

Appendix A - Performance Standard Modeling

Inputs and Outputs

The results of the performance standard modeling are shown in this appendix as well as the model input and output files used in running the MOVES model. A summary table is also provided that demonstrates the Delaware Low Enhanced Inspection and Maintenance Program meets performance standard of the federal model low enhanced I/M program.

The model was executed for the 2012 evaluation year using the emission rate calculation type. The month of July was chosen for the evaluation month and all hours of the day were calculated. For the table below that compares emission rates for the Delaware LEIM program and the federal low enhanced I/M program, two hours of the day were chosen, 8 am and 5 pm. Also, three speed bins were extracted from the output which included the speeds of 5, 30, and 65 miles per hour for the comparison. The Delaware LEIM met the performance standard using the MOVES modeling methodology if the gram per mile emission rate for VOC and NO_x was equal to or below the emission rate calculated for the federal program.

Table A: Modeling Results

Delaware LEIM Program Performance Standard Evaluation

(July, 2012)

County	Pollutant	Hour (24 hr)	Speed (mph)	DE LEIM (gpm) (a)	Federal Low Enhanced I/M (gpm) (b)	Was Performance Standard Met? (a) ≤ (b)?
New Castle	VOC	8	5	0.51	0.52	YES
			30	0.12	0.12	YES
			65	0.08	0.08	YES
New Castle	NO _x	8	5	0.61	0.65	YES
			30	0.35	0.38	YES
			65	0.43	0.46	YES
New Castle	VOC	17	5	0.54	0.56	YES
			30	0.13	0.13	YES
			65	0.09	0.09	YES
New Castle	NO _x	17	5	1.31	1.42	YES
			30	0.39	0.42	YES
			65	0.46	0.50	YES

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County	Pollutant	Hour (24 hr)	Speed (mph)	DE LEIM (gpm) (a)	Federal Low Enhanced I/M (gpm) (b)	Was Performance Standard Met? (a) ≤ (b)?
Kent	VOC	8	5	0.66	0.67	YES
			30	0.15	0.16	YES
			65	0.10	0.11	YES
Kent	NOx	8	5	0.78	0.82	YES
			30	0.43	0.46	YES
			65	0.52	0.55	YES
Kent	VOC	17	5	0.70	0.71	YES
			30	0.17	0.17	YES
			65	0.12	0.12	YES
Kent	NOx	17	5	1.61	1.71	YES
			30	0.50	0.53	YES
			65	0.58	0.62	YES

The table above demonstrates Delaware low-enhanced inspection and maintenance program has met the performance standard found in 40 CFR § 51.351 (d) using the most current version of EPA's mobile source emission model, the Motor Vehicle Emission Simulator (MOVES). This appendix includes the following supporting documentation for the results found in Table A: New Castle County Run Spec, Kent County Run Spec, Input spreadsheets for the 2012 Delaware LEIM program for both Kent and New Castle counties. Output spread sheets for the 2012 Delaware LEIM program for both Kent and New Castle counties. Input spreadsheets for the 2012 Federal LEIM program for both Kent and New Castle counties. Output spread sheets for the 2012 Federal LEIM program for both Kent and New Castle counties.