## MOVES4: CHEAT SHEET (Onroad)

#### Regulatory Class

ID	regClassName	regClassDesc (see <u>EPA-420-R-23-005</u> for more information)
10	MC	Motorcycles
20	LDV	Light Duty Vehicles
30	LDT	Light Duty Trucks
41	LHD2b3	Chassis-certified Class 2b and 3 Trucks (8,500 lbs < GVWR ≤ 14,000 lbs)
42	LHD45	Class 4 and 5 Trucks (14,000 lbs < GVWR ≤ 19,500 lbs) & "incomplete" Class 3 Trucks
46	MHD67	Class 6 and 7 Trucks (19,500 lbs < GVWR ≤ 33,000 lbs)
47	HHD8	Class 8a and 8b Trucks (GVWR > 33,000 lbs)
48	Urban Bus	Urban Bus (see <u>CFR Sec 86.091_2</u> )
49	Gliders	Glider Vehicles (see <u>EPA-420-F-15-904</u> )

#### Source Type

ID	HPMS Type	sourceTypeName
11	10	Motorcycle
21	25	Passenger Car
31	25	Passenger Truck <sup>*</sup>
32	25	Light Commercial Truck*
41	40	Other Buses
42	40	Transit Bus
43	40	School Bus
51	50	Refuse Truck <sup>†</sup>
52	50	Single Unit Short-haul Truck <sup>†</sup>
53	50	Single Unit Long-haul Truck <sup>†</sup>
54	50	Motor Home <sup>†</sup>
61	60	Combination Short-haul Truck <sup>†</sup>
62	60	Combination Long-haul Truck <sup>†</sup>
		wheels <i>and</i> GVWR≤10,000 lbs 6+ wheels <i>or</i> GVWR>10,000 lbs

## HPMS Vehicle Type

ID	sourceTypeName
10	Motorcycles
25	Light-duty Vehicles
40	Buses
50	Single Unit Trucks
60	Combination Trucks



#### Fuel Type and Engine Technology

fuelTypeID	engTechID	Description
1	1	Gasoline
2	1	Diesel
3	1	CNG
5	1	E-85
9	30	Electric: Battery
9	40	Electric: Fuel Cell

#### Speed Bin

ID	Speed Bin Range			
1		Speed	< 2.5 mph	
2	2.5 mph ≤	Speed	< 7.5 mph	
3	7.5 mph ≤	Speed	< 12.5 mph	
4	12.5 mph ≤	Speed	< 17.5 mph	
5	17.5 mph ≤	Speed	< 22.5 mph	
6	22.5 mph ≤	Speed	< 27.5 mph	
7	27.5 mph ≤	Speed	< 32.5 mph	
8	32.5 mph ≤	Speed	< 37.5 mph	
9	37.5 mph ≤	Speed	< 42.5 mph	
10	42.5 mph ≤	Speed	< 47.5 mph	
11	47.5 mph ≤	Speed	< 52.5 mph	
12	52.5 mph ≤	Speed	< 57.5 mph	
13	57.5 mph ≤	Speed	< 62.5 mph	
14	62.5 mph ≤	Speed	< 67.5 mph	
15	67.5 mph ≤	Speed	< 72.5 mph	
16	72.5 mph ≤	Speed		
0	Output only, used for Off-Network Idling and Project Scale			

#### Activity Type

ID	Activity Type
1	Distance traveled
2	Source Hours
3	Extended Idle Hours
4	Source Hours Operating
5	Source Hours Parked
6	Population
7	Starts
13	Hotelling Diesel Auxiliary Power Units Use
14	Hotelling Shore Power / AC Plug-in
15	Hotelling Battery Use / Engine Off

### Road Type

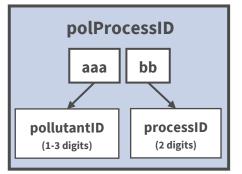
ID	Road Type
1	Off-Network
2	Rural Restricted Access
3	Rural Unrestricted Access
4	Urban Restricted Access
5	Urban Unrestricted Access

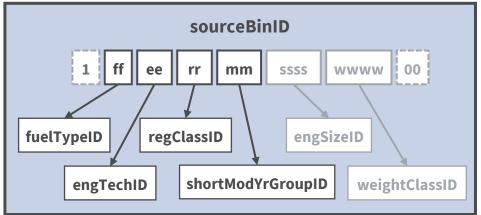
#### Day ID

Dayib			
ID	dayName		
2	Weekend		
5	Weekday		
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#### **Emission Process**

ID	Process Name
1	Running Exhaust
2	Start Exhaust
9	Brakewear
10	Tirewear
11	Evap Permeation
12	Evap Fuel Vapor Venting
13	Evap Fuel Leaks
15	Crankcase Running Exhaust
16	Crankcase Start Exhaust
17	Crankcase Extended Idle Exhaust
18	Refueling Displacement Vapor Loss
19	Refueling Spillage Loss
90	Extended Idle Exhaust
91	Auxiliary Power Unit Exhaust
93	Shore Power





# MOVES4: CHEAT SHEET (Onroad)

Operating Modes: Running

ID	Name	VSP Range	Speed Range
0	Braking		
1	Idling		
11	Low Speed Coasting	VSP < 0	1 mph ≤ Speed < 25 mph
12	Cruise / Acceleration	0 ≤ VSP < 3	1 mph ≤ Speed < 25 mph
13	Cruise / Acceleration	3 ≤ VSP < 6	1 mph ≤ Speed < 25 mph
14	Cruise / Acceleration	6 ≤ VSP < 9	1 mph ≤ Speed < 25 mph
15	Cruise / Acceleration	9 ≤ VSP < 12	1 mph ≤ Speed < 25 mph
16	Cruise / Acceleration	12≤ VSP	1 mph≤ Speed < 25 mph
21	Moderate Speed Coasting	VSP < 0	25 mph ≤ Speed < 50 mph
22	Cruise / Acceleration	0 ≤ VSP < 3	25 mph ≤ Speed < 50 mph
23	Cruise / Acceleration	3 ≤ VSP < 6	25 mph ≤ Speed < 50 mph
24	Cruise / Acceleration	6 ≤ VSP < 9	25 mph ≤ Speed < 50 mph
25	Cruise / Acceleration	9 ≤ VSP < 12	25 mph ≤ Speed < 50 mph
27	Cruise / Acceleration	12≤ VSP < 18	25 mph ≤ Speed < 50 mph
28	Cruise / Acceleration	18≤ VSP < 24	25 mph ≤ Speed < 50 mph
29	Cruise / Acceleration	24 ≤ VSP < 30	25 mph ≤ Speed < 50 mph
30	Cruise / Acceleration	30≤ VSP	25 mph ≤ Speed < 50 mph
33	Cruise / Acceleration	VSP < 6	50 mph ≤ Speed
35	Cruise / Acceleration	6≤ VSP < 12	50 mph ≤ Speed
37	Cruise / Acceleration	12≤ VSP < 18	50 mph ≤ Speed
38	Cruise / Acceleration	18≤ VSP < 24	50 mph ≤ Speed
39	Cruise / Acceleration	24 ≤ VSP < 30	50 mph ≤ Speed
40	Cruise / Acceleration	30≤ VSP	50 mph ≤ Speed
501	Brakewear; stopped		

**Operating Modes: Starts** 

ID	So	nge	
101		Soak Time	< 6 minutes
102	6 minutes ≤	Soak Time	< 30 minutes
103	30 minutes ≤	Soak Time	< 60 minutes
104	60 minutes ≤	Soak Time	< 90 minutes
104 105	90 minutes ≤	Soak Time	< 120 minutes
106	120 minutes ≤	Soak Time	< 360 minutes
107	360 minutes ≤	Soak Time	< 720 minutes
108	720 minutes ≤	Soak Time	

**Operating Modes: Hotelling** 

ID	Description	
200 201 203 204	Extended Idling	Π
201	Auxiliary Power Units Use	
203	Shore Power / AC Plugin	
204	Battery Use / Engine Off	



D   pollutantname	Poll	Pollutants											
2 Carbon Monoxide (CO)         86         Total Organic Gases           3 Oxides of Nitrogen (NOx)         87         Volatile Organic Compounds           5 Mitrous Oxide (N2O)         90         Atmospheric CO2           20 Benzene         91         Total Energy Consumption           21 Ethanol         92         Petroleum Energy Consumption           24 1,3-Butadiene         99         COZ Equivalent           26 Acetaldehyde         100         Primary Engy Consumption (BSFC)           26 Acetaldehyde         100         Primary Endo. Total           27 Acrolein         106         Primary PMID - Trevear Particulate           30 Ammonia (NH3)         107         Primary PMID - Trevear Particulate           31 Sulfur Dioxide (SOZ)         110         Primary PMID - Trevear Particulate           32 Nitrogen Oxide (NO)         111         Organic Carbon           33 Nitrogen Oxide (NO)         115         Sulfate Particulate           34 Nitrous Acid (HONO)         115         Sulfate Particulate           35 Nitrate (NO3)         116         Primary PM2.5 - Tirewear Particulate           40 2,2.4 Tirmethylpentane         118         Composite - NonECPM           41 Ethyl Benzene         119         H2O (aerosol)           42 Hexane         121<	ID	pollutantname	ID	pollutantname									
3 Oxides of Nitrogen (NOx)         87         Volatile Organic Compounds           Nitrous Oxide (N2O)         90         Atmospheric CO2           20 Benzene         91         Total Energy Consumption           21 Ethanol         92         Petroleum Energy Consumption           23 Naphthalene particle         93         Fossil Fuel Energy Consumption           25 Formaldehyde         98         Fossil Fuel Energy Consumption           25 Formaldehyde         99         Brake Specific Fuel Consumption (BSFC)           26 Acetaldehyde         100         Primary Exhaust PM10 - Total           27 Acrolein         106         Primary PM10 - Brakewear Particulate           28 Nitrogen Oxide (NO2)         110         Primary PM10 - Tirewear Particulate           29 Nitrogen Oxide (NO2)         111         Organic Carbon           30 Nitrogen Dioxide (NO2)         115         Sulfate Particulate           31 Nitrogen Dioxide (NO2)         115         Sulfate Particulate           32 Nitrate (NO3)         116         Primary PM2.5 - Brakewear Particulate           33 Nitrogen Dioxide (NO2)         112         Elemental Carbon           34 Nitrota (NO3)         116         Primary PM2.5 - Tirewear Particulate           35 Primary PM2.5 - Tirewear Particulate         117         Carbonal		Total Gaseous Hydrocarbons	84	Pyrene particle									
Methane (CH4)         88         NonHAPTOG           Nibrous Oxide (NZO)         90         Atmospheric COZ           20         Benzeree         91         Total Energy Consumption           21         Ethanol         92         Petroleum Energy Consumption           24         1,3-Butadiene         98         COZ Equivalent           25         Formaldehyde         98         COZ Equivalent           26         Acctaldehyde         100         Primary Exhaust PML0 - Total           27         Acrolein         106         Primary Exhaust PML0 - Total           28         Armonia (NH3)         107         Primary PML0 - Total           29         Parke Spectific Fuel Consumption (BSFC)           20         Ammonia (NH3)         107         Primary PML0 - Total           31         Sulfur Dioxide (SO2)         110         Primary PML0 - Total           31         Sulfur Dioxide (SO2)         110         Primary PML0 - Total           31         Nitrate (NO3)         115         Sulfate Particulate           31         Nitrate (NO3)         115         Sulfate Particulate           32         Nitrate (NO3)         116         Primary PML2 - Trackety Particulate           33         Nit		Carbon Monoxide (CO)	86	Total Organic Gases									
Siltrous Oxide (NZO)			87	Volatile Organic Compounds									
Benzene			88										
Ethanol	6	Nitrous Oxide (N2O)	9										
33         Naphthalene particle         93         Fossi Fuel Energy Consumption           25         Formaldehyde         99         Brake Specific Fuel Consumption (BSFC)           26         Actaldehyde         100         Primary Exhaust PM10 - Total           27         Acrolelin         100         Primary PM10 - Trewear Particulate           30         Ammonia (NH3)         107         Primary PM10 - Trewear Particulate           31         Sulfur Dioxide (SO2)         111         Organic Carbon           32         Nitrogen Oxide (NO)         111         Organic Carbon           33         Nitrogen Oxide (NO)         115         Sulfate Particulate           34         Nitrosen Oxide (NO)         115         Sulfate Particulate           35         Nitrate (NO3)         116         Primary PM2.5 - Brakewear Particulate           40         2.2.4 - Irimethylpentane         118         Composite - NonECPM           41         Ethyl Benzene         119         H20 (acrosol)           41         Ethyl Benzene         119         H20 (acrosol)           42         Hexane         121         CMAQ5.0 Unspeciated (PMOTHR)           43         Propionaldehyde         122         Non-carbon Organic Matter (NCOM)													
1.3-Butadiene			i										
55         Formaldehyde         99         Brzke Specific Fuel Consumption (BSFC)           26         Actaldehyde         100         Primary Exhaust PMLD - Total           27         Acrolein         106         Primary PMLO - Brakewear Particulate           30         Ammonia (NH3)         107         Primary PMLO - Brakewear Particulate           31         Suftro Dioxide (NO2)         110         Primary PMLO - Tirewear Particulate           33         Nitrogen Oxide (NO2)         112         Elemental Carbon           34         Nitrose Acid (HON0)         115         Suffate Particulate           35         Nitrate (NO3)         116         Primary PML5 - Brakewear Particulate           40         2,2,4-Trimethylpentane         118         Composite - NonECPM           41         Ethyl Benzene         119         H20 (aerosol)           42         Hexane         119         H20 (aerosol)           43         Propionaldehyde         122         Non-carbon Organic Matter (NCOM)           44         Styrene         123         Total Organic Matter (TOM)           45         Toluene         124         Residual PM (NonECNonSoMnoM)           46         Xylene         130         1,23,7,8-Hexachlorodibenzo-p-Dioxin		·	:										
Acetaldehyde Acetaldehyde Acrolein 106 Primary PM10 - Brakewear Particulate 107 Primary PM10 - Tricewear Particulate 108 Primary PM10 - Tricewear Particulate 109 Primary PM10 - Tricewear Particulate 110 Primary PM10 - Tricewear Particulate 111 Organic Carabon 112 Elemental Carbon 113 Nitrogan Dioxide (NO2) 113 Nitrous Acid (HON0) 115 Sulfate Particulate 116 Primary PM2.5 - Brakewear Particulate 117 Primary PM2.5 - Brakewear Particulate 118 Primary PM2.5 - Brakewear Particulate 119 Primary PM2.5 - Brakewear Particulate 110 Carponic Note Primary PM2.5 - Brakewear Particulate 111 Primary PM2.5 - Brakewear Particulate 112 Primary PM2.5 - Brakewear Particulate 113 Composite NoneCPM 114 Ethyl Benzene 119 H20 (aerosol) 110 Primary PM2.5 - Brakewear Particulate 111 Primary PM2.5 - Brakewear Particulate 112 Primary PM2.5 - Brakewear Particulate 113 Composite NoneCPM 114 Ethyl Benzene 119 H20 (aerosol) 110 Primary PM2.5 - Brakewear Particulate 117 Primary PM2.5 - Brakewear Particulate 118 Primary PM2.5 - Brakewear Particulate 119 PM20 (aerosol) 110 Primary PM2.5 - Tricewear Particulate 112 Primary PM2.5 - Brakewear Particulate 113 Primary PM2.5 - Tricewear Particulate 114 Primary PM2.5 - Tricewear Particulate 115 Primary PM2.5 - Tricewear Particulate 116 Primary PM2.5 - Trotal 117 Primary PM2.5 - Trotal 118 Primary PM2.5 - Trotal 118 Primary PM2.5 - Trotal 118 Primary PM2.5 - Trotal 119 PM2.5 - Trotal 119 PM2.5 - Brakewear Particulate 119 PM2.5 - Trotal 110 Primary PM2.5 - Trotal 110 Primary PM2.5 - Brakewear Particulate 110 Primary PM2.5 - Trotal 110 Primary PM2.5 - Trotal 110 Primary PM2.5 - Brakewear Particulate 110 Primary PM2.5 - Brakewear Particulate 110 Primary PM2.5 - Brakewear Particulate 1110 Primary PM2.5 - Brakewear Particulate 112 PM2.5 - Primary PM2.5 - Brakewear Particulate 113 Primary PM2.5 - Brakewear Particulate 114 PM2.5 - Drimary PM2.5 - Drimary PM2.5 - Drimary PM2.5 - Drimary		· ·		· ·									
Ammonia (NH4)   107		,											
31         Sulfur Dioxide (SO2)         110         Primary Exhaust PM2.5 - Total           32         Nitrogen Dioxide (NO2)         111         Organic Carbon           34         Nitrous Acid (HONO)         115         Sulfate Particulate           35         Nitrate (NO3)         116         Primary PM2.5 - Brakewear Particulate           40         2.2.4-Trimethylpentane         118         Composite - NonECPM           41         Ethyl Benzene         119         H20 (aerosol)           42         Hexane         121         CMAQ5.0 Unspeciated (PMOTHR)           43         Propionaldehyde         122         Non-carbon Organic Matter (INCOM)           45         Styrene         123         Total Organic Matter (INCOM)           46         Xylene         130         1.2,3,78.9-Hexachlorodibenzo-p-Dioxin           51         Chloride         131         Octachlorodibenzo-p-dioxin           52         Sodium         132         1.2,3,78.9-Hexachlorodibenzo-p-Dioxin           53         Potassium         133         Octachlorodibenzofuran           54         Magneseium         134         1.2,3,4,78.Hexachlorodibenzofuran           55         Calcium         135         1.2,3,78.Hexachlorodibenzofuran													
Nitrogen Oxide (NO) Nitrogen Dioxide (NO2) Nitrous Acid (HONO) Nitrate (NO3) Nitrous Acid (HONO) Nitrate (NO3) Nitrous Acid (HONO) Nitrate (NO3) Ammonium (NH4) Nitrous Acid (HONO) Nitrate (NO3) Nitrate (NO4) Nitr			:	, ,									
Nitrogen Dioxide (NO2)  Nitrous Acid (HONO)  Nitrous Acid (HONO)  Nitrous (Acid (HONO)  Nitrous (Acid (HONO)  Nitrous (Acid (HONO)  Nitrous (NH4)  Namonium (Nitacine (Nom)  Namonium (NH4)  Namonium (Nitacine (Nitoriolienzo)  Namonium (Nitacine)  Namonium (Nitacine)  Namonium (Nitacine)  Namonium (Nitacine)  Namonium (Nitacine)  Namonium (Nitacine)  Namonium (Nitac			:										
34         Nitrous Acid (HONO)         115         Sulfate Particulate           35         Nitrate (NO3)         116         Primary PM2.5 - Brakewear Particulate           40         2,2,4-Trimethylpentane         118         Composite - NonECPM           41         Ethyl Benzene         119         H2O (aerosol)           41         Ethyl Benzene         119         H2O (aerosol)           41         Hexane         121         CMAQSo. Unspeciated (PMOTHR)           43         Propionaldehyde         122         Non-carbon Organic Matter (NCOM)           44         Styrene         123         Total Organic Matter (TOM)           45         Toluene         124         Residual PM (NonECKONSOMNOM)           46         Xylene         130         12,3,7,8,9-Hexachlorodibenzo-p-Dioxin           51         Chloride         131         Octachlorodibenzo-p-Dioxin           52         Sodium         132         12,3,4,6,8-Heytachlorodibenzo-p-Dioxin           53         Potassium         133         Octachlorodibenzo-p-Dioxin           54         Magnesium         134         12,3,4,7,8-Hexachlorodibenzo-p-Dioxin           55         Calcium         135         12,3,4,7,8-Hexachlorodibenzo-p-Dioxin           56													
35       Nitrate (NO3)       116       Primary PM2.5 - Brakewear Particulate         36       Ammonium (NH4)       117       Primary PM2.5 - Tirewear Particulate         40       22,4-Trimethylpentane       118       Composite - NonECPM         41       Ethyl Benzene       119       H20 (aerosol)         42       Hexane       121       CMAQ5.0 Unspeciated (PMOTHR)         43       Propionaldehyde       122       Non-carbon Organic Matter (NCOM)         44       Styrene       123       Total Organic Matter (NCOM)         45       Toluene       124       Residual PM (NonECNonSO4NonOM)         45       Toluene       131       Octachlorodibenzo-p-Dioxin         51       Chloride       131       Octachlorodibenzo-p-Dioxin         52       Sodium       132       12,3,467,8-Heyatchlorodibenzo-p-Dioxin         53       Potassium       133       Octachlorodibenzo-p-Dioxin         54       Magnesium       134       1,2,3,47,8-Hexatchlorodibenzo-p-Dioxin         55       Calcium       135       12,23,47,8-Hexatchlorodibenzo-p-Dioxin         56       Titanium       136       2,3,47,8-Hexatchlorodibenzo-p-Dioxin         57       Silicon       137       1,2,3,47,8-Pentachlorodibenzo-p-Dio													
36     Ammonium (NH4)     117     Primary PM2.5 - Tirewear Particulate       40     2,2,4-Trimethylpentane     118     Composite - NonECPM       41     Ethyl Benzene     119     H2O (aerosol)       42     Hexane     121     CMAQ5.0 Unspeciated (PMOTHR)       43     Propionaldehyde     122     Non-carbon Organic Matter (RCOM)       45     Toluene     124     Residual PM (NonECNonSO4NonOM)       46     Xylene     130     1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin       51     Chloride     131     Octachlorodibenzo-p-dioxin       52     Sodium     132     1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin       53     Potassium     133     Octachlorodibenzofuran       54     Magnesium     134     1,2,3,7,8-Pentachlorodibenzofuran       55     Calcium     135     1,2,3,7,8-Pentachlorodibenzofuran       56     Titanium     136     2,3,7,8-Pentachlorodibenzofuran       57     Silicon     137     1,2,3,4,7,8,9-Heptachlorodibenzofuran       58     Aluminum     138     2,3,4,7,8-Pentachlorodibenzofuran       59     Iron     139     1,2,3,7,8,9-Heptachlorodibenzofuran       60     Mercury Elemental Gaseous     140     1,2,3,6,7,8-Hexachlorodibenzofuran       61     Mercury Particulate		,											
40         2,2,4-Trimethylpentane         118         Composite - NonECPM           41         Ethyl Benzene         119         H2O (aerosol)           41         Hexane         121         CMAQ5,0 Unspeciated (PMOTHR)           43         Propionaldehyde         122         Non-carbon Organic Matter (TOOM)           44         Styrene         123         Total Organic Matter (TOOM)           45         Toluene         124         Residual PM (NonECNonSOANDOM)           46         Xylene         130         12,33,78,9-Hexachlorodibenzo-p-Dioxin           51         Chloride         131         Octachlorodibenzo-p-Dioxin           52         Sodium         132         12,33,46,78-Heptachlorodibenzo-p-Dioxin           53         Potassium         133         Octachlorodibenzofuran           54         Magnesium         134         1,2,3,4,78-Hetpachlorodibenzo-p-Dioxin           55         Titanium         136         2,2,7,8-Pentachlorodibenzo-p-Dioxin           56         Titanium         138         2,3,4,7,8-Pentachlorodibenzo-furan           57         Silicon         137         1,2,3,4,7,8-Pentachlorodibenzo-furan           58         Aluminum         138         2,3,4,7,8-Pentachlorodibenzo-furan			:										
41     Ethyl Benzene     119     H2O (aerosol)       42     Hexane     121     CMAQS.0 Unspeciated (PMOTHR)       43     Propionaldehyde     122     Non-carbon Organic Matter (NCOM)       44     Styrene     123     Total Organic Matter (TOM)       45     Toluene     124     Residual PM (NonECNonSO4NonOM)       45     Toluene     130     1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin       51     Chloride     131     Octachlorodibenzo-p-Dioxin       52     Sodium     132     1,2,3,4,6,7,8-Hexachlorodibenzo-p-Dioxin       53     Potassium     133     Octachlorodibenzofuran       54     Magnesium     134     1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin       55     Calcium     135     1,2,3,7,8-Pentachlorodibenzo-p-Dioxin       56     Titanium     136     2,3,7,8-Pentachlorodibenzo-furan       57     Silicon     137     1,2,3,7,8-Pentachlorodibenzo-furan       58     Aluminum     138     2,3,4,7,8-Pentachlorodibenzo-furan       59     Iron     139     1,2,3,6,7,8-Hexachlorodibenzo-furan       61     Mercury Divalent Gaseous     140     1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin       62     Mercury Particulate     142     2,3,4,6,7,8-Hexachlorodibenzo-p-Dioxin       63     Arsenic Compound	36		117	,									
42     Hexane     121     CMAQ5.0 Unspeciated (PMOTHR)       43     Propionaldehyde     122     Non-carbon Organic Matter (NCOM)       44     Styrene     123     Total Organic Matter (TOM)       45     Toluene     124     Residual PM (NonECNonSO4NonOM)       46     Xylene     130     1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin       51     Chloride     131     Octachlorodibenzo-p-Dioxin       52     Sodium     132     1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin       53     Potassium     133     Octachlorodibenzofuran       54     Magnesium     134     1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin       55     Calcium     135     1,2,3,7,8-Pentachlorodibenzofuran       56     Titanium     136     2,3,7,8-Pentachlorodibenzofuran       57     Silicon     137     1,2,3,4,7,8-Pentachlorodibenzofuran       58     Aluminum     138     2,3,4,7,8-Pentachlorodibenzofuran       60     Mercury Elemental Gaseous     140     1,2,3,6,7,8-Hexachlorodibenzofuran       61     Mercury Particulate     142     2,3,7,8-Pentachlorodibenzofuran       62     Mercury Particulate     142     2,3,7,8-Hexachlorodibenzofuran       63     Arsenic Compounds     143     1,2,3,6,7,8-Hexachlorodibenzofuran       64	40			· ·									
43Propionaldehyde122Non-carbon Organic Matter (NCOM)44Styrene123Total Organic Matter (TOM)46Xylene1301,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin51Chloride131Octachlorodibenzo-p-dioxin52Sodium1321,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin53Potassium133Octachlorodibenzo-pusioxin54Magnesium1341,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin55Calcium1351,2,3,7,8-Pentachlorodibenzo-p-Dioxin56Titanium1362,37,8-Pentachlorodibenzo-p-Dioxin57Silicon1371,2,3,4,7,8,9-Heptachlorodibenzo-furan58Aluminum1382,3,4,7,8-Pentachlorodibenzo-furan59Iron1391,2,3,5,7,8-Hexachlorodibenzo-furan60Mercury Elemental Gaseous1401,2,3,5,7,8-Hexachlorodibenzo-furan61Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-furan62Mercury Particulate1422,3,7,8-Hexachlorodibenzo-p-Dioxin63Arsenic Compounds1431,2,3,4,7,8-Hexachlorodibenzo-furan65Chromium 6+1441,2,3,4,6,7,8-Heyachlorodibenzo-furan66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzo-furan67Nickel Compounds1461,2,3,4,7,8-Hexachlorodibenzo-furan68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle170Acenaphthylene gas71Acena	41	Ethyl Benzene	119	1 /									
44     Styrene     123     Total Organic Matter (TOM)       45     Toluene     124     Residual PM (NonECNonSO4NonOM)       46     Xylene     130     1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin       51     Chloride     131     Octachlorodibenzo-p-dioxin       52     Sodium     132     1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin       53     Potassium     133     Octachlorodibenzo-p-Dioxin       54     Magnesium     134     1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin       55     Calcium     135     1,2,3,7,8-Pentachlorodibenzo-p-Dioxin       56     Titanium     136     2,3,7,8-Pentachlorodibenzo-p-Dioxin       57     Silicon     137     1,2,3,47,8,9-Heptachlorodibenzofuran       58     Aluminum     138     2,3,47,8-Pentachlorodibenzofuran       59     Iron     139     1,2,3,7,8-Pentachlorodibenzofuran       60     Mercury Elemental Gaseous     140     1,2,3,67,8-Hexachlorodibenzofuran       61     Mercury Divalent Gaseous     141     1,2,3,67,8-Hexachlorodibenzofuran       62     Mercury Particulate     142     2,3,7,8-Tetrachlorodibenzofuran       63     Arsenic Compounds     143     1,2,3,4,7,8-Hexachlorodibenzofuran       65     Chromium 6+     144     1,2,3,4,7,8-Hexachlorodibenzofuran	42		121	CMAQ5.0 Unspeciated (PMOTHR)									
45     Toluene     124     Residual PM (NonECNonSO4NonOM)       46     Xylene     130     1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin       51     Chloride     131     Octachlorodibenzo-p-dioxin       52     Sodium     132     1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin       53     Potassium     133     Octachlorodibenzofuran       54     Magnesium     134     1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin       55     Calcium     135     1,2,3,7,8-Pentachlorodibenzo-p-Dioxin       56     Titanium     136     2,3,7,8-Pentachlorodibenzo-furan       57     Silicon     137     1,2,3,4,7,8-Pentachlorodibenzo-furan       58     Aluminum     138     2,3,4,7,8-Pentachlorodibenzo-furan       60     Mercury Elemental Gaseous     140     1,2,3,6,7,8-Hexachlorodibenzo-furan       61     Mercury Particulate     142     2,3,7,8-Tetrachlorodibenzo-p-Dioxin       62     Mercury Particulate     142     2,3,7,8-Tetrachlorodibenzo-p-Dioxin       63     Arsenic Compounds     143     2,3,4,6,7,8-Hexachlorodibenzo-p-Dioxin       64     Arsenic Compounds     144     1,2,3,6,7,8-Hexachlorodibenzo-furan       65     Chromium 6+     144     1,2,3,4,6,7,8-Hexachlorodibenzo-furan       66     Manganese Compounds     145     1,2,3,7,8-Hexac	43		:										
46Xylene1301,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin51Chloride131Octachlorodibenzo-p-dioxin52Sodium1321,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin53Potassium133Octachlorodibenzofuran54Magnesium1341,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin55Calcium1351,2,3,7,8-Pentachlorodibenzo-p-Dioxin57Titanium1362,3,7,8-Tetrachlorodibenzofuran58Aluminum1382,3,4,7,8-Pentachlorodibenzofuran59Iron1371,2,3,7,8-Pentachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzofuran62Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,46,7,8-Hexachlorodibenzofuran64Chromium 6+1441,2,3,4,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle169Fluoranthene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthylene particle171Acenaphthylene gas71Acenaphthylene particle173Benzo(a)pyrene gas72Anthracene particle174Benzo(a)pyrene gas73Benzo(g,h,i)perylene particle176		Styrene											
46     Xylene     130     1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin       51     Chloride     131     Octachlorodibenzo-p-dioxin       52     Sodium     132     1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin       53     Potassium     134     1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin       54     Magnesium     135     1,2,3,7,8-Pentachlorodibenzo-p-Dioxin       55     Calcium     135     1,2,3,7,8-Pentachlorodibenzo-p-Dioxin       56     Titanium     136     2,3,7,8-Pentachlorodibenzofuran       57     Silicon     137     1,2,3,4,7,8-Pentachlorodibenzofuran       58     Aluminum     138     2,3,4,7,8-Pentachlorodibenzofuran       59     Iron     139     1,2,3,6,7,8-Pentachlorodibenzofuran       60     Mercury Elemental Gaseous     140     1,2,3,6,7,8-Hexachlorodibenzofuran       61     Mercury Particulate     142     2,3,7,8-Tetrachlorodibenzofuran       62     Mercury Particulate     142     2,3,7,8-Tetrachlorodibenzofuran       63     Arsenic Compounds     143     2,3,4,6,7,8-Hexachlorodibenzofuran       64     Manganese Compounds     143     2,3,4,6,7,8-Hexachlorodibenzofuran       65     Chromium 6+     144     1,2,3,4,8,9-Hexachlorodibenzofuran       66     Manganese Compounds     145     1,2,3,4,8,9-Hexa	45	Toluene	124	Residual PM (NonECNonSO4NonOM)									
52Sodium1321,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin53Potassium133Octachlorodibenzofuran54Magnesium1341,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin55Calcium1351,2,3,7,8-Pentachlorodibenzo-p-Dioxin56Titanium1362,3,7,8-Tetrachlorodibenzofuran57Silicon1371,2,3,47,8,9-Heptachlorodibenzofuran58Aluminum1382,3,4,7,8-Pentachlorodibenzofuran59Iron1391,2,3,7,8-Pentachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzofuran62Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran64Chromium 6+1441,2,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle168Dibenzo(a,h)anthracene gas70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle173Benzo(a)nthracene gas73Benzo(b)fluoranthene particle174Acenaphthylene gas74Benzo(g,h,i)perylene particle175Benzo(g,h,i)perylene gas75Be	46	Xylene		1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin									
53Potassium133Octachlorodibenzofuran54Magnesium1341,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin55Calcium1351,2,3,7,8-Pentachlorodibenzo-p-Dioxin56Titanium1362,3,7,8-Tetrachlorodibenzofuran57Silicon1371,2,3,4,7,8,9-Heptachlorodibenzofuran58Aluminum1382,3,4,7,8-Pentachlorodibenzofuran59Iron1391,2,3,6,7,8-Hexachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Hexachlorodibenzofuran66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1441,2,3,4,6,7,8-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle173Benzo(a)pyrene gas73Benzo(b)fluoranthene particle175Benzo(a)pyrene gas74Benzo(b)fluoranthene particle176Benzo(b)fluoranthene gas75 <t< td=""><td>51</td><td></td><th>131</th><td></td></t<>	51		131										
54Magnesium1341,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin55Calcium1351,2,3,7,8-Pentachlorodibenzo-p-Dioxin56Titanium1362,3,7,8-Tetrachlorodibenzofuran57Silicon1371,2,3,4,7,8,9-Heptachlorodibenzofuran58Aluminum1382,3,4,7,8-Pentachlorodibenzofuran59Iron1391,2,3,7,8-Pentachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Tetrachlorodibenzofuran63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Heptachlorodibenzofuran66Manganese Compounds1451,2,3,4,6,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle168Dibenzo(a,h)anthracene gas71Acenaphthene gas170Acenaphthene gas72Anthracene particle171Acenaphthene gas73Benzo(a)pyrene particle173Benzo(a)pyrene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas<	52	Sodium	132	1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin									
55Calcium1351,2,3,7,8-Pentachlorodibenzo-p-Dioxin56Titanium1362,3,7,8-Pentachlorodibenzofuran57Silicon1371,2,3,4,7,8,9-Heptachlorodibenzofuran58Aluminum1382,3,4,7,8-Pentachlorodibenzofuran59Iron1391,2,3,6,7,8-Hexachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin61Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Hexachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Hexachlorodibenzofuran66Manganese Compounds1451,2,3,4,6,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle168Dibenzo(a,h)anthracene gas70Acenaphthylene gas170Acenaphthylene gas71Acenaphthylene gas171Acenaphthylene gas72Anthracene particle173Benzo(a)pyrene gas73Benzo(a)pyrene particle174Benzo(a)pyrene gas74Benzo(b)fluoranthene particle175Benzo(a)pyrene gas75Benzo(b)fluoranthene particle176Benzo(a)pyrene gas76Benzo(k)fluoranthene particle177Benzo(b)fluoranthene gas78	53		133	Octachlorodibenzofuran									
56Titanium1362,3,7,8-Tetrachlorodibenzofuran57Silicon1371,2,3,4,7,8,9-Heptachlorodibenzofuran58Aluminum1382,3,4,7,8-Pentachlorodibenzofuran59Iron1391,2,3,6,7,8-Hexachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Hexachlorodibenzofuran66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthylene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benzo(a)pyrene particle173Benzo(a)pyrene gas74Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas75Benzo(b)fluoranthene particle176Benzo(b)fluoranthene gas76Benzo(b)fluoranthene particle176Benzo(b)fluoranthene gas78Chrysene particle178Chrysene gas80	54	Magnesium	134										
57Silicon1371,2,3,4,7,8,9-Heptachlorodibenzofuran58Aluminum1382,3,4,7,8-Pentachlorodibenzofuran59Iron1391,2,3,7,8-Pentachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Hexachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Hexachlorodibenzofuran66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benzo(a) pyrene particle174Benzo(a) pyrene gas74Benzo(b) fluoranthene particle175Benzo(b) fluoranthene gas75Benzo(b) fluoranthene particle176Benzo(b) fluoranthene gas76Benzo(k) fluoranthene particle177Benzo(b) fluoranthene gas77Benzo(k) fluoranthene particle178Chrysene gas78Non-Methane Organic Gases182Indeno(1,2,3,c,d) pyr	55	Calcium	135	1,2,3,7,8-Pentachlorodibenzo-p-Dioxin									
58Aluminum1382,3,4,7,8-Pentachlorodibenzofuran59Iron1391,2,3,7,8-Pentachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Heptachlorodibenzofuran66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benzo(a) pyrene particle173Benzo(a) pyrene gas74Benzo(a) pyrene particle174Benzo(a) pyrene gas75Benzo(b) fluoranthene particle175Benzo(b) fluoranthene gas76Benzo(b, fluoranthene particle176Benzo(b, fluoranthene gas77Benzo(b, fluoranthene particle177Benzo(k) fluoranthene gas78Chrysene gas181Fluorene gas80Non-Methane Organic Gases181Fluorene gas81<	56	Titanium	136	2,3,7,8-Tetrachlorodibenzofuran									
59Iron1391,2,3,7,8-Pentachlorodibenzofuran60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Tetrachlorodibenzofuran63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Hexachlorodibenzofuran66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benzo(a)pyrene particle173Benzo(a)pyrene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas78Chrysene particle177Benzo(k)fluoranthene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas <td>57</td> <td>Silicon</td> <th>137</th> <td>1,2,3,4,7,8,9-Heptachlorodibenzofuran</td>	57	Silicon	137	1,2,3,4,7,8,9-Heptachlorodibenzofuran									
60Mercury Elemental Gaseous1401,2,3,6,7,8-Hexachlorodibenzofuran61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Tetrachlorodibenzofuran63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Hexachlorodibenzofuran66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benzo(a)anthracene particle173Benzo(a)anthracene gas74Benzo(b)fluoranthene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(b)fluoranthene particle176Benzo(b,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas	58	Aluminum	138	2,3,4,7,8-Pentachlorodibenzofuran									
61Mercury Divalent Gaseous1411,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin62Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Heptachlorodibenzofuran66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthylene gas71Acenaphthylene gas171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benz(a)anthracene particle173Benz(a)anthracene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas78Chrysene particle177Benzo(k)fluoranthene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	59	Iron	139	1,2,3,7,8-Pentachlorodibenzofuran									
62Mercury Particulate1422,3,7,8-Tetrachlorodibenzo-p-Dioxin63Arsenic Compounds1432,3,4,6,7,8-Hexachlorodibenzofuran65Chromium 6+1441,2,3,4,6,7,8-Heptachlorodibenzofuran66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthylene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benzo(a)pyrene particle173Benzo(a)pyrene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	60	Mercury Elemental Gaseous	140	1,2,3,6,7,8-Hexachlorodibenzofuran									
Arsenic Compounds Chromium 6+ Chromium 6+ Anganese Compounds Anganese Petachlorodibenzofuran Acenaphthene gas Anthracene gas Anthracene gas Benzo(a) phintracene gas Benzo(a) phintracene gas Benzo(a) phintracene gas Anthracene gas Benzo(a)	61	Mercury Divalent Gaseous	141	1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin									
65 Chromium 6+ 66 Manganese Compounds 67 Nickel Compounds 68 Dibenzo(a,h)anthracene particle 69 Fluoranthene particle 69 Fluoranthene particle 60 Acenaphthene particle 60 Acenaphthene particle 61 160 Fluoranthene gas 62 Acenaphthene particle 63 Dibenzo(a,h)anthracene gas 64 Fluoranthene particle 65 Dibenzo(a,h)anthracene gas 66 Fluoranthene gas 67 Acenaphthene particle 68 Dibenzo(a,h)anthracene gas 69 Fluoranthene gas 60 Fluoranthene gas 70 Acenaphthylene gas 71 Acenaphthylene gas 72 Anthracene particle 73 Benz(a)anthracene particle 74 Benzo(a)pyrene particle 75 Benzo(b)fluoranthene particle 76 Benzo(g,h,i)perylene particle 77 Benzo(k)fluoranthene particle 78 Chrysene particle 79 Non-Methane Hydrocarbons 79 Non-Methane Organic Gases 70 Fluorene particle 71 Senzo(k)fluoranthene gas 72 Indeno(1,2,3,c,d)pyrene gas 73 Benzo(a)pyrene gas 74 Benzo(a)pyrene gas 75 Benzo(b)fluoranthene gas 76 Benzo(b)fluoranthene gas 77 Benzo(k)fluoranthene gas 78 Chrysene gas 79 Non-Methane Hydrocarbons 79 Non-Methane Organic Gases 70 Fluorene particle 71 Benzo(a)pyrene gas 71 Benzo(b)fluoranthene gas 72 Indeno(1,2,3,c,d)pyrene gas 73 Benzo(a)pyrene gas 74 Benzo(a)pyrene gas 75 Benzo(b)fluoranthene gas 76 Benzo(b)fluoranthene gas 77 Benzo(b)fluoranthene gas 78 Chrysene gas 79 Non-Methane Hydrocarbons 80 Fluorene particle 81 Pluorene gas 81 Indeno(1,2,3,c,d)pyrene gas	62	Mercury Particulate	142	2,3,7,8-Tetrachlorodibenzo-p-Dioxin									
66Manganese Compounds1451,2,3,4,7,8-Hexachlorodibenzofuran67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benz(a)anthracene particle173Benzo(a)pyrene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	63	Arsenic Compounds	143	2,3,4,6,7,8-Hexachlorodibenzofuran									
67Nickel Compounds1461,2,3,7,8,9-Hexachlorodibenzofuran68Dibenzo(a,h)anthracene particle168Dibenzo(a,h)anthracene gas69Fluoranthene particle169Fluoranthene gas70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benz(a)anthracene particle173Benzo(a)pyrene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(k)fluoranthene particle176Benzo(g,h,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	65	Chromium 6+	144	1,2,3,4,6,7,8-Heptachlorodibenzofuran									
68 Dibenzo(a,h)anthracene particle 69 Fluoranthene particle 70 Acenaphthene particle 71 Acenaphthylene particle 72 Anthracene particle 73 Benzo(a) anthracene particle 74 Benzo(a) pyrene particle 75 Benzo(b) fluoranthene particle 76 Benzo(a,h)anthracene particle 77 Benzo(b) fluoranthene particle 78 Benzo(a) pyrene particle 79 Benzo(b) fluoranthene particle 70 Benzo(b) fluoranthene particle 71 Benzo(b) fluoranthene particle 72 Benzo(b) fluoranthene particle 73 Benzo(b) fluoranthene particle 74 Benzo(b) fluoranthene particle 75 Benzo(b) fluoranthene particle 76 Benzo(b) fluoranthene particle 77 Benzo(b) fluoranthene particle 78 Chrysene particle 79 Non-Methane Hydrocarbons 80 Non-Methane Organic Gases 80 Fluorene particle 81 Indeno(1,2,3,c,d) pyrene particle 81 Indeno(1,2,3,c,d) pyrene particle 82 Pyrene gas	66		145	1,2,3,4,7,8-Hexachlorodibenzofuran									
68 Dibenzo(a,h)anthracene particle 69 Fluoranthene particle 70 Acenaphthene particle 71 Acenaphthylene particle 72 Anthracene particle 73 Benzo(a) anthracene particle 74 Benzo(a) pyrene particle 75 Benzo(b) fluoranthene particle 76 Benzo(a,h)anthracene particle 77 Benzo(b) fluoranthene particle 78 Benzo(a) pyrene particle 79 Benzo(b) fluoranthene particle 70 Benzo(b) fluoranthene particle 71 Benzo(b) fluoranthene particle 72 Benzo(b) fluoranthene particle 73 Benzo(b) fluoranthene particle 74 Benzo(b) fluoranthene particle 75 Benzo(b) fluoranthene particle 76 Benzo(b) fluoranthene particle 77 Benzo(b) fluoranthene particle 78 Chrysene particle 79 Non-Methane Hydrocarbons 80 Non-Methane Organic Gases 80 Fluorene particle 81 Indeno(1,2,3,c,d) pyrene particle 81 Indeno(1,2,3,c,d) pyrene particle 82 Pyrene gas	67		146	1,2,3,7,8,9-Hexachlorodibenzofuran									
70Acenaphthene particle170Acenaphthene gas71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benz(a)anthracene particle173Benz(a)anthracene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas		Dibenzo(a,h)anthracene particle											
71Acenaphthylene particle171Acenaphthylene gas72Anthracene particle172Anthracene gas73Benz(a)anthracene particle173Benz(a)anthracene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	69		169										
72Anthracene particle172Anthracene gas73Benz(a)anthracene particle173Benz(a)anthracene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	70		170	Acenaphthene gas									
72Anthracene particle172Anthracene gas73Benz(a)anthracene particle173Benz(a)anthracene gas74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	71	Acenaphthylene particle	171	Acenaphthylene gas									
74     Benzo(a)pyrene particle     174     Benzo(a)pyrene gas       75     Benzo(b)fluoranthene particle     175     Benzo(b)fluoranthene gas       76     Benzo(g,h,i)perylene particle     176     Benzo(g,h,i)perylene gas       77     Benzo(k)fluoranthene particle     177     Benzo(k)fluoranthene gas       78     Chrysene particle     178     Chrysene gas       79     Non-Methane Hydrocarbons     181     Fluorene gas       80     Non-Methane Organic Gases     182     Indeno(1,2,3,c,d)pyrene gas       80     Fluorene particle     183     Phenanthrene gas       81     Indeno(1,2,3,c,d)pyrene particle     184     Pyrene gas	72	Anthracene particle	172	Anthracene gas									
74Benzo(a)pyrene particle174Benzo(a)pyrene gas75Benzo(b)fluoranthene particle175Benzo(b)fluoranthene gas76Benzo(g,h,i)perylene particle176Benzo(g,h,i)perylene gas77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	73	Benz(a)anthracene particle	173	Benz(a)anthracene gas									
75     Benzo(b)fluoranthene particle     175     Benzo(b)fluoranthene gas       76     Benzo(g,h,i)perylene particle     176     Benzo(g,h,i)perylene gas       77     Benzo(k)fluoranthene particle     177     Benzo(k)fluoranthene gas       78     Chrysene particle     178     Chrysene gas       79     Non-Methane Hydrocarbons     181     Fluorene gas       80     Non-Methane Organic Gases     182     Indeno(1,2,3,c,d)pyrene gas       80     Fluorene particle     183     Phenanthrene gas       81     Indeno(1,2,3,c,d)pyrene particle     184     Pyrene gas	74		174	Benzo(a)pyrene gas									
77Benzo(k)fluoranthene particle177Benzo(k)fluoranthene gas78Chrysene particle178Chrysene gas79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	75		175										
77     Benzo(k)fluoranthene particle     177     Benzo(k)fluoranthene gas       78     Chrysene particle     178     Chrysene gas       79     Non-Methane Hydrocarbons     181     Fluorene gas       80     Non-Methane Organic Gases     182     Indeno(1,2,3,c,d)pyrene gas       80     Fluorene particle     183     Phenanthrene gas       81     Indeno(1,2,3,c,d)pyrene particle     184     Pyrene gas	76	Benzo(g,h,i)perylene particle	176	Benzo(g,h,i)perylene gas									
78     Chrysene particle     178     Chrysene gas       79     Non-Methane Hydrocarbons     181     Fluorene gas       80     Non-Methane Organic Gases     182     Indeno(1,2,3,c,d)pyrene gas       80     Fluorene particle     183     Phenanthrene gas       81     Indeno(1,2,3,c,d)pyrene particle     184     Pyrene gas	77	Benzo(k)fluoranthene particle	177										
79Non-Methane Hydrocarbons181Fluorene gas80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas	78		178										
80Non-Methane Organic Gases182Indeno(1,2,3,c,d)pyrene gas80Fluorene particle183Phenanthrene gas81Indeno(1,2,3,c,d)pyrene particle184Pyrene gas		Non-Methane Hydrocarbons	,										
80 Fluorene particle 183 Phenanthrene gas 81 Indeno(1,2,3,c,d)pyrene particle 184 Pyrene gas	80		•										
81 Indeno(1,2,3,c,d)pyrene particle 184 Pyrene gas													
	82	Phenanthrene particle	185	Naphthalene gas									

# MOVES4: CHEAT SHEET (Onroad)



Allowable Source Type / Fuel Type Combinations		Motorcycles	Passenger Cars	PassengerTrucks	Light Commercial Trucks	Other Buses	Transit Buses	School Buses	Refuse Trucks	Short-Haul Single Unit Trucks	Long-Haul Single Unit Trucks	Motor Homes	Short-Haul Combination Trucks	Long-Haul Combination Trucks
		11	21	31	32	41	42	43	51	52	53	54	61	62
Gasoline	1	Χ	Χ	Х	Х	Х	Х	Х	Х	Х	Χ	Χ	Х	
Diesel	2		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
CNG	3					Х	Х	Х	Х	Х	Х	Х	Х	Х
E85-Capable	5		Х	Х	Х									
Battery Electric	9		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
Fuel Cell Electric	9					Χ	Х	Χ	Χ	Х	Χ	Χ	Х	Х

Allowable Source Type / Regulatory Class Combinations		Motorcycles	Passenger Cars 7	PassengerTrucks	Light Commercial Trucks	Other Buses 1	Transit Buses	School Buses	Refuse Trucks	Short-Haul Single Unit Trucks	Long-Haul Single Unit Trucks	Motor Homes 2	Short-Haul Combination Trucks	Long-Haul Combination Trucks
		11	21	31	32	41	42	43	51	52	53	54	61	62
MC	10	Х												
LDV	20		Х											
LDT	30			Х	Х									
LHD2b3	41			Х	Х			Χ	Х	Х	Х	Х		
LHD45	42					Х	Х	Χ	Х	Х	Х	Х		
MHD67	46					Х	Х	Χ	Х	Х	Х	Х	Х	Х
HHD8	47					Х	Х	Х	Х	Х	Х	Х	Х	Х
Urban Bus	48						Х							
Gliders	49												Х	Х

