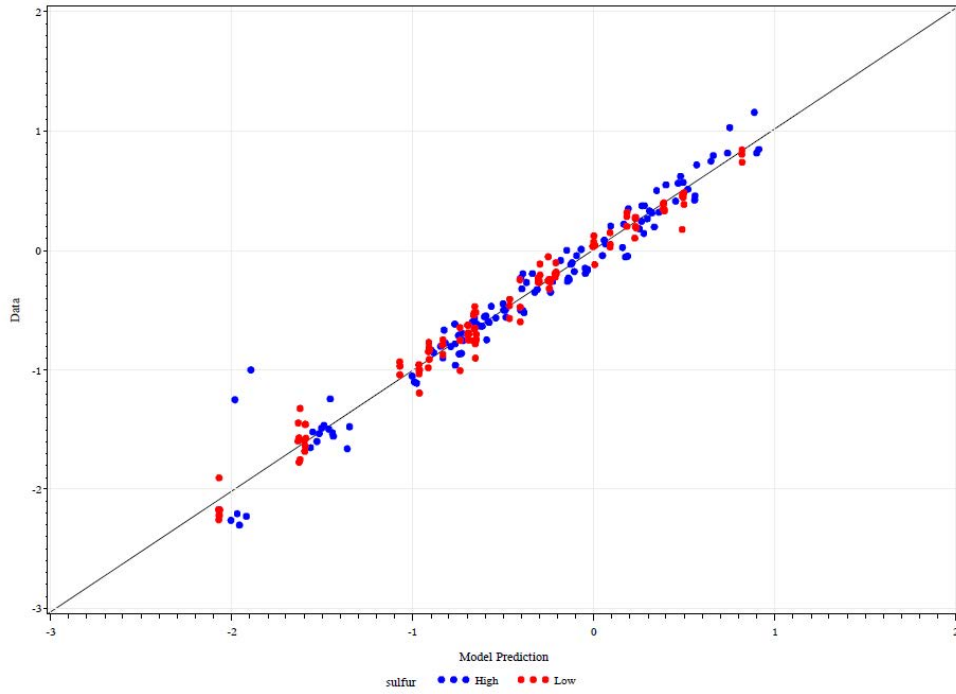


Figure E-3- 46 Box-plot of Bag 1 NMHC

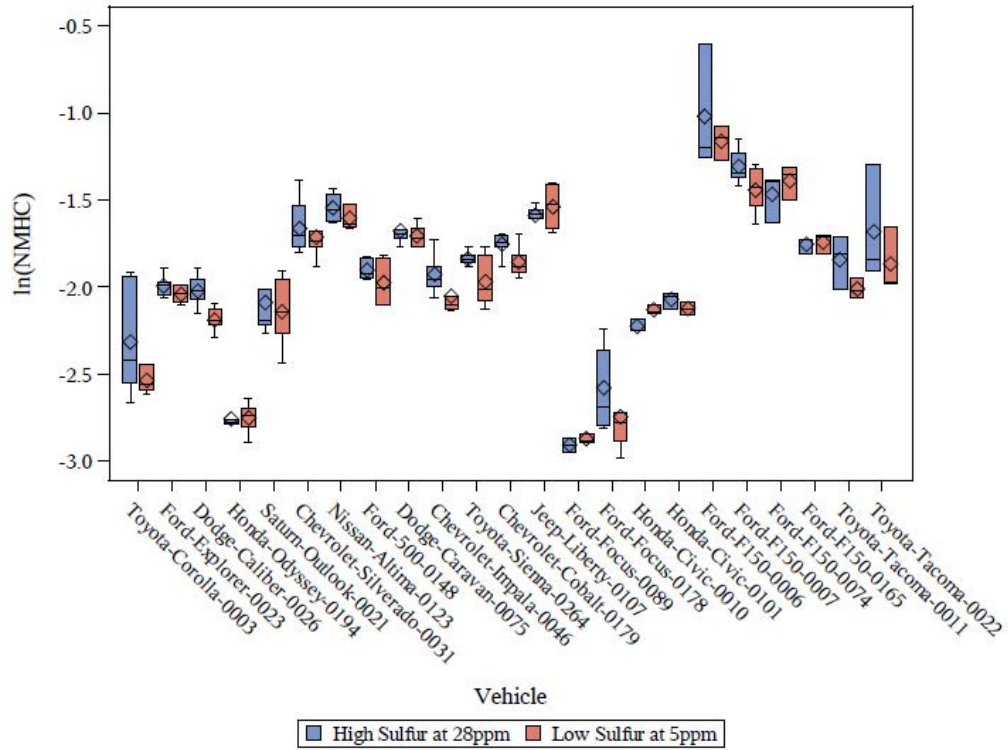


Figure E-3- 47 Log-transformed emissions from individual vehicles by sulfur level (NMHC Bag 1)

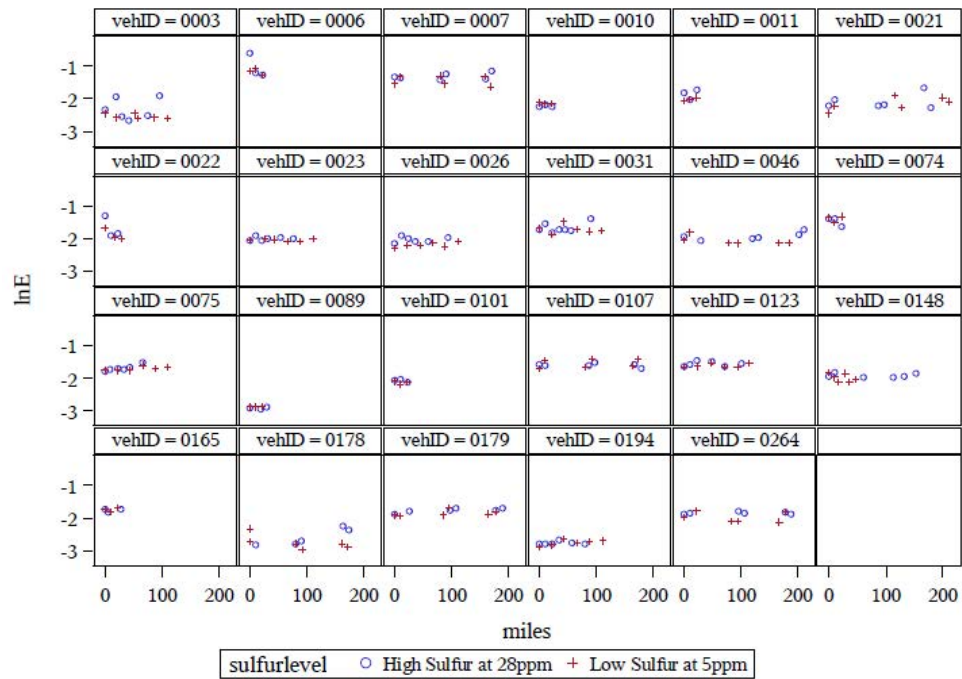


Figure E-3- 48 Data vs. predicted (log-transformed NMHC Bag 1)

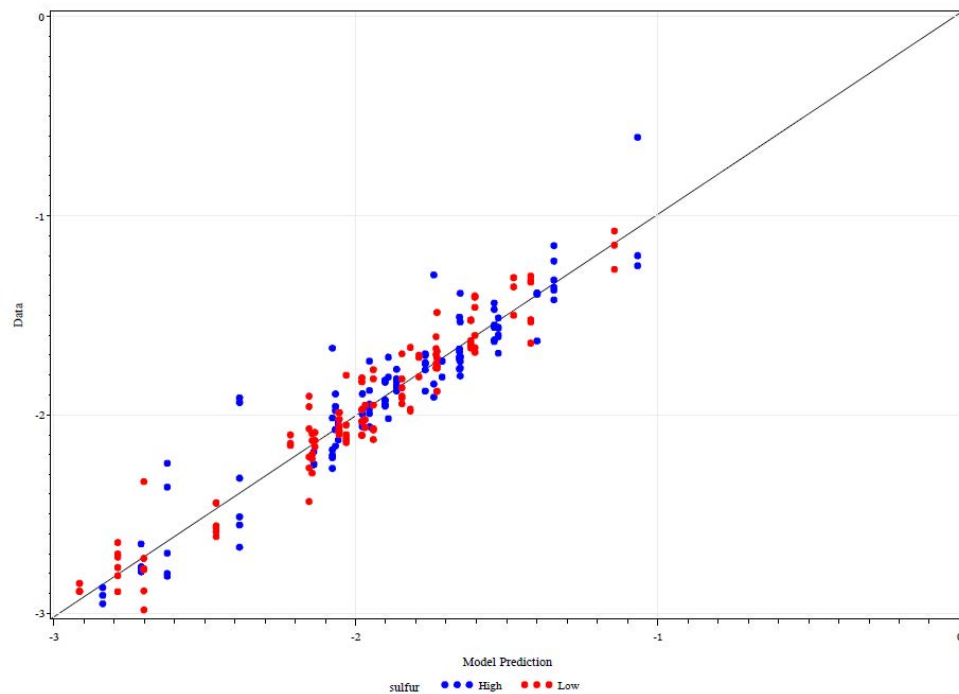


Figure E-3- 49 Box-plot of Bag 2 NMHC

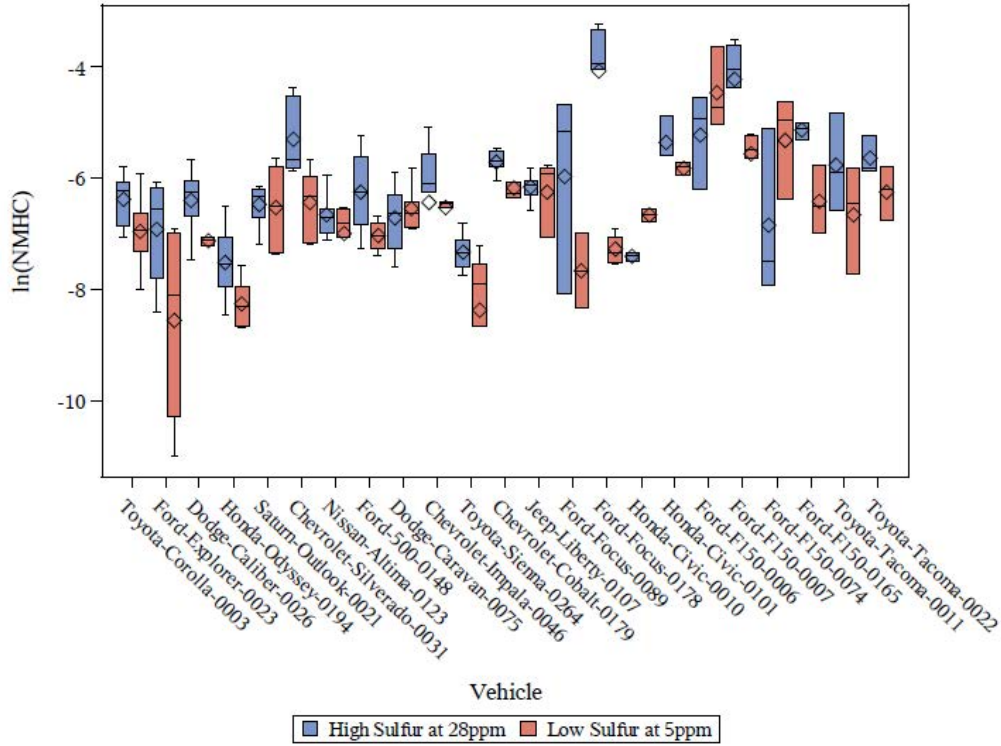


Figure E-3- 50 Log-transformed emissions from individual vehicles by sulfur level (NMHC Bag 2)

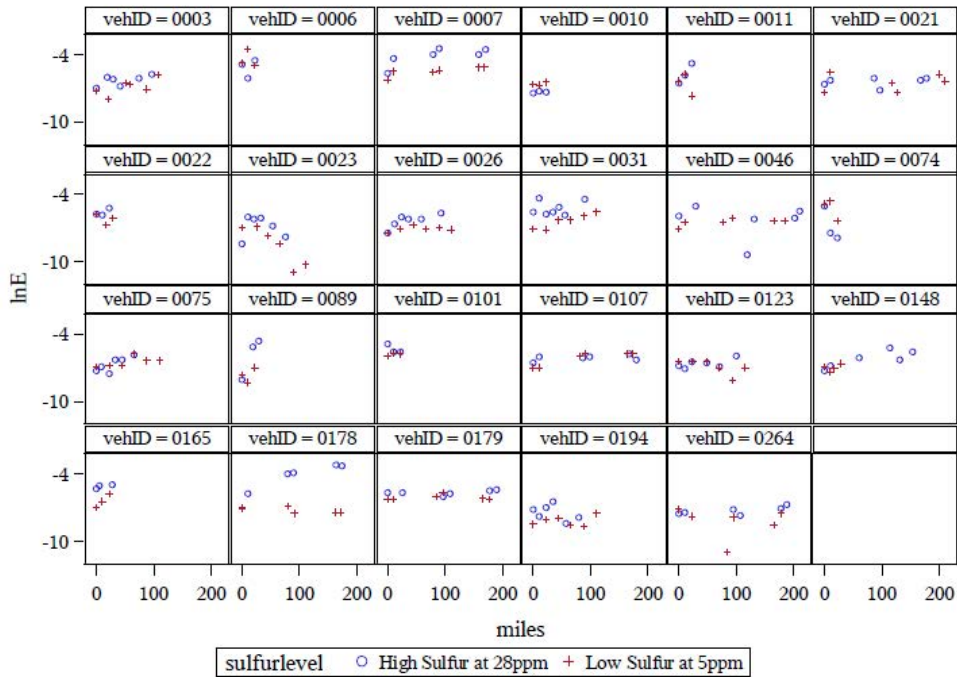


Figure E-3- 51 Data vs. predicted (log-transformed NMHC Bag 2)

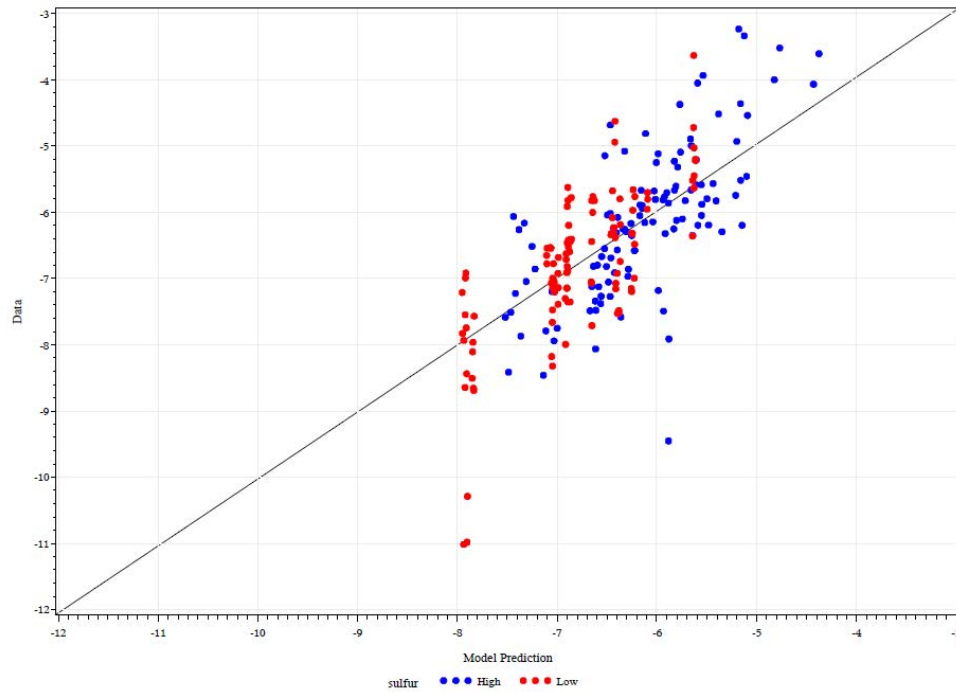


Figure E-3- 52 Box-plot of Bag 3 NMHC

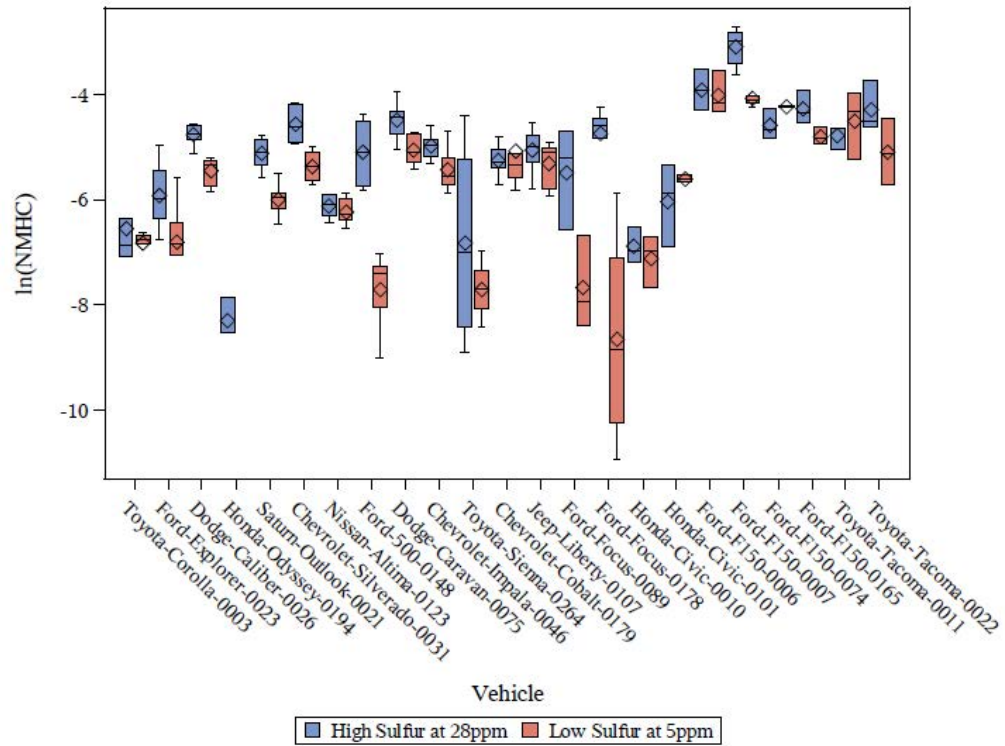


Figure E-3- 53 Log-transformed emissions from individual vehicles by sulfur level (NMHC Bag 3)

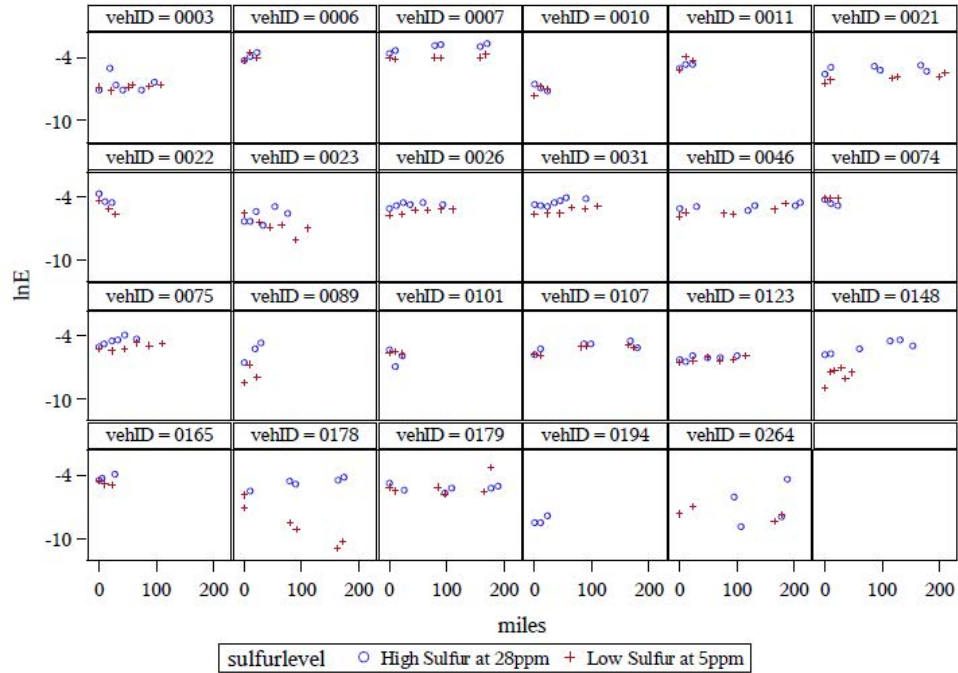


Figure E-3- 54 Data vs. predicted (log-transformed NMHC Bag 3)

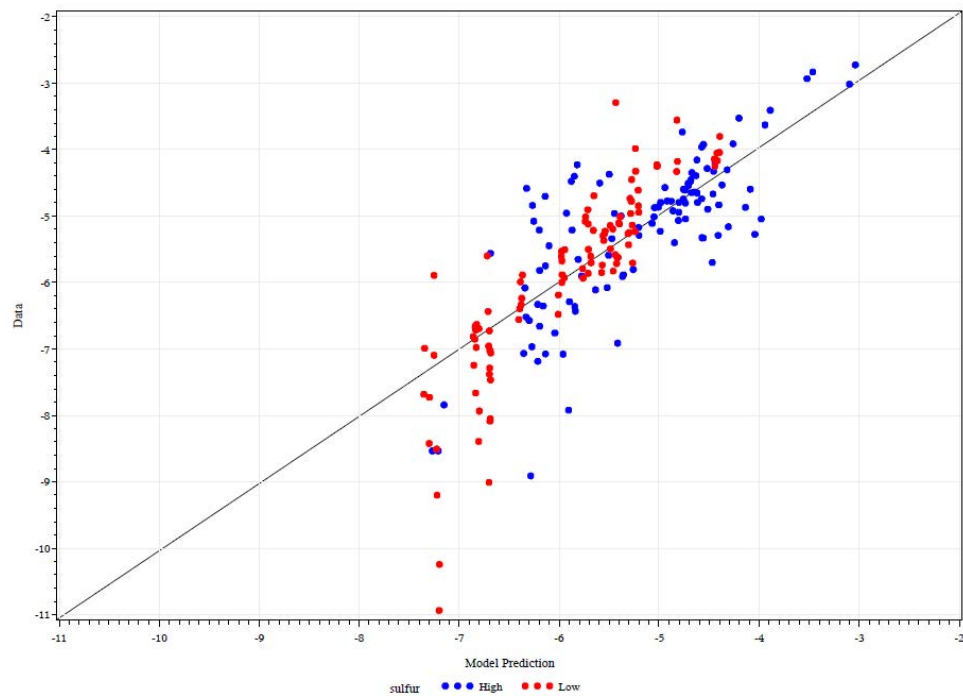


Figure E-3- 55 Box-plot of Bag 1-Bag 3 NMHC

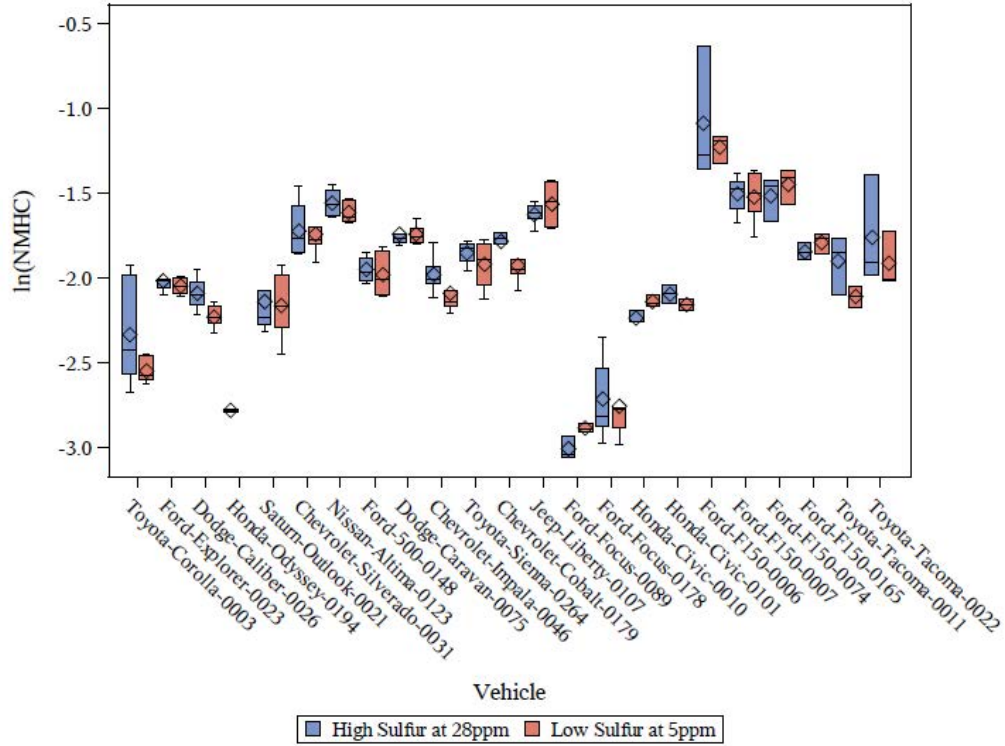


Figure E-3- 56 Log-transformed emissions from individual vehicles by sulfur level (NMHC Bag 1-Bag 3)

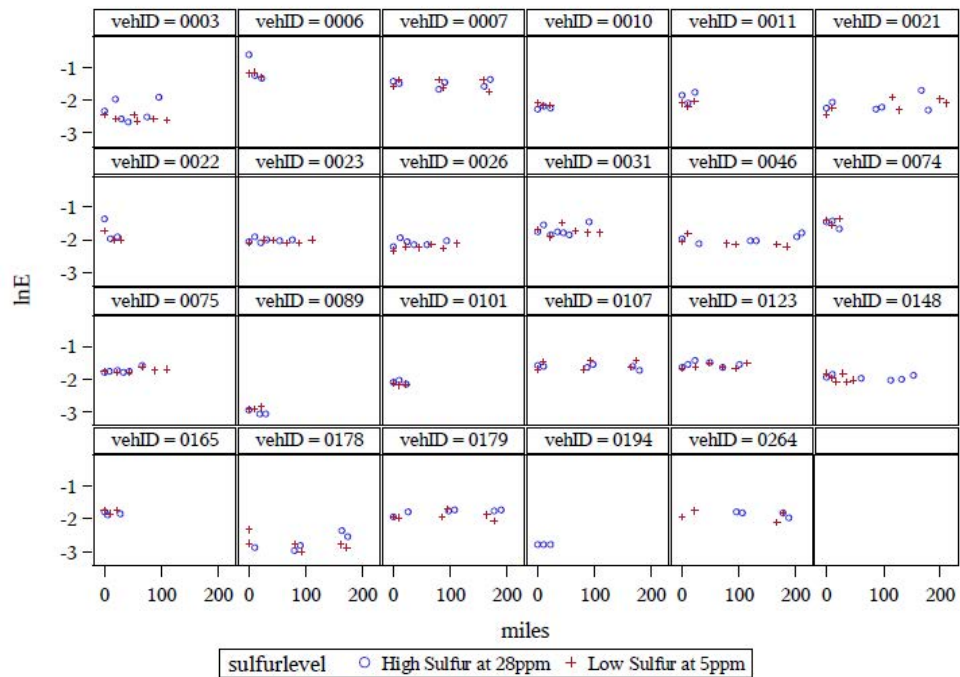


Figure E-3- 57 Data vs. predicted (log-transformed NMHC Bag 1-Bag 3)

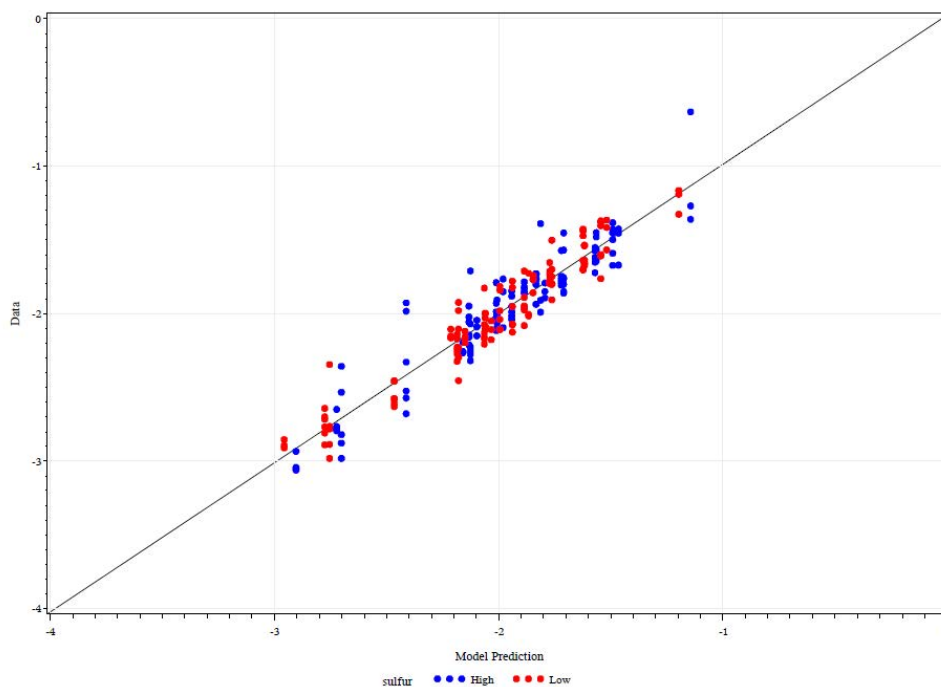


Figure E-3- 58 Box-plot of FTP Composite NMHC

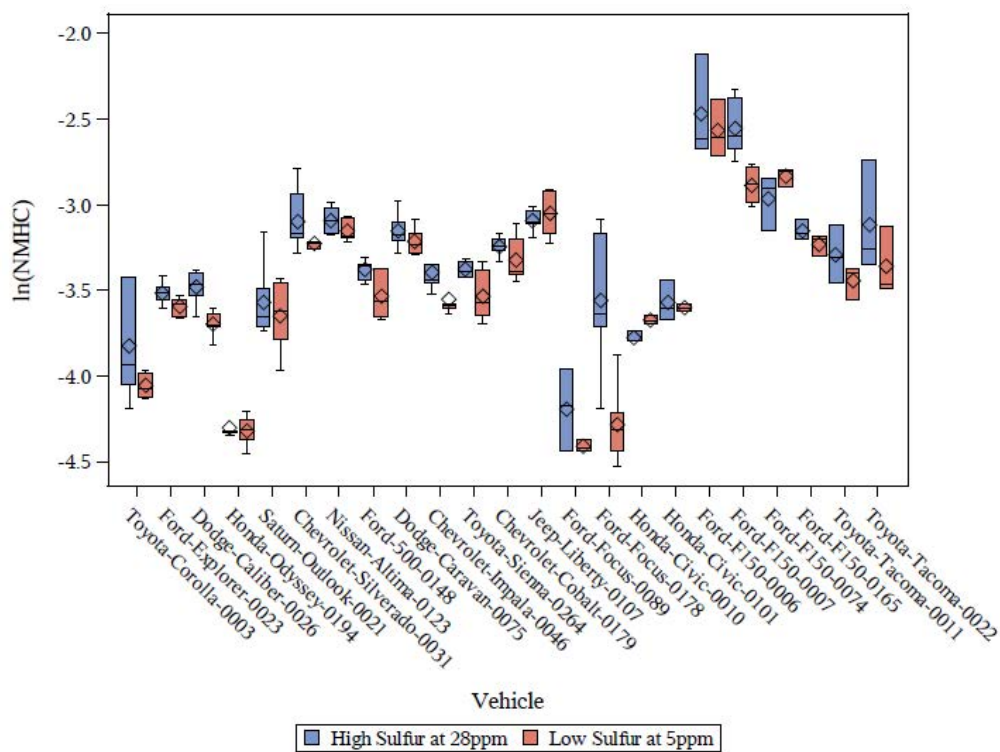


Figure E-3- 59 Log-transformed emissions from individual vehicles by sulfur level (NMHC FTP Composite)

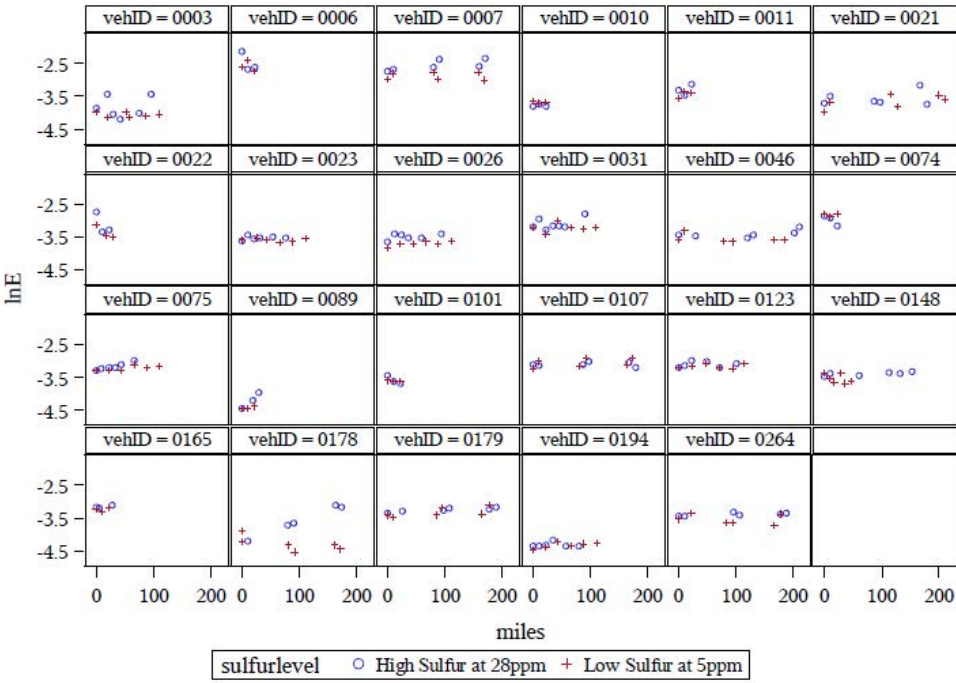


Figure E-3- 60 Data vs. predicted (log-transformed NMHC FTP Composite)

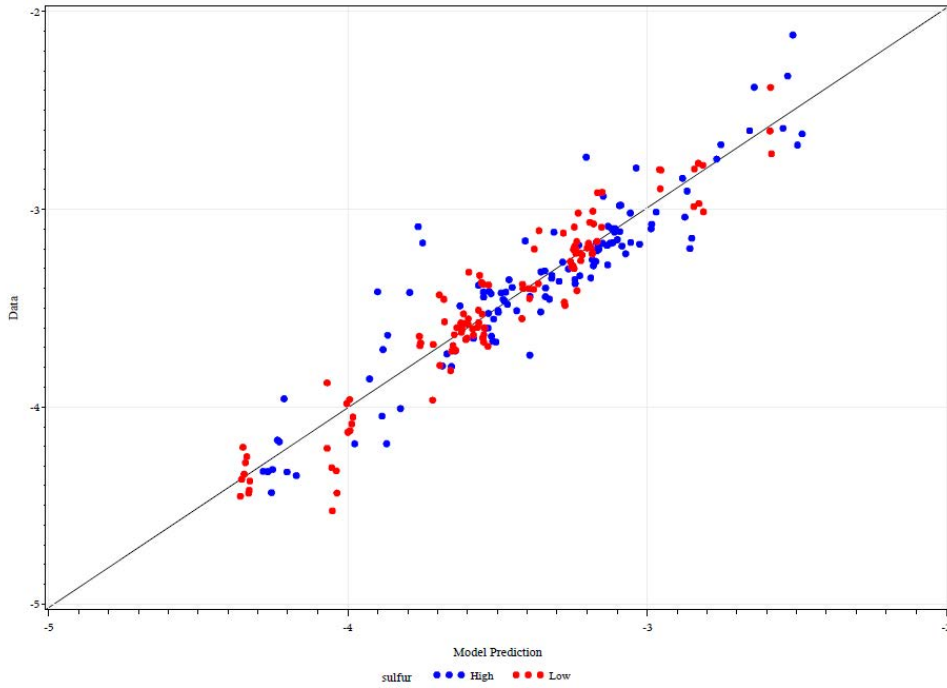


Figure E-3- 61 Box-plot of Bag 1 CH4

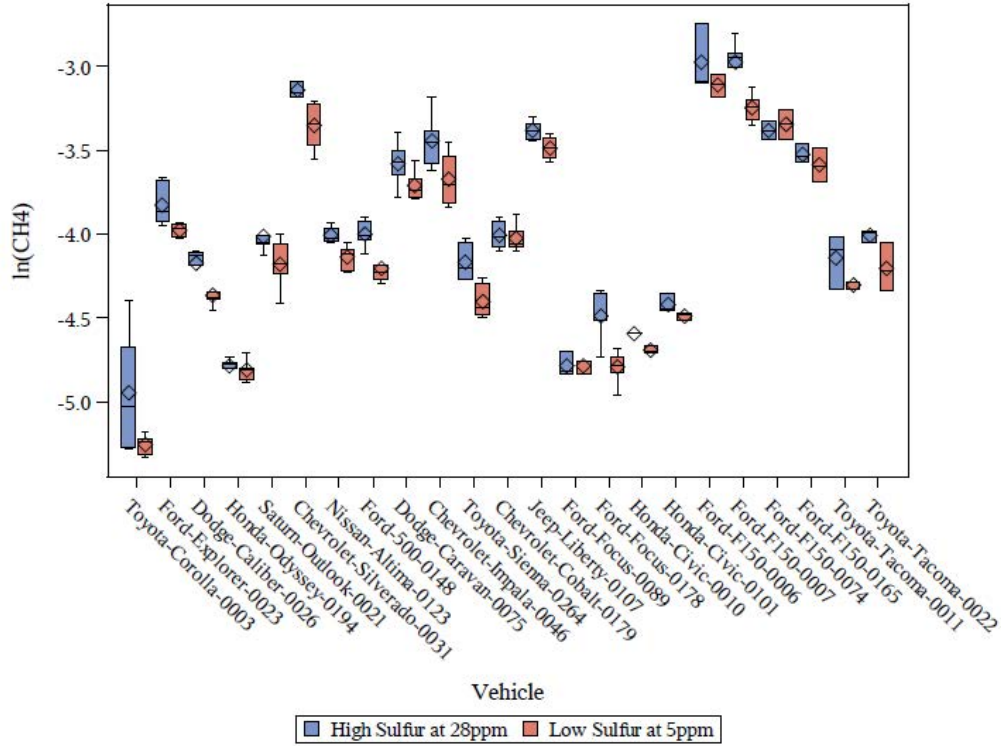


Figure E-3- 62 Log-transformed emissions from individual vehicles by sulfur level (CH4 Bag 1)

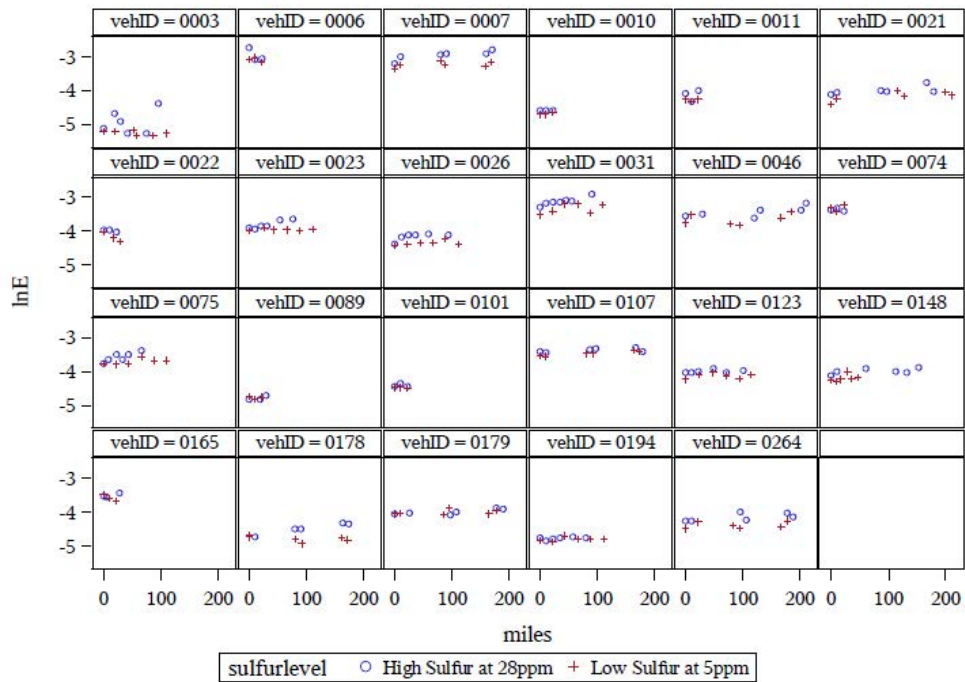


Figure E-3- 63 Data vs. predicted (log-transformed CH4 Bag 1)

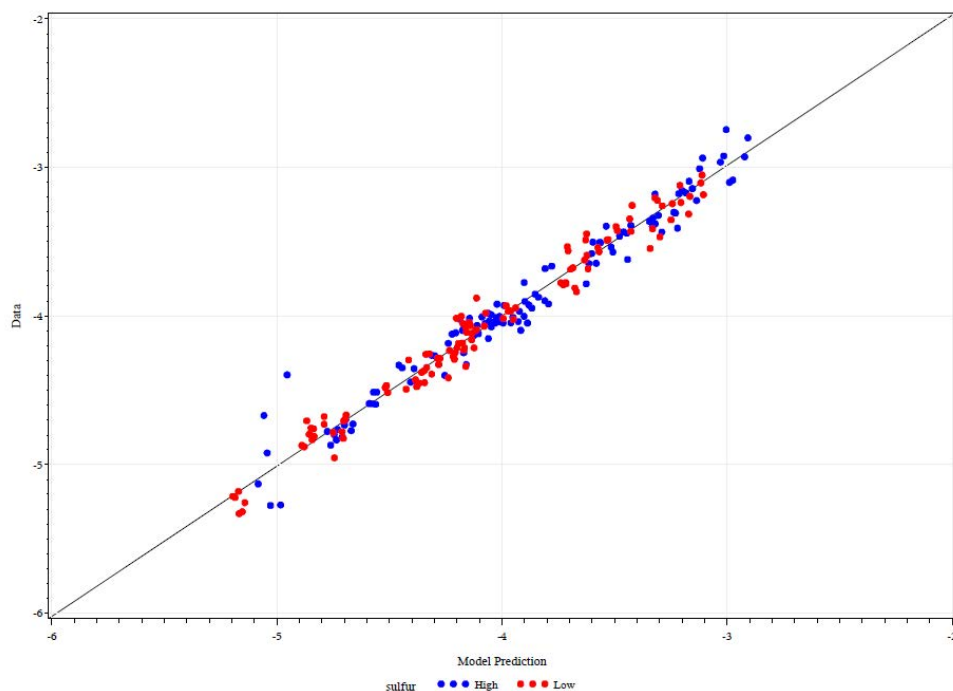


Figure E-3- 64 Box-plot of Bag 2 CH4

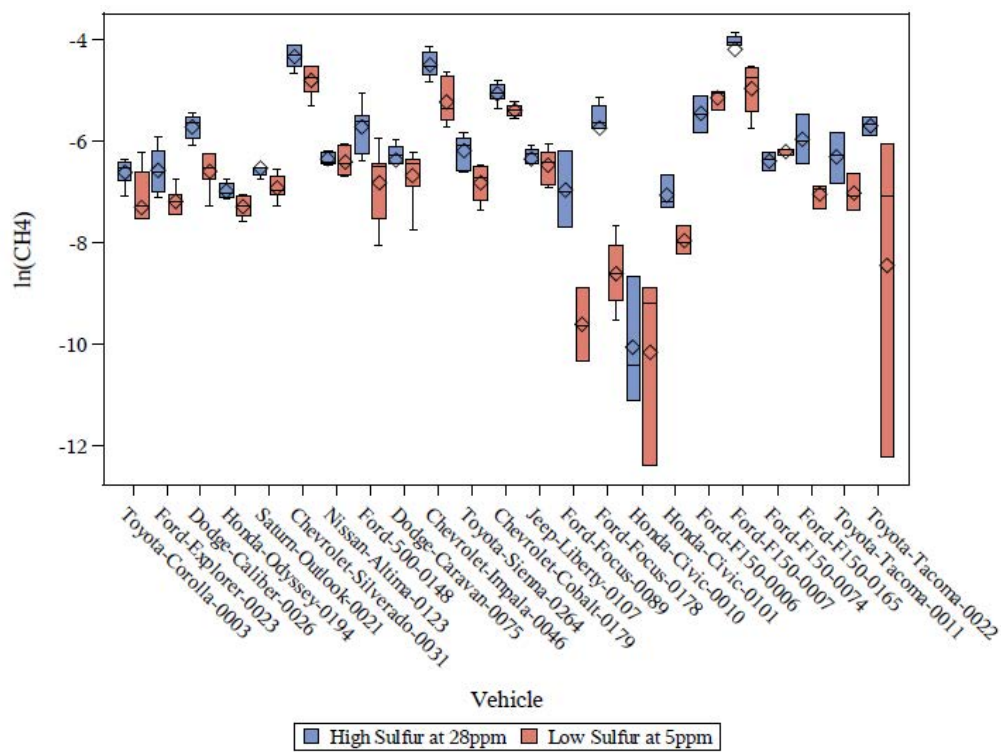


Figure E-3- 65 Log-transformed emissions from individual vehicles by sulfur level (CH4 Bag 2)

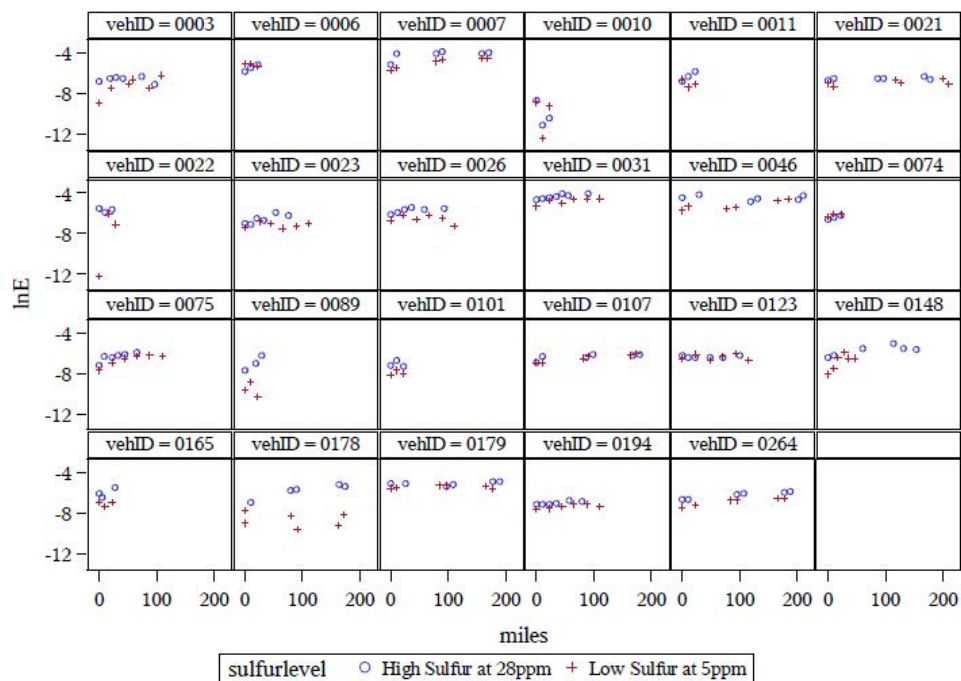


Figure E-3- 66 Data vs. predicted (log-transformed CH4 Bag 2)

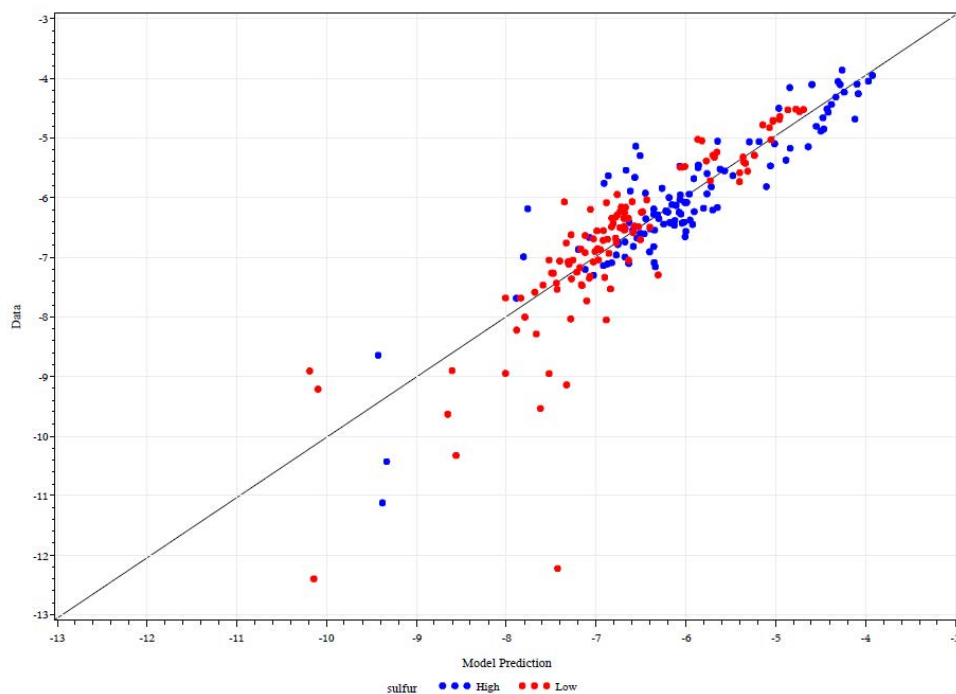


Figure E-3- 67 Box-plot of Bag 3 CH4

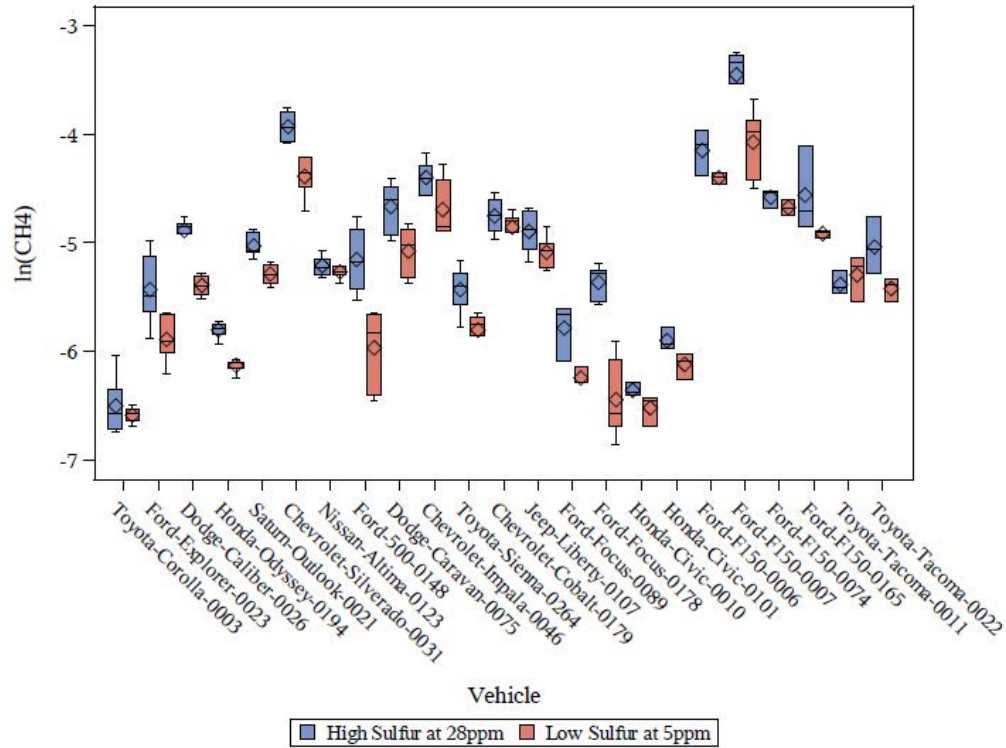


Figure E-3- 68 Log-transformed emissions from individual vehicles by sulfur level (CH4 Bag 3)

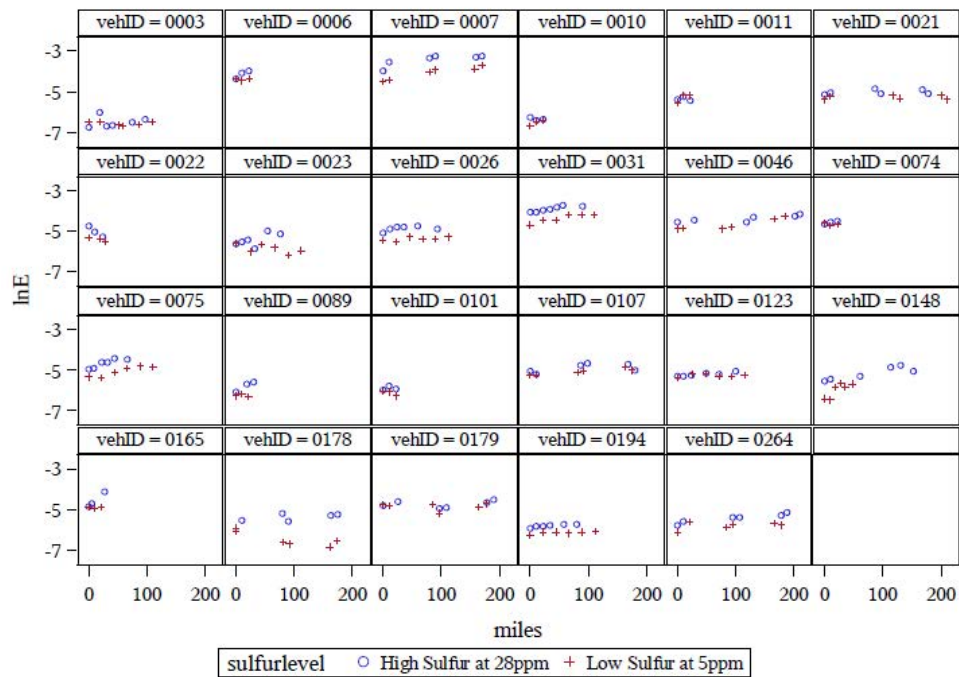


Figure E-3- 69 Data vs. predicted (log-transformed CH4 Bag 3)

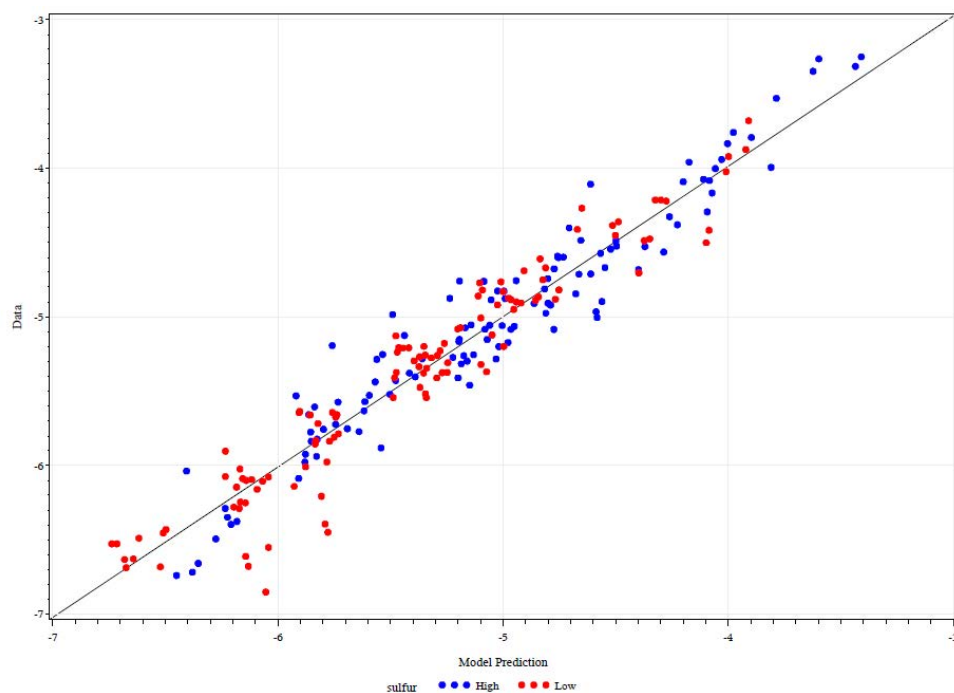


Figure E-3- 70 Box-plot of Bag 1-Bag 3 CH4

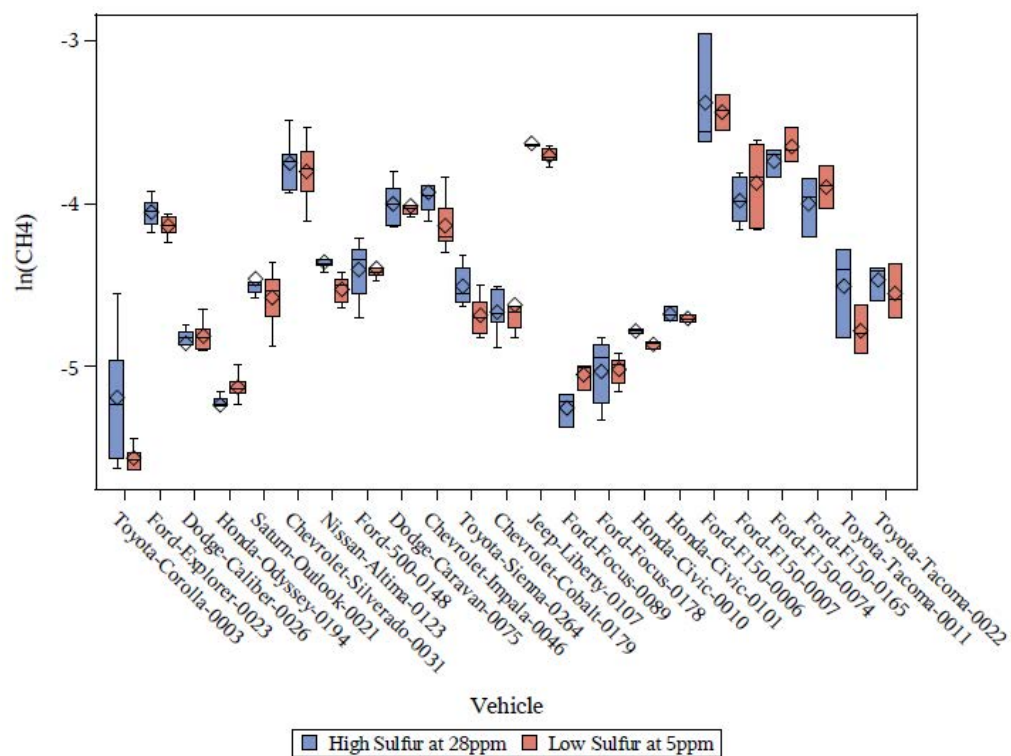


Figure E-3- 71 Log-transformed emissions from individual vehicles by sulfur level (CH4 Bag 1-Bag 3)

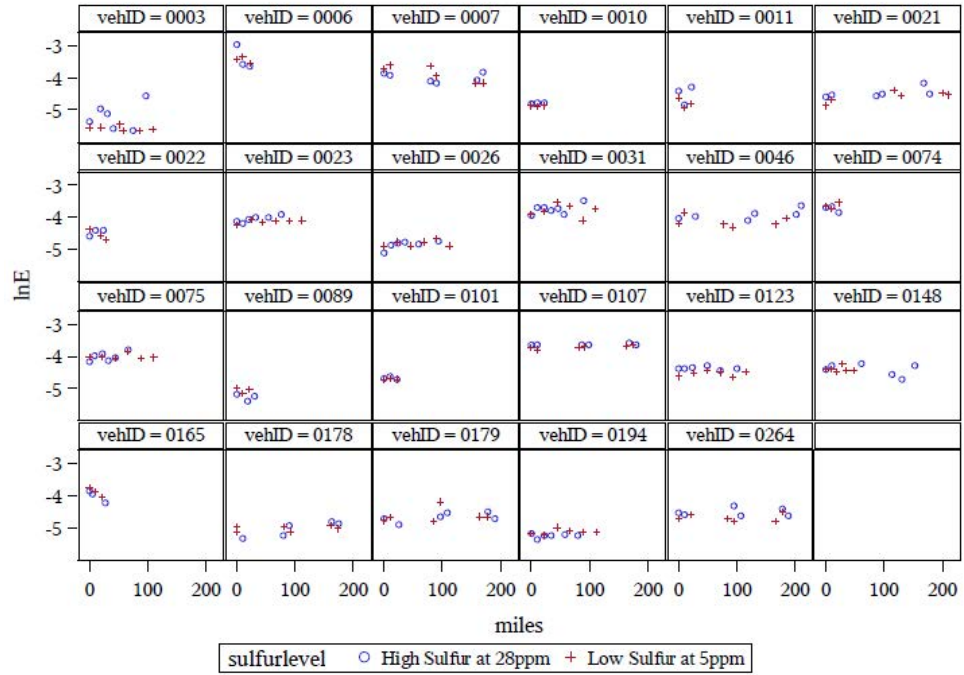


Figure E-3- 72 Data vs. predicted (log-transformed CH4 Bag 1-Bag 3)

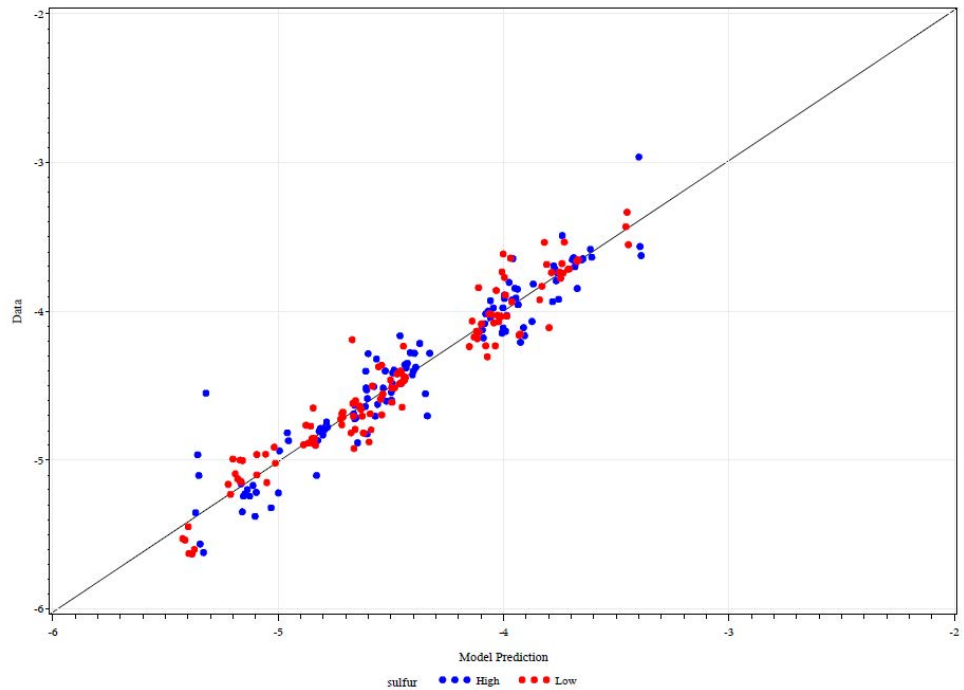


Figure E-3- 73 Box-plot of FTP Composite CH4

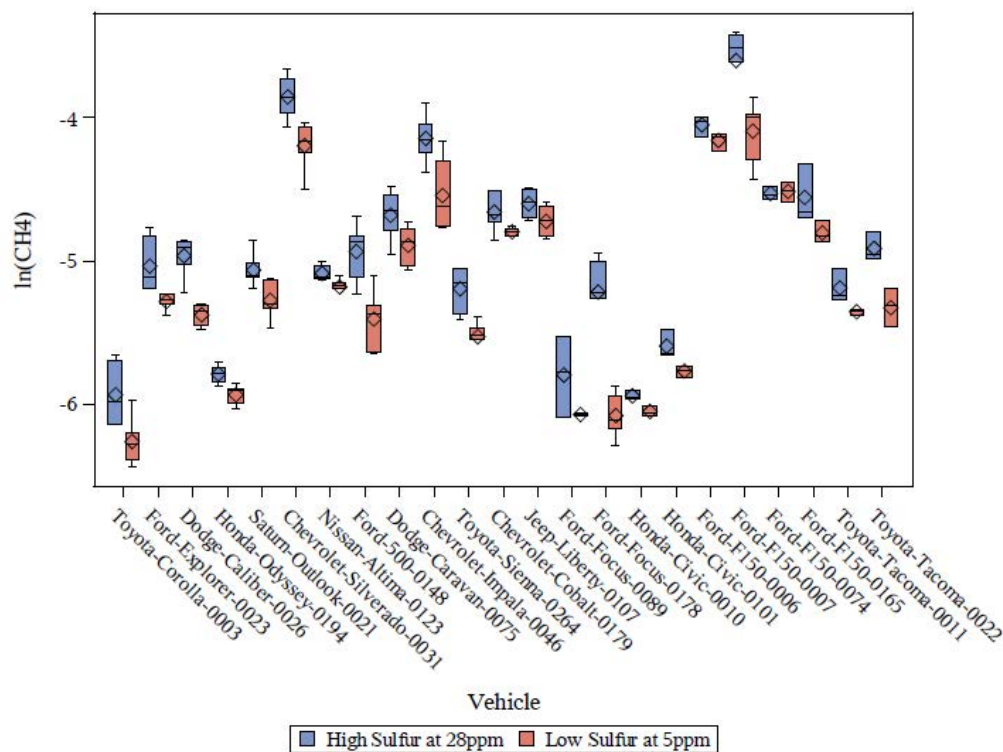


Figure E-3- 74 Log-transformed emissions from individual vehicles by sulfur level (CH4 FTP Composite)

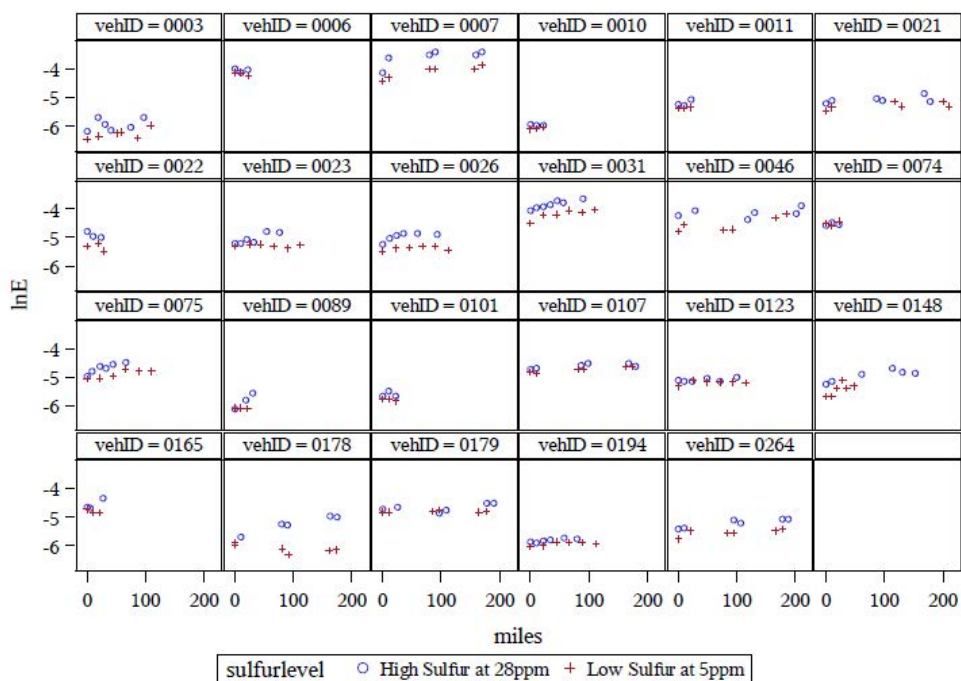


Figure E-3- 75 Data vs. predicted (log-transformed CH4 FTP Composite)

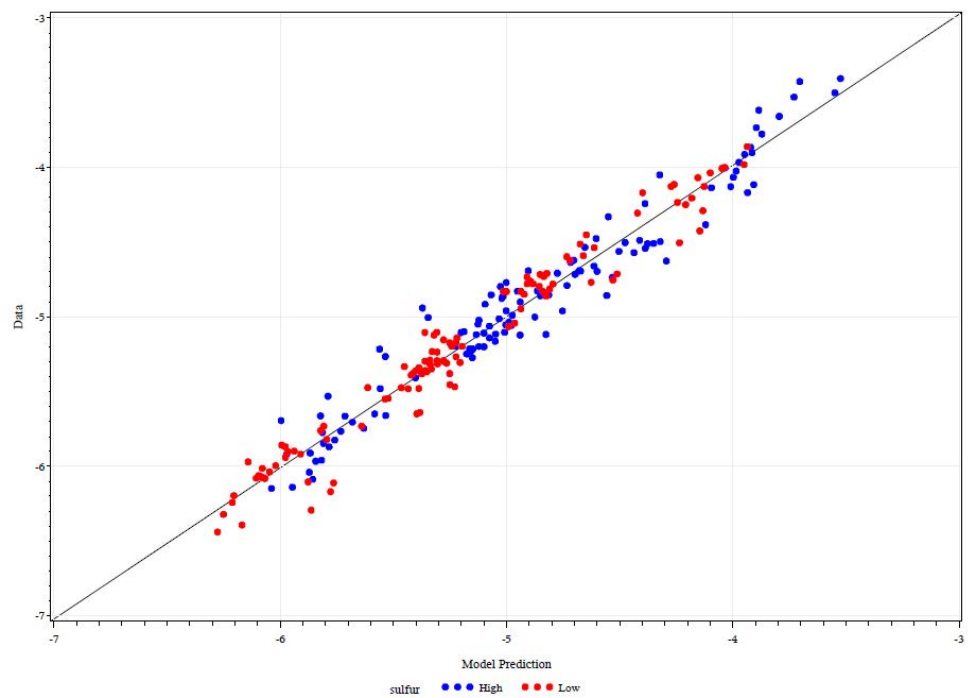


Figure E-3- 76 Box-plot of Bag 1 PM

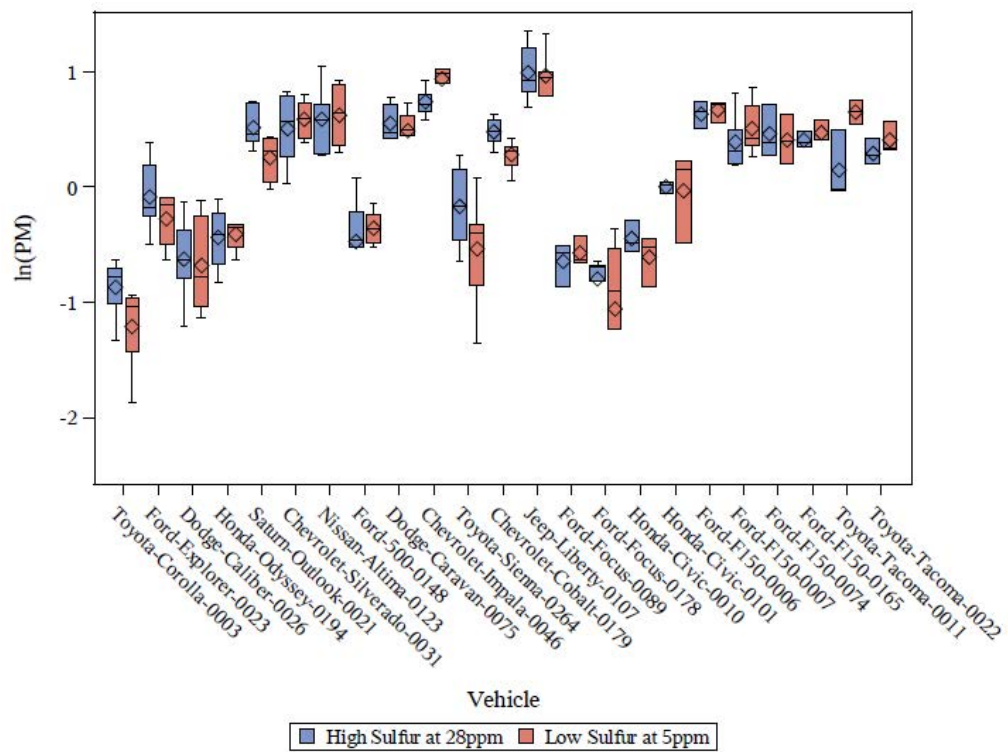


Figure E-3- 77 Log-transformed emissions from individual vehicles by sulfur level (PM Bag 1)

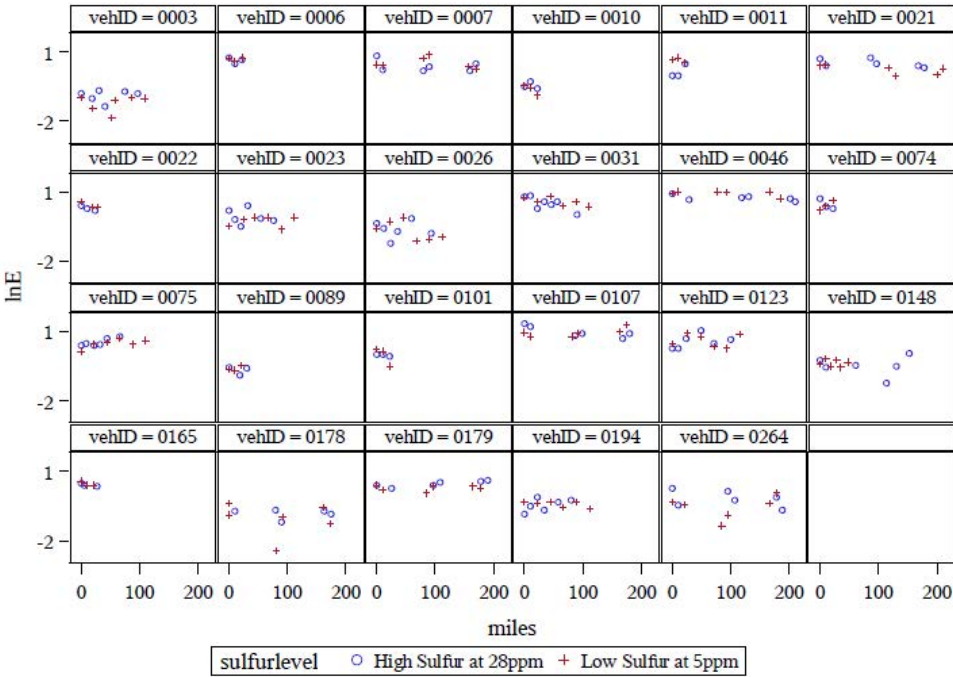


Figure E-3- 78 Data vs. predicted (log-transformed PM Bag 1)

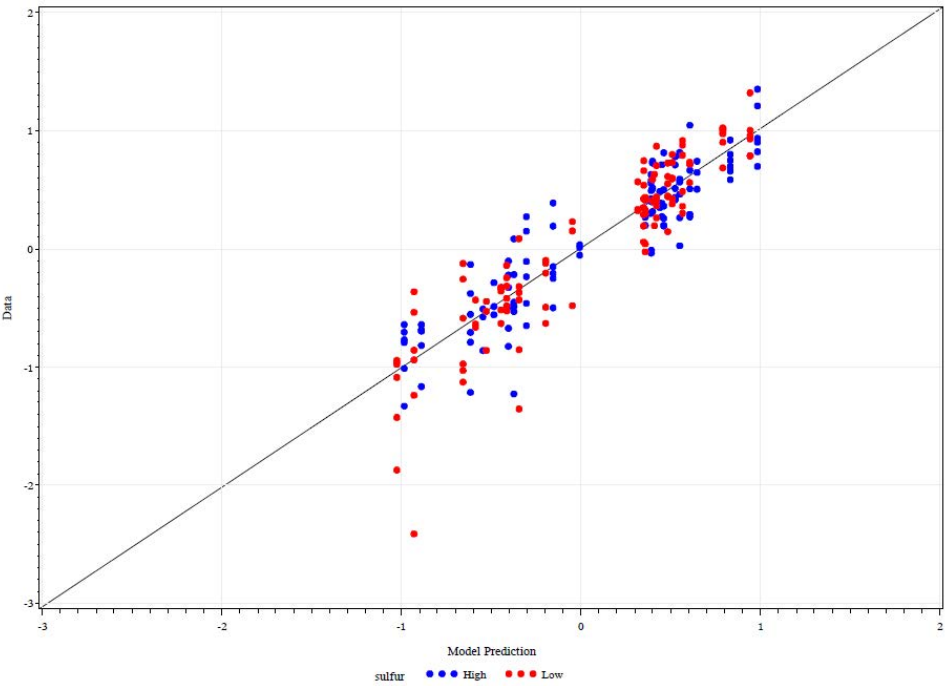


Figure E-3- 79 Box-plot of Bag 2 PM

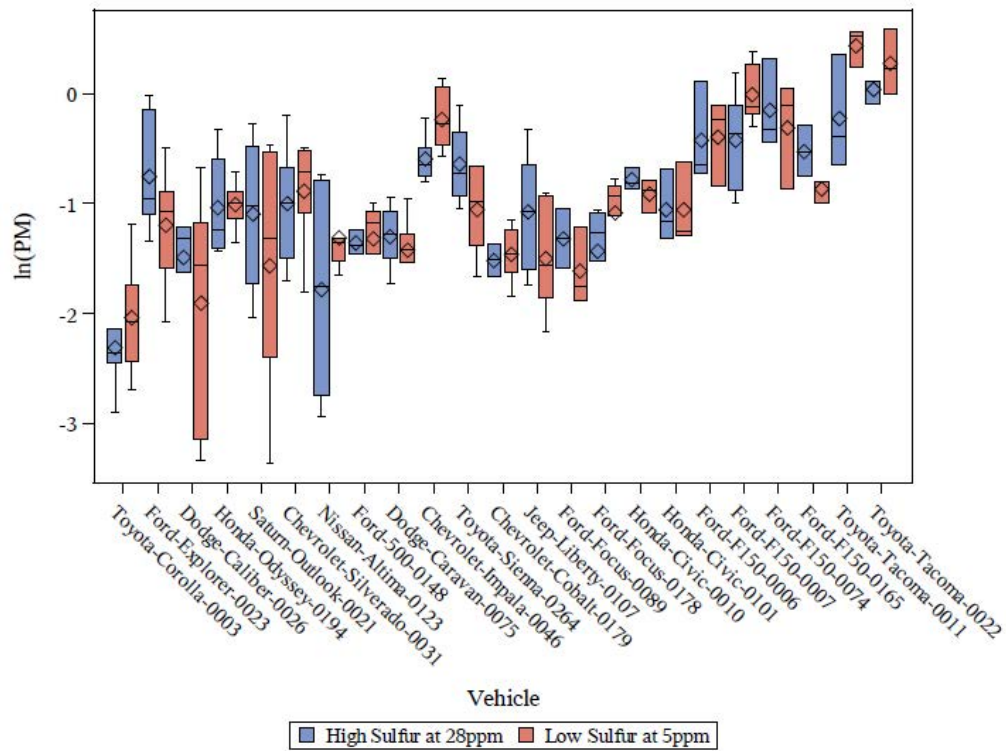


Figure E-3- 80 Log-transformed emissions from individual vehicles by sulfur level (PM Bag 2)

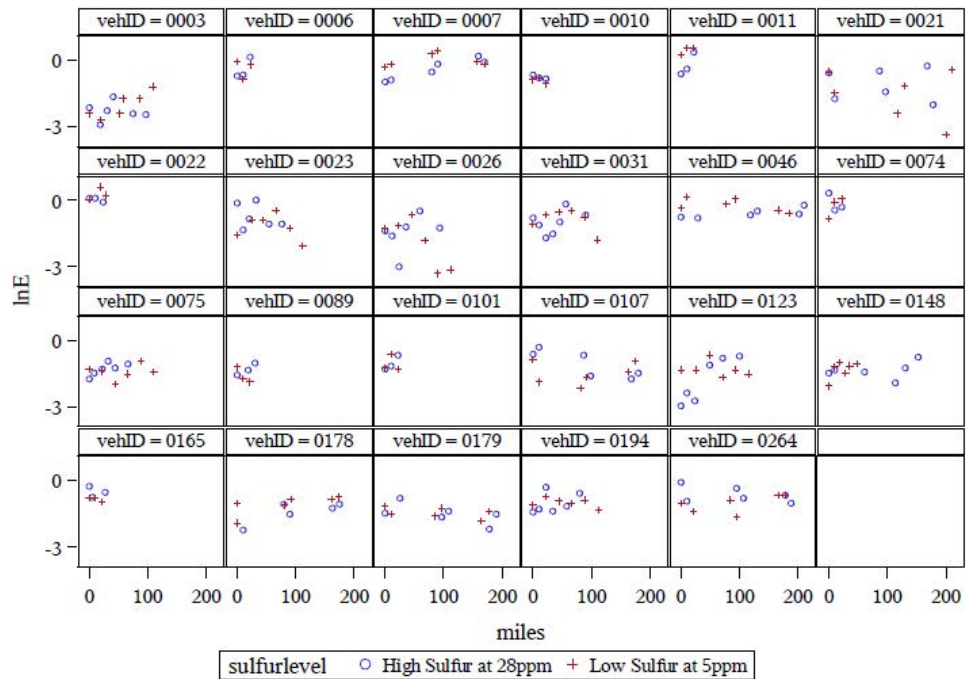


Figure E-3- 81 Data vs. predicted (log-transformed PM Bag 2)

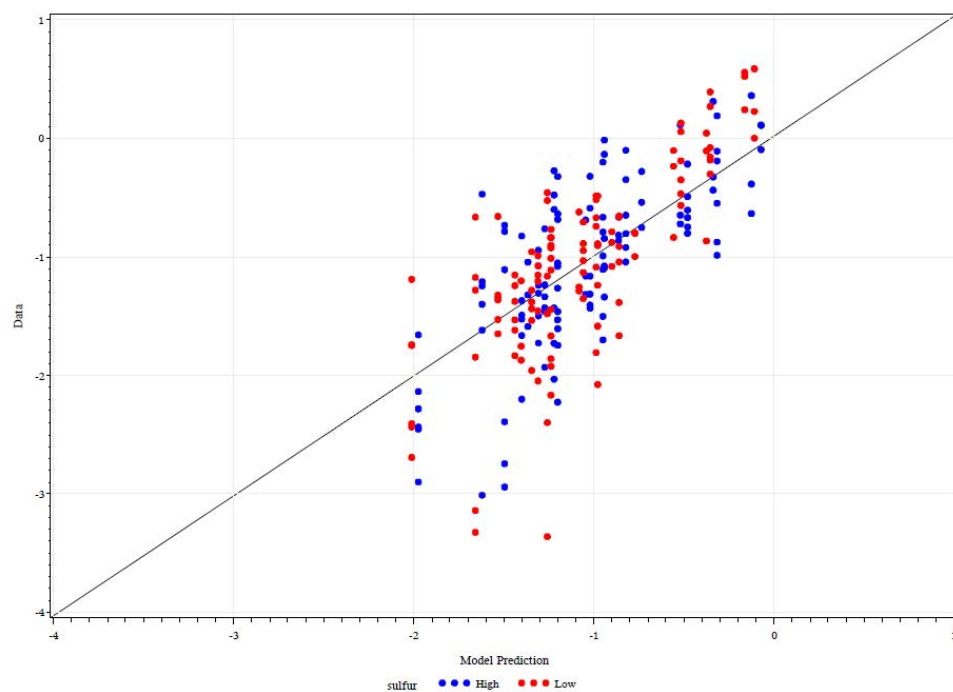


Figure E-3- 82 Box-plot of Bag 3 PM

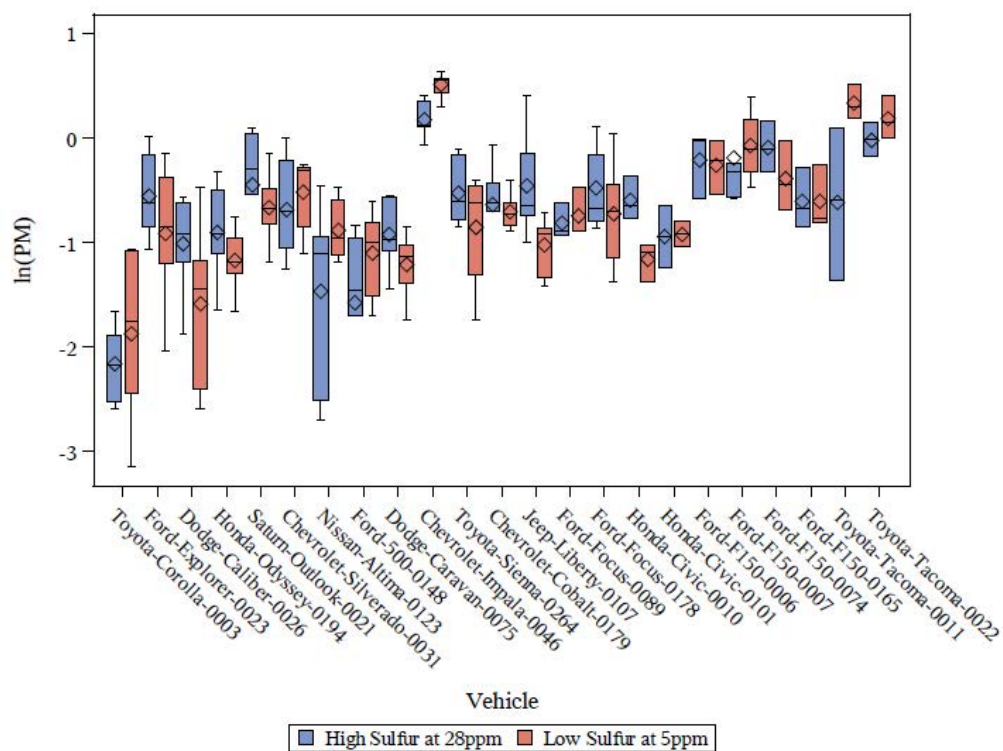


Figure E-3- 83 Log-transformed emissions from individual vehicles by sulfur level (PM Bag 3)

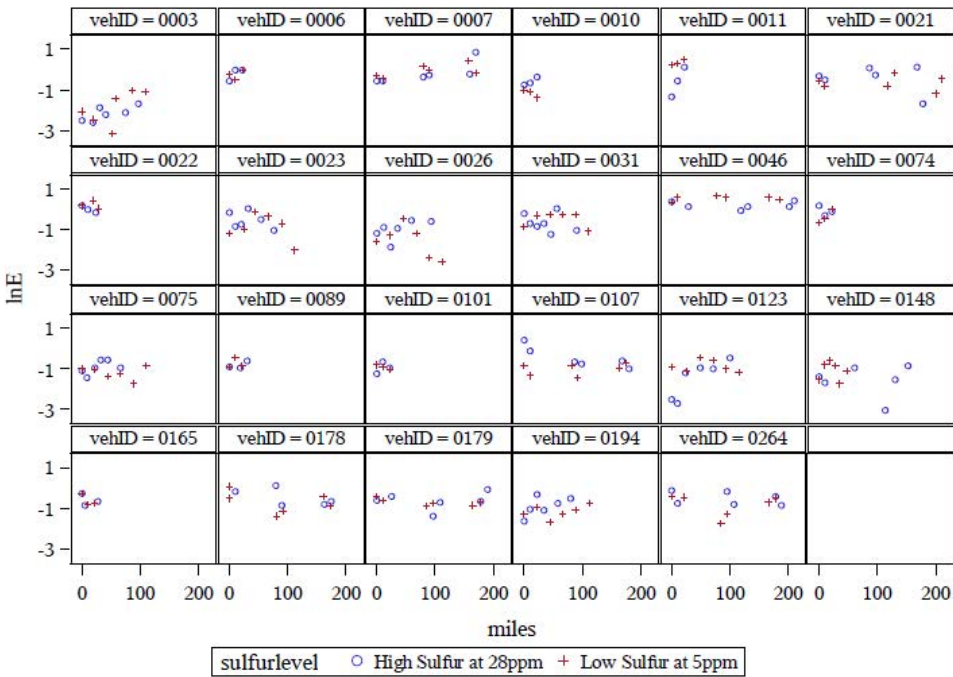


Figure E-3- 84 Data vs. predicted (log-transformed PM Bag 3)

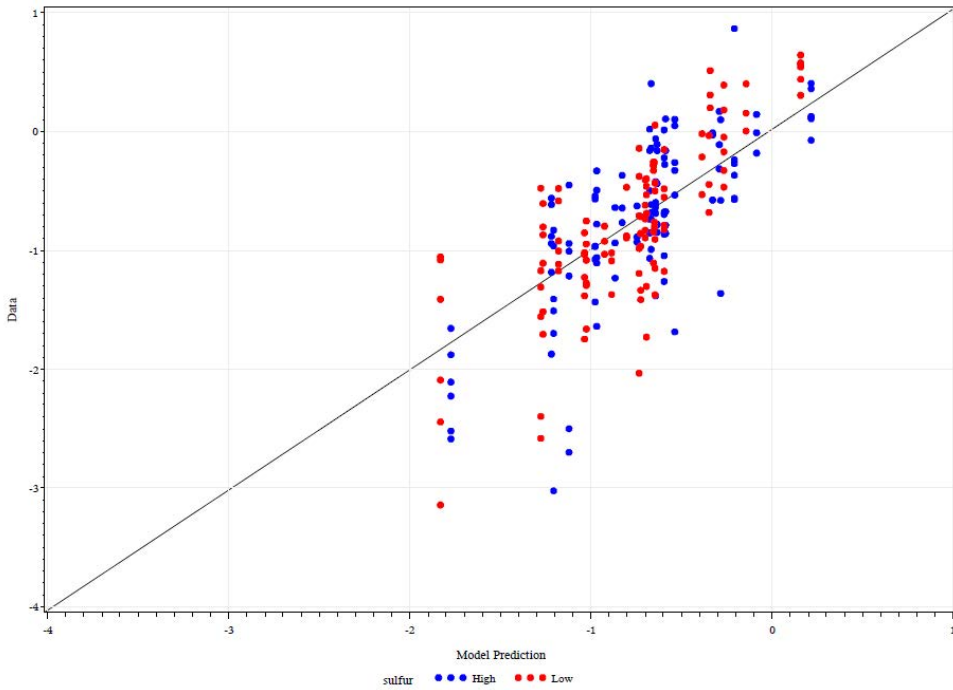


Figure E-3- 85 Box-plot of Bag 1-Bag 3 PM

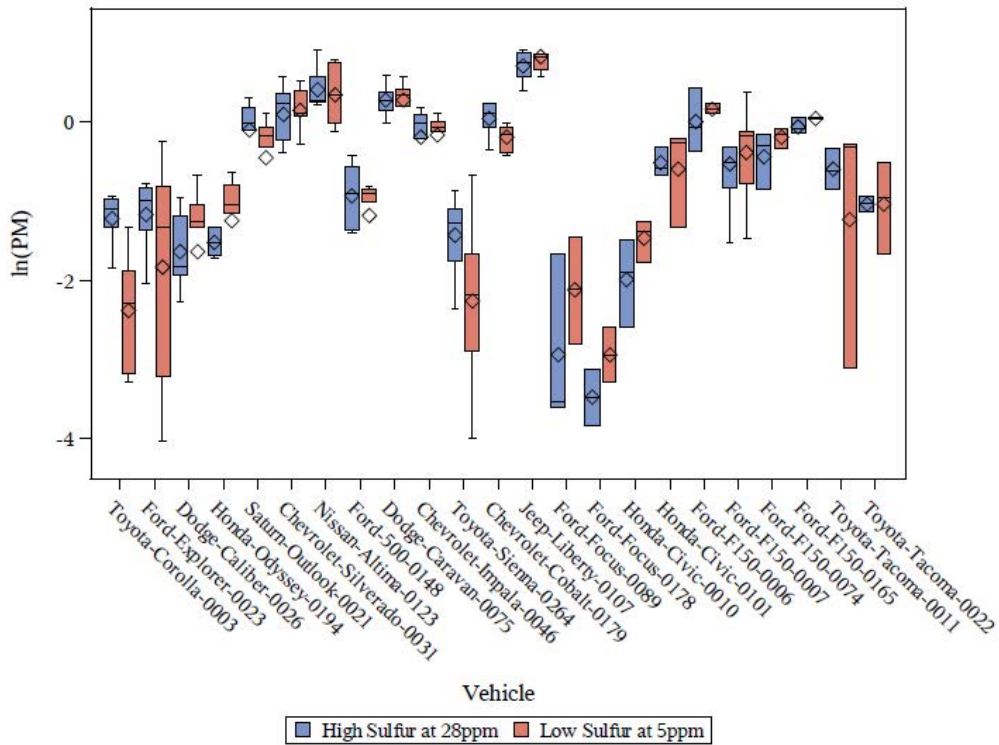


Figure E-3- 86 Log-transformed emissions from individual vehicles by sulfur level (PM Bag 1-Bag 3)

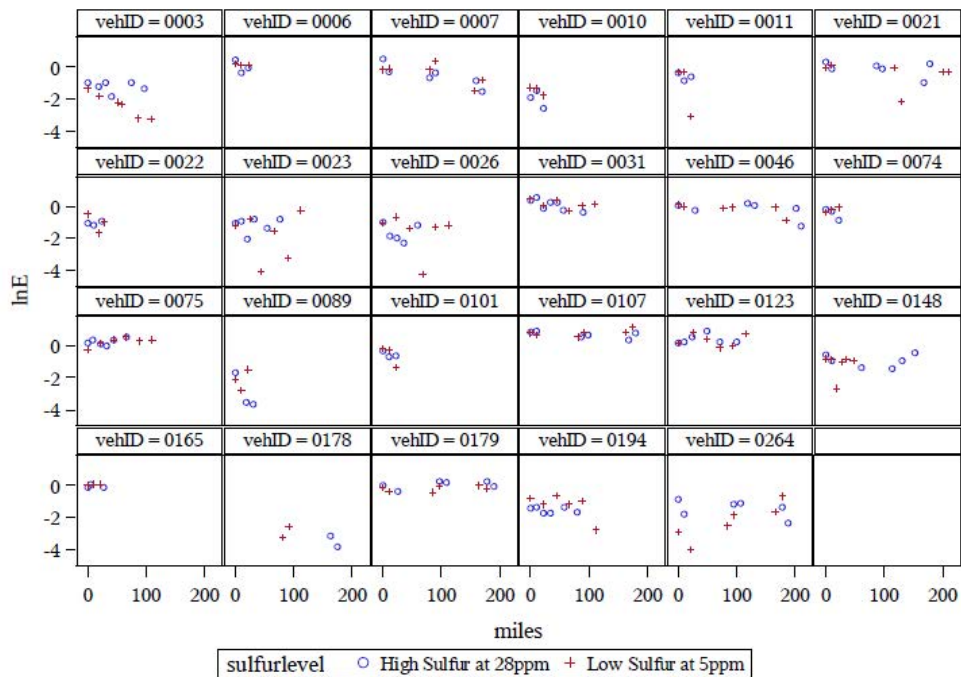


Figure E-3- 87 Data vs. predicted (log-transformed PM Bag 1-Bag 3)

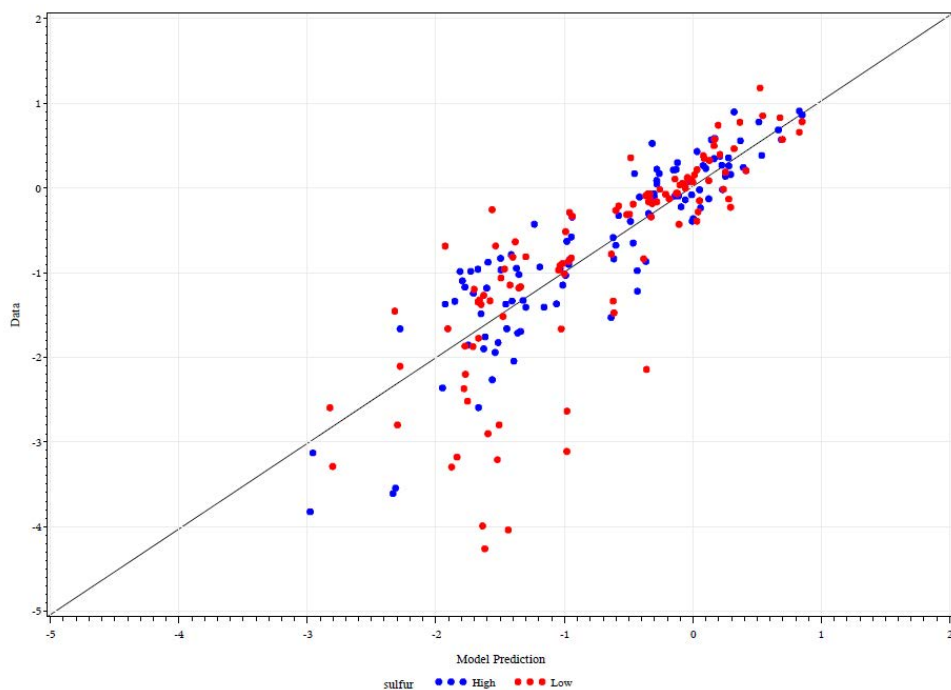


Figure E-3- 88 Box-plot of FTP Composite PM

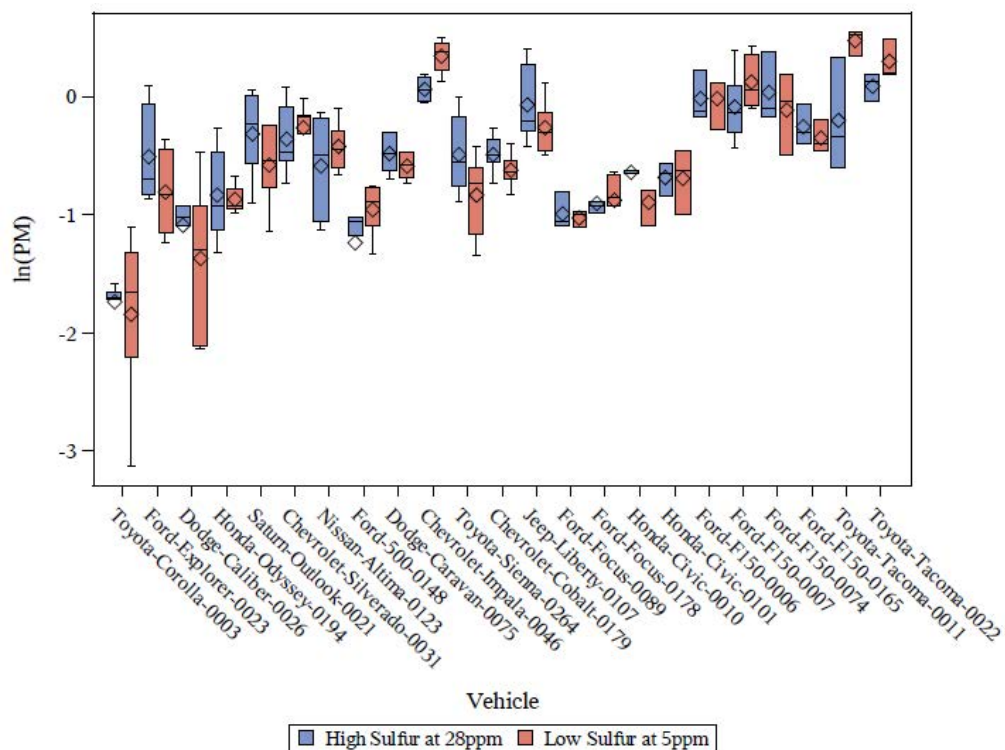


Figure E-3- 89 Log-transformed emissions from individual vehicles by sulfur level (PM FTP Composite)

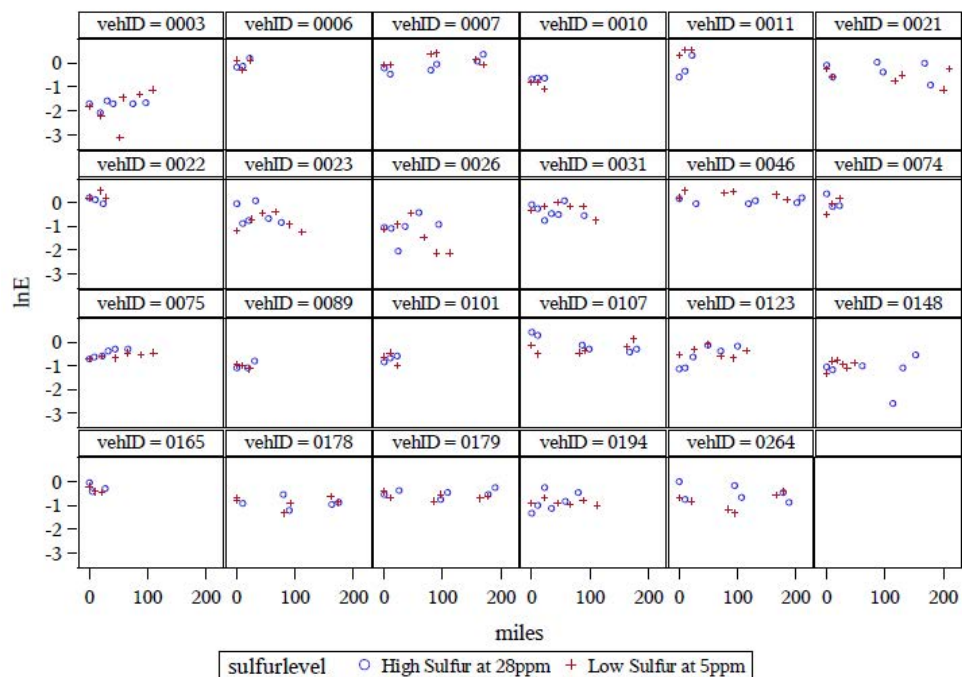


Figure E-3- 90 Data vs. predicted (log-transformed PM FTP Composite)

