**MOVES Database Design**

**May 28, 2015**

**ASD, EPA**

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| Entity |
| --- |

| Entity | |
| --- | --- |
| Name | Definition |
| Activity | This entity is an abstraction and is not actually implemented. It contains  identifying elements of total Activity common to all emission processes.  Total Activity is defined for a Use Type as the product of the population of  that UseType and the per-source activity at a given time and location.    The unit of Activity, and the type of geographic location (zone or link) with  which Activity is associated, vary with emission process. |
| AgeCategory | A source age classification. |
| AgeGroup |  |
| ATBaseEmissions |  |
| AtRatio |  |
| AtRatioGas2 |  |
| AtRatioNonGas |  |
| AverageTankGasoline |  |
| AverageTankTemperature | Key fields of this table are tankTemperatureGroupID, zoneID, monthID, hourDayID, and opModeID. Its non-key fields are averageTankTemperature, and averageTankTemperatureCV. It shall be treated as a CMIT. |
| avft |  |
| AvgSpeedBin |  |
| AvgSpeedDistribution | Element of an average speed distribution which allocates vmt to average speed bins. |
| BaseFuel |  |
| ColdSoakInitialHourFraction |  |
| ColdSoakTankTemperature |  |
| ComplexModelParameterName |  |
| ComplexModelParameters |  |
| County | A political and territorial subdivision of a State (see definition of State) as defined by FIPS standard codes.  Counties will be given independent identifying fields in MOVES, which incorporate the FIPS code for the State they belong to  and their FIPS county codes. |
| CountyYear | One Year in One County |
| CrankcaseEmissionRatio |  |
| criteriaRatio |  |
| CumTVVCoeffs |  |
| DataSource | A source of information stored in this database. |
| DayOfAnyWeek |  |
| DayVMTFraction | An element of a distribution of VMT (by SourceUseType and Month) to RoadTypes and kinds of days of the week. This distribution must take into account the number of real days represented by dayID. |
| DioxinEmissionRate |  |
| DriveSchedule | A driving schedule. Also often referred to as a driving cycle. A speed vs time function indicating vehicle speed vs time. |
| DriveScheduleAssoc | An association of one or more DriveSchedules , presumably having different average speeds with a RoadType-SourceType combination. |
| DriveScheduleSecond | One second of a DriveSchedule. |
| DriveScheduleSecondLink |  |
| E/7 |  |
| e10FuelProperties |  |
| EmissionProcess | A unique emission pathway. Some examples are:  Running Exhaust  Start Exhaust  Extended Idle  Crankcase  Evaperative Vapor Venting  Brake Wear  Tire Wear  The set of processes in the model is defined by this table. |
| EmissionRate | Disaggregated emission rates. These are stored as average rates in units of mass or energy per Activity unit for each Pollutant and EmissionProcess. |
| emissionrateadjustment |  |
| EmissionRateByAge | Disaggregated emission rates contained in MOVES for pollutant processes which take into account vehicle deterioration. These are stored as average rates in units of mass per Activity unit for each Pollutant and EmissionProcess. |
| EngineSize | An engine size category. |
| EngineTech | An engine or power technology classification. e.g. Conventional, hybrid, fuel cell. |
| ETOHBin |  |
| evaprvptemperatureadjustment |  |
| evaptemperatureadjustment |  |
| ExtendedIdleHours | Total Activity for Emission Processes whose unit of Activity is hours of extenDed idling. Extended idling is associated geographically with  Zones. (Extended Idling Hours is the unit of activity for the extended idling process.) |
| ExtendedIdleHours | Total Activity for Emission Processes whose unit of Activity is hours of extenDed idling. Extended idling is associated geographically with  Zones. (Extended Idling Hours is the unit of activity for the extended idling process.) |
| Fuel |  |
| FuelAdjustment |  |
| FuelEngFraction |  |
| FuelEngTechAssoc | Defines valid combinations of FuelType and Engine Technology. These valid combinations depend upon SourceType. Table also contains additional information about how these combinations should be displayed in the AVFT control strategy GUI. |
| FuelFormulation | A specific formulation of vehicle fuel having specific values of detailed fuel properties. |
| FuelModelName |  |
| FuelModelWtFactor |  |
| FuelModelYearGroup |  |
| FuelParameterName |  |
| FuelSubtype | A more detailed classification of a FuelType which may have nominal characteristics. Still not a physical batch or of fuel having measured characteristics. e.g. FuelSubtypes of Diesel Fuel might include:  Fischer-Troppsch diesel (FTD100)  Biodiesel  Conventional diesel fuel |
| FuelSupply | Represents the Supply of Fuel of a given type at a given time and place in terms of fuel formulations. |
| FuelSupplyYear | A year for which fuel supply data has been entered in the FuelSupply table. May be used for multiple calendar years. |
| FuelType | A general type of fuel. Since FuelType is used as a source bin discriminator, distinctions must be avoided which would cause the source bin distributions to vary by time or location or which would cause different activity patterns. Therefore this will be a rather gross-level categorization based on what SourceTypes are made to consume, e.g., Gasoline, Diesel Fuel, LPG, Hydrogen, and Electricity. |
| fuelUsageFraction |  |
| fuelWizardFactors |  |
| FullACAdjustment |  |
| generalFuelRatio |  |
| generalFuelRatioExpression |  |
| GREETManfAndDisposal |  |
| GREETWellToPump |  |
| Grid | A user-defined portion of a zone. Intended to represent a grid cell. Not used in MOVES2006. |
| GridZoneAssoc | The association of one grid with one zone. |
| HCPermeationCoeff |  |
| HCSpeciation |  |
| hotellimgcalendaryear |  |
| HotellingActivityDistribution |  |
| HotellingHours | Total Activity for Emission Processes whose unit of Activity is hours of hotelling. Hotelling is associated geographically with  Zones. (Hotelling Hours is the unit of activity for the hotelling process.) |
| HourDay | The combination of an Hour (of any day) and a Day (of any weekdays =5 or any weekends=2). |
| HourOfAnyDay |  |
| HourVMTFraction | An element of a distribution of VMT (by SourceUseType, RoadType, and Day) to Hours. |
| HPMSVtype | One of the HPMS vehicle classifications. |
| HPMSVtypeDay |  |
| HPMSVtypeYear | The combination of an HPMS vehicle classification and a calendar year. |
| IMCoverage | This table contains the information about the existence and effectiveness of vehicle I/M programs at specific times and places. |
| IMFactor |  |
| IMInspectFreq |  |
| IMModelYearGroup |  |
| importStartsOpModeDistribution |  |
| IMTestStandards |  |
| IMTestType |  |
| integratedspeciesset | Part of the speciation profiles and supporting tables. |
| integratedspeciessetname | Part of the speciation profiles and supporting tables. |
| Link | At the macroscale a Link respresents a RoadType within a County or Zone. There is a Link representing the off-roadway location within the County or Zone. At smaller scales, Links are user-defined and represent roadway segments. They may be associated with Zones and must belong to a County. Links are also required to represent the off-network activity within each Zone.  Links function, along with Zones, as the "locations" discussed in the MOVES Design Plan. |
| LinkAverageSpeed | Stores information such as average speed associated with a SourceUseType, Day, Hour, and Link. Not used at macroscale. |
| LinkHourVMTFraction | An element of a distribution of Link VMT to Hour. This distribution is  allowed to depend upon SourceUseType, Month, Day, and Hour. Not used at macroscale. |
| LinkSourceTypeHour |  |
| lumpedspeciesname | Part of speciation profiles and supporting tables. |
| M6SulfurCoeff |  |
| MeanFuelParameters |  |
| mechanismname |  |
| MetalEmissionRate |  |
| methanethcratio |  |
| MinorHAPRatio |  |
| ModelYear | The model year in which a source was manufactured. |
| modelyearcutpoints |  |
| ModelYearGroup | A group of model years, perhaps used only in conjunction with particular pollutant-processes. Idea is that different "vintages" of Source Types have emissions rate differences which are not fully captured by other source bin discriminators. |
| modelyearmapping | Model year mappings from user-defined model year ranges to standard model year ranges used by effects tables. This table is intended to be used for MOVES international. |
| MonthGroupHour |  |
| MonthGroupOfAnyYear | Identifies a group of MonthsOfAnyYear |
| MonthofAnyYear | One of the 12 months of any year. |
| MonthVMTFraction | An element of a distribution of VMT (by SourceUseType) to Months. There are two versions of these distributions  one for leap years, and one for normal years. |
| NONO2Ratio |  |
| NRAgeCategory | A source age classification. |
| nratratio |  |
| NRBaseYearEquipPopulation | Nonroad engine population in base year. Note: Base year can differ by equipment type. |
| NRCrankCaseEmissionRate | Disaggregated crankcase emission rates. These are stored as average rates in units of mass or energy per Activity unit for each Pollutant and EmissionProcess. |
| NRDayAllocation | Fraction of weekly(?) activity in each day of week for nonroad equipment. |
| NRDeterioration | Nonroad deterioration inputs by tech type and pollutant: DF coefficient ("A"), DF exponent ("b"), and whether deterioration is capped at median life. DF = 1 + A \* (age)^b  Where age is fraction of median life used. |
| nrDioxinEmissionRate |  |
| NREmissionRate | Disaggregated emission rates. These are stored as average rates in units of mass or energy per Activity unit for each Pollutant and EmissionProcess. |
| NREngTechFraction | Nonroad exhaust/evap tech type fractions by model year and source type (SCC & Hp bin) |
| NREquipmentType | Essentially Nonroad SCC info, but without fuel type. Also specifies corresponding geographic allocation surrogate, segment, and whether to use default scrappage. |
| nrEvapEmissionrate | Disaggregated evaporative emission rates. These are stored as average rates in units of mass or energy per Activity unit for each Pollutant and EmissionProcess. |
| NRFuelOxyAdjustment | Nonroad gasoline exhaust adjustment factors: percent delta per percent fuel oxygen, for each pollutant. |
| NRFuelSubtype | A more detailed classification of a FuelType which may have nominal characteristics. Still not a physical batch or of fuel having measured characteristics. e.g. FuelSubtypes of Diesel Fuel might include:  Fischer-Troppsch diesel (FTD100)  Biodiesel  Conventional diesel fuel |
| NRFuelSupply | Represents the Supply of Fuel of a given type at a given time and place in terms of fuel formulations. |
| NRFuelType | A general type of fuel. Since FuelType is used as a source bin discriminator, distinctions must be avoided which would cause the source bin distributions to vary by time or location or which would cause different activity patterns. Therefore this will be a rather gross-level categorization based on what SourceTypes are made to consume, e.g., Gasoline, Diesel Fuel, LPG, Hydrogen, and Electricity. |
| NRGrowthIndex | Relative nonroad engine population (activity) values relative to base year value of 1,000. |
| NRGrowthPattern | Identifies different sets of nonroad engine GrowthIndexes. |
| NRGrowthPatternFinder | Associates an appropriate GrowthPattern with each nonroad SCC and state. |
| nrhcspeciation |  |
| NRHourAllocation | For each NRHourAllocPattern this lists the hourly activity fraction for each of the 24 hours. |
| NRHourAllocPattern | List of nonroad hourly activity patterns with text descriptions. |
| NRHourPatternFinder | Associates an appropriate hourly activity pattern (NRAllocPattern) with each nonroad equipment type. |
| nrhpcategory |  |
| NRHPRangeBin | Nonroad HP bins: 0, 1, 3, 6, 11, 16, 25, 40, 50, 75, 100, 175, 300, 600, 750, 1000, 1200, 2000, 3000, 9999 |
| NRIntegratedSpecies |  |
| nrmetalemissionrate |  |
| nrmethanethcratio |  |
| NRMonthAllocation |  |
| nrpahgasratio |  |
| nrpahparticleratio |  |
| NRPollutantProcessModelYear |  |
| NRProcessGroup |  |
| NRRetrofitFactors | Disaggregated emission rates. These are stored as average rates in units of mass or energy per Activity unit for each Pollutant and EmissionProcess. |
| NRSCC | Nonroad Source Classification Code -- 10 digits describe mobile source, fuel type, segment, and equip type, e.g., 2265004010. |
| NRScrappageCurve | A set of fraction of median life used values with corresponding percent scrapped values for nonroad equipment. Only needed for equipment types that do not use DefaultScrappage. |
| NRSourceBin | Subcategories of SourceUseTypes that differentiate emission levels by such  discriminating characteristics as weight class, fuel type, emission standard, etc.  The subcategories are stored here independent of the SourceUseTypes to  which they are applied in SourceBinDistribution.  The attributes of this entity effectively define the source bin discriminators used in the model. These source bin discriminators are allowed to  assume NULL values and to have value domains which are not globally well  behaved, as long as they create well-defined partitions in the SourceBin distribution in which they are used. |
| NRSourceUseType | Nonroad equipment descriptor including SCC (fuel type, equipment type) and Hp bin. |
| NRStateSurrogate | Nonroad surrogate value totals for each state. |
| NRSulfurAdjustment | Nonroad diesel base sulfur level and sulfate PM conversion rate by tech type. |
| NRSurrogate | List of Nonroad geographic allocation surrogates with a description of each. |
| NRTemperatureAdjustment | Separate nonroad temperature correction factor "A" values above and below 75F for exhaust for equation:  TCF = EXP[ A \* (Tambient - 75F) ] |
| NRTransientAdjustFactor | Nonroad zero-hour emission rate multiplier to account for in-use transient operation vs steady-state certification test data. |
| NRUSMonthAllocation | Fraction of annual activity in each month, by state and nonroad equipment type. |
| NRZoneAllocation | Nonroad geographic (zone or county) allocation values by surrogate (e.g., water surface area) for each state. |
| OffNetworkLink |  |
| OMDGPolProcessRepresented |  |
| onroadretrofit |  |
| OperatingMode | A category of Total Activity (for one or more pollutants and emission processes) having distinct emission rates. |
| OpModeDistribution | An element of a distribution of Total Activity of a SourceUseType into  OperatingModes (for a particular pollutant and process). Since the unit of  Activity varies by emission process, Operating Modes Distributions do also.  Operating Modes Distributions are also allowed to vary by pollutant, e.g.  exhaust running CO2 may necessitate fewer VHO categories than exhaust running NOx.  These distributions depend on time (Day Group and Hour Group) and location (Link).  These distributions do not depend on ModelYear. |
| OpModePolProcAssoc |  |
| OxyThreshName |  |
| PAHGasRatio |  |
| PAHParticleRatio |  |
| PM10EmissionRatio |  |
| pmspeciation |  |
| Pollutant | Identifies an emission for which the model calculates results. There are both "mass" pollutants and "energy" pollutants. |
| PollutantDisplayGroup | Governs how pollutants are displayed in MOVES GUI. |
| PollutantProcessAssoc | The combination of a Pollutant with an emission Process that produces it. |
| PollutantProcessModelYear |  |
| ProcessDisplayGroup |  |
| ProcessGroupID |  |
| RefuelingFactors |  |
| RegClassFraction | Fraction of vehicles in a SourceUseType- Fueltype-EngineTech which are in a vehicle regulatory class. |
| region |  |
| regionCode |  |
| regionCounty |  |
| RegulatoryClass | A vehicle classification for emission standards regulatory purposes. Used as a source bin discriminator. |
| RetrofitInputAssociations |  |
| RoadOpmodeDistribution |  |
| RoadType | A RoadType classification. |
| RoadTypeDistribution | Element of a distribution of SourceType VMT by RoadType. |
| SampleVehicleDay |  |
| SampleVehiclePopulation | A table containing the composite fleet information. |
| sampleVehicleSoaking |  |
| samplevehiclesoakingday |  |
| samplevehiclesoakingdaybasis |  |
| samplevehiclesoakingdaybasisused |  |
| samplevehiclesoakingdayused |  |
| SampleVehicleTrip |  |
| SCC | Source Classification Code |
| Sector | Highway or Nonroad Industry segments. For Nonroad such as Recreational, Construction, Commercial, Lawn & Garden, Farm, Logging, Airports, Underground Mining, Recreational Marine, Rail Maintenance. |
| SHO | Total Activity for Emission Processes whose unit of Activity is Source Hours Operating.  Source Hours Operating are associated geographically with Links. |
| SizeWeightFraction |  |
| SoakActivityFraction | The fraction of hot soaking vs cold soaking. |
| SourceBin | Subcategories of SourceUseTypes that differentiate emission levels by such  discriminating characteristics as weight class, fuel type, emission standard, etc.  The subcategories are stored here independent of the SourceUseTypes to  which they are applied in SourceBinDistribution.  The attributes of this entity effectively define the source bin discriminators used in the model. These source bin discriminators are allowed to  assume NULL values and to have value domains which are not globally well  behaved, as long as they create well-defined partitions in the SourceBin distribution in which they are used. |
| SourceBinDistribution | The distribution of the Total Activity of a SourceUseTypeModelYear into  SourceBins. The set of SourceBins applicable to a SourceUseTypeModelYear is allowed to vary by pollutant and process.  Note that these distributions are not allowed to vary by geographic location.  (Though of course the SourceUseTypeModelYear populations do.) |
| SourceHours |  |
| SourceType |  |
| SourceTypeAge | The combination of a Source Use Type and an Age classification. |
| SourceTypeAgeDistribution | An element of a distribution of SourceUseType population into Age classifications. Allowed to depend upon calendar Year.  Also stores the resulting population as well as the population fraction. |
| SourceTypeDayVMT |  |
| SourceTypeHour | The combination of a SourceUseType and an HourGroup. |
| SourceTypeModelYear | The combination of a SourceType and a Model Year. |
| SourceTypeModelYearGroup | This table forms an association between SourceTypes, ModelYearGroups and TankTemperatureGroups. A combination of a modelYearGroupID (one used for a pollutant-process involving the Permeation process) and a sourceTypeID determines a tankTemperatureGroupID. Its key fields are sourceTypeID and modelYearGroupID. Its "data" field is tankTemperatureGroupID. |
| SourceTypePolProcess |  |
| SourceTypeTechAdjustment |  |
| SourceTypeYear | The combination of a SourceType and a calendar Year. |
| SourceTypeYearVMT |  |
| SourceUseType | A specific class of on-road vehicles or off-road equipment having distinct activity patterns. The on-road vehicle  SourceUseTypes proposed for MOVES are elaborated from six HPMS vehicle classes as shown in DP Table 7-2.  SourceUseTypes may be referred to more briefly as either "SourceTypes" or "UseTypes". |
| SourceUseTypePhysics | A specific class of on-road vehicles or off-road equipment having distinct activity patterns. The on-road vehicle  SourceUseTypes proposed for MOVES are elaborated from six HPMS vehicle classes as shown in DP Table 7-2.  SourceUseTypes may be referred to more briefly as either "SourceTypes" or "UseTypes". |
| Starts | Total Activity for Emission Processes whose unit of Activity is source Starts.  Starts are associated geographically with Zones. |
| startsHourFraction |  |
| startsMonthAdjust |  |
| startsPerDay |  |
| StartsPerVehicle |  |
| startsSourceTypeFraction |  |
| StartTempAdjustment |  |
| State | One of the 50 states of the United States or one of several additional areas governed by the Unites States  (the District of Columbia, Puerto Rico, and the Virgin Islands). |
| SulfateEmissionRate |  |
| sulfatefractions |  |
| SulfurBase |  |
| sulfurCapAmount |  |
| SulfurModelCoeff |  |
| SulfurModelName |  |
| TankTemperatureGroup | A categorization of fuel tank technologies in terms of how the temperature in the fuel tank increases during vehicle operation. As can be seen from the following table these are identified by sourceTypeID and the set of modelYearGroups used for the Permeation process. |
| TankTemperatureRise |  |
| TankVaporGenCoeffs | Note: altitude field herein is in common with County. |
| TemperatureAdjustment |  |
| temperaturefactorexpression |  |
| TemperatureProfileID |  |
| togspeciation | Part of speciation profiles and supporting tables. |
| togspeciationprofile |  |
| togspeciationprofilename | Part of speciation profiles and supporting tables. |
| WeightClass | A source weight classification. |
| Year | An actual calendar year. |
| Zone | An area within a County. At the macroscale there will be one Zone for each County, so at that scale Zones are equivalent  to Counties. At smaller scales the Zones are User-Defined areas, but must belong to Counties.  Zones, along with Links, function as the "locations" discussed in the DP. |
| ZoneMonthHour | One HourGroup for one Month for one Zone. |
| ZoneRoadType | The combination of a Zone and a RoadType |

| **Table** |
| --- |

| **Table** |
| --- |
| **Name** |
| AgeCategory |
| AgeGroup |
| ATBaseEmissions |
| AtRatio |
| AtRatioGas2 |
| AtRatioNonGas |
| AverageTankGasoline |
| AverageTankTemperature |
| avft |
| AvgSpeedBin |
| AvgSpeedDistribution |
| BaseFuel |
| ColdSoakInitialHourFraction |
| ColdSoakTankTemperature |
| ComplexModelParameterName |
| ComplexModelParameters |
| County |
| CountyYear |
| CrankcaseEmissionRatio |
| criteriaRatio |
| CumTVVCoeffs |
| DataSource |
| DayOfAnyWeek |
| DayVMTFraction |
| DioxinEmissionRate |
| DriveSchedule |
| DriveScheduleAssoc |
| DriveScheduleSecond |
| DriveScheduleSecondLink |
| E\_7 |
| e10FuelProperties |
| EmissionProcess |
| EmissionRate |
| emissionrateadjustment |
| EmissionRateByAge |
| EngineSize |
| EngineTech |
| ETOHBin |
| evaprvptemperatureadjustment |
| evaptemperatureadjustment |
| ExtendedIdleHours |
| ExtendedIdleHours |
| Fuel |
| FuelAdjustment |
| FuelEngFraction |
| FuelEngTechAssoc |
| FuelFormulation |
| FuelModelName |
| FuelModelWtFactor |
| FuelModelYearGroup |
| FuelParameterName |
| FuelSubtype |
| FuelSupply |
| FuelSupplyYear |
| FuelType |
| fuelUsageFraction |
| fuelWizardFactors |
| FullACAdjustment |
| generalFuelRatio |
| generalFuelRatioExpression |
| GREETManfAndDisposal |
| GREETWellToPump |
| Grid |
| GridZoneAssoc |
| HCPermeationCoeff |
| HCSpeciation |
| HotellingActivityDistribution |
| hotellingcalendaryear |
| HotellingHours |
| HourDay |
| HourOfAnyDay |
| HourVMTFraction |
| HPMSVtype |
| HPMSVtypeDay |
| HPMSVtypeYear |
| IMCoverage |
| IMFactor |
| IMInspectFreq |
| IMModelYearGroup |
| importStartsOpModeDistribution |
| IMTestStandards |
| IMTestType |
| integratedspeciesset |
| integratedspeciessetname |
| Link |
| LinkAverageSpeed |
| LinkHourVMTFraction |
| LinkSourceTypeHour |
| lumpedspeciesname |
| M6SulfurCoeff |
| MeanFuelParameters |
| mechanismname |
| MetalEmissionRate |
| methanethcratio |
| MinorHAPRatio |
| ModelYear |
| modelyearcutpoints |
| ModelYearGroup |
| modelyearmapping |
| MonthGroupHour |
| MonthGroupOfAnyYear |
| MonthofAnyYear |
| MonthVMTFraction |
| NONO2Ratio |
| NRAgeCategory |
| nratratio |
| NRBaseYearEquipPopulation |
| NRCrankCaseEmissionRate |
| NRDayAllocation |
| NRDeterioration |
| nrDioxinEmissionRate |
| NREmissionRate |
| NREngTechFraction |
| NREquipmentType |
| nrEvapEmissionrate |
| NRFuelOxyAdjustment |
| NRFuelSubtype |
| NRFuelSupply |
| NRFuelType |
| NRGrowthIndex |
| NRGrowthPattern |
| NRGrowthPatternFinder |
| nrhcspeciation |
| NRHourAllocation |
| NRHourAllocPattern |
| NRHourPatternFinder |
| nrhpcategory |
| NRHPRangeBin |
| NRIntegratedSpecies |
| nrmetalemissionrate |
| nrmethanethcratio |
| NRMonthAllocation |
| nrpahgasratio |
| nrpahparticleratio |
| NRPollutantProcessModelYear |
| NRProcessGroup |
| NRRetrofitFactors |
| NRSCC |
| NRScrappageCurve |
| NRSourceBin |
| NRSourceUseType |
| NRStateSurrogate |
| NRSulfurAdjustment |
| NRSurrogate |
| NRTemperatureAdjustment |
| NRTransientAdjustFactor |
| NRUSMonthAllocation |
| NRZoneAllocation |
| OffNetworkLink |
| OMDGPolProcessRepresented |
| onroadretrofit |
| OperatingMode |
| OpModeDistribution |
| OpModePolProcAssoc |
| OxyThreshName |
| PAHGasRatio |
| PAHParticleRatio |
| PM10EmissionRatio |
| pmspeciation |
| Pollutant |
| PollutantDisplayGroup |
| PollutantProcessAssoc |
| PollutantProcessModelYear |
| ProcessDisplayGroup |
| ProcessGroupID |
| RefuelingFactors |
| RegClassFraction |
| region |
| regionCode |
| regionCounty |
| RegulatoryClass |
| RetrofitInputAssociations |
| RoadOpmodeDistribution |
| RoadType |
| RoadTypeDistribution |
| SampleVehicleDay |
| SampleVehiclePopulation |
| sampleVehicleSoaking |
| samplevehiclesoakingday |
| samplevehiclesoakingdaybasis |
| samplevehiclesoakingdaybasisus |
| samplevehiclesoakingdayused |
| SampleVehicleTrip |
| SCC |
| Sector |
| SHO |
| SizeWeightFraction |
| SoakActivityFraction |
| SourceBin |
| SourceBinDistribution |
| SourceHours |
| SourceType |
| SourceTypeAge |
| SourceTypeAgeDistribution |
| SourceTypeDayVMT |
| SourceTypeHour |
| SourceTypeModelYear |
| SourceTypeModelYearGroup |
| SourceTypePolProcess |
| SourceTypeTechAdjustment |
| SourceTypeYear |
| SourceTypeYearVMT |
| SourceUseType |
| SourceUseTypePhysics |
| Starts |
| startsHourFraction |
| startsMonthAdjust |
| startsPerDay |
| StartsPerVehicle |
| startsSourceTypeFraction |
| StartTempAdjustment |
| State |
| SulfateEmissionRate |
| sulfatefractions |
| SulfurBase |
| sulfurCapAmount |
| SulfurModelCoeff |
| SulfurModelName |
| TankTemperatureGroup |
| TankTemperatureRise |
| TankVaporGenCoeffs |
| TemperatureAdjustment |
| temperaturefactorexpression |
| TemperatureProfileID |
| togspeciation |
| togspeciationprofile |
| togspeciationprofilename |
| WeightClass |
| Year |
| Zone |
| ZoneMonthHour |
| ZoneRoadType |

| **Column(s) of "AgeCategory" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| ageCategoryName | CHAR(50) | NULL |  |
| ageGroupID | SMALLINT | NOT NULL |  |

| **Column(s) of "AgeGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| ageGroupID | SMALLINT | NOT NULL |  |
| ageGroupName | CHAR(50) | NULL |  |

| **Column(s) of "ATBaseEmissions" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| monthGroupID | SMALLINT | NOT NULL |  |
| atBaseEmissions | FLOAT | NOT NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "AtRatio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| fuelFormulationID | SMALLINT | NOT NULL |  |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| minModelYearID | SMALLINT | NOT NULL |  |
| maxModelYearID | SMALLINT | NOT NULL |  |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| monthGroupID | SMALLINT | NOT NULL |  |
| ATRatio | DOUBLE | NULL |  |

| **Column(s) of "AtRatioGas2" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| ATRatio | FLOAT | NULL |  |
| ATRatioCV | FLOAT | NULL |  |

| **Column(s) of "AtRatioNonGas" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| ATRatio | DOUBLE | NULL |  |
| ATRatioCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "AverageTankGasoline" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| fuelYearID | INTEGER | NOT NULL | Identifies a year for which fuel supply data has been entered in the FuelSupply table. (May be used by multiple calendar years.) |
| monthGroupID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| ETOHVolume | FLOAT | NULL |  |
| RVP | FLOAT | NULL |  |

| **Column(s) of "AverageTankTemperature" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| tankTemperatureGroupID | SMALLINT | NOT NULL |  |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| opModeID | SMALLINT | NOT NULL |  |
| averageTankTemperature | FLOAT | NULL |  |
| averageTankTemperatureCV | FLOAT | NULL |  |

| **Column(s) of "avft" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| sourceTypeID | SMALLINT | NOT NULL |  |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| fuelEngFraction | DOUBLE | NOT NULL |  |

| **Column(s) of "AvgSpeedBin" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| avgSpeedBinID | SMALLINT | NOT NULL | Identifies an average speed bin or category. |
| avgBinSpeed | FLOAT | NULL | The nominal speed (in miles per hour) associated with a speed bin. |
| avgSpeedBinDesc | CHAR(50) | NULL |  |
| opModeIDTirewear | SMALLINT | NULL |  |
| opModeIDRunning | SMALLINT | NULL |  |

| **Column(s) of "AvgSpeedDistribution" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| roadTypeID | SMALLINT | NOT NULL |  |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| avgSpeedBinID | SMALLINT | NOT NULL | Identifies an average speed bin or category. |
| avgSpeedFraction | FLOAT | NULL | Fraction of time spent in an average speed bin by vehicles in a given SourceUseType, for a given Roadtype, Day, and Hour.  Required input for MOVES DP mathematical formulation step OMDG-1 and TAG 7. |

| **Column(s) of "BaseFuel" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| calculationEngine | VARCHAR(100) | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| dataSourceId | SMALLINT | NOT NULL | Identification of a source of information in this Database. |
| fuelFormulationID | SMALLINT | NOT NULL |  |
| description | VARCHAR(255) | NOT NULL |  |

| **Column(s) of "ColdSoakInitialHourFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| initialHourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| coldSoakInitialHourFraction | FLOAT | NOT NULL |  |

| **Column(s) of "ColdSoakTankTemperature" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| coldSoakTankTemperature | FLOAT | NOT NULL |  |

| **Column(s) of "ComplexModelParameterName" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| cmpID | SMALLINT | NOT NULL |  |
| cmpName | CHAR(25) | NOT NULL |  |
| cmpExpression | VARCHAR(500) | NOT NULL |  |

| **Column(s) of "ComplexModelParameters" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelModelID | SMALLINT | NOT NULL |  |
| cmpID | SMALLINT | NOT NULL |  |
| coeff1 | FLOAT | NULL |  |
| coeff2 | FLOAT | NULL |  |
| coeff3 | FLOAT | NULL |  |

| **Column(s) of "County" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| countyName | CHAR(50) | NULL |  |
| altitude | CHAR(1) | NULL | "H" or "L". |
| GPAFract | FLOAT | NULL | Fraction of county in the fuel geographic phase-in area. |
| barometricPressure | FLOAT | NULL | Expressed in inches of mercury. |
| barometricPressureCV | FLOAT | NULL |  |

| **Column(s) of "CountyYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| refuelingVaporProgramAdjust | FLOAT | NOT NULL |  |
| refuelingSpillProgramAdjust | FLOAT | NOT NULL |  |

| **Column(s) of "CrankcaseEmissionRatio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| minModelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| maxModelYearID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| crankcaseRatio | FLOAT | NOT NULL |  |
| crankcaseRatioCV | FLOAT | NULL |  |

| **Column(s) of "criteriaRatio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| fuelFormulationID | SMALLINT | NOT NULL |  |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| processID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| ratio | DOUBLE | NULL |  |
| ratioGPA | DOUBLE | NULL |  |
| ratioNoSulfur | DOUBLE | NULL |  |

| **Column(s) of "CumTVVCoeffs" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| regClassID | SMALLINT | NOT NULL | Identifies a class of source use types for regulation purposes. |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| ageGroupID | SMALLINT | NOT NULL |  |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| tvvTermA | FLOAT | NULL |  |
| tvvTermB | FLOAT | NULL |  |
| tvvTermC | FLOAT | NULL |  |
| tvvTermACV | FLOAT | NULL |  |
| tvvTermBCV | FLOAT | NULL |  |
| tvvTermCCV | FLOAT | NULL |  |
| tvvTermAIM | FLOAT | NULL |  |
| tvvTermBIM | FLOAT | NULL |  |
| tvvTermCIM | FLOAT | NULL |  |
| tvvTermAIMCV | FLOAT | NULL |  |
| tvvTermBIMCV | FLOAT | NULL |  |
| tvvTermCIMCV | FLOAT | NULL |  |
| backPurgeFactor | DOUBLE | NULL |  |
| averageCanisterCapacity | DOUBLE | NULL |  |
| tvvEquation | VARCHAR(4096) | NOT NULL |  |
| leakEquation | VARCHAR(4096) | NOT NULL |  |
| leakFraction | DOUBLE | NULL |  |
| tankSize | DOUBLE | NULL |  |
| tankFillFraction | DOUBLE | NULL |  |
| leakFractionIM | DOUBLE | NULL |  |

| **Column(s) of "DataSource" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| dataSourceId | SMALLINT | NOT NULL | Identification of a source of information in this Database. |
| Author | CHAR(25) | NULL | Name of person who was the source of the information |
| Date | DATE | NULL | Date of the information |
| Sponsor | CHAR(30) | NULL | Organization, if any, that funded the effort that created the information |
| DocumentId | CHAR(150) | NULL | Description of the source of information. |
| QualityLevel | CHAR(1) | NULL |  |

| **Column(s) of "DayOfAnyWeek" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| dayName | CHAR(10) | NULL |  |
| noOfRealDays | FLOAT | NOT NULL | Indicates the number of real weekdays represented by the kind of day. For a database which considered the week to consist of a single time period it would have the value 7.0. "A typical weekday" would have the value 5.0, etc. This field is necessary for the model to aggregate daily level results to monthly level results. |

| **Column(s) of "DayVMTFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| roadTypeID | SMALLINT | NOT NULL |  |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| dayVMTFraction | FLOAT | NULL | Fraction of source type activity during a month on a roadtype which occurs during a 24 hour period of type dayID. Separate distributions are stored for each month. Required input for MOVES DP math formulation step TAG-6. |

| **Column(s) of "DioxinEmissionRate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| units | CHAR(30) | NULL |  |
| meanBaseRate | DOUBLE | NULL |  |
| meanBaseRateCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "DriveSchedule" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| driveScheduleID | SMALLINT | NOT NULL | Number identifying a driving schedule, often referred to as a driving cycle. |
| averageSpeed | FLOAT | NOT NULL | The average speed associated with a driving schedule, expressed in miles per hour. This would normally be calculated as the mathematical average of its second-by-second speed values, or (equivalently) as total distance traveled divided by total time.  However for schedules representing SourceUseTypes whose average speed differs from that of normal traffic, e.g. buses and refuse trucks, it may be the nominal average speed of normal traffic on that roadway. |
| driveScheduleName | CHAR(50) | NULL | Name, or short textual description of a driving schedule |

| **Column(s) of "DriveScheduleAssoc" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| roadTypeID | SMALLINT | NOT NULL |  |
| isRamp | CHAR(1) | NOT NULL | Uppercase "Y" if schedule is associated with freeway or interstate ramps, otherwise uppercase "N". |
| driveScheduleID | SMALLINT | NOT NULL | Number identifying a driving schedule, often referred to as a driving cycle. |

| **Column(s) of "DriveScheduleSecond" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| driveScheduleID | SMALLINT | NOT NULL | Number identifying a driving schedule, often referred to as a driving cycle. |
| second | SMALLINT | NOT NULL |  |
| speed | FLOAT | NULL | speed in miles per hour |

| **Column(s) of "DriveScheduleSecondLink" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| secondID | SMALLINT | NOT NULL |  |
| speed | FLOAT | NULL |  |
| grade | FLOAT | NOT NULL |  |

| **Column(s) of "e10FuelProperties" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelRegionID | INTEGER | NOT NULL |  |
| fuelYearID | INTEGER | NOT NULL | Identifies a year for which fuel supply data has been entered in the FuelSupply table. (May be used by multiple calendar years.) |
| monthGroupID | SMALLINT | NOT NULL |  |
| RVP | DOUBLE | NULL |  |
| sulfurLevel | DOUBLE | NULL |  |
| ETOHVolume | DOUBLE | NULL |  |
| MTBEVolume | DOUBLE | NULL |  |
| ETBEVolume | DOUBLE | NULL |  |
| TAMEVolume | DOUBLE | NULL |  |
| aromaticContent | DOUBLE | NULL |  |
| olefinContent | DOUBLE | NULL |  |
| benzeneContent | DOUBLE | NULL |  |
| e200 | DOUBLE | NULL |  |
| e300 | DOUBLE | NULL |  |
| BioDieselEsterVolume | DOUBLE | NULL |  |
| CetaneIndex | DOUBLE | NULL |  |
| PAHContent | DOUBLE | NULL |  |
| T50 | DOUBLE | NULL |  |
| T90 | DOUBLE | NULL |  |

| **Column(s) of "EmissionProcess" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| processName | CHAR(50) | NULL |  |
| occursOnRealRoads | CHAR(1) | NOT NULL |  |
| shortName | VARCHAR(50) | NULL |  |
| processDisplayGroupID | SMALLINT | NULL |  |

| **Column(s) of "EmissionRate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| opModeID | SMALLINT | NOT NULL |  |
| sourceBinID | LONG | NOT NULL | Large integer value which identifies a SourceBin.  These have form: 1ffttrryysssswwww00 where:  1 is the literal value "1"  ff is the fuelTypeID  tt is the engTechID  rr is the regClassID  yy is the shortModYrGroupID  ssss is the engSizeID  www is the weightClassID  00 is the literal value "00" |
| meanBaseRate | FLOAT | NULL | Mean base emission rate per unit of activity.  For pollutant processes which involve "mass" type pollutants the units are grams per "activity unit". For pollutant-processes which involve "energy" type pollutants the units are kiloJoules per "activity unit". The "activity unit" depends on the process. For pollutant-processes which involve the running process the activity unit is "source hours operating (SHO)"; for pollutant-processes which involve the start process the activity unit is "number of starts", for pollutant-processes which involve the extended idle process the activity unit is "extended idle hours". (Emission rates for pollutant-processes which involve the well-to-pump process are not stored in this table.) |
| meanBaseRateCV | FLOAT | NULL |  |
| meanBaseRateIM | FLOAT | NULL |  |
| meanBaseRateIMCV | FLOAT | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "emissionrateadjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| sourceTypeID | SMALLINT | NOT NULL |  |
| regClassID | SMALLINT | NOT NULL | Identifies a class of source use types for regulation purposes. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| beginModelYearID | SMALLINT | NOT NULL |  |
| endModelYearID | SMALLINT | NOT NULL |  |
| emissionRateAdjustment | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "EmissionRateByAge" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| ageGroupID | SMALLINT | NOT NULL |  |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| opModeID | SMALLINT | NOT NULL |  |
| sourceBinID | LONG | NOT NULL | Large integer value which identifies a SourceBin.  These have form: 1ffttrryysssswwww00 where:  1 is the literal value "1"  ff is the fuelTypeID  tt is the engTechID  rr is the regClassID  yy is the shortModYrGroupID  ssss is the engSizeID  www is the weightClassID  00 is the literal value "00" |
| meanBaseRate | FLOAT | NULL | Mean base emission rate per unit of activity.  For pollutant processes which involve "mass" type pollutants the units are grams per "activity unit". For pollutant-processes which involve "energy" type pollutants the units are kiloJoules per "activity unit". The "activity unit" depends on the process. For pollutant-processes which involve the running process the activity unit is "source hours operating (SHO)"; for pollutant-processes which involve the start process the activity unit is "number of starts", for pollutant-processes which involve the extended idle process the activity unit is "extended idle hours". (Emission rates for pollutant-processes which involve the well-to-pump process are not stored in this table.) |
| meanBaseRateCV | FLOAT | NULL |  |
| meanBaseRateIM | FLOAT | NULL |  |
| meanBaseRateIMCV | FLOAT | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "EngineSize" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| engSizeID | INTEGER | NOT NULL | Identifies an engine displacement category. |
| engSizeName | CHAR(50) | NULL |  |

| **Column(s) of "EngineTech" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| tierID | SMALLINT | NULL |  |
| strokes | SMALLINT | NOT NULL |  |
| engTechName | CHAR(50) | NULL |  |
| engTechDesc | CHAR(80) | NULL |  |

| **Column(s) of "ETOHBin" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| etohThreshID | SMALLINT | NOT NULL |  |
| etohThreshLow | FLOAT | NULL |  |
| etohThreshHigh | FLOAT | NULL |  |
| etohNominalValue | FLOAT | NULL |  |

| **Column(s) of "evaprvptemperatureadjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| RVP | DOUBLE | NOT NULL |  |
| adjustTerm3 | DOUBLE | NOT NULL |  |
| adjustTerm2 | DOUBLE | NOT NULL |  |
| adjustTerm1 | DOUBLE | NOT NULL |  |
| adjustConstant | DOUBLE | NOT NULL |  |

| **Column(s) of "evaptemperatureadjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| tempAdjustTerm3 | DOUBLE | NOT NULL |  |
| tempAdjustTerm2 | DOUBLE | NOT NULL |  |
| tempAdjustTerm1 | DOUBLE | NOT NULL |  |
| tempAdjustConstant | DOUBLE | NOT NULL |  |

| **Column(s) of "ExtendedIdleHours" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| extendedIdleHours | FLOAT | NULL |  |
| extendedIdleHoursCV | FLOAT | NULL |  |

| **Column(s) of "ExtendedIdleHours" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| extendedIdleHours | FLOAT | NULL |  |
| extendedIdleHoursCV | FLOAT | NULL |  |

| **Column(s) of "FuelAdjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| fuelMYGroupID | INTEGER | NOT NULL |  |
| fuelFormulationID | SMALLINT | NOT NULL |  |
| fuelAdjustment | FLOAT | NULL | multiplicative emission adjustment factor, used outside of the geographic fuel phase in area |
| fuelAdjustmentCV | FLOAT | NULL | coefficient of variation of the multiplicative emission adjustment factor, used outside of the geographic fuel phase in area |
| fuelAdjustmentGPA | FLOAT | NULL | multiplicative emission adjustment factor, used inside of the geographic fuel phase in area |
| fuelAdjustmentGPACV | FLOAT | NULL | coefficient of variation of the multiplicative emission adjustment factor, used inside of the geographic fuel phase in area |

| **Column(s) of "FuelEngFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeModelYearID | INTEGER | NOT NULL | Identifies a SourceTypeModelYear.  Equals (10000 \* sourceTypeID) + modelYearID |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| fuelEngFraction | FLOAT | NULL |  |

| **Column(s) of "FuelEngTechAssoc" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology:  Legal values and their meanings are defined by the EngTech table. |
| category | CHAR(50) | NOT NULL | The category, or grouping for control strategy GUI purposes, of this fuelTypeID-engTechID combination. (A second normal form violation because does not depend upon sourceTypeID) |
| categoryDisplayOrder | SMALLINT | NOT NULL | Order in which this category should be displayed in the Control Strategy GUI. (A third normal form violation because depends only upon category.) |

| **Column(s) of "FuelFormulation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelFormulationID | SMALLINT | NOT NULL |  |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| RVP | FLOAT | NULL | Vapor pressure, expressed in psi. |
| sulfurLevel | FLOAT | NOT NULL | sulfur content, expressed in ppm |
| ETOHVolume | FLOAT | NULL | Ethanol content, expressed in volume percentage |
| MTBEVolume | FLOAT | NULL | MTBE content, expressed in volume percentage |
| ETBEVolume | FLOAT | NULL | ETBE content expressed as a volume percentage |
| TAMEVolume | FLOAT | NULL | TAME content, expressed as a volume percentage |
| aromaticContent | FLOAT | NULL | aromatic content, expressed as a volume percentage |
| olefinContent | FLOAT | NULL | olefin content, expressed as a volume percentage |
| benzeneContent | FLOAT | NULL | benzene content, expressed as a volume percentage |
| e200 | FLOAT | NULL | percentage vapor at 200 degrees F |
| e300 | FLOAT | NULL | percentage vapor at 300 degrees F |
| volToWtPercentOxy | FLOAT | NULL |  |
| BioDieselEsterVolume | FLOAT | NULL |  |
| CetaneIndex | FLOAT | NULL |  |
| PAHContent | FLOAT | NULL |  |
| T50 | FLOAT | NULL |  |
| T90 | FLOAT | NULL |  |

| **Column(s) of "FuelModelName" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelModelID | SMALLINT | NOT NULL |  |
| fuelModelName | VARCHAR(50) | NOT NULL |  |
| fuelModelAbbreviation | VARCHAR(10) | NOT NULL |  |
| calculationEngines | VARCHAR(200) | NOT NULL |  |

| **Column(s) of "FuelModelWtFactor" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelModelID | SMALLINT | NOT NULL |  |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| fuelModelWtFactor | FLOAT | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "FuelModelYearGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelMYGroupID | INTEGER | NOT NULL |  |
| fuelMYGroupName | CHAR(100) | NULL |  |
| fuelMYGroupFunction | CHAR(200) | NULL |  |
| maxSulfurLevel | FLOAT | NULL | maximum fuel sulfur level to which vehicle exposed, for use outside the geographic fuel phase in area. |
| maxSulfurLevelCV | FLOAT | NULL |  |
| maxSulfurLevelGPA | FLOAT | NULL | maximum fuel sulfur level to which vehicle exposed, for use inside the geographic fuel phase in area. |
| maxSulfurLevelGPACV | FLOAT | NULL |  |

| **Column(s) of "FuelParameterName" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelParameterID | SMALLINT | NOT NULL |  |
| fuelParameterName | VARCHAR(25) | NOT NULL |  |
| fuelParameterUnits | VARCHAR(20) | NOT NULL |  |
| fuelParameterExpression | VARCHAR(500) | NOT NULL |  |

| **Column(s) of "FuelSubtype" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| fuelSubtypeDesc | CHAR(50) | NULL |  |
| fuelSubtypePetroleumFraction | FLOAT | NULL |  |
| fuelSubtypePetroleumFractionCV | FLOAT | NULL |  |
| FuelSubTypeFossilFraction | FLOAT | NULL |  |
| fuelSubtypeFossilFractionCV | FLOAT | NULL |  |
| carbonContent | FLOAT | NULL | unit = grams / kilojoules. |
| oxidationFraction | FLOAT | NULL |  |
| carbonContentCV | FLOAT | NULL |  |
| oxidationFractionCV | FLOAT | NULL |  |
| energyContent | FLOAT | NULL |  |

| **Column(s) of "FuelSupply" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelRegionID | INTEGER | NOT NULL |  |
| fuelYearID | INTEGER | NOT NULL | Identifies a year for which fuel supply data has been entered in the FuelSupply table. (May be used by multiple calendar years.) |
| monthGroupID | SMALLINT | NOT NULL |  |
| fuelFormulationID | SMALLINT | NOT NULL |  |
| marketShare | FLOAT | NULL | Decimal Fraction of the supply of this fuel type which this fuel formulation constitutes. |
| marketShareCV | FLOAT | NULL |  |

| **Column(s) of "FuelSupplyYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelYearID | INTEGER | NOT NULL | Identifies a year for which fuel supply data has been entered in the FuelSupply table. (May be used by multiple calendar years.) |

| **Column(s) of "FuelType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| defaultFormulationID | SMALLINT | NOT NULL | identifies the fuel formulation which is assumed to constitute the fuel supply of this fueltype when information is not present in fuel supply table. |
| fuelTypeDesc | CHAR(50) | NULL |  |
| humidityCorrectionCoeff | FLOAT | NULL |  |
| humidityCorrectionCoeffCV | FLOAT | NULL |  |
| fuelDensity | FLOAT | NULL | units = grams/gallon |
| subjectToEvapCalculations | CHAR(1) | NOT NULL |  |

| **Column(s) of "fuelUsageFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| fuelYearID | INTEGER | NOT NULL | Identifies a year for which fuel supply data has been entered in the FuelSupply table. (May be used by multiple calendar years.) |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| sourceBinFuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| fuelSupplyFuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| usageFraction | DOUBLE | NULL |  |

| **Column(s) of "fuelWizardFactors" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| monthGroupID | SMALLINT | NOT NULL |  |
| adjustedParameter | VARCHAR(4) | NOT NULL |  |
| minLevel | DOUBLE | NOT NULL |  |
| maxLevel | DOUBLE | NOT NULL |  |
| functionType | VARCHAR(4) | NOT NULL |  |
| RVP\_factor | DOUBLE | NULL |  |
| sulf\_factor | DOUBLE | NULL |  |
| ETOH\_factor | DOUBLE | NULL |  |
| arom\_factor | DOUBLE | NULL |  |
| olef\_factor | DOUBLE | NULL |  |
| benz\_factor | DOUBLE | NULL |  |
| e200\_factor | DOUBLE | NULL |  |
| e300\_factor | DOUBLE | NULL |  |
| T50\_factor | DOUBLE | NULL |  |
| T90\_factor | DOUBLE | NULL |  |
| units | VARCHAR(6) | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "FullACAdjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| opModeID | SMALLINT | NOT NULL |  |
| fullACAdjustment | FLOAT | NULL | Full AC adjustment factor. Assumed to equal 1.0 (i.e. have no effect) if a record is not present for a combination of sourceBinID and polProcessID. |
| fullACAdjustmentCV | FLOAT | NULL |  |

| **Column(s) of "generalFuelRatio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| fuelFormulationID | SMALLINT | NOT NULL |  |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| processID | SMALLINT | NOT NULL |  |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| minModelYearID | SMALLINT | NOT NULL |  |
| maxModelYearID | SMALLINT | NOT NULL |  |
| minAgeID | SMALLINT | NOT NULL |  |
| maxAgeID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| fuelEffectRatio | DOUBLE | NOT NULL |  |
| fuelEffectRatioGPA | DOUBLE | NOT NULL |  |

| **Column(s) of "generalFuelRatioExpression" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| minModelYearID | INTEGER | NOT NULL |  |
| maxModelYearID | INTEGER | NOT NULL |  |
| minAgeID | INTEGER | NOT NULL |  |
| maxAgeID | INTEGER | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| fuelEffectRatioExpression | VARCHAR(32000) | NOT NULL |  |
| fuelEffectRatioGPAExpression | VARCHAR(32000) | NOT NULL |  |

| **Column(s) of "GREETManfAndDisposal" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| GREETVehicleType | SMALLINT | NOT NULL | A category of vehicles which GREET understands. |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| EmissionStage | CHAR(4) | NOT NULL | MANF = Vehicle Manufacture  CONS = Non-Fuel Consumables Consumtion  DISP = Vehicle Disposal |
| emissionPerVehicle | FLOAT | NULL |  |

| **Column(s) of "GREETWellToPump" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| emissionRate | FLOAT | NULL |  |
| emissionRateUncertainty | FLOAT | NULL |  |

| **Column(s) of "Grid" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| gridID | INTEGER | NOT NULL | Grid belongs to a zone. |

| **Column(s) of "GridZoneAssoc" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| gridID | INTEGER | NOT NULL | Grid belongs to a zone. |
| gridAllocFactor | FLOAT | NULL | Portion of the zone that this grid is. |

| **Column(s) of "HCPermeationCoeff" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| etohThreshID | SMALLINT | NOT NULL |  |
| fuelMYGroupID | INTEGER | NOT NULL |  |
| fuelAdjustment | FLOAT | NULL |  |
| fuelAdjustmentGPA | FLOAT | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "HCSpeciation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelMYGroupID | INTEGER | NOT NULL |  |
| etohThreshID | SMALLINT | NOT NULL |  |
| oxyThreshID | SMALLINT | NOT NULL |  |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| speciationConstant | FLOAT | NULL |  |
| oxySpeciation | FLOAT | NULL |  |

| **Column(s) of "HotellingActivityDistribution" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| opModeID | SMALLINT | NOT NULL |  |
| beginModelYearID | SMALLINT | NOT NULL |  |
| endModelYearID | SMALLINT | NOT NULL |  |
| opModeFraction | FLOAT | NOT NULL |  |

| **Column(s) of "hotellingcalendaryear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| hotellingRate | DOUBLE | NOT NULL |  |

| **Column(s) of "HotellingHours" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| hotellingHours | DOUBLE | NULL |  |

| **Column(s) of "HourDay" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |

| **Column(s) of "HourOfAnyDay" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| hourName | CHAR(50) | NULL |  |

| **Column(s) of "HourVMTFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| roadTypeID | SMALLINT | NOT NULL |  |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| hourVMTFraction | FLOAT | NULL | Fraction of source type activity on a roadtype during a day of type dayID which occurs during the hour identified by hourID.  Required input for MOVES DP math formulation step TAG-6. |

| **Column(s) of "HPMSVtype" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| HPMSVtypeID | SMALLINT | NOT NULL | Highway performance management system vehicle class identification number as follows:  10 Motorcycles  20 Passenger cars  30 Other 2 axle-4 tire vehicles  40 Buses  50 Single Unit Trucks  60 Combination Trucks |
| HPMSVtypeName | CHAR(50) | NULL |  |

| **Column(s) of "HPMSVtypeDay" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| yearID | SMALLINT | NOT NULL |  |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| HPMSVtypeID | SMALLINT | NOT NULL | Highway performance management system vehicle class identification number as follows:  10 Motorcycles  20 Passenger cars  30 Other 2 axle-4 tire vehicles  40 Buses  50 Single Unit Trucks  60 Combination Trucks |
| VMT | DOUBLE | NOT NULL |  |

| **Column(s) of "HPMSVtypeYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| HPMSVtypeID | SMALLINT | NOT NULL | Highway performance management system vehicle class identification number as follows:  10 Motorcycles  20 Passenger cars  30 Other 2 axle-4 tire vehicles  40 Buses  50 Single Unit Trucks  60 Combination Trucks |
| VMTGrowthFactor | DOUBLE | NULL | Ratio of total calendar year VMT of an HPMSVtype relative to the previous calendar year. (e.g. a value of 1.00 represents no change in VMT.)  Required input for MOVES DP math formulation step TAG-4. |
| HPMSBaseYearVMT | DOUBLE | NULL | Total highway miles traveled in a calendar year by all elements of an HPMS vehicle type in the modeling domain. Populated only for base years.  Required input for MOVES DP math formulation step TAG-4. |

| **Column(s) of "IMCoverage" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| IMProgramID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| begModelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| endModelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| inspectFreq | SMALLINT | NULL | "A" means annual  "B" means biennial  "C" means continuous |
| testStandardsID | SMALLINT | NOT NULL |  |
| useIMyn | CHAR(1) | NOT NULL |  |
| complianceFactor | FLOAT | NULL |  |

| **Column(s) of "IMFactor" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| inspectFreq | SMALLINT | NOT NULL |  |
| testStandardsID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| IMModelYearGroupID | INTEGER | NOT NULL |  |
| ageGroupID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| IMFactor | FLOAT | NULL |  |

| **Column(s) of "IMInspectFreq" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| inspectFreq | SMALLINT | NOT NULL |  |
| inspectFreqDesc | CHAR(50) | NULL |  |

| **Column(s) of "IMModelYearGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| IMModelYearGroupID | INTEGER | NOT NULL |  |
| IMModelYearGroupDesc | CHAR(40) | NOT NULL |  |

| **Column(s) of "importStartsOpModeDistribution" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL |  |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| opModeID | SMALLINT | NOT NULL |  |
| opModeFraction | FLOAT | NULL |  |
| opModeFractionCV | FLOAT | NULL |  |
| isUserInput | CHAR(1) | NOT NULL |  |

| **Column(s) of "IMTestStandards" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| testStandardsID | SMALLINT | NOT NULL |  |
| testStandardsDesc | CHAR(50) | NOT NULL |  |
| shortName | CHAR(50) | NULL |  |

| **Column(s) of "IMTestType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| testTypeID | SMALLINT | NOT NULL |  |
| testTypeDesc | CHAR(50) | NOT NULL |  |
| shortName | CHAR(50) | NULL |  |

| **Column(s) of "integratedspeciesset" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| mechanismID | SMALLINT | NOT NULL |  |
| integratedSpeciesSetID | SMALLINT | NOT NULL |  |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| useISSyn | VARCHAR(2) | NULL |  |

| **Column(s) of "integratedspeciessetname" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| integratedSpeciesSetID | SMALLINT | NOT NULL |  |
| integratedSpeciesSetName | VARCHAR(40) | NULL |  |

| **Column(s) of "Link" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| zoneID | INTEGER | NULL | Identifies a zone. |
| roadTypeID | SMALLINT | NOT NULL |  |
| linkLength | FLOAT | NULL | Length of the Link in miles. Required input for MOVES DP math formulation step TAG-4  if modeling at the mesoscale or microscale. Not used in MOVES2006. |
| linkVolume | FLOAT | NULL | The number of vehicles traveling over a link during the analysis time period. Not used in MOVES2006. |
| linkAvgSpeed | FLOAT | NULL |  |
| linkDescription | VARCHAR(50) | NULL |  |
| linkAvgGrade | FLOAT | NULL |  |

| **Column(s) of "LinkAverageSpeed" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| averageSpeed | FLOAT | NULL | The length of the link divided by the average time for vehicles to traverse the link, expressed in miles per hour.  Required input for MOVES DP math formulation mesoscale step TAG-7 |

| **Column(s) of "LinkHourVMTFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| VMTFraction | FLOAT | NULL | Fraction of SourceUseType VMT occuring in each hourGroup.  Required input for MOVES DP math formulation mesoscale step TAG-6 |

| **Column(s) of "LinkSourceTypeHour" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| sourceTypeID | SMALLINT | NOT NULL |  |
| sourceTypeHourFraction | FLOAT | NULL |  |

| **Column(s) of "lumpedspeciesname" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| lumpedSpeciesID | SMALLINT | NOT NULL |  |
| lumpedSpeciesName | VARCHAR(20) | NULL |  |

| **Column(s) of "M6SulfurCoeff" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| minModelYearID | SMALLINT | NOT NULL |  |
| maxModelYearID | SMALLINT | NOT NULL |  |
| minSulfur | DOUBLE | NOT NULL |  |
| sulfurLongCoeff | DOUBLE | NULL |  |
| sulfurIRFactor | DOUBLE | NULL |  |
| maxIRFactorSulfur | DOUBLE | NULL |  |

| **Column(s) of "MeanFuelParameters" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| fuelParameterID | SMALLINT | NOT NULL |  |
| baseValue | FLOAT | NULL |  |
| centeringValue | FLOAT | NULL |  |
| stdDevValue | FLOAT | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "mechanismname" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| mechanismID | SMALLINT | NOT NULL |  |
| mechanismName | VARCHAR(40) | NULL |  |

| **Column(s) of "MetalEmissionRate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| sourceTypeID | SMALLINT | NOT NULL |  |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| units | CHAR(20) | NULL |  |
| meanBaseRate | DOUBLE | NULL |  |
| meanBaseRateCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "methanethcratio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| sourceTypeID | SMALLINT | NOT NULL |  |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| ageGroupID | SMALLINT | NOT NULL |  |
| CH4THCRatio | DOUBLE | NULL |  |
| CH4THCRatioCV | DOUBLE | NULL |  |

| **Column(s) of "MinorHAPRatio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| atRatio | DOUBLE | NULL |  |
| atRatioCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "ModelYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |

| **Column(s) of "modelyearcutpoints" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| cutPointName | VARCHAR(100) | NOT NULL |  |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |

| **Column(s) of "ModelYearGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| shortModYrGroupID | SMALLINT | NOT NULL | Short modelYearGroupID used to help construct sourceBinID values. This field is an alternate key, but is not as "recognizable" as modelYearGroupID. Values are assigned arbitrarily. |
| modelYearGroupName | CHAR(50) | NULL |  |
| modelYearGroupStartYear | SMALLINT | NULL |  |
| modelYearGroupEndYear | SMALLINT | NULL |  |

| **Column(s) of "modelyearmapping" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| startUserModelYear | SMALLINT | NOT NULL |  |
| endUserModelYear | SMALLINT | NOT NULL |  |
| startStandardModelYear | SMALLINT | NOT NULL |  |
| endStandardModelYear | SMALLINT | NOT NULL |  |

| **Column(s) of "MonthGroupHour" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| monthGroupID | SMALLINT | NOT NULL |  |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| ACActivityTermA | FLOAT | NULL |  |
| ACActivityTermACV | FLOAT | NULL |  |
| ACActivityTermB | FLOAT | NULL |  |
| ACActivityTermBCV | FLOAT | NULL |  |
| ACActivityTermC | FLOAT | NULL |  |
| ACActivityTermCCV | FLOAT | NULL |  |

| **Column(s) of "MonthGroupOfAnyYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| monthGroupID | SMALLINT | NOT NULL |  |
| monthGroupName | CHAR(50) | NULL |  |

| **Column(s) of "MonthofAnyYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| monthName | CHAR(10) | NULL |  |
| noOfDays | SMALLINT | NULL |  |
| monthGroupID | SMALLINT | NOT NULL |  |

| **Column(s) of "MonthVMTFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| monthVMTFraction | FLOAT | NULL | Fraction of SourceUseType annual VMT occuring in each month.  (Element of a distribution which sums to one over the 12 months.)  Required input for MOVES DP math formulation step TAG-6. |

| **Column(s) of "NONO2Ratio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL |  |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| NOxRatio | FLOAT | NULL |  |
| NOxRatioCV | FLOAT | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "NRAgeCategory" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| ageCategoryName | CHAR(50) | NULL |  |

| **Column(s) of "nratratio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| processID | SMALLINT | NOT NULL |  |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| nrHPCategory | CHAR(1) | NOT NULL |  |
| atRatio | DOUBLE | NULL |  |
| atRatioCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "NRBaseYearEquipPopulation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Nonroad source use type indentification number. |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| population | DOUBLE | NOT NULL | Number of nonroad engines of given sourceType in given state and base year. |

| **Column(s) of "NRCrankCaseEmissionRate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| hpMin | SMALLINT | NOT NULL |  |
| hpMax | SMALLINT | NOT NULL |  |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| meanBaseRate | FLOAT | NULL | Mean base emission rate per unit of activity.  For pollutant processes which involve "mass" type pollutants the units are grams per "activity unit". For pollutant-processes which involve "energy" type pollutants the units are kiloJoules per "activity unit". The "activity unit" depends on the process. For pollutant-processes which involve the running process the activity unit is "source hours operating (SHO)"; for pollutant-processes which involve the start process the activity unit is "number of starts", for pollutant-processes which involve the extended idle process the activity unit is "extended idle hours". (Emission rates for pollutant-processes which involve the well-to-pump process are not stored in this table.) |
| units | VARCHAR(12) | NULL |  |
| dataSourceId | SMALLINT | NOT NULL | Identification of a source of information in this Database. |

| **Column(s) of "NRDayAllocation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| dayFraction | FLOAT | NOT NULL | Fraction of weekly hours operating used in each day of week. |

| **Column(s) of "NRDeterioration" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| DFCoefficient | FLOAT | NULL | "A" value in equation:  DF = 1+A\*fracMedianLifeUsed^b |
| DFAgeExponent | FLOAT | NULL | "b" value in equation:  DF = 1+A\*fracMedianLifeUsed^b |
| emissionCap | SMALLINT | NOT NULL | At what point in engine's life to stop deterioration. Usually either 1.0 (median life point) or 2.0 (double the median life = no cap). |

| **Column(s) of "nrDioxinEmissionRate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| processID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| nrHPCategory | CHAR(1) | NOT NULL |  |
| units | CHAR(30) | NULL |  |
| meanBaseRate | DOUBLE | NULL |  |
| meanBaseRateCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "NREmissionRate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| hpMin | SMALLINT | NOT NULL |  |
| hpMax | SMALLINT | NOT NULL |  |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| meanBaseRate | FLOAT | NULL | Mean base emission rate per unit of activity.  For pollutant processes which involve "mass" type pollutants the units are grams per "activity unit". For pollutant-processes which involve "energy" type pollutants the units are kiloJoules per "activity unit". The "activity unit" depends on the process. For pollutant-processes which involve the running process the activity unit is "source hours operating (SHO)"; for pollutant-processes which involve the start process the activity unit is "number of starts", for pollutant-processes which involve the extended idle process the activity unit is "extended idle hours". (Emission rates for pollutant-processes which involve the well-to-pump process are not stored in this table.) |
| units | VARCHAR(12) | NULL |  |
| dataSourceId | SMALLINT | NOT NULL | Identification of a source of information in this Database. |

| **Column(s) of "NREngTechFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| hpMin | SMALLINT | NOT NULL |  |
| hpMax | SMALLINT | NOT NULL |  |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| processGroupID | SMALLINT | NOT NULL |  |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| NREngTechFraction | FLOAT | NULL | Fraction of each given nonroad engine tech type sold in each given model year. Must add up to 1.0 +/- 0.01(?) for each model year of each NRSourceUseType. |

| **Column(s) of "NREquipmentType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| NREquipTypeID | SMALLINT | NOT NULL | Designates the nonroad equipment application, such as Ag Tractor, Walk-behind Mower (residential). Does not specify Segment or Strokes or FuelType or HP, or Tech type. |
| description | CHAR(40) | NULL | Nonroad equipment application, such as Ag Tractor or Walk-behind Mower (residential). |
| sectorID | SMALLINT | NOT NULL | Segment indentification number. |
| useDefaultScrappage | CHAR(1) | NULL | "1" means use DefaultScrappage table, and "0" means use ScrappageCurve table. |
| surrogateID | SMALLINT | NULL | Generally there are different geographic allocation surrogates for each nonroad segment and for some specific equipment types. E.g., housing units, construction dollars, water surface area, etc. |

| **Column(s) of "nrEvapEmissionrate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| hpMin | SMALLINT | NOT NULL |  |
| hpMax | SMALLINT | NOT NULL |  |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| meanBaseRate | FLOAT | NULL | Mean base emission rate per unit of activity.  For pollutant processes which involve "mass" type pollutants the units are grams per "activity unit". For pollutant-processes which involve "energy" type pollutants the units are kiloJoules per "activity unit". The "activity unit" depends on the process. For pollutant-processes which involve the running process the activity unit is "source hours operating (SHO)"; for pollutant-processes which involve the start process the activity unit is "number of starts", for pollutant-processes which involve the extended idle process the activity unit is "extended idle hours". (Emission rates for pollutant-processes which involve the well-to-pump process are not stored in this table.) |
| units | VARCHAR(12) | NULL |  |
| dataSourceId | SMALLINT | NOT NULL | Identification of a source of information in this Database. |

| **Column(s) of "NRFuelOxyAdjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| strokes | TINYINT | NOT NULL |  |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| NRFuelOxyAdjust | FLOAT | NULL | Percent change in nonroad exhaust emissions per percent change in gasoline oxygen content. |

| **Column(s) of "NRFuelSubtype" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| fuelSubtypeDesc | CHAR(50) | NULL |  |
| fuelSubtypePetroleumFraction | FLOAT | NULL |  |
| fuelSubtypePetroleumFractionCV | FLOAT | NULL |  |
| fuelSubTypeFossilFraction | FLOAT | NULL |  |
| fuelSubtypeFossilFractionCV | FLOAT | NULL |  |
| carbonContent | FLOAT | NULL | unit = grams / kilojoules. |
| oxidationFraction | FLOAT | NULL |  |
| carbonContentCV | FLOAT | NULL |  |
| oxidationFractionCV | FLOAT | NULL |  |
| energyContent | FLOAT | NULL |  |

| **Column(s) of "NRFuelSupply" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelRegionID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| fuelYearID | INTEGER | NOT NULL |  |
| monthGroupID | SMALLINT | NOT NULL |  |
| fuelFormulationID | SMALLINT | NOT NULL |  |
| marketShare | FLOAT | NULL | Decimal Fraction of the supply of this fuel type which this fuel formulation constitutes. |
| marketShareCV | FLOAT | NULL |  |

| **Column(s) of "NRFuelType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| defaultFormulationID | SMALLINT | NOT NULL | identifies the fuel formulation which is assumed to constitute the fuel supply of this fueltype when information is not present in fuel supply table. |
| fuelTypeDesc | CHAR(50) | NULL |  |
| humidityCorrectionCoeff | FLOAT | NULL |  |
| humidityCorrectionCoeffCV | FLOAT | NULL |  |
| fuelDensity | FLOAT | NULL | units = grams/gallon |
| subjectToEvapCalculations | CHAR(1) | NOT NULL |  |

| **Column(s) of "NRGrowthIndex" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| growthPatternID | SMALLINT | NOT NULL | ID for different nonroad equipment population (activity) growth patterns. |
| yearID | SMALLINT | NOT NULL |  |
| growthIndex | SMALLINT | NULL | Relative nonroad population (activity) by calendar year for different segments or types of equipment and different states. Relative to arbitrary base year value of 1,000. |

| **Column(s) of "NRGrowthPattern" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| growthPatternID | SMALLINT | NOT NULL | ID for different nonroad equipment population (activity) growth patterns. |
| description | CHAR(80) | NULL |  |

| **Column(s) of "NRGrowthPatternFinder" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| growthPatternID | SMALLINT | NOT NULL | ID for different nonroad equipment population (activity) growth patterns. |

| **Column(s) of "nrhcspeciation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| processID | SMALLINT | NOT NULL |  |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| nrHPCategory | CHAR(1) | NOT NULL |  |
| speciationConstant | DOUBLE | NULL |  |
| speciationConstantCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "NRHourAllocation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| NRHourAllocPatternID | SMALLINT | NOT NULL | ID for different hourly allocation patterns for different types of nonroad equipment. |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| hourFraction | FLOAT | NOT NULL | Fraction of day's operating hours used in each of the 24 hours. |

| **Column(s) of "NRHourAllocPattern" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| NRHourAllocPatternID | SMALLINT | NOT NULL | ID for different hourly allocation patterns for different types of nonroad equipment. |
| description | CHAR(255) | NOT NULL | Description of each hourly allocation pattern. See HourAllocation table for actual allocation values. |

| **Column(s) of "NRHourPatternFinder" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| NREquipTypeID | SMALLINT | NOT NULL | Designates the nonroad equipment application, such as Ag Tractor, Walk-behind Mower (residential). Does not specify Segment or Strokes or FuelType or HP, or Tech type. |
| NRHourAllocPatternID | SMALLINT | NULL | ID for different hourly allocation patterns for different types of nonroad equipment. |

| **Column(s) of "nrhpcategory" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| nrhprangebinid | SMALLINT | NOT NULL |  |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| nrhpcategory | CHAR(1) | NULL |  |

| **Column(s) of "NRHPRangeBin" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| NRHPRangeBinID | SMALLINT | NOT NULL | Nonroad Hp range bin indentification number. |
| binName | CHAR(20) | NULL |  |
| hpMin | SMALLINT | NULL | Lower bound of Hp range. Same options as hpMax, but includes zero at lower end, and no 9999. |
| hpMax | SMALLINT | NULL | Upper bound of Hp range:  1, 3, 6, 11, 16, 25, 40, 50, 75, 100, 175, 300, 600, 750, 1000, 1200, 2000, 3000, 9999. |
| engSizeID | INTEGER | NOT NULL | Identifies an engine displacement category. |

| **Column(s) of "NRIntegratedSpecies" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |

| **Column(s) of "nrmetalemissionrate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| processID | SMALLINT | NOT NULL |  |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| nrHPCategory | CHAR(1) | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| units | CHAR(12) | NULL |  |
| meanBaseRate | DOUBLE | NULL |  |
| meanBaseRateCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "nrmethanethcratio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| nrHPCategory | CHAR(1) | NOT NULL |  |
| CH4THCRatio | DOUBLE | NULL |  |
| CH4THCRatioCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "NRMonthAllocation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| SCC | CHAR(10) | NOT NULL |  |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| monthFraction | FLOAT | NOT NULL |  |

| **Column(s) of "nrpahgasratio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| processID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| nrHPCategory | CHAR(1) | NOT NULL |  |
| atratio | DOUBLE | NULL |  |
| atratioCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "nrpahparticleratio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| processID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| nrHPCategory | CHAR(1) | NOT NULL |  |
| atratio | DOUBLE | NULL |  |
| atratioCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "NRPollutantProcessModelYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |

| **Column(s) of "NRProcessGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processGroupID | SMALLINT | NOT NULL |  |
| processGroupDesc | CHAR(20) | NULL |  |

| **Column(s) of "NRRetrofitFactors" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| hpMin | SMALLINT | NOT NULL |  |
| hpMax | SMALLINT | NOT NULL |  |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| retrofitID | SMALLINT | NOT NULL |  |
| retrofitStartYear | SMALLINT | NOT NULL |  |
| retrofitEndYear | SMALLINT | NOT NULL |  |
| StartModelYear | SMALLINT | NOT NULL |  |
| EndModelYear | SMALLINT | NOT NULL |  |
| annualFractionRetrofit | FLOAT | NULL |  |
| retrofitEffectiveFraction | FLOAT | NULL |  |

| **Column(s) of "NRSCC" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| NREquipTypeID | SMALLINT | NOT NULL | Designates the nonroad equipment application, such as Ag Tractor, Walk-behind Mower (residential). Does not specify Segment or Strokes or FuelType or HP, or Tech type. |
| description | CHAR(40) | NULL | e.g. 2265004010  "22" = mobile source  "65" = 4-stk gasoline  "04" = lawn & garden  "010" = residential lawnmower |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |

| **Column(s) of "NRScrappageCurve" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| NREquipTypeID | SMALLINT | NOT NULL | Designates the nonroad equipment application, such as Ag Tractor, Walk-behind Mower (residential). Does not specify Segment or Strokes or FuelType or HP, or Tech type. |
| fractionLifeused | FLOAT | NOT NULL |  |
| percentageScrapped | FLOAT | NULL | Cumulative percent of engine (equipment) population scrapped as of each given point in equipment life. Range is 0 to 100. |

| **Column(s) of "NRSourceBin" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceBinID | LONG | NOT NULL | Large integer value which identifies a SourceBin.  These have form: 1ffttrryysssswwww00 where:  1 is the literal value "1"  ff is the fuelTypeID  tt is the engTechID  rr is the regClassID  yy is the shortModYrGroupID  ssss is the engSizeID  www is the weightClassID  00 is the literal value "00" |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| engSizeID | INTEGER | NOT NULL | Identifies an engine displacement category. |

| **Column(s) of "NRSourceUseType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| NRHPRangeBinID | SMALLINT | NOT NULL | Nonroad Hp range bin indentification number. |
| medianLifeFullLoad | FLOAT | NULL | Median nonroad engine life in hours of use at full load (i.e., rated Hp). |
| hoursUsedPerYear | FLOAT | NULL | Hours of engine operation per year, including idling time. |
| loadFactor | FLOAT | NULL | Fraction of rated Hp used while operating, including idle. |
| hpAvg | FLOAT | NULL | Population weighted engine rated Hp within each HPRangeBin. |
| isPumpFilled | CHAR(1) | NULL |  |
| tankUnits | CHAR(7) | NULL |  |
| tankSize | FLOAT | NULL |  |
| tankFillFrac | FLOAT | NULL |  |
| tankMetalFrac | FLOAT | NULL |  |
| hoseLength | FLOAT | NULL |  |
| hoseDiameter | FLOAT | NULL |  |
| hoseMetalFrac | FLOAT | NULL |  |
| marineFillNeckHoseLength | FLOAT | NULL |  |
| marineFillNeckHoseDiameter | FLOAT | NULL |  |
| marineSupplyHoseLength | FLOAT | NULL |  |
| marineSupplyHoseDiameter | FLOAT | NULL |  |
| marineVentHoseLength | FLOAT | NULL |  |
| marineVentHoseDiameter | FLOAT | NULL |  |
| hotSoaksPerSHO | FLOAT | NULL |  |
| nonInstMarineTankFrac | FLOAT | NULL |  |
| marineInstPlasticTankTrailFrac | FLOAT | NOT NULL |  |
| marineInstPlasticTankWaterFrac | FLOAT | NULL |  |
| marineInstMetalTankTrailerFrac | FLOAT | NULL |  |
| marineInstMetalTankWaterFrac | FLOAT | NULL |  |
| e10TankPermeationAdjFac | FLOAT | NULL |  |
| e10HosePermeationAdjFac | FLOAT | NULL |  |
| e10MarineFillNeckPermAdjFac | FLOAT | NULL |  |
| e10MarineSupplyHosePermAdjFac | FLOAT | NULL |  |
| e10MarineVentHosePermAdjFac | FLOAT | NULL |  |

| **Column(s) of "NRStateSurrogate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| surrogateID | SMALLINT | NOT NULL | Generally there are different geographic allocation surrogates for each nonroad segment and for some specific equipment types. E.g., housing units, construction dollars, water surface area, etc. |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| surrogateYearID | SMALLINT | NOT NULL | Calendar year of the given surrogate quantity. Can differ by state and by surrogate.  Used for infomation only; will not be used for any calculation. |
| surrogateQuant | DOUBLE | NOT NULL | Total value of surrogate for each state. |

| **Column(s) of "NRSulfurAdjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| PMBaseSulfur | FLOAT | NOT NULL | Nonroad diesel sulfur weight fraction in certification or test data that is basis of PM meanBaseRatePerHPHour. Default = 0.3300 = 3300 ppm  "1.0" means no adjustment, i.e., assume Cert = In-use. |
| sulfatePMConversionFactor | FLOAT | NOT NULL | Nonroad diesel sulfur-to-sulfate conversion rate.  Default = 0.02247 = 2.247% |

| **Column(s) of "NRSurrogate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| surrogateID | SMALLINT | NOT NULL | Generally there are different geographic allocation surrogates for each nonroad segment and for some specific equipment types. E.g., housing units, construction dollars, water surface area, etc. |
| description | CHAR(255) | NULL | Description of each nonroad geographic allocation surrogate, including basis of the numbers. |
| surrogateAbbr | CHAR(3) | NULL |  |

| **Column(s) of "NRTemperatureAdjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| strokes | TINYINT | NOT NULL |  |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| NRTemperatureAdjustGT75 | FLOAT | NULL | Coefficient "A" for ambient temperatures Greater Than 75F in equation:  TCF = EXP [ A \* (Tambient - 75) ]  TCF is Temperature Correction Factor, a multiplicative adjustment to zero hour (mean base rate) EF. |
| NRTemperatureAdjustLT75 | FLOAT | NULL | temperatures Less Than 75F in equation:  TCF = EXP [ A \* (Tambient - 75) ]  TCF is Temperature Correction Factor, a multiplicative adjustment to zero hour (mean base rate) EF. |

| **Column(s) of "NRTransientAdjustFactor" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| NREquipTypeID | SMALLINT | NOT NULL | Designates the nonroad equipment application, such as Ag Tractor, Walk-behind Mower (residential). Does not specify Segment or Strokes or FuelType or HP, or Tech type. |
| NRHPRangeBinID | SMALLINT | NOT NULL | Nonroad Hp range bin indentification number. |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| NRTransientAdjustFactor | FLOAT | NOT NULL | Multiplicative adjustment to zero hour (mean base rate) EF to account for transient and/or in-use operation versus steady-state certification sort of test. |

| **Column(s) of "NRUSMonthAllocation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| SCC | CHAR(10) | NOT NULL | 10-digit Source Classification Code for nonroad equipment. |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| monthFraction | FLOAT | NOT NULL | Fraction of annual hours operating used in each month. |

| **Column(s) of "NRZoneAllocation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| surrogateID | SMALLINT | NOT NULL | Generally there are different geographic allocation surrogates for each nonroad segment and for some specific equipment types. E.g., housing units, construction dollars, water surface area, etc. |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| surrogateYearID | SMALLINT | NOT NULL | Calendar year of the given surrogate quantity. Can differ by state and by surrogate.  Used for infomation only; will not be used for any calculation. |
| surrogateQuant | FLOAT | NOT NULL | Value of surrogate for each zone (county). These must be consistent with (add up to) corresponding state total in NRStateSurrogateTotal table. Allocation of state equip population to zone (county) is by ratio of zone surrogateQuant to state total surrogateQuant. |

| **Column(s) of "OffNetworkLink" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL |  |
| vehiclePopulation | FLOAT | NULL |  |
| startFraction | FLOAT | NULL |  |
| extendedIdleFraction | FLOAT | NULL |  |
| parkedVehicleFraction | FLOAT | NULL |  |

| **Column(s) of "OMDGPolProcessRepresented" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| representingPolProcessID | INTEGER | NOT NULL |  |

| **Column(s) of "onroadretrofit" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| processID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| sourceTypeID | SMALLINT | NOT NULL |  |
| retrofitYearID | SMALLINT | NOT NULL |  |
| beginModelYearID | SMALLINT | NOT NULL |  |
| endModelYearID | SMALLINT | NOT NULL |  |
| cumFractionRetrofit | DOUBLE | NOT NULL |  |
| retrofitEffectiveFraction | DOUBLE | NOT NULL |  |

| **Column(s) of "OperatingMode" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| opModeID | SMALLINT | NOT NULL |  |
| opModeName | CHAR(50) | NULL |  |
| VSPLower | FLOAT | NULL | Lower bound of the VSP range represented by this operating mode. (Expressed in KW/Metric ton.) |
| VSPUpper | FLOAT | NULL | Upper bound of the VSP range represented by this operating mode. (Expressed in KW/Metric ton.) |
| speedLower | FLOAT | NULL | Lower bound of speed range represented by this operating mode, expressed in MPH. |
| speedUpper | FLOAT | NULL | Upper bound of speed range represented by this operating mode, expressed in MPH. |
| brakeRate1Sec | FLOAT | NULL | Threshold braking rate applicable to 1 second periods. Expressed in MPH per second. |
| brakeRate3Sec | FLOAT | NULL | Threshold braking rate applicable to 3 second time periods. Expressed in MPH per second. |
| minSoakTime | SMALLINT | NULL | Lower bound of soak time bin in minutes. |
| maxSoakTime | SMALLINT | NULL | Upper bound of soak time bin in minutes. |

| **Column(s) of "OpModeDistribution" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| opModeID | SMALLINT | NOT NULL |  |
| opModeFraction | FLOAT | NULL | Fraction of activity occuring in an operating mode. Assumed to equal 1.0 if only a single operating mode is associated with a pollutant-process in OpModePolProcAssoc. |
| opModeFractionCV | FLOAT | NULL |  |

| **Column(s) of "OpModePolProcAssoc" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| opModeID | SMALLINT | NOT NULL |  |

| **Column(s) of "OxyThreshName" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| oxyThreshID | SMALLINT | NOT NULL |  |
| oxyThreshName | CHAR(100) | NULL |  |

| **Column(s) of "PAHGasRatio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| atRatio | DOUBLE | NULL |  |
| atRatioCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "PAHParticleRatio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| atRatio | DOUBLE | NULL |  |
| atRatioCV | DOUBLE | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "PM10EmissionRatio" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| minModelYearID | SMALLINT | NOT NULL |  |
| maxModelYearID | SMALLINT | NOT NULL |  |
| PM10PM25Ratio | FLOAT | NOT NULL |  |
| PM10PM25RatioCV | FLOAT | NULL |  |

| **Column(s) of "pmspeciation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| inputPollutantID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| minModelYearID | SMALLINT | NOT NULL |  |
| maxModelYearID | SMALLINT | NOT NULL |  |
| outputPollutantID | SMALLINT | NOT NULL |  |
| pmSpeciationFraction | DOUBLE | NOT NULL |  |

| **Column(s) of "Pollutant" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| pollutantName | CHAR(50) | NULL |  |
| energyOrMass | CHAR(6) | NOT NULL | Indicates whether quantities of this pollutant are reported in mass units or energy units. Assumes one of two values: "energy" or "mass". |
| globalWarmingPotential | SMALLINT | NULL |  |
| pollutantDisplayGroupID | SMALLINT | NULL | Identifies a pollutant display group. |
| NEIPollutantCode | CHAR(10) | NULL |  |
| shortName | VARCHAR(50) | NULL |  |
| isAffectedByOnroad | TINYINT(1) | NULL |  |
| isAffectedByNonroad | TINYINT(1) | NULL |  |

| **Column(s) of "PollutantDisplayGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| pollutantDisplayGroupID | SMALLINT | NOT NULL | Identifies a pollutant display group. |
| pollutantDisplayGroupName | CHAR(50) | NOT NULL | Identifies a pollutant display group. |
| disPlayAsGroup | CHAR(1) | NOT NULL | "Y" or "N". |

| **Column(s) of "PollutantProcessAssoc" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| processID | SMALLINT | NOT NULL |  |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| isAffectedByExhaustIM | CHAR(1) | NOT NULL |  |
| isAffectedByEvapIM | CHAR(1) | NOT NULL |  |
| chainedto1 | INTEGER | NULL |  |
| chainedto2 | INTEGER | NULL |  |
| nrchainedto1 | INTEGER | NULL |  |
| nrchainedto2 | INTEGER | NULL |  |
| isAffectedByOnroad | SMALLINT | NULL |  |
| isAffectedByNonroad | SMALLINT | NULL |  |

| **Column(s) of "PollutantProcessModelYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| fuelMYGroupID | INTEGER | NULL |  |
| IMModelYearGroupID | INTEGER | NULL |  |

| **Column(s) of "ProcessDisplayGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processDisplayGroupID | SMALLINT | NOT NULL |  |
| processDisplayGroupName | CHAR(50) | NOT NULL |  |
| disPlayAsGroup | CHAR(1) | NOT NULL |  |

| **Column(s) of "ProcessGroupID" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processGroupID | SMALLINT | NOT NULL |  |
| processGroupName | CHAR(15) | NOT NULL |  |

| **Column(s) of "RefuelingFactors" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| defaultFormulationID | SMALLINT | NULL |  |
| vaporTermA | FLOAT | NOT NULL |  |
| vaporTermB | FLOAT | NOT NULL |  |
| vaporTermC | FLOAT | NOT NULL |  |
| vaporTermD | FLOAT | NOT NULL |  |
| vaporTermE | FLOAT | NOT NULL |  |
| vaporTermF | FLOAT | NOT NULL |  |
| vaporLowTLimit | FLOAT | NOT NULL |  |
| vaporHighTLimit | FLOAT | NOT NULL |  |
| minimumRefuelingVaporLoss | FLOAT | NOT NULL |  |
| refuelingSpillRate | FLOAT | NOT NULL |  |
| refuelingSpillRateCV | FLOAT | NOT NULL |  |
| displacedVaporRateCV | FLOAT | NOT NULL |  |

| **Column(s) of "RegClassFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeModelYearID | INTEGER | NOT NULL | Identifies a SourceTypeModelYear.  Equals (10000 \* sourceTypeID) + modelYearID |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| regClassID | SMALLINT | NOT NULL | Identifies a class of source use types for regulation purposes. |
| regClassFraction | FLOAT | NOT NULL |  |

| **Column(s) of "region" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| regionID | INTEGER | NOT NULL |  |
| VV | SMALLINT | NULL |  |
| WW | SMALLINT | NULL |  |
| XX | SMALLINT | NULL |  |
| YY | SMALLINT | NULL |  |
| ZZ | SMALLINT | NULL |  |
| description | VARCHAR(150) | NULL |  |

| **Column(s) of "regionCode" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| regionCodeID | INTEGER | NOT NULL |  |
| regionCodeDescription | VARCHAR(200) | NOT NULL |  |

| **Column(s) of "regionCounty" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| regionID | INTEGER | NOT NULL |  |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| regionCodeID | INTEGER | NOT NULL |  |
| fuelYearID | INTEGER | NOT NULL | Identifies a year for which fuel supply data has been entered in the FuelSupply table. (May be used by multiple calendar years.) |

| **Column(s) of "RegulatoryClass" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| regClassID | SMALLINT | NOT NULL | Identifies a class of source use types for regulation purposes. |
| regClassName | CHAR(25) | NULL |  |
| regClassDesc | CHAR(100) | NULL |  |

| **Column(s) of "RetrofitInputAssociations" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| listName | CHAR(20) | NOT NULL |  |
| commonName | CHAR(50) | NOT NULL |  |
| idealName | CHAR(50) | NOT NULL |  |

| **Column(s) of "RoadOpmodeDistribution" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| opModeID | SMALLINT | NOT NULL |  |
| roadTypeID | SMALLINT | NOT NULL |  |
| avgSpeedBinID | SMALLINT | NOT NULL | Identifies an average speed bin or category. |
| isRamp | CHAR(1) | NOT NULL |  |
| opModeFraction | FLOAT | NOT NULL |  |
| opModeFractionCV | FLOAT | NULL |  |

| **Column(s) of "RoadType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| roadTypeID | SMALLINT | NOT NULL |  |
| roadDesc | CHAR(50) | NULL |  |
| rampFraction | FLOAT | NULL | The fraction of vehicle travel time on this roadway type which occurs on ramps, expressed as a decimal fraction. |
| isAffectedByOnroad | TINYINT | NULL |  |
| isAffectedByNonroad | TINYINT | NULL |  |
| shouldDisplay | TINYINT | NULL |  |

| **Column(s) of "RoadTypeDistribution" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| roadTypeID | SMALLINT | NOT NULL |  |
| roadTypeVMTFraction | FLOAT | NULL | Fraction of the miles traveled by a SourceUseType on a roadType.  Required input to macroscale MOVES DP calculation step TAG-5. |

| **Column(s) of "SampleVehicleDay" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| vehID | INTEGER | NOT NULL | Identifies a sample vehicle day. |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |

| **Column(s) of "SampleVehiclePopulation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeModelYearID | INTEGER | NOT NULL | Identifies a SourceTypeModelYear.  Equals (10000 \* sourceTypeID) + modelYearID |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| regClassID | SMALLINT | NOT NULL | Identifies a class of source use types for regulation purposes. |
| sourceTypeID | SMALLINT | NOT NULL |  |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| stmyFuelEngFraction | DOUBLE | NOT NULL | The stmyFuelEngFraction values represent the distribution of vehicle classifications in each source type, model year, fuel type, engine technology cohort. This distribution exists for all cases, even combinations where there are no observed cases in the default fleet. This allows vehicles to be added to the fleet, by changing the stmyFraction to a non-zero value, but still know what the distribution of those vehicles to the other vehicle classifications is. |
| stmyFraction | DOUBLE | NOT NULL | The stmyFraction values represent the current fleet distributions and will have a value of zero in cases where there are no observed cases of that vehicle description combination in the default fleet. |

| **Column(s) of "sampleVehicleSoaking" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| soakDayID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| soakFraction | DOUBLE | NULL |  |

| **Column(s) of "samplevehiclesoakingday" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| soakDayID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| F | DOUBLE | NULL |  |

| **Column(s) of "samplevehiclesoakingdaybasis" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| soakDayID | SMALLINT | NOT NULL |  |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| F | DOUBLE | NULL |  |

| **Column(s) of "samplevehiclesoakingdaybasisus" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| soakDayID | SMALLINT | NOT NULL |  |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| F | DOUBLE | NULL |  |

| **Column(s) of "samplevehiclesoakingdayused" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| soakDayID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| F | DOUBLE | NULL |  |

| **Column(s) of "SampleVehicleTrip" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| vehID | INTEGER | NOT NULL | Identifies a sample vehicle day. |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| tripID | SMALLINT | NOT NULL |  |
| hourID | SMALLINT | NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| priorTripID | SMALLINT | NULL |  |
| keyOnTime | INTEGER | NULL | keyOnTime is the number of minutes that had elapsed when this trip began. This elapsed time is relative to some starting point such that the keyOnTime value of 0 represents an hour boundary (e.g, 6:00 am, 7:00am...). |
| keyOffTime | INTEGER | NOT NULL | keyOffTime is the number of minutes that had elapsed when this trip ended, relative to the same beginning point. |

| **Column(s) of "SCC" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| SCC | CHAR(10) | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| sourceTypeID | SMALLINT | NOT NULL |  |
| roadTypeID | SMALLINT | NOT NULL |  |
| processID | SMALLINT | NOT NULL |  |

| **Column(s) of "Sector" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sectorID | SMALLINT | NOT NULL | Segment indentification number. |
| description | CHAR(40) | NULL | Nonroad twelve segments: Recreational, Construction, Industrial, Lawn & Garden, Farm, Commercial, Logging, Airports, Underground Mining, Oil Field Equipment, Recreational Marine, Rail Maintenance. |

| **Column(s) of "SHO" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| SHO | FLOAT | NULL | Source hours operating. |
| SHOCV | FLOAT | NULL |  |
| distance | FLOAT | NULL | distance traveled in miles |

| **Column(s) of "SizeWeightFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeModelYearID | INTEGER | NOT NULL | Identifies a SourceTypeModelYear.  Equals (10000 \* sourceTypeID) + modelYearID |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| engSizeID | INTEGER | NOT NULL | Identifies an engine displacement category. |
| weightClassID | SMALLINT | NOT NULL | Numeric identification of a source weight classification:  0 = doesn't matter NOTE: This value should  not be used in SourceBinDistributions for  pollutantProcessAssociations whose  operating modes involve knowledge of  source mass. |
| sizeWeightFraction | FLOAT | NULL |  |

| **Column(s) of "SoakActivityFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| opModeID | SMALLINT | NOT NULL |  |
| soakActivityFraction | FLOAT | NULL | Fraction of soak time spent in this opModeID. |
| soakActivityFractionCV | FLOAT | NULL |  |

| **Column(s) of "SourceBin" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceBinID | LONG | NOT NULL | Large integer value which identifies a SourceBin.  These have form: 1ffttrryysssswwww00 where:  1 is the literal value "1"  ff is the fuelTypeID  tt is the engTechID  rr is the regClassID  yy is the shortModYrGroupID  ssss is the engSizeID  www is the weightClassID  00 is the literal value "00" |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| engTechID | SMALLINT | NOT NULL | Identifies an engine technology. |
| regClassID | SMALLINT | NOT NULL | Identifies a class of source use types for regulation purposes. |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| engSizeID | INTEGER | NOT NULL | Identifies an engine displacement category. |
| weightClassID | SMALLINT | NOT NULL | Numeric identification of a source weight classification. |

| **Column(s) of "SourceBinDistribution" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeModelYearID | INTEGER | NOT NULL | Identifies a SourceTypeModelYear.  Equals (10000 \* sourceTypeID) + modelYearID |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| sourceBinID | LONG | NOT NULL | Large integer value which identifies a SourceBin.  These have form: 1ffttrryysssswwww00 where:  1 is the literal value "1"  ff is the fuelTypeID  tt is the engTechID  rr is the regClassID  yy is the shortModYrGroupID  ssss is the engSizeID  www is the weightClassID  00 is the literal value "00" |
| sourceBinActivityFraction | FLOAT | NULL |  |
| sourceBinActivityFractionCV | FLOAT | NULL |  |

| **Column(s) of "SourceHours" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| linkID | INTEGER | NOT NULL | At macroscale there will be a link for each roadType value in each County, (and therefore in each Zone), including the special roadType value of "1" for off network. linkID values will be 100 times the countyID value plus the roadType value. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| sourceHours | FLOAT | NULL |  |
| sourceHoursCV | FLOAT | NULL |  |

| **Column(s) of "SourceType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL |  |
| tablename | CHAR(18) | NULL |  |

| **Column(s) of "SourceTypeAge" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| survivalRate | DOUBLE | NULL | The probability that a SourceUseType of a given Age remains in service (i.e. not be scrapped) for the year.  Input to MOVES DP math formulation step TAG-2. |
| relativeMAR | DOUBLE | NULL | Relative Mileage Accumulation Rate.  The annual per vehicle mileage accumulation for a given SourceUseType and Age, relative to the highest annual mileage accumulation rate within the HPMSVtype.  Needed as input for MOVES DP math formulation step TAG-3. |
| functioningACFraction | DOUBLE | NULL |  |
| functioningACFractionCV | DOUBLE | NULL |  |

| **Column(s) of "SourceTypeAgeDistribution" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| ageFraction | DOUBLE | NULL | Fraction of total domain SourceUseType population which, in a given calendar year,  are a given age. ( A set of these elements is  sometimes often referred to informally as a  "registration distribution".)  Age = calendar year - model year.  Input to MOVES DP Math Formulation step TAG-1. |

| **Column(s) of "SourceTypeDayVMT" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| yearID | SMALLINT | NOT NULL |  |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| sourceTypeID | SMALLINT | NOT NULL |  |
| VMT | DOUBLE | NOT NULL |  |

| **Column(s) of "SourceTypeHour" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| idleSHOFactor | FLOAT | NULL | Amount of extended idling activity for a SourceUseType, expressed as a fraction of total daily hours of on-road activity.  Required input for MOVES DP math formulation step TAG-7 |
| hotellingdist | DOUBLE | NULL |  |

| **Column(s) of "SourceTypeModelYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeModelYearID | INTEGER | NOT NULL | Identifies a SourceTypeModelYear.  Equals (10000 \* sourceTypeID) + modelYearID |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| ACPenetrationFraction | FLOAT | NULL |  |
| ACPenetrationFractionCV | FLOAT | NULL |  |

| **Column(s) of "SourceTypeModelYearGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| tankTemperatureGroupID | SMALLINT | NOT NULL |  |

| **Column(s) of "SourceTypePolProcess" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| isSizeWeightReqd | CHAR(1) | NULL | Legal values are uppercase "Y" and "N". Indicates whether engine size and vehicle weight source bin discriminators are used for this combination of sourcetype-pollutant-process. |
| isRegClassReqd | CHAR(1) | NULL | Legal values are uppercase "Y" and "N". Indicates whether regulation class discriminator is used for this combination of sourcetype-pollutant-process. |
| isMYGroupReqd | CHAR(1) | NULL | Legal values are uppercase "Y" and "N". Indicates whether model year group source bin discriminator is used for this combination of sourcetype-pollutant-process. |

| **Column(s) of "SourceTypeTechAdjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| modelYearID | SMALLINT | NOT NULL | Numeric value identifying a model year. |
| refuelingTechAdjustment | FLOAT | NOT NULL |  |

| **Column(s) of "SourceTypeYear" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| salesGrowthFactor | DOUBLE | NULL | New SourceUseType sales in a calendar year, relative to new SourceUseType sales in the previous year. (e.g. a value of 1.00 would represent no change in sales.)  Used as input in DP math formulation step TAG-2. |
| sourceTypePopulation | DOUBLE | NULL | The total population in the modeling domain of a SourceUseType in a calendar year. Only populated for base year(s).  Used as input in DP math formulation step TAG-1. |
| migrationRate | DOUBLE | NULL | The relative change in population of a SourceUseType and Age due to SourceUseTypes entering and leaving the model domain. (e.g. value of 1.00 means no net migration).  Needed as input to MOVES DP math formulation step TAG-2. |

| **Column(s) of "SourceTypeYearVMT" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| yearID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| VMT | DOUBLE | NOT NULL |  |

| **Column(s) of "SourceUseType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL |  |
| sourceTypeName | CHAR(50) | NULL |  |
| HPMSVtypeID | SMALLINT | NOT NULL | Highway performance management system vehicle class identification number as follows:  10 Motorcycles  20 Passenger cars  30 Other 2 axle-4 tire vehicles  40 Buses  50 Single Unit Trucks  60 Combination Trucks |

| **Column(s) of "SourceUseTypePhysics" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL |  |
| beginModelYearID | SMALLINT | NOT NULL |  |
| endModelYearID | SMALLINT | NOT NULL |  |
| rollingTermA | FLOAT | NULL | Units are kW/mps |
| rotatingTermB | FLOAT | NULL | units are kW/mps\*\*2 |
| dragTermC | FLOAT | NULL | Units are kW/mps\*\*3 |
| sourceMass | FLOAT | NULL | Units are metric tons. |
| fixedMassFactor | FLOAT | NULL |  |

| **Column(s) of "Starts" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| ageID | SMALLINT | NOT NULL | Identifies a SourceUseType age category. Values from 0 to 30.  0 = new  1 = one year old  2 = two years old  ...  30 = thirty or more years old  MOVES assumes that the age category ID equals the maximum number of years old that a sourceusetype can be that belongs to the category, and that there exists an age category that includes current model year vehicles. |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| starts | FLOAT | NULL |  |
| startsCV | FLOAT | NULL |  |

| **Column(s) of "startsHourFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| allocationFraction | DOUBLE | NOT NULL |  |

| **Column(s) of "startsMonthAdjust" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| monthAdjustment | DOUBLE | NOT NULL |  |

| **Column(s) of "startsPerDay" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| dayID | SMALLINT | NOT NULL | Identifies a kind of day of the week. There may be no more than 7 such categories. 5=weekdays and 2=weekends. |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| startsPerDay | DOUBLE | NOT NULL |  |

| **Column(s) of "StartsPerVehicle" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL | Source use type indentification number. |
| hourDayID | SMALLINT | NOT NULL | Combination of an hour (of any day) and a day (of any week).  Ids are of the form hhd where  hh is the hourID and  d is the dayID |
| startsPerVehicle | FLOAT | NULL | Starts per vehicle day. |
| startsPerVehicleCV | FLOAT | NULL |  |

| **Column(s) of "startsSourceTypeFraction" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| sourceTypeID | SMALLINT | NOT NULL |  |
| allocationFraction | DOUBLE | NOT NULL |  |

| **Column(s) of "StartTempAdjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| opModeID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| tempAdjustTermA | FLOAT | NULL | First term in equation used to adjust emission results for the effects of temperature. Assumed to equal zero (i.e. have no effect) if no record is found. |
| tempAdjustTermACV | FLOAT | NULL |  |
| tempAdjustTermB | FLOAT | NULL | Second term in equation used to adjust emission results for the effects of temperature. Assumed to equal zero (i.e. have no effect) if no record is found. |
| tempAdjustTermBCV | FLOAT | NULL |  |
| tempAdjustTermC | FLOAT | NULL | Third term in equation used to adjust emission results for the effects of temperature. Assumed to equal zero (i.e. have no effect) if no record is found. |
| tempAdjustTermCCV | FLOAT | NULL |  |
| startTempEquationType | VARCHAR(4) | NULL |  |

| **Column(s) of "State" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| stateID | SMALLINT | NOT NULL | FIPS state identification code. |
| stateName | CHAR(25) | NULL |  |
| stateAbbr | CHAR(2) | NULL |  |

| **Column(s) of "SulfateEmissionRate" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| meanBaseRate | FLOAT | NULL |  |
| meanBaseRateCV | FLOAT | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "sulfatefractions" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| sourceTypeID | SMALLINT | NOT NULL |  |
| minModelYearID | SMALLINT | NOT NULL |  |
| maxModelYearID | SMALLINT | NOT NULL |  |
| SulfatenonECPMFraction | DOUBLE | NOT NULL |  |
| H2OnonECPMFraction | DOUBLE | NOT NULL |  |
| BaseFuelSulfurLevel | DOUBLE | NOT NULL |  |
| BaseFuelSulfateFraction | DOUBLE | NOT NULL |  |
| dataSourceId | SMALLINT | NOT NULL | Identification of a source of information in this Database. |

| **Column(s) of "SulfurBase" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| sulfurBase | FLOAT | NULL |  |
| sulfurBasis | FLOAT | NULL |  |
| sulfurGPAMax | FLOAT | NULL |  |

| **Column(s) of "sulfurCapAmount" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| sulfurCap | DOUBLE | NULL |  |

| **Column(s) of "SulfurModelCoeff" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| M6EmitterID | SMALLINT | NOT NULL |  |
| sulfurFunctionID | SMALLINT | NOT NULL |  |
| sourceTypeID | SMALLINT | NOT NULL |  |
| fuelMYGroupID | INTEGER | NOT NULL |  |
| sulfurCoeff | FLOAT | NULL |  |
| lowSulfurCoeff | DOUBLE | NULL |  |

| **Column(s) of "SulfurModelName" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| M6EmitterID | SMALLINT | NOT NULL |  |
| sulfurFunctionID | SMALLINT | NOT NULL |  |
| M6emitterName | CHAR(10) | NULL |  |
| sulfurFunctionName | CHAR(10) | NULL |  |

| **Column(s) of "TankTemperatureGroup" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| tankTemperatureGroupID | SMALLINT | NOT NULL |  |
| tankTemperatureGroupName | CHAR(50) | NOT NULL |  |

| **Column(s) of "TankTemperatureRise" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| tankTemperatureGroupID | SMALLINT | NOT NULL |  |
| tankTemperatureRiseTermA | FLOAT | NULL |  |
| tankTemperatureRiseTermACV | FLOAT | NULL |  |
| tankTemperatureRiseTermB | FLOAT | NULL |  |
| tankTemperatureRiseTermBCV | FLOAT | NULL |  |

| **Column(s) of "TankVaporGenCoeffs" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| ethanolLevelID | SMALLINT | NOT NULL |  |
| altitude | CHAR(1) | NOT NULL |  |
| tvgTermA | FLOAT | NULL |  |
| tvgTermB | FLOAT | NULL |  |
| tvgTermC | FLOAT | NULL |  |

| **Column(s) of "TemperatureAdjustment" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| polProcessID | INTEGER | NOT NULL | 100\*pollutantID + processID  Set of valid combinations is determined by rows in this table. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| minModelYearID | SMALLINT | NOT NULL |  |
| maxModelYearID | SMALLINT | NOT NULL |  |
| tempAdjustTermA | FLOAT | NULL | First term in equation used to adjust emission results for the effects of temperature. Assumed to equal zero (i.e. have no effect) if no record is found. |
| tempAdjustTermACV | FLOAT | NULL |  |
| tempAdjustTermB | FLOAT | NULL | Second term in equation used to adjust emission results for the effects of temperature. Assumed to equal zero (i.e. have no effect) if no record is found. |
| tempAdjustTermBCV | FLOAT | NULL |  |
| tempAdjustTermC | FLOAT | NULL | Third term in equation used to adjust emission results for the effects of temperature. Assumed to equal zero (i.e. have no effect) if no record is found. |
| tempAdjustTermCCV | FLOAT | NULL |  |

| **Column(s) of "temperaturefactorexpression" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| processID | SMALLINT | NOT NULL |  |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| fuelTypeID | SMALLINT | NOT NULL | Identifies a basic kind of fuel used by SourceTypes:  1 = Gasoline  2 = Diesel Fuel  3 = Compressed Natural Gas (CNG)  4 = Liquid Propane Gas (LPG) [sic]  5 = Ethanol (E85 or E95)  6 = Methanol (M85 or M95)  7 = Gaseous Hydrogen  8 = Liquid Hydrogen  9 = Electricity |
| minModelYearID | SMALLINT | NOT NULL |  |
| maxModelYearID | SMALLINT | NOT NULL |  |
| tempCorrectionExpression | VARCHAR(5000) | NULL |  |

| **Column(s) of "TemperatureProfileID" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| TemperatureProfileID | LONG | NOT NULL |  |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |

| **Column(s) of "togspeciation" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| fuelSubtypeID | SMALLINT | NOT NULL | Identifies a particular kind of fuel within a FuelType. e.g. Gasoline may be conventional, or RFG, diesel may be conventional, biodiesel, Fischer-Troppes, etc. |
| regClassID | SMALLINT | NOT NULL | Identifies a class of source use types for regulation purposes. |
| processID | SMALLINT | NOT NULL |  |
| modelYearGroupID | INTEGER | NOT NULL | Identifies a model year group. |
| TOGSpeciationProfileID | VARCHAR(10) | NOT NULL |  |

| **Column(s) of "togspeciationprofile" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| mechanismID | SMALLINT | NOT NULL |  |
| TOGSpeciationProfileID | VARCHAR(10) | NOT NULL |  |
| integratedSpeciesSetID | SMALLINT | NOT NULL |  |
| pollutantID | SMALLINT | NOT NULL | Identifies a pollutant. |
| lumpedSpeciesName | VARCHAR(20) | NOT NULL |  |
| TOGSpeciationDivisor | DOUBLE | NULL |  |
| TOGSpeciationMassFraction | DOUBLE | NULL |  |

| **Column(s) of "togspeciationprofilename" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| TOGSpeciationProfileID | VARCHAR(10) | NOT NULL |  |
| TOGSpeciationProfileName | VARCHAR(100) | NULL |  |
| dataSourceId | SMALLINT | NULL | Identification of a source of information in this Database. |

| **Column(s) of "WeightClass" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| weightClassID | SMALLINT | NOT NULL | Numeric identification of a source weight classification:  0 = doesn't matter NOTE: This value should  not be used in SourceBinDistributions for  pollutantProcessAssociations whose  operating modes involve knowledge of  source mass. |
| weightClassName | CHAR(50) | NULL |  |
| midpointWeight | FLOAT | NULL |  |

| **Column(s) of "Year" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| yearID | SMALLINT | NOT NULL | An actual calendar year. |
| isBaseYear | CHAR(1) | NULL | Uppercase "Y" if year is a base year, otherwise uppercase "N". |
| fuelYearID | INTEGER | NOT NULL | Identifies a year for which fuel supply data has been entered in the FuelSupply table. (May be used by multiple calendar years.) |

| **Column(s) of "Zone" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| countyID | INTEGER | NOT NULL | 1000\* FIPS state code + FIPS county identification code. |
| startAllocFactor | DOUBLE | NULL | Portion of starts in the modeling domain to be allocated to each zone.  Required input for MOVES DP math formulation step TAG-8 if allocating to zones. |
| idleAllocFactor | DOUBLE | NULL | Portion of extended idle hours in the modeling domain to be allocated to each zone.  Required input for MOVES DP math formulation step TAG-8 if allocating to zones. |
| SHPAllocFactor | DOUBLE | NULL | Portion of source hours parked in the modeling domain to be allocated to each zone. |

| **Column(s) of "ZoneMonthHour" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| monthID | SMALLINT | NOT NULL | MonthIDs will range from 1 (representing January) through 12 (representing December). |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| hourID | SMALLINT | NOT NULL | One of the 24 hours of any day.  1 = 12:00 midnight thru  (but not including) 1:00 AM  24 = 11:00 PM thru  (but not including) 12:00 midnight |
| temperature | FLOAT | NULL | Units of degrees Fahrenheit. |
| temperatureCV | FLOAT | NULL |  |
| relHumidity | FLOAT | NULL | The ratio of the amount of water vapor in the air at a specific temperature to the maximum amount that the air could hold at that temperature, expressed as a percentage. relHumidity has units of percent. |
| heatIndex | FLOAT | NULL | Expressed in degrees Fahrenheit |
| specificHumidity | FLOAT | NULL | Units are grains of water (H2O) per pound of dry air. |
| relativeHumidityCV | FLOAT | NULL |  |

| **Column(s) of "ZoneRoadType" Table** | | | |
| --- | --- | --- | --- |
| **Name** | **Datatype** | **Null Option** | **Comment** |
| zoneID | INTEGER | NOT NULL | Identifies a zone. |
| roadTypeID | SMALLINT | NOT NULL |  |
| SHOAllocFactor | DOUBLE | NULL | Fraction of the RoadType SHO in the modeling  domain to be allocated to each Zone.  Required input for MOVES DP math formulation  step TAG-8 if allocating to zones. |