

Appendix 5

Post Process

Source: TTI, 2009

Post-Process Adjustments to the Emission Factors

The following adjustment steps were done to the emission factors output of POLFACT62_3 for all counties.

RATEADJ62DK

The RATEADJ62DK utility is used to linearly adjust the emission rate files for the May 1st start date of the inspection and maintenance program, producing a new set of emission rates.

RATEADJV62DK

RATEADJV62DK is a special utility that produces a new set of emissions factors by applying emissions factor adjustments to each pollutant, emissions type, and vehicle type. RATEADJV62DK can be applied to emissions rates produced by POLFAC62_3, RATEADJV62DK, RATEADJ62DK, or RATEADJV62hrDK.

A practical application of RATEADJV62DK is the application of emissions factor credits by individual vehicle class and/or individual pollutant. For example, for analyses requiring the effects of the Texas Low-Emission Diesel (TxLED) fuel program in MOBILE6 emissions factors, RATEADJV62DK may be used to apply reduction factors to the NOx emissions factors for diesel-fueled vehicle classes only. In our case we used this utility to calculate the emission reductions due to the Motorcycle Rule and the TxLED.

Table 1
TxLED Percentage of Reduction

Diesel Vehicle Type	Calendar Year						
	2011	2014	2015	2017	2018	2025	2035
LDDV	5.94%	5.76%	5.67%	5.53%	5.44%	4.89%	4.80%
LDDT12	6.20%	6.20%	6.20%	6.20%	6.20%	6.20%	6.20%
HDDV2b	5.00%	4.94%	4.90%	4.88%	4.87%	4.82%	4.80%
HDDV3	5.15%	5.05%	4.98%	4.95%	4.93%	4.83%	4.80%
HDDV4	5.38%	5.24%	5.19%	5.09%	5.03%	4.92%	4.80%
HDDV5	5.26%	5.19%	5.12%	5.18%	5.12%	5.00%	4.80%
HDDV6	5.40%	5.22%	5.16%	5.07%	5.05%	4.88%	4.80%
HDDV7	5.47%	5.30%	5.26%	5.17%	5.13%	4.92%	4.80%
HDDV8a	5.69%	5.59%	5.57%	5.52%	5.46%	5.01%	4.80%
HDDV8b	5.40%	5.22%	5.15%	5.10%	5.06%	4.89%	4.80%
HDDBT	5.60%	5.38%	5.29%	5.10%	5.05%	4.93%	4.80%
HDDBS	5.75%	5.71%	5.69%	5.65%	5.63%	5.34%	4.80%
LDDT34	5.37%	5.18%	5.09%	5.02%	4.96%	4.83%	4.80%

*Reductions are only calculated through model year 2030; therefore, the reductions used in 2035 are those calculated for model year 2030. *Source: 2005 and 2006 Virtual Link On-Road Emissions Inventories for All 254 Texas Counties, Texas Transportation Institute, August 2007*

Table 2
TxLED Adjustment Factors

Diesel Vehicle Type	Calendar Year						
	2011	2014	2015	2017	2018	2025	2035
LDDV	0.9406	0.9424	0.9433	0.9447	0.9456	0.9511	0.9520
LDDT12	0.9380	0.9380	0.9380	0.9380	0.9380	0.9380	0.9380
HDDV2b	0.9500	0.9506	0.9510	0.9512	0.9513	0.9518	0.9520
HDDV3	0.9485	0.9495	0.9502	0.9505	0.9507	0.9517	0.9520
HDDV4	0.9462	0.9476	0.9481	0.9491	0.9497	0.9508	0.9520
HDDV5	0.9474	0.9481	0.9488	0.9482	0.9488	0.9500	0.9520
HDDV6	0.9460	0.9478	0.9484	0.9493	0.9495	0.9512	0.9520
HDDV7	0.9453	0.9470	0.9474	0.9483	0.9487	0.9508	0.9520
HDDV8a	0.9431	0.9441	0.9443	0.9448	0.9454	0.9499	0.9520
HDDV8b	0.9460	0.9478	0.9485	0.9490	0.9494	0.9511	0.9520
HDDBT	0.9440	0.9462	0.9471	0.9490	0.9495	0.9507	0.9520
HDDBS	0.9425	0.9429	0.9431	0.9435	0.9437	0.9466	0.9520
LDDT34	0.9463	0.9482	0.9491	0.9498	0.9504	0.9517	0.9520

Source: 2005 and 2006 Virtual Link On-Road Emissions Inventories for All 254 Texas Counties, Texas Transportation Institute, August 2007

Table 3
Motorcycle Adjustment Factors for NOx and VOC

Year	NOx Reduction	Adjustment Factor	Exhaust VOC	Adjustment Factor	Evaporative- Resting Loss VOC	Evaporative- Resting Loss VOC
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					Reduction	Adjustment Factor
2011	16.79%	0.8321	13.36%	0.8664	28.79%	0.7121
2014	30.91%	0.6909	27.2%	0.7280	49.15%	0.5085
2015	35.31%	0.6469	32.21%	0.6779	55.93%	0.4407
2017	41.89%	0.5811	39.74%	0.6026	67.51%	0.3249
2018	45.34%	0.5466	43.94%	0.5606	73.30%	0.2670
2025	55.44%	0.4456	57.51%	0.4249	95.00%	0.0500
2035	56.99%	0.4301	59.71%	0.4029	97.82%	0.0218

*Reductions are only calculated through model year 2030; therefore, the reductions used in 2035 are those calculated for model year 2030. *Source: 2005 and 2006 Virtual Link On-Road Emissions Inventories for All 254 Texas Counties, Texas Transportation Institute, August 2007*

NOXTEMPFACT

The NOXTEMPFACT utility calculates the temperature/humidity NOx adjustment factors.

Although factors are only calculated for the heavy-duty gasoline and heavy-duty diesel vehicles, the utility outputs an adjustment factor file that contains adjustment factors for all 28 of the MOBILE6 vehicle types (the light-duty vehicles and MCs are assigned a value of 1.0 since they are not affected). This output is designed specifically for use with the EMADJTAB utility or with the RATEADJV62hrDK.

RATEADJV62hrDK

The RATEADJV62hrDK utility factors emissions rates, either daily or hourly, produced by the POLFAC62_3, RATEADJ62DK, RATEADJV62DK, RATEADJV62hrDK, or RATEADJ62X utilities by pollutant, emissions type, hour of the day, and vehicle type. In our case, the RATEADJV62hrDK utility was used to apply the NOx temperature/humidity adjustment factors as a rate adjustment prior to running the emissions. This calculation was only used for the year 2018.