ATTACHMENT

Revisions to the Originally Proposed Carl Moyer Guidelines (Guidelines) Included in Mailout #MSC 14-06 Released for Public Comment Period April 29, 2014 to June 12, 2014

Originally proposed modifications to the Guidelines language are indicated by underlined text. Originally proposed deletions to the language are indicated by ~~strikeout~~ text. Changes to the original modifications are indicated by double underlined text and deletions indicated by double ~~strikeout~~ text. The "*****" indicates the subsequent language in the section does not change. Revision numbers are provided in the left column for simple reference.

Revision 1. Chapter 2, General Criteria, Section OO. and Section PP

OO. Any funds earned or collected by the air district through Carl Moyer Program resources must be reported and either returned to ARB or spent on the air district's Carl Moyer program. The Carl Moyer Program does not require Districts to earn funds through its program actions. Districts are not expected to base business decisions on their ability to generate returns or collect funds through program activity.

PP. Any Carl Moyer grant funds lost due to air district investment choice will be replaced by the air district. Air Districts are free to designate the type of storage account based on the needs of their business.

Chapter 3, Program Administration, Section K.5., Earned Interest

5. Reporting Requirements: Each air district must report on interest and other funds generated through the Carl Moyer program in Yearly Reports to ARB using the format provided by ARB.

(A) Air districts must report on projects funded with earned interest or other funds earned through the Carl Moyer program the same way air districts report on Carl Moyer Program-funded projects (i.e., by entering projects in the CARL and in their Yearly Reports). The Carl Moyer Program does not specify that Air Districts perform any program actions in such a way that they generate proceeds or returns on Carl Moyer Program business.

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Revision 2. Chapter 6, Emergency Vehicles (Fire Apparatus), Section C.1.(D)

(D) ~~MHD Intended Service Class Flexibility: Engines certified to the MHD service class (i.e., GVWR between 14,000 and 33,000 pounds) must be installed in a MHD vehicle as shown on the engine certification EO. However, MHD engines may be installed in a vehicle with a GVWR up to pounds (20 percent higher than 33,000 GVWR) with written warranty verification by the engine and chassis manufacturer. A copy of the written warranty verification must be maintained in the air district project file.~~

~~Engine Class: The engine's intended service class and the vehicle's weight class must match (i.e., a medium heavy-duty diesel engine is used in a vehicle with a GVWR of 19,501- 33,000 pounds and a heavy heavy-duty diesel engine is used in a vehicle with a GVWR greater than 33,000 pounds). As an exception, a heavy heavy-duty engine may be installed in a medium heavy-duty vehicle if necessary for vocational purposes but only if the gross vehicle weight rating is within ten (10) percent of the engine's intended service class (i.e., GVWR of 29,701 lbs or greater).~~

Intended Service Class Flexibility: Engines certified to the MHD service class (i.e., GVWR between 14,000 and 33,000 pounds) must be installed in a MHD vehicle as shown on the engine certification EO. However, MHD engines may be installed in a vehicle with a GVWR up to 36,300 pounds (10 percent higher than 33,000 GVWR) with written warranty verification by the engine and chassis manufacturer. A copy of the written warranty verification must be maintained in the air district project file.

Engines certified to the HHD service class (i.e., GVWR greater than 33,000 pounds) may be installed in a vehicle no less than GVWR 29,701 pounds (10 percent lower than 33,001 GVWR).

Revision 3. Chapter 9, Off-Road Equipment Replacement, Section C.3.(K)

(K) Project load factors for calculating emission reductions and cost-effectiveness are listed in Appendix D, Table D-10 and Table D-13. Load factors shall be selected by first choosing the equipment category (i.e. Airport GSE, Mobile Agriculture, Construction, etc.), then by selecting the equipment type within the category. This is consistent with how the equipment category and load factor inputs are selected in CARL.

Revision 4. Chapter 10, Portable and Stationary Agricultural Sources, Section C.2.(B) and Section C.2.(C)

(B) ~~New~~ E~~e~~ngine/motor repower projects in which the horsepower of the new engine/motor is an increase to 150 percent or larger from the baseline (existing) engine ~~requires a case-by-case approval from ARB.~~ may be funded at an air district's discretion if the applicant pays for the additional cost associated with the larger engine/motor. The maximum eligible grant funding will be based on the cost of the smaller sized replacement engine/motor. The emission reduction calculations shall be based upon the funded (higher horsepower) engine/motor. Air district's that choose this option ~~to fund horsepower engine/motor~~ shall include in the project file, documentation of the equipment cost of the funded (higher horsepower) engine/motor as well as the method used to determine the project grant amount (e.g. dealership cost estimate of the lower horsepower engine/motor.)

(C) A repower project in which the total number of existing engines is different than the total number of replacement engines/motors requires a non-calculation project entry into CARL. If the total sum of the new engine(s)/motor(s) horsepower is greater than 125 percent of the sum of the existing engine(s)/motor(s) total horsepower then the load factor will need to be adjusted. ~~case-by-case approval from ARB.~~ If the total horsepower increase is greater than 150 percent then criteria C.2.(B) applies.

Revision 5. Off- Road Voucher Incentive Program, Appendix O, VIP Replacement Funding Matrix – Construction Tractor/Loader /Backhoe Table and VIP Replacement Funding Matrix – Agricultural Tractor Table Amend Table:

(Amend Table)

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VIP Replacement Funding Matrix – Construction Tractor/Loader/Backhoe								
	125-149 Horsepower				**150-174 Horsepower**			
Minimum Annual Usage (Hours)	Tier 3	Tier 4 Phase Out	Tier 4 Phase-In or Alternate NOx	Tier 4 Final	Tier 3	Tier 4 Phase Out	Tier 4 Phase-In or Alternate NOx	Tier 4 Final
400								$11,000
500		$10,000	$10,000	$11,500		$12,000	$12,000	$14,000
600		$12,000	$12,000	$14,000	$11,500	$14,000	$14,500	$17,000
700	$11,000	$14,000	$14,000	$16,500	$13,500	$16,500	$17,000	$19,500
800	$13,000	$16,000	$16,000	$19,000	$15,500	$19,000	$19,500	$22,500
900	$14,500	$18,000	$18,000	$21,000	$17,500	$21,500	$22,000	$25,500
1000	$16,000	$20,000	$20,000	$23,500	$19,500	$24,000	$24,500	$28,500
1100	$17,500	$22,000	$22,000	$26,000	$21,500	$26,000	$26,500	$31,000
1200	$19,500	$24,000	$24,500	$28,500	$23,500	$28,500	$29,000	$34,000
1300	$21,000	$26,000	$26,500	$30,500	$25,000	$31,000	$31,500	$37,000
1400	$22,500	$28,000	$28,500	$33,000	$27,000	$33,500	$34,000	$39,500
1500	$24,000	$30,000	$30,500	$35,500	$29,000	$36,000	$36,500	$42,500
1600	$26,000	$32,000	$32,500	$38,000	$31,000	$38,000	$39,000	$45,500
1700	$27,500	$34,000	$34,500	$40,000	$33,000	$40,500	$41,500	$48,000
1800	$29,000	$36,000	$36,500	$42,500	$35,000	$43,000	$44,000	$51,000
1900	$31,000	$38,000	$38,500	$45,000	$37,000	$45,500	$46,500	$54,000
2000	$32,500	$40,000	$40,500	$47,500	$39,000	$48,000	$49,000	$57,000
2100	$34,000	$42,000	$42,500	$49,500	$41,000	$50,000	$51,000	$59,500
2200	$35,500	$44,000	$44,500	$50,000	$43,000	$52,500	$53,500	$60,000
2300	$37,500	~~$46,500~~ $46,000	~~$46,500~~ ~~$46,000~~ $46.500	$50,000	$45,000	$55,000	$56,000	$60,000
2400	$39,000	$48,000	$49,000	$50,000	$47,000	$57,500	$58,500	$60,000
2500	$40,500	$50,000	$50,000	$50,000	$48,500	$60,000	$60,000	$60,000
2600	$42,000	$50,000	$50,000	$50,000	$50,500	$60,000	$60,000	$60,000
2700	$44,000	$50,000	$50,000	$50,000	$52,500	$60,000	$60,000	$60,000
2800	$45,500	$50,000	$50,000	$50,000	$54,500	$60,000	$60,000	$60,000
2900	$47,000	$50,000	$50,000	$50,000	$56,500	$60,000	$60,000	$60,000
3000	$48,500	$50,000	$50,000	$50,000	$58,500	$60,000	$60,000	$60,000
3100+	$50,000	$50,000	$50,000	$50,000	$60,000	$60,000	$60,000	$60,000

Revision 6. Appendix D – Tables for Emission Reduction and Cost Effectiveness Calculations Amend Tables D-1 thru D-4:

(Amend Tables)

Table D-1
Diesel Heavy-Duty Engines
~~Medium Heavy-Duty and Heavy Heavy-Duty~~
Converted Emission Standards for Fuel Based Usage Calculations

EO Certification Standards g/bhp-hr		NOx	ROG[a]	PM10
		g/gal[(b)(c)(d)]		
6.0 NOx	0.60 PM10	103.23	5.33	7.992
5.0 NOx	0.25 PM10	86.03	4.44	3.330
5.0 NOx	0.10 PM10	86.03	4.44	1.332
4.0 NOx	0.10 PM10	68.82	3.55	1.332
2.5 NOx + NMHC	0.10 PM10	40.86	2.11	1.332
1.8 NOx + NMHC	0.01 PM10	29.42	1.52	0.148
1.5 NOx + NMHC	0.01 PM10	24.52	1.27	0.148
1.2 NOx + NMHC	0.01 PM10	19.61	1.01	0.148
0.84 NOx + NMHC	0.01 PM10	13.73	0.71	0.148
0.50 NOx	0.01 PM10	8.60	0.44	0.148
0.20 NOX	0.01 PM10	3.44	0.18	0.148

a - ROG = HC * 1.26639.
b - Fuel based emissions factors were calculated using fuel consumption rate factors from Table D-24.
c - Fuel based factors are for engines less than 750 horsepower only.
d - Emission standards were converted where appropriate, using the NMHC and NOx fraction default values and the ultra low-sulfur diesel fuel correction factors listed in Tables D-25 and D-26, respectively.

Table D-2
Alternative Fuel Heavy-Duty Engines
~~Medium Heavy-Duty and Heavy Heavy-Duty~~
Converted Emission Standards for Fuel Based Usage Calculations

EO Certification Standards g/bhp-hr		NOx	ROG[a]	PM10
		g/gal[b][c][d]		
6.0 NOx	0.60 PM10	111.00	35.14	11.100
5.0 NOx	0.25 PM10	92.50	29.29	4.625
5.0 NOx	0.10 PM10	92.50	29.29	1.850
4.0 NOx	0.10 PM10	74.00	23.43	1.850
2.5 NOx + NMHC	0.10 PM10	37.00	11.71	1.850
1.8 NOx + NMHC	0.01 PM10	26.64	8.43	0.185
1.5 NOx + NMHC	0.01 PM10	22.20	7.03	0.185
1.2 NOx + NMHC	0.01 PM10	17.76	5.62	0.185
0.84 NOx + NMHC	0.01 PM10	12.43	3.94	0.185
0.50 NOx	0.01 PM10	9.25	2.93	0.185
0.20 NOX	0.01 PM10	3.70	1.17	0.185

a - ROG = HC * 1.26639.
b - Fuel based emissions factors were calculated using fuel consumption rate factors from Table D-24.
c - Fuel based factors are for engines less than 750 horsepower only.
d - Emission standards were converted where appropriate, using the NMHC and NOx fraction default values listed in Table D-25.

Table D-3
~~Medium~~ Heavy-Duty Vehicles
14,001-33,000 pounds (lbs) Gross Vehicle Weight Rating (GVWR)
Emission Factors for Mileage Based Calculations (g/mile)[a]

Model Year	Diesel[b]		
	NOx	ROG[c]	PM10
Pre-1987	14.52	0.75	0.69
1987-1990	14.31	0.59	0.75
1991-1993	10.70	0.26	0.41
1994-1997	10.51	0.20	0.23
1998-2002	10.33	0.20	0.25
2003-2006	6.84	0.13	0.16
2007-2009	4.01	0.11	0.02
2007-2009 (0.50 g/bhp-hr NOx or Cleaner)[d]	1.73	0.10	0.017
2010+	0.74	0.09	0.02

a - EMFAC 2011 Zero-Mile Based Emission Factors.
b - Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-26.
c - ROG = HC * 1.26639.
d - Use interpolated values assuming 1.2 g/bhp-hr NOx Standards for 2007-2009 Model Year Grouping and 0.2 g/bhp-hr NOx Standards for 2010+ Model Years.

Table D-4
~~Heavy~~ Heavy-Duty Vehicles
Over 33,000 lbs GVWR
Emission Factors for Mileage Based Calculations (g/mile)[a]

Model Year	Diesel[b]		
	NOx	ROG[c]	PM10
Pre-1987	21.37	1.09	1.25
1987-1990	21.07	0.86	1.35
1991-1993	18.24	0.56	0.56
1994-1997	17.92	0.42	0.37
1998-2002	17.61	0.43	0.40
2003-2006	11.64	0.27	0.25
2007-2009	6.62	0.23	0.03
2007-2009 (0.50 g/bhp-hr NOx or Cleaner)[d]	2.88	0.20	0.028
2010+	1.27	0.19	0.03

a - EMFAC 2011 Zero-Mile Based Emission Factors.
b - Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-26.
c - ROG = HC * 1.26639.
d - Use interpolated values assuming 1.2 g/bhp-hr NOx Standards for 2007-2009 Model Year Grouping and 0.2 g/bhp-hr NOx Standards for 2010+ Model Years.