DRAFT

Diesel Particulate Matter Mitigation Plan for the Union Pacific Railroad Mira Loma Auto Facility

prepared for:

Union Pacific Railroad Company

April 2009

prepared by:

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Union Pacific Railroad Mira Loma Auto Facility

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Diesel Particulate Matter Mitigation Plan for the Union Pacific Railroad Mira Loma Auto Facility

I. Introduction

In accordance with the 2005 California Air Resources Board (CARB)/Railroad Statewide Agreement (MOU), Union Pacific Railroad Company (UPRR) has prepared this Mitigation Plan for the UPRR Mira Loma Auto Facility (Yard). The purpose of this Plan is to outline the potential mitigation measures that can be used to reduce Diesel particulate matter (DPM) emissions from the Yard. The baseline inventory for calendar year 2005 and initial estimates of health risk associated with Yard operations are detailed in the *Health Risk Assessment for the Union Pacific Railroad Mira Loma Auto Facility Railyard* (CARB, 2007).[1] This Plan contains sections detailing how the baseline and projected emissions were calculated, a discussion of projected growth rates and proposed mitigation measures, and a discussion of the mechanisms that will be used to track progress.

As discussed below, the proposed mitigation measures, when fully implemented, will reduce the DPM emissions from the Mira Loma Yard by approximately 67% from 2005 levels even after accounting for anticipated growth in yard activities (see Section V for a discussion of the predicted growth rate).[2] These emission reductions will concurrently lower any predicted health risk associated with the facility's operations.

II. Summary of Rail Yard Operations

The Mira Loma Auto Facility is an automobile distribution center. New automobiles are delivered to the Yard by train, where they are unloaded and sorted. The autos are then loaded onto car carrier trucks for distribution to local auto retailers. Activities at the Yard include receiving inbound rail cars, switching cars, loading and unloading automobiles, departing outbound rail cars, and storing automobiles. Facilities within the Yard include classification tracks, a gate complex for inbound and outbound truck traffic, loading and unloading tracks, and various buildings and facilities supporting railroad and contractor operations. UPRR also leases space at the Mira Loma yard to two contractors: Progress Rail and Inter-Rail Transport (IRT). Progress Rail's main activity is the repair of damaged rail cars. IRT crews unload and park the new automobiles arriving at the Yard.

Across the main line and just north of the Yard is the Calpro facility. Calpro is a railcar repair service. Although the Calpro facility is not part of the Yard, locomotive emissions from pushing railcars to and from the Calpro facility have been included in the emission

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[1] Available at *http://www.arb.ca.gov/railyard/hra/up_miraloma_hra.pdf.*

[2] Note that due to the current economic downturn, 2008 saw a decline in traffic, and a further decline is projected in 2009; therefore, emissions are likely to be significantly lower today than is assumed in this Mitigation Plan. To be conservative, however, this analysis assumes a constant growth of 1% per year.

inventory for the Mira Loma Yard. Other emissions from the Calpro facility are not included in the Mira Loma Yard emissions inventory.

Operational Changes

Since the HRA was released in 2005, Union Pacific has implemented some operational changes at the Yard to lessen impacts to the surrounding community. The majority of trucks entering and leaving the Yard are now using the Harrel Street gate (off of Etiwanda) instead of the Galena Street gate. In addition, the Galena Street gate is closed to all traffic during drop off and pick up hours at the nearby school.

III. Emissions Summary

Table 1 shows the DPM emissions from the Mira Loma Yard, by equipment category, for the 2005 baseline year, calendar year 2007, and for future years as the mitigation measures proposed in this Plan are implemented over time. As shown in Table 1, when the proposed mitigation measures are implemented, DPM emissions will be reduced by approximately 67% from 2005 levels, even after accounting for expected growth in yard activities (see Section V for a discussion on the predicted growth rate). These emission reductions will concurrently lower any existing predicted health risk related to facility operations. A detailed discussion of each mitigation measure is provided in Section VI.

Table 1
Summary of Emissions from the UPRR Mira Loma Rail Yard

Equipment Category	DPM Emissions (TPY)					
	2005[a]	2005-Adj[b]	2007	2010[c]	2015[c]	2020[c]
Locomotives	4.4	4.4	2.2	2.4	1.7	1.3
Line Haul[d]	*2.0*	*2.0*	*1.8*	*1.8*	*1.4*	*1.0*
Switch	*2.4*	*2.4*	*0.4*	*0.6*	*0.3*	*0.3*
Diesel-Fueled Trucks	0.2	0.1	0.1	0.1	0.1	0.1
Forklifts	0.2	0.2	0.2	0.2	0.2	0.2
Air Compressors	0.0	0.0	0.0	0.0	0.0	0.0
Total[e]	**4.9**	**4.8**	**2.6**	**2.7**	**2.0**	**1.6**

Notes:
a. From the *Health Risk Assessment for the Union Pacific Railroad Mira Loma Auto Facility Railyard* (CARB, 2007).
b. Based on new information, the emission estimates presented in the CARB HRA have been adjusted.
c. Includes growth in Yard related activities (see Section V) and the proposed mitigation measures (see Section VI).
d. Line haul emission estimates include both in-yard activity and by-passing through trains.
e. Numbers may not add precisely due to rounding.

Inventory Updates

A new version of the EMFAC model (EMFAC2007) was released after the HRA emission inventory was completed. The emission factors for all Diesel-fueled trucks and shuttle vans were calculated using the EMFAC model. The latest version of the model contains updated emission factors and accounts for emission reductions that will be achieved from the implementation of recently adopted rules and regulations. The 2005 baseline emission estimates for Diesel-fueled truck operations were revised based on the EMFAC2007 model.

IV. Emission Inventory Methodology

A general discussion of the analytical methodology and assumptions for each equipment category used to calculate emissions for the 2005 baseline and calendar year 2007 inventories, and to forecast emissions for calendar years for future years, is provided below and in Appendix A. Detailed emission calculations for the 2005 baseline year can be found in the *Toxic Air Contaminant Emission Inventory and Dispersion Modeling Report for the Mira Loma Auto Facility, Mira Loma, California* (Sierra Research, 2007).[3]

1. Locomotives

Table 2
Summary of Emissions from Locomotives
at the UPRR Mira Loma Rail Yard

Equipment Category	DPM Emissions (TPY)					
	2005[a]	2005-Adj[b]	2007	2010[c]	2015[c]	2020[c]
Line Haul[d]	2.0	2.0	1.8	1.8	1.4	1.0
Switch	2.4	2.4	0.4	0.6	0.3	0.3
Total	**4.4**	**4.4**	**2.2**	**2.4**	**1.7**	**1.3**

Notes:
a. From the *Health Risk Assessment for the Union Pacific Railroad Mira Loma Auto Facility Railyard* (CARB, 2007).
b. 2005 adjustments do not affect locomotive emission estimates. See the Inventory Updates section above for details.
c. Includes growth in Yard related activities (see Section V) and the proposed mitigation measures (see Section VI).
d. Line haul emission estimates include both in-yard activity and by-passing through trains.

[3] Available at *http://www.arb.ca.gov/railyard/hra/sr_ml_rpt.pdf.*

Analytical Method for Calculating Emissions

For the 2005 baseline year, emissions from the Mira Loma Yard's locomotives were estimated for (1) "road power" (locomotives arriving and departing from the Yard with automobile and freight trains), and (2) yard switching operations.

- 2005 Road Power Emissions – UPRR databases provided basic information on all trains arriving and departing the Mira Loma Yard during calendar year 2005. These data included the number of trains and the number of locomotives on each train. UPRR data also provided the individual locomotive model, emission control technology (as defined by EPA Tier), and whether the locomotive was equipped with automatic start/stop idle controls. Emissions for road power included the use of these locomotives for spotting sections of cars for terminating trains, and for pulling sections of cars out of the Yard and building originating trains.

- Emission factors for individual locomotive models and control technologies were adjusted according to CARB guidance for the effects of fuel sulfur content in 2005 for both California fuel and fuel delivered in other states. These emission factors were used to calculate total emissions associated with movements into and out of the Yard based on routes followed, speeds, and throttle settings, as well as estimated idle time on arrival, and idle time prior to departure.

- 2005 Yard Switching Operations – Mira Loma Yard operations included the use of one set of two medium horsepower GP-40 locomotives. Emissions for the 2005 baseline year were calculated based on emission factors for the specific locomotive models in use, the hours of operation, and the EPA switcher duty cycle.

<u>2007 Emission Inventory</u>

Locomotive emissions for line-haul operations were calculated from UPRR data for calendar year 2007 in the same manner as the emissions for the 2005 baseline year. Emission factors for 2007 were updated from those for 2005 to reflect the reductions in sulfur content for both California fuel and 47-state fuel. California refinery data show that California fuel sulfur content was reduced from 221 ppm in 2005 to 4.8 ppm in 2007. EPA's 2004 forecasts for sulfur content for 47-state fuel estimated 2639 ppm S for 2005 and 1328 ppm S for 2007.

Yard switching emissions estimates were calculated based on the assumption that hp-hrs of work by switchers is proportional to the total trailing tons of originating and terminating automobile trains, using the 2005 estimate as the baseline. Total trailing tons of auto trains decreased by approximately 15% from 2005 to 2007. This decrease in work and emissions is further reduced by the introduction of ultra-low emission locomotives (ULELs), including both hybrid "Green Goat" locomotives and gen-set switcher locomotives. On average, these ULELs emit 85% less exhaust particulate matter per brake horsepower-hour. During 2007, UPRR operating personnel estimated

that ULELs performed about 95% of the switching work in the yard, with GP40s used during the 5% of time that ULELs were not available due to service and maintenance requirements. Trailing tons of freight (and therefore, total yard switching hp-hrs of work) were assumed to increase at 1% per year after 2007.

2010-2020 Emission Inventory Forecast

UPRR locomotive acquisition and retirement projections were used to develop model- and tier-specific growth rates from 2005 to 2012.[4] These rates were applied to the observed fleet distribution at the Mira Loma Yard in 2005 to generate 2012 emission factors for the Mira Loma fleet. Locomotive emissions for 2010 were developed by interpolation between the Mira Loma 2007 fleet's emissions and those for 2012 assuming a 1% per year growth in locomotive activity beginning in 2008. All yard switching activity after 2007 was assumed to be handled by ULEL gen-set switchers. The locomotive fleet model and technology distribution for the 2012 inventory was developed from the 2005 base year distribution and UPRR locomotive acquisition and retirement projections. One half of the line haul locomotives at Mira Loma in 2012 were assumed to have the projected distribution. To reflect UPRR's response to the 1998 CARB MOU, the other half of the line haul fleet at Mira Loma in 2012 was assumed to include equal fractions of Tier 2 Dash 9 and SD-70 locomotives. The fuel sulfur content in 2012 was projected to be 15 ppm for California fuel and 123 ppm for 47-state fuel. Emission factors for 2012 were calculated to reflect the projected fuel sulfur content for California fuel and 47-state fuel in the same manner as was used for the 2007 inventory.

Emissions estimates for 2015 and 2020 were projected from the 2012 inventory based on 1% per year growth in activity. In addition, EPA forecasts of average line haul locomotive emissions presented in the Regulatory Impact Analysis for locomotive emission controls (EPA, 2008) and adjusted for the EPA-assumed growth rate of 1.6% per year in fuel consumption were used to derive control factors reflecting the effects of future mandated improvements in locomotive emission control technology. These control factors were applied to the line haul emissions estimates for 2010, 2015 and 2020.

[4] The 2012 acquisition and retirement projections were submitted to U.S. EPA and CARB as part of the 1998 MOU reporting requirements.

2. Diesel-Fueled Trucks and Vans

Table 3 Summary of Emissions from Diesel-Fueled Trucks and Vans at the UPRR Mira Loma Rail Yard						
	DPM Emissions (TPY)					
Equipment Category	2005[a]	2005-Adj[b]	2007	2010[c]	2015[c]	2020[c]
Motor Carrier Trucks	0.2	0.1	0.1	0.1	0.1	0.1
Shuttle Vans	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**

Notes:
a. From the *Health Risk Assessment for the Union Pacific Railroad Mira Loma Auto Facility Railyard* (CARB, 2007).
b. Based on new information, the emission estimates presented in the CARB HRA have been adjusted. As discussed in the Inventory Updates section, the changes were negligible.
c. Includes growth in Yard related activities (see Section V) and the proposed mitigation measures (see Section VI).

Analytical Method for Calculating Emissions

Emissions from Diesel-fueled trucks operating at the Yard are based on the engine model year, vehicle class, annual vehicle miles traveled (VMT), and the amount of time spent idling. Vehicle-specific emission factors for travel exhaust and idling were calculated for each calendar year using the EMFAC2007 model.[5] The fleet mix was based on model year information collected from each primary motor carrier. The primary motor carriers changed at the Yard between 2005 and 2007 and the fleet mix was adjusted accordingly. The number of truck trips for 2005 and 2007 were calculated based on the number of new autos unloaded at the Yard each year and the number of autos hauled by each truck, which was based on the gate count data.

For calendar years 2010-2020, it was assumed that the fleet mix was the same as 2007 and activity data were based on the predicted number of new vehicles processed at the Yard. The predicted number of new vehicles is equal to a 1% per year increase from 2007. See Section V for a discussion of growth rates.

Inter-Rail Transport (IRT) provides crews to unload and park the new automobiles arriving at the Yard. IRT uses two Diesel-fueled vans to transport the crews throughout the Yard. The annual VMT for the shuttle vans was provided by IRT staff. It was assumed that there was no change in operation for calendar years 2007 and 2010-2020. Vehicle specific emission factors, for each calendar year, were calculated using the EMFAC2007 model.

[5] Emission factors in grams per mile (g/mi) were calculated from the tons per day emissions (tpd) estimates and daily VMT estimates generated by the EMFAC2007 model (see Appendix A for model output). The tpd emission estimates were converted to g/mi as follows: g/mi = tpd x (2000 lb/ton) x (453.59 g/lb) x (1 day/(VMT x 1000)).

3. Forklifts

Table 4 Summary of Emissions from Forklifts at the UPRR Mira Loma Rail Yard						
	DPM Emissions (TPY)					
Equipment Category	2005[a]	2005-Adj[b]	2007	2010	2015	2020
Forklifts	0.10	0.10	0.10	0.03	0.02	0.00

Notes:
a. From the *Health Risk Assessment for the Union Pacific Railroad Mira Loma Auto Facility Railyard* (CARB, 2007).
b. The 2005 adjustments do not affect the forklift emission estimates. See the Inventory Updates section above for details.

Analytical Method for Calculating Emissions

Progress Rail repairs damaged railcars at the Mira Loma facility. The company uses three Diesel-fueled forklifts to complete repairs. The 2005 baseline year DPM emissions from the forklifts were based on the number and type of equipment, equipment model year, equipment size, fuel type, and the annual hours of operation. The hours of operation during the baseline year were obtained from Progress Rail staff. For years 2007 and 2010–2020, it was assumed that the hours of operation did not change from the 2005 baseline year since railcar repairs are not directly tied to new auto volumes. Equipment-specific emission factors were calculated using the OFFROAD2007 model.

4. Air Compressors

Table 5 Summary of Emissions from Air Compressors at the UPRR Mira Loma Rail Yard						
	DPM Emissions (TPY)					
Equipment Category	2005[a]	2005-Adj[b]	2007	2010	2015	2020
Air Compressors	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes:
a. From the *Health Risk Assessment for the Union Pacific Railroad Mira Loma Auto Facility Railyard* (CARB, 2007).
b. The 2005 adjustments do not affect air compressor emission estimates. See the Inventory Updates section above for details.

Analytical Method for Calculating Emissions

Progress Rail also operates a Diesel-fueled air compressor at the Yard. Emissions from the air compressor were calculated based on the size of the engine and the annual hours of operation. Emission factors were calculated using the OFFROAD2006 model. Since the operation of these units is not directly related to other operations at the Yard, emission estimates for calendar years 2007 and 2010–2020 were assumed to be unchanged from the 2005 baseline.

V. Projected Growth Rates

The emission estimates presented in Table 1 account for the expected growth in operations at UPRR's California facilities. While it is not possible to accurately predict future goods movements needs, a reasonable estimate of growth was determined based on historic data. Based on a review of historic fuel use data and other historic operational factors, such as lift counts, tons of freight, etc., and discussions with CARB staff, it was determined that a long-term growth rate of 1% per year is appropriate for the Mira Loma Yard. Detailed data, including Diesel fuel consumption, revenue ton-miles of freight, and gross ton-miles of freight, are contained in Appendix B.

VI. Mitigation Measures

1. Current Mitigation Measures

As shown in Table 1, DPM emissions have been reduced by approximately 67% from the 2005 baseline year. These reductions were achieved in part through the implementation of the measures listed below.

- Retrofit of idle control devices – As of June 2008, 100% of UPRR's intrastate locomotives are equipped with idle control devices.

- Use of idle control devices on new locomotives – All new locomotives purchased since 2001 are equipped with factory-installed automatic idle control devices.

- Increased fuel efficiency – Aggressive fuel consumption efforts have achieved a 12% improvement in fuel efficiency since 1995.

- Cleaner new line haul locomotives – UPRR has acquired more than 1,180 new, cleaner Tier 2 line haul locomotives since they were introduced in 2005.

- Cleaner existing line haul locomotives – UPRR has remanufactured more than 2,800 older line haul locomotives with new, lower emitting components since 2000.

- Cleaner switch locomotives – ULEL switchers have been introduced, and Mira Loma was the first UPRR facility to receive these. There are currently 60 ULELs operating at UPRR facilities throughout California.

- Cleaner fuels – Only Ultra-Low Sulfur Diesel (ULSD) fuel is being dispensed in California.

- Employee training – Aggressive employee training is being implemented to reduce unnecessary idling and ensure trains are operated in the most efficient manner by the locomotive engineers, thereby reducing fuel consumption and emissions.

2. Proposed Future Mitigation Measures

To achieve additional DPM reductions, UPRR proposes to implement the mitigation measures outlined below.

- Continued acquisition of Tier 2 line haul locomotives and newer technology locomotives as they become available.

- Continued remanufacture and retrofit of older line haul locomotives with new, lower-emitting components and automatic idle controls.

- Continued retirement of older locomotives from the fleet.

- Continued reductions in unnecessary locomotive and equipment idling through employee training.

VII. Evaluation of Additional Mitigation Measures

In addition to the proposed mitigation measures discussed above, UPRR will evaluate the use of other mitigation measures, on a case-by-case basis. Measures that are found to be safe, legal, technologically and operationally feasible, and cost-effective will be further evaluated for implementation.

VIII. Mechanisms for Tracking Progress

UPRR will track the progress and effectiveness of the mitigation measures using a variety of methods. Mechanisms for tracking progress could include, but are not limited to, the following:

- Recordkeeping – UPRR maintains detailed records of Diesel fuel usage. A reduction in the amount of fuel used corresponds to a reduction in emissions.

- Compliance with Other Agreements – By demonstrating compliance with the 1998 MOU, which requires locomotives operating in the South Coast Air Basin to meet a Tier 2 equivalent, emission reductions at the Mira Loma yard can be shown.

- Inventory Updates – Periodic updates to the emission inventory can be used to demonstrate actual emission reductions achieved at the Mira Loma yard. Due to the time and data required to prepare a complete rail yard inventory, UPRR is proposing to prepare inventory updates no more frequently than once every two years.

IX. Conclusions

As shown in Table 1, the proposed mitigation measures, when fully implemented, will reduce the DPM emissions from the Mira Loma yard by approximately 67% from 2005 levels. These emission reductions will concurrently lower any existing predicted health risk associated with the facility operations. Other federal, state, and related air pollution control measures and plans will supplement the current and future emission reduction discussed in this Plan.

X. References

CARB, 2007. *Health Risk Assessment for the Union Pacific Railroad Mira Loma Auto Facility Rail Yard.* (Available at *http://www.arb.ca.gov/railyard/hra/up_miraloma_hra.pdf.*)

EPA, 2008. *Regulatory Impact Analysis: Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression-Ignition Engines Less than 30 Liters per Cylinder*, EPA420-R-08-001a, USEPA-OTAQ, May 2008.

Sierra Research, 2007. *Toxic Air Contaminant Emission Inventory and Air Dispersion Modeling Report for the Mira Loma Auto Facility, Mira Loma,, California.* (Available at *http://www.arb.ca.gov/railyard/hra/sr_ml_rpt.pdf..*)

Appendix A
Detailed Emission Calculations

Locomotive Data

Mira Loma Locomotive Emissions (DPM TPY)

	2005*	2007*	2010**	2015**	2020**
Line Haul	2.0	1.8	1.8	1.4	1.0
Switch	2.4	0.4	0.6	0.3	0.3
Total	**4.4**	**2.2**	**2.4**	**1.7**	**1.3**

* Actual

** Forecast assuming 1% p.a. growth after 2007, UPRR-projected fleet turnover, and new EPA emission standards

Emission Calculations

Initial calculations:
2005 and 2007 from actual data
2012 based on 2005 activity and projected 2012 fleet composition without EPA (2004) controls

	2005	2007	2012 fleet @ '05 activity
Through trains and power	0.25	0.16	0.15
Auto and Freight	1.80	1.69	1.65
Yardops	2.38	0.39	0.36
Total	4.43	2.24	2.16

Growth factor calculations

2007 observed growth v. 2005	0.853
Annual growth after 2007	1.01
Growth factors	
2012 relative to 2005	0.896
2015 relative to 2012	1.030
2020 relative to 2012	1.083

Projected and interpolated emissions with growth, but without EPA (2004) controls

	2005	2007	2010	2012
Through trains and power	0.25	0.16	0.17	0.15
Auto and Freight	1.80	1.69	1.69	1.65
Yardops	2.38	0.39	0.61	0.36
Total	4.43	2.24	2.48	2.16

Control factor calculations from EPA 2008 Final RIA (Tables 3-72 and 3-82)

	2010 Base	2010 Contro	2012 Base	2012 Control	2015 Control	2020 Control
EPA Line Haul Emissions	22300	21580	21956	19597	16928	12550
EPA Switcher Emissions	2051	1959	2094	1928	1883	1744
(assumes 1.6%/year growth in fuel use)						

Control factors (2015 and 2020 calculated relative to 2012 fleet)

	2010	2012	2015	2020
Line Haul Control Factor	0.968	0.893	0.824	0.564
Switcher Control Factors	0.955	0.921	0.931	0.797

RESULTS:
Projected and interpolated emissions with growth and control

	2005	2007	2010	2012	2015	2020
Through trains and power	0.25	0.16	0.17	0.13	0.11	0.08
Auto and Freight	1.80	1.69	1.63	1.47	1.25	0.90
Yardops	2.38	0.39	0.59	0.33	0.32	0.28
Total	4.43	2.24	2.39	1.93	1.68	1.26

Locomotive Data
2007 Sample Calculations

Activity Types

Description	Activity Code	Number of Events/Year	Locomotives per Consist	Emission Factor Group	Locomotives per Consist Working
Thru EB Arriving	1	113	1.434	1	1.434
Thru EB Departing	2	113	1.434	1	1.434
Thru WB Arriving	3	62	1.629	2	1.629
Thru WB Departing	4	62	1.629	2	1.629
Auto Trains EB Arrivals	5	0	1	3	1
Auto Trains WB Arrivals	6	978	2.66	3	2.66
Auto Trains EB Departures	7	727	2.345	3	2.345
Auto Trains WB Departures	8	206	2.544	3	2.544
Other EB Arrivals	9	53	1.774	4	1.774
Other WB Arrivals	10	657	2.409	5	2.409
Other EB Departures	11	56	1.929	4	1.929
Other WB Departures	12	879	2.554	5	2.554
Other EB Arriving and Departing Arrivals	13	380	1.247	4	1.247
Other EB Arriving and Departing Departures	14	380	1.253	4	1.253
Other WB Arriving and Departing Arrivals	15	66	1.955	5	1.955
Other WB Arriving and Departing Departures	16	66	1.924	5	1.924
Power Moves Thru EB Arriving	17	73	1	6	1
Power Moves Thru EB Departing	18	73	1	6	1
Power Moves Thru WB Arriving	19	100	1.97	6	1.5
Power Moves Thru WB Departing	20	100	1.97	6	1.5
Power Moves EB Arrivals	21	273	2.132	6	1.5
Power Moves WB Arrivals	22	316	2.842	6	1.5
Power Moves EB Departures	23	265	2.219	4	1.5
Power Moves WB Departures	24	183	3.333	4	1.5
Yard Operations - Two GP-60s*	25	60	2	7	2

* Yard operations activity adjusted from 365 days per year to 60 effective days based on:

Ratio of trailing tons 2007:2005	85.3%
Fraction of work done by ULELs	95%
Emission control factor for ULELs	15%

California Fuel

Emission Factors Weighted by Model/Tier/ZTR Fractions - DPM g/hr per Locomotive

Consist Emission Factor Groups	Group ID	Idle-NonZTR	Idle-All	DB	N1	N2	N3	N4	N5	N6	N7	N8
Thru Trains EB	1	32.12	37.34	66.87	42.24	117.19	222.84	256.18	329.36	522.28	631.3	761.19
Thru Trains WB	2	23.35	31.48	53.37	41.56	108.37	218.77	267.52	332.83	543.37	639.3	744.35
Auto Trains	3	18.93	27.71	50.86	46.38	97.22	218.4	277.7	354.27	552.1	646.16	737.94
Other Trains EB	4	33.73	35.99	64.15	42.52	107.21	237.02	274.84	362.4	574.99	788.17	954.74
Other Trains WB	5	29.46	36.6	68.46	41.09	117.02	231.04	257.72	325.23	523.88	676.03	818.09
Power Moves	6	33.38	38.27	69.73	41.71	117.26	225.83	255.37	323.91	524.04	651.84	795.68
Yard Operations (GP-60)	7	47.94	47.94	80.04	35.7	134.3	210.81	226.28	286.07	483.62	579.93	744.38

47-State Fuel

Consist Emission Factor Groups	Group ID	Idle-NonZTR	Idle-All	DB	N1	N2	N3	N4	N5	N6	N7	N8
Thru Trains EB	1	32.12	37.34	66.87	42.24	117.19	231.7	272.11	353.57	555.97	666.23	804.21
Thru Trains WB	2	23.35	31.48	53.37	41.56	108.37	227.82	284.11	357.22	578.47	675.41	787.81
Auto Trains	3	18.93	27.71	50.86	46.38	97.22	228.72	294.78	379.35	588.7	688.21	788.67
Other Trains EB	4	33.73	35.99	64.15	42.52	107.21	245.02	292.1	390.19	611.01	824.42	999.63
Other Trains WB	5	29.46	36.6	68.46	41.09	117.02	239.1	273.87	349.96	556.88	708.33	858.03
Power Moves	6	33.38	38.27	69.73	41.71	117.26	234.16	271.32	348.24	557.35	684.86	836.94
Yard Operations (GP-60)	7	47.94	47.94	80.04	35.7	134.3	210.81	226.28	286.07	483.62	579.93	744.38

Note: Idle-NonZTR is the average per-locomotive idle emission rate for the fraction of locomotives not equipped with ZTR/Auto start-stop technology

Locomotive Model Distributions

Thru Trains EB

Technology	ZTR/AESS	Switcher	GP-3x	GP-4x	SD-50	GP-60	SD-7x	SD-90	Dash 7	Dash 8	Dash 9	C-60
Pre Tier 0	**No**	0.0000	0.0063	0.4114	0.0000	0.1456	0.0000	0.0000	0.0000	0.0063	0.0190	0.0000
Pre Tier 0	**Yes**	0.0000	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0063	0.0000
Tier 0	**No**	0.0000	0.0000	0.0000	0.0000	0.0696	0.0696	0.0000	0.0000	0.0190	0.0253	0.0000
Tier 0	**Yes**	0.0000	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0063	0.0000
Tier 1	**No**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	**Yes**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0886	0.0000	0.0000	0.0000	0.0063	0.0000
Tier 2	**No**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	**Yes**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0506	0.0000	0.0000	0.0000	0.0506	0.0000

Thru Trains WB

Technology	ZTR/AESS	Switcher	GP-3x	GP-4x	SD-50	GP-60	SD-7x	SD-90	Dash 7	Dash 8	Dash 9	C-60
Pre Tier 0	No	0.0000	0.0000	0.3800	0.0000	0.0200	0.0000	0.0000	0.0000	0.0000	0.0200	0.0000
Pre Tier 0	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0000
Tier 0	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.1900	0.0000	0.0000	0.0100	0.0100	0.0000
Tier 0	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.1800	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0700	0.0000	0.0000	0.0000	0.1100	0.0000

Auto Trains

Technology	ZTR/AESS	Switcher	GP-3x	GP-4x	SD-50	GP-60	SD-7x	SD-90	Dash 7	Dash 8	Dash 9	C-60
Pre Tier 0	No	0.0000	0.0008	0.1125	0.0067	0.0357	0.0102	0.0002	0.0000	0.0545	0.0704	0.0000
Pre Tier 0	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0102	0.0000
Tier 0	No	0.0000	0.0000	0.0054	0.0000	0.0313	0.2359	0.0008	0.0000	0.0324	0.0351	0.0019
Tier 0	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0004	0.0000	0.0000	0.0038	0.0000
Tier 1	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.2161	0.0000	0.0000	0.0000	0.0019	0.0000
Tier 2	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000
Tier 2	Yes	0.0000	0.0000	0.0013	0.0000	0.0000	0.0534	0.0000	0.0000	0.0000	0.0737	0.0000

Other Trains EB

Technology	ZTR/AESS	Switcher	GP-3x	GP-4x	SD-50	GP-60	SD-7x	SD-90	Dash 7	Dash 8	Dash 9	C-60
Pre Tier 0	No	0.0000	0.0149	0.1132	0.0000	0.4044	0.0035	0.0000	0.0000	0.0035	0.0000	0.0000
Pre Tier 0	Yes	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0000
Tier 0	No	0.0000	0.0000	0.0009	0.0000	0.3491	0.0097	0.0000	0.0000	0.0070	0.0018	0.0000
Tier 0	Yes	0.0000	0.0018	0.0000	0.0000	0.0421	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0211	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0070	0.0000	0.0000	0.0000	0.0079	0.0000

Other Trains WB

Technology	ZTR/AESS	Switcher	GP-3x	GP-4x	SD-50	GP-60	SD-7x	SD-90	Dash 7	Dash 8	Dash 9	C-60
Pre Tier 0	No	0.0000	0.0416	0.1847	0.0000	0.2945	0.0003	0.0003	0.0000	0.0021	0.0048	0.0000
Pre Tier 0	Yes	0.0000	0.0506	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000
Tier 0	No	0.0000	0.0000	0.0035	0.0000	0.1837	0.0135	0.0000	0.0000	0.0016	0.0040	0.0003
Tier 0	Yes	0.0000	0.0292	0.0003	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0183	0.0000	0.0000	0.0000	0.0016	0.0000
Tier 2	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	Yes	0.0000	0.0000	0.0008	0.0000	0.0000	0.1248	0.0000	0.0000	0.0000	0.0289	0.0000

Power Moves

Technology	ZTR/AESS	Switcher	GP-3x	GP-4x	SD-50	GP-60	SD-7x	SD-90	Dash 7	Dash 8	Dash 9	C-60
Pre Tier 0	No	0.0000	0.0251	0.3234	0.0047	0.2346	0.0033	0.0000	0.0000	0.0157	0.0144	0.0000
Pre Tier 0	Yes	0.0000	0.0284	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000
Tier 0	No	0.0000	0.0000	0.0097	0.0000	0.1193	0.0535	0.0007	0.0000	0.0054	0.0080	0.0000
Tier 0	Yes	0.0000	0.0184	0.0003	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0020	0.0000
Tier 1	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0481	0.0000	0.0000	0.0000	0.0027	0.0000
Tier 2	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	Yes	0.0000	0.0000	0.0040	0.0000	0.0000	0.0438	0.0000	0.0000	0.0000	0.0324	0.0000

Yard Operations (GP-60)

Technology	ZTR/AESS	Switcher	GP-3x	GP-4x	SD-50	GP-60	SD-7x	SD-90	Dash 7	Dash 8	Dash 9	C-60
Pre Tier 0	No	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pre Tier 0	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 0	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 0	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 1	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	No	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	Yes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Track Segment	Segment Number	Length (mi)	
Sidings 101 and 102 West End	1	0.4486	SdngW
Sidings 101 and 102 East End	2	0.6987	SdngE
Sidings E End to Mira Loma Storage Tracks	3	0.3816	Sdng-ML
Main Line W of Etiwanda	4	1.1469	MLW
Main Line E of Etiwanda	5	1.3168	MLE
Storage Tracks on N Side of Yard	6	0.5452	Storage
Pullback Track	7	0.2865	Pullback
Pullback Track to Unloading Track	8	0.272	PB-Unld

Movement Type	Activity Code	Segment Number	Speed (mph)	Duty Cycle Moving	Duty Cycle Working	Non-ZTR Idle Time (hrs)	ZTR Idle Time (hrs)	Working Time (hrs)	of Segment Moving
Thru EB Arriving	1	4	50	1	--	0	0	0	1
Thru EB Departing	2	5	50	1	--	0	0	0	1
Thru WB Arriving	3	5	50	1	--	0	0	0	1
Thru WB Departing	4	4	50	1	--	0	0	0	1
Auto Trains EB Arrivals	5	1	10	2	3	0	0	0.5	1
"	5	2	10	2	3	0	0	0.5	0.6
"	5	3	10	2	3	0	0	0.5	0
Auto Trains WB Arrivals	6	5	10	2	3	0	0	0	1
"	6	2	10	2	3	0	0	0.5	1
"	6	1	10	2	3	0	0	0.5	0.6
"	6	3	10	2	3	0	0	0.5	0
Auto Trains EB Departures	7	1	10	2	3	0	0	0.7	0
"	7	2	10	2	3	1.5	0.5	0.7	0.4
"	7	3	10	2	3	0	0	0.6	0
"	7	5	10	2	3	0	0	0	1
Auto Trains WB Departures	8	1	10	2	3	1.5	0.5	0.7	0.4
"	8	2	10	2	3	0	0	0.7	0
"	8	3	10	2	3	0	0	0.6	0
Other EB Arrivals	9	1	10	2	3	0	0	0	1
"	9	2	10	2	3	0.5	0.5	0.25	0.6
Other WB Arrivals	10	5	10	2	3	0	0	0	1
"	10	2	10	2	3	0	0	0	1
"	10	1	10	2	3	0.5	0.5	0.25	0.6
Other EB Departures	11	2	10	2	3	1.5	0.5	0.5	0.4
"	11	5	10	2	3	0	0	0	1
Other WB Departures	12	1	10	2	3	1.5	0.5	0.5	0.4
Other EB Arriving and Departing Arrivals	13	1	10	2	3	0	0	0	1
"	13	2	10	2	3	0	0	0.25	0.6
Other EB Arriving and Departing Departures	14	2	10	2	3	0	0	0.5	0.4
"	14	5	10	2	3	0	0	0	1
Other WB Arriving and Departing Arrivals	15	5	10	2	3	0	0	0	1
"	15	2	10	2	3	0	0	0	1
"	15	1	10	2	3	0	0	0.25	0.6
Other WB Arriving and Departing Departures	16	1	10	2	3	0	0	0.5	0.4
Power Moves Thru EB Arriving	17	4	50	1	--	0	0	0	1
Power Moves Thru EB Departing	18	5	50	1	--	0	0	0	1
Power Moves Thru WB Arriving	19	5	50	1	--	0	0	0	1
Power Moves Thru WB Departing	20	4	50	1	--	0	0	0	1
Power Moves EB Arrivals	21	1	10	2	3	0	0	0	1
"	21	2	10	2	3	0.5	0.5	0	0.6
Power Moves WB Arrivals	22	5	10	2	3	0	0	0	1
"	22	2	10	2	3	0	0	0	1
"	22	1	10	2	3	0.5	0.5	0	0.6
Power Moves EB Departures	23	2	10	2	3	1.5	0.5	0.5	0.4
"	23	5	10	2	3	0	0	0	1
Power Moves WB Departures	24	1	10	2	3	1.5	0.5	0.5	0.4

Notes
(1) Non-ZTR Idling is the duration of an idle event when units without ZTR continue to idle after ZTR-equipped units have shut down
(2) Idling All is the duration of idling during which all locomotives continue to idle
(3) Working Time is the duration of pushing or pulling of road power in the sidings and the lead from the sidings to the storage tracks
(4) Fraction of Segment Moving is the fraction of the length of the segment over which the movement occurs

Yard Operations	Activity Code	Segment Number	Duty Cycle Number	Non-ZTR Idle Time (hrs)	ZTR Idle Time (hrs)	Working Time (hrs)
Yard Operations - Storage Track	25	6	4	0	0	4
Yard Operations - Pullback Track	25	7	4	0	0	10
Yard Operations - Pullback to Unloading Track	25	8	4	0	0	7

Duty Cycles (Percent of Time by Notch)	Duty Cycle Number	Idle	DB	N1	N2	N3	N4	N5	N6	N7	N8
Thru Trains and Power Moves	1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%
Arriving and Departing Trains	2	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Road Power Working	3	50.0%	0.0%	0.0%	20.0%	20.0%	10.0%	0.0%	0.0%	0.0%	0.0%
Yard Operations	4	50.0%	0.0%	0.0%	0.0%	20.0%	20.0%	10.0%	0.0%	0.0%	0.0%

Example 1 -- WB Arriving Auto Train

Parameter	Value
Activity Code	6
Number of Events	978
Locomotives per Consist on Train	2.66
Emission Factor Group	3

Segment	Segment Number	Length (miles)	Speed (mph)	Power Move	Non-ZTR Idle (hrs)	ZTR Idle (hrs)	Working Time (hrs)	Locomotive Hours Moving	Locomotive Hours Working	Locomotive Hours NonZTR Idle	Locomotive Hours ZTR Idle
Main Line E of Etiwanda	5	1.317	10	N	0	0	0	342.56	0.00	0.00	0.00
Sidings E End	2	0.699	10	N	0	0	0.5	181.77	1300.74	0.00	0.00
Sidings W End	1	0.449	10	N	0	0	0.5	116.70	1300.74	0.00	0.00
Sidings to Storage Track	3	0.382	10	N	0	0	0.5	99.27	1300.74	0.00	0.00
Total								*740.30*	*3902.22*	*0.00*	*0.00*

Emission Factors	Consist/Duty Cycle ID	Idle-NonZTR	Idle-All	DB	N1	N2	N3	N4	N5	N6	N7	N8
Auto Trains	3	18.93	27.71	50.86	46.38	97.22	218.4	277.7	354.27	552.1	646.16	737.94
Duty Cycle Moving	2	0%	0%	50%	50%	0%	0%	0%	0%	0%	0%	0%
Duty Cycle Working	3	50%	0%	0%	20%	20%	10%	0%	0%	0%	0%	0%
Weighted g/hr emissions - Moving		0.00	0.00	25.43	23.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted g/hr emissions - Working		9.47	0.00	0.00	9.28	19.44	21.84	0.00	0.00	0.00	0.00	0.00

	Moving	Working	Idle-NonZTR	Idle-All
Emission Rate (g/hr)	48.62	60.03	18.93	27.71
Locomotive Hours	740.30	3902.22	0.00	0.00
Emissions (g/yr)	**35994**	**234231**	**0**	**0**

Total Emissions (g/yr) **270224**

Auto Carrier Trucks

Emissions from Heavy-Heavy Duty Diesel-Fueled Auto Carrier Trucks
Mira Loma Auto Facility

Running Exhaust Emissions

Number of Vehicles Hauled	Vehicles per Truck	Number of Truck Trips	VMT per Trip	VMT per Year	2005 Emission Factors (g/mi)					2005 Emissions (tpy)				
					ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
702,454	6	117,076	0.6	70,246	2.84	12.40	22.62	1.56	0.21	0.22	0.96	1.75	0.121	0.02

Idling Exhaust Emissions

Number of Truck Trips	Idling		2005 Emission Factors (g/hr)					2005 Emissions (tpy)				
	(mins/trip)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
117,076	5	9,756.31	12.71	49.55	108.83	2.01	0.57	0.137	0.533	1.170	0.022	0.006

Notes:
1. Number of vehicles hauled provided by Union Pacific.
2. Number of vehicles per truck is the average from the September 2005 gate release log.
3. VMT per trip estimated based on personal observation.
4. Running exhaust emission factors are from EMFAC2007 using the BURDEN output option. A fleet weighted average, based on the model year distribution of the major motor carrier's trucks, at average speed of 15 mph was used.
5. Idling exhaust emission factors from EMFAC 2007 using the EMFAC output option.

Emissions from Heavy-Heavy Duty Diesel-Fueled Auto Carrier Trucks
Mira Loma Auto Facility

Running Exhaust Emissions

Number of Vehicles Hauled	Vehicles per Truck	Number of Truck Trips	VMT per Trip	VMT per Year	2007 Emission Factors (g/mi)					2007 Emissions (tpy)				
					ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
641,678	6	106,946	0.6	64,168	2.03	8.28	18.83	1.02	0.04	0.14	0.59	1.33	0.072	0.00

Idling Exhaust Emissions

Number of Truck Trips	Idling		2007 Emission Factors (g/hr)					2007 Emissions (tpy)				
	(mins/trip)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
106,946	5	8,912.19	10.50	46.02	115.49	1.36	0.06	0.103	0.452	1.135	0.013	0.001

Notes:
1. Number of vehicles hauled provided by Union Pacific.
2. Number of vehicles per truck is the average from the September 2005 gate release log.
3. VMT per trip estimated based on personal observation.
4. Running exhaust emission factors are from EMFAC2007 using the BURDEN output option. A fleet weighted average, based on the model year distribution of the major motor carrier's trucks, at average speed of 15 mph was used.
5. Idling exhaust emission factors from EMFAC 2007 using the EMFAC output option.

Emissions from Heavy-Heavy Duty Diesel-Fueled Auto Carrier Trucks
Mira Loma Auto Facility

Running Exhaust Emissions

Number of Vehicles Hauled	Vehicles per Truck	Number of Truck Trips	VMT per Trip	VMT per Year	2010 Emission Factors (g/mi)					2010 Emissions (tpy)				
					ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
661,121	6	110,187	0.6	66,113	2.36	9.53	19.75	1.12	0.04	0.17	0.69	1.44	0.081	0.00

Idling Exhaust Emissions

Number of Truck Trips	Idling		2010 Emission Factors (g/hr)					2010 Emissions (tpy)				
	(mins/trip)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
110,187	5	9,182.24	10.50	46.02	115.49	1.36	0.06	0.106	0.466	1.169	0.014	0.001

Notes:
1. Number of vehicles hauled assumes a 1% per year growth rate from 2007.
2. Number of vehicles per truck is the average from the September 2005 gate release log.
3. VMT per trip estimated based on personal observation.
4. Running exhaust emission factors are from EMFAC2007 using the BURDEN output option. A fleet weighted average, based on the model year distribution of the major motor carrier's trucks, at average speed of 15 mph was used.
5. Idling exhaust emission factors from EMFAC 2007 using the EMFAC output option.

Emissions from Heavy-Heavy Duty Diesel-Fueled Auto Carrier Trucks
Mira Loma Auto Facility

Running Exhaust Emissions

Number of Vehicles Hauled	Vehicles per Truck	Number of Truck Trips	VMT per Trip	VMT per Year	2015 Emission Factors (g/mi)					2015 Emissions (tpy)				
					ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
694,845	6	115,808	0.6	69,485	2.72	10.98	20.91	1.25	0.04	0.21	0.84	1.60	0.096	0.00

Idling Exhaust Emissions

Number of Truck Trips	Idling		2015 Emission Factors (g/hr)					2015 Emissions (tpy)				
	(mins/trip)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
115,808	5	9,650.63	10.50	46.02	115.49	1.36	0.06	0.112	0.490	1.229	0.014	0.001

Notes:
1. Number of vehicles hauled assumes a 1% per year growth rate from 2007.
2. Number of vehicles per truck is the average from the September 2005 gate release log.
3. VMT per trip estimated based on personal observation.
4. Running exhaust emission factors are from EMFAC2007 using the BURDEN output option. A fleet weighted average, based on the model year distribution of the major motor carrier's trucks, at average speed of 15 mph was used.
5. Idling exhaust emission factors from EMFAC 2007 using the EMFAC output option.

Emissions from Heavy-Heavy Duty Diesel-Fueled Auto Carrier Trucks
Mira Loma Auto Facility

Running Exhaust Emissions

Number of Vehicles Hauled	Vehicles per Truck	Number of Truck Trips	VMT per Trip	VMT per Year	2020 Emission Factors (g/mi)					2020 Emissions (tpy)				
					ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
730,289	6	121,715	0.6	73,029	2.90	11.93	21.74	1.36	0.04	0.23	0.96	1.75	0.109	0.00

Idling Exhaust Emissions

Number of Truck Trips	Idling		2020 Emission Factors (g/hr)					2020 Emissions (tpy)				
	(mins/trip)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
121,715	5	10,142.91	10.50	46.02	115.49	1.30	0.06	0.117	0.514	1.291	0.015	0.001

Notes:
1. Number of vehicles hauled assumes a 1% per year growth rate from 2007.
2. Number of vehicles per truck is the average from the September 2005 gate release log.
3. VMT per trip estimated based on personal observation.
4. Running exhaust emission factors are from EMFAC2007 using the BURDEN output option. A fleet weighted average, based on the model year distribution of the major motor carrier's trucks, at average speed of 15 mph was used.
5. Idling exhaust emission factors from EMFAC 2007 using the EMFAC output option.

Calculation of Fleet Average Emission Factors - Running Exhaust
PTS/Hadley Trucking and PMT Trucking

Model Year	Riverside County, CY 2005 Annual Average HHDD Emission Factors (g/mi)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1990	5.14	28.88	25.78	3.63	0.23	37
1991	3.14	12.84	23.80	1.98	0.18	32
1992	3.15	12.59	23.88	1.94	0.19	15
1993	2.98	12.18	23.62	1.89	0.18	17
1994	3.07	12.31	23.75	1.31	0.22	44
1995	2.90	11.71	23.46	1.27	0.22	16
1996	2.75	11.09	23.18	1.23	0.20	40
1999	2.19	8.87	22.39	1.02	0.20	30
2000	1.98	8.00	21.92	0.95	0.21	65
2004	0.55	1.57	7.26	0.37	0.18	14
2005	0.42	1.23	13.50	0.32	0.21	1
Fleet Avg.	***2.84***	***12.40***	***22.62***	***1.56***	***0.21***	311

Notes:
1. Assumed an average speed of 15 mph.
2. Model year distribution provided by Tom Colfield of PTS/Hadley and John O'Dwyer of PMT.
3. Emission factors calculated using EMFAC2007 with the BURDEN output option.

Title : BURDEN_HHD_MY1990
Version : Emfac2007 V2.3 Nov 1 2006 ** WIS Enabled **
Run Date : 2009/03/19 12:07:48
Scen Year: **2005**
Season : Annual
Area : Riverside County Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 61 Riverside (SC)
Emissions: Tons Per Day

Model Year	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1999**	**2000**	**2004**	**2005**
	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL
Vehicles	1117	859	766	1060	1341	1678	1472	1511	1507	722	997
VMT/1000	120	101	98	149	207	285	274	357	380	197	258
Trips	5654	4346	3877	5366	6787	8491	7451	7645	7625	3655	5043
Reactive Organic Gas Emissions											
Run Exh	0.68	0.35	0.34	0.49	0.7	0.91	0.83	0.86	0.83	0.12	0.12
Idle Exh	0.04	0.02	0.02	0.03	0.03	0.04	0.03	0.03	0.03	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.72	0.38	0.36	0.53	0.73	0.95	0.86	0.89	0.86	0.13	0.14
Diurnal	0	0	0	0	0	0	0	0	0	0	0
Hot Soak	0	0	0	0	0	0	0	0	0	0	0
Running	0	0	0	0	0	0	0	0	0	0	0
Resting	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---
Total	0.72	0.38	0.36	0.53	0.73	0.95	0.86	0.89	0.86	0.13	0.14
Carbon Monoxide Emissions											
Run Exh	3.82	1.43	1.36	2	2.81	3.68	3.35	3.49	3.35	0.34	0.35
Idle Exh	0.12	0.09	0.08	0.11	0.12	0.15	0.14	0.13	0.12	0.06	0.08
Start Ex	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---
Total Ex	3.94	1.52	1.44	2.1	2.93	3.84	3.49	3.62	3.48	0.39	0.43
Oxides of Nitrogen Emissions											
Run Exh	3.41	2.65	2.58	3.88	5.42	7.37	7	8.81	9.18	3.04	3.84
Idle Exh	0.18	0.16	0.14	0.2	0.28	0.34	0.3	0.33	0.33	0.17	0.23
Start Ex	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---
Total Ex	3.59	2.82	2.72	4.08	5.69	7.71	7.3	9.14	9.52	3.21	4.07
Carbon Dioxide Emissions (000)											
Run Exh	0.31	0.26	0.25	0.39	0.54	0.74	0.71	0.93	0.98	0.51	0.67
Idle Exh	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.32	0.27	0.26	0.4	0.55	0.76	0.73	0.95	1	0.52	0.68
PM10 Emissions											
Run Exh	0.48	0.22	0.21	0.31	0.3	0.4	0.37	0.4	0.4	0.08	0.09
Idle Exh	0.01	0	0	0.01	0	0.01	0.01	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.49	0.22	0.21	0.32	0.31	0.4	0.37	0.4	0.4	0.08	0.09
TireWear	0	0	0	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
BrakeWr	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	---	---	---	---	---	---	---	---	---	---	---
Total	0.5	0.23	0.22	0.33	0.32	0.42	0.39	0.43	0.43	0.09	0.11
Lead	0	0	0	0	0	0	0	0	0	0	0
SOx	0.03	0.02	0.02	0.03	0.05	0.07	0.06	0.08	0.09	0.04	0.06
Fuel Consumption (000 gallons)											
Gasoline	0	0	0	0	0	0	0	0	0	0	0
Diesel	29.21	24.42	23.77	35.98	49.84	68.27	65.47	85.07	90.25	46.83	61.3

Calculation of Fleet Average Emission Factors - Idling Exhaust
PTS/Hadley Trucking and PMT Trucking

Model Year	Riverside County, CY 2005 Annual Average HHDD Emission Factors (g/hr)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1990	19.449	58.485	85.533	3.433	0.568	37
1991	15.519	53.810	101.415	2.568	0.568	32
1992	15.519	53.810	101.415	2.568	0.568	15
1993	15.519	53.810	101.415	2.568	0.568	17
1994	12.413	49.525	110.267	1.928	0.568	44
1995	12.413	49.525	110.267	1.928	0.568	16
1996	12.413	49.525	110.267	1.928	0.568	40
1999	9.314	44.514	119.076	1.334	0.568	30
2000	9.314	44.514	119.076	1.334	0.568	65
2004	7.652	41.429	123.519	1.034	0.568	14
2005	7.652	41.429	123.519	1.034	0.568	1
Fleet Avg.	***12.713***	***49.552***	***108.833***	***2.014***	***0.568***	311

Notes:
1. Model year distribution provided by Tom Colfield of PTS/Hadley and John O'Dwyer of PMT.
2. Emission factors calculated using EMFAC-WD 2006 with the EMFAC output option.

Title : EMFAC_HHD_MY1990
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/03/19 13:04:20
Scen Year: **2005**
Season : Annual
Area : Riverside
****

Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Riverside

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Temperature: 60F **Relative Humidity: 65%**

Model Year		1990	1991	1992	1993	1994	1995	1996	1999	2000	2004	2005
Pollutant	Speed	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD
	MPH	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL
ROG	0	19.449	15.519	15.519	15.519	12.413	12.413	12.413	9.314	9.314	7.652	7.652
CO	0	58.485	53.81	53.81	53.81	49.525	49.525	49.525	44.514	44.514	41.429	41.429
Nox	0	85.533	101.415	101.415	101.415	110.267	110.267	110.267	119.076	119.076	123.519	123.519
CO2	0	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.135	6617.134
SOx	0	0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568	0.568
PM10	0	3.433	2.568	2.568	2.568	1.928	1.928	1.928	1.334	1.334	1.034	1.034
PM10-Tire	0	0	0	0	0	0	0	0	0	0	0	0
PM10-Brake	0	0	0	0	0	0	0	0	0	0	0	0
Gasoline (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0
Diesel (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0

Calculation of Fleet Average Emission Factors - Running Exhaust
Mira Loma Auto Facility

Model Year	Riverside County, CY 2007 Annual Average HHDD Emission Factors (g/mi)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1985	5.52	30.37	26.03	3.94	0.04	1
1990	5.44	30.33	26.18	3.63	0.04	7
1991	3.44	13.61	24.24	2.03	0.04	16
1992	3.24	13.28	24.30	1.94	0.04	12
1993	3.20	12.99	24.02	1.96	0.04	13
1994	3.29	13.21	24.00	1.36	0.04	11
1995	3.18	12.76	23.94	1.28	0.04	5
1997	2.87	11.68	23.41	1.20	0.04	2
1998	2.77	11.11	23.48	1.16	0.04	1
1999	2.56	10.39	23.12	1.10	0.04	17
2000	2.38	9.64	22.70	1.04	0.03	48
2001	2.20	8.85	22.33	0.97	0.04	7
2004	0.75	2.18	14.93	0.40	0.04	14
2005	0.66	1.86	14.51	0.37	0.04	14
2006	0.55	1.56	14.00	0.35	0.04	14
2007	0.35	1.02	7.54	0.04	0.04	42
Fleet Avg.	***2.03***	***8.28***	***18.83***	***1.02***	***0.04***	224

Notes:
1. Assumed an average speed of 15 mph.
2. Model year distribution provided by each motor carrier.
3. Emission factors calculated using EMFAC2007 with the BURDEN output option.
4. EMFAC did not provide data for SOx emissions for all vehicles.
   The closest model year data available was used for missing data.

Title : BURDEN_HHD_MY1985
Version : Emfac2007 V2.3 Nov 1 2006 ** WIS Enabled **
Run Date : 2009/03/19 12:21:33
Scen Year: 2007
Season : Annual
Area : Riverside County Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 61 Riverside (SC)
Emissions: Tons Per Day

Model Year	1985	1990	1991	1992	1993	1994	1995	1997	1998	1999	2000	2001	2004	2005	2006	2007
	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL
Vehicles	369	776	592	528	758	991	1262	1027	1013	1230	1235	873	578	797	854	897
VMT/1000	23	70	58	56	88	127	177	174	187	248	271	206	158	220	232	231
Trips	1867	3925	2995	2671	3837	5013	6388	5198	5124	6223	6248	4419	2923	4034	4322	4539
Reactive Organic Gas Emissions																
Run Exh	0.14	0.42	0.22	0.2	0.31	0.46	0.62	0.55	0.57	0.7	0.71	0.5	0.13	0.16	0.14	0.09
Idle Exh	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Ex	0.16	0.45	0.23	0.22	0.33	0.48	0.65	0.58	0.58	0.73	0.73	0.51	0.14	0.17	0.15	0.1
Diurnal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Soak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Running	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Resting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.16	0.45	0.23	0.22	0.33	0.48	0.65	0.58	0.58	0.73	0.73	0.51	0.14	0.17	0.15	0.1
Carbon Monoxide Emissions																
Run Exh	0.77	2.34	0.87	0.82	1.26	1.85	2.49	2.24	2.29	2.84	2.88	2.01	0.38	0.45	0.4	0.26
Idle Exh	0.05	0.08	0.06	0.05	0.08	0.09	0.12	0.09	0.08	0.1	0.1	0.07	0.04	0.06	0.07	0.07
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Ex	0.82	2.43	0.93	0.88	1.34	1.94	2.61	2.34	2.37	2.95	2.98	2.08	0.42	0.51	0.46	0.33
Oxides of Nitrogen Emissions																
Run Exh	0.66	2.02	1.55	1.5	2.33	3.36	4.67	4.49	4.84	6.32	6.78	5.07	2.6	3.52	3.58	1.92
Idle Exh	0.04	0.12	0.11	0.1	0.14	0.2	0.26	0.21	0.22	0.27	0.27	0.19	0.13	0.18	0.2	0.21
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Ex	0.7	2.14	1.66	1.6	2.48	3.57	4.93	4.7	5.06	6.6	7.05	5.27	2.73	3.7	3.78	2.12
Carbon Dioxide Emissions (000)																
Run Exh	0.06	0.18	0.15	0.15	0.23	0.33	0.46	0.45	0.49	0.64	0.7	0.53	0.41	0.57	0.6	0.6
Idle Exh	0	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Ex	0.06	0.19	0.16	0.15	0.24	0.34	0.47	0.46	0.5	0.66	0.72	0.54	0.42	0.58	0.61	0.61
PM10 Emissions																
Run Exh	0.1	0.28	0.13	0.12	0.19	0.19	0.25	0.23	0.24	0.3	0.31	0.22	0.07	0.09	0.09	0.01
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Ex	0.11	0.29	0.13	0.12	0.19	0.19	0.26	0.24	0.24	0.3	0.31	0.22	0.07	0.09	0.09	0.01
TireWear	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
BrakeWr	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01
Total	0.11	0.29	0.13	0.13	0.2	0.2	0.27	0.25	0.25	0.32	0.33	0.24	0.08	0.11	0.1	0.03
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0	0.01	0.01	0.01
Fuel Consumption (000 gallons)																
Gasoline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel	5.81	17.3	14.25	13.76	21.49	30.64	42.7	41.66	44.88	59.35	64.51	49.01	37.43	52.3	55.17	54.93

Calculation of Fleet Average Emission Factors - Idling Exhaust
Mira Loma Auto Facility

Model Year	Riverside County, CY 2007 Annual Average HHDD Emission Factors (g/hr)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1985	33.212	70.939	59.064	6.616	0.063	1
1990	19.449	58.485	85.533	3.300	0.063	7
1991	15.519	53.810	101.415	2.468	0.063	16
1992	15.519	53.810	101.415	2.468	0.063	12
1993	15.519	53.810	101.415	2.468	0.063	13
1994	12.413	49.525	110.267	1.853	0.063	11
1995	12.413	49.525	110.267	1.853	0.063	5
1997	12.413	49.525	110.267	1.853	0.063	2
1998	9.314	44.514	119.076	1.282	0.063	1
1999	9.314	44.514	119.076	1.282	0.063	17
2000	9.314	44.514	119.076	1.282	0.063	48
2001	9.314	44.514	119.076	1.282	0.063	7
2004	7.652	41.429	123.519	0.994	0.063	14
2005	7.652	41.429	123.519	0.994	0.063	14
2006	7.652	41.429	123.519	0.994	0.063	14
2007	7.652	41.429	123.519	0.110	0.063	42
Fleet Avg.	***10.499***	***46.016***	***115.486***	***1.358***	***0.063***	224

Notes:
1. Model year distribution provided by each motor carrier.
2. Emission factors calculated using EMFAC2007 with the EMFAC output option.

Title : EMFAC_HHD_MY1985
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/03/19 13:10:59
Scen Year: **2007**
Season : Annual
Area : Riverside
****

Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Riverside

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Temperature: 60F Relative Humidity: 65%

Model Year		1985	1990	1991	1992	1993	1994	1995	1997	1998	1999	2000	2001	2004	2005	2006	2007
Pollutant	Speed	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD
	MPH	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL
ROG	0	33.212	19.449	15.519	15.519	15.519	12.413	12.413	12.413	9.314	9.314	9.314	9.314	7.652	7.652	7.652	7.652
CO	0	70.939	58.485	53.81	53.81	53.81	49.525	49.525	49.525	44.514	44.514	44.514	44.514	41.429	41.429	41.429	41.429
Nox	0	59.064	85.533	101.415	101.415	101.415	110.267	110.267	110.267	119.076	119.076	119.076	119.076	123.519	123.519	123.519	123.519
CO2	0	6617.134	6617.134	6617.135	6617.134	6617.135	6617.135	6617.134	6617.134	6617.133	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134
SOx	0	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063
PM10	0	6.616	3.3	2.468	2.468	2.468	1.853	1.853	1.853	1.282	1.282	1.282	1.282	0.994	0.994	0.994	0.11
PM10-Tire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM10-Brake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gasoline (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Calculation of Fleet Average Emission Factors - Running Exhaust
Mira Loma Auto Facility

Model Year	Riverside County, CY 2010 Annual Average HHDD Emission Factors (g/mi)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1985	5.77	30.51	25.57	4.12	0.04	1
1990	5.62	31.54	25.92	3.67	0.04	7
1991	3.53	14.36	24.44	2.02	0.04	16
1992	3.53	14.36	24.70	2.02	0.04	12
1993	3.34	13.85	24.19	2.07	0.04	13
1994	3.58	14.56	24.75	1.46	0.04	11
1995	3.47	14.04	24.38	1.42	0.04	5
1997	3.27	13.24	24.02	1.34	0.04	2
1998	3.13	12.73	24.15	1.24	0.04	1
1999	3.04	12.25	24.03	1.23	0.04	17
2000	2.91	11.69	23.72	1.21	0.04	48
2001	2.72	11.10	23.48	1.12	0.04	7
2004	1.06	2.98	16.28	0.50	0.04	14
2005	0.93	2.76	15.90	0.47	0.04	14
2006	0.85	2.47	15.44	0.46	0.04	14
2007	0.57	1.64	8.82	0.07	0.04	42
Fleet Avg.	***2.36***	***9.53***	***19.75***	***1.12***	***0.04***	224

Notes:
1. Assumed an average speed of 15 mph.
2. Model year distribution provided by each motor carrier.
3. Emission factors calculated using EMFAC2007 with the BURDEN output option.
4. EMFAC did not provide data for SOx emissions for all vehicles.
   The closest model year data available was used for missing data.

Title : BURDEN_HHD_MY1985
Version : Emfac2007 V2.3 Nov 1 2006 ** WIS Enabled **
Run Date : 2009/03/19 12:38:11
Scen Year: **2010**
Season : Annual
Area : Riverside County Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 61 Riverside (SC)
Emissions: Tons Per Day
****

Model Year	**1985**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1997**	**1998**	**1999**	**2000**	**2001**	**2004**	**2005**	**2006**	**2007**
	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL
Vehicles	223	572	460	431	624	826	1071	951	987	1241	1289	919	618	853	891	935
VMT/1000	11	42	36	36	57	81	115	122	139	191	218	170	146	214	235	255
Trips	1128	2895	2327	2181	3159	4182	5418	4814	4997	6279	6525	4651	3128	4316	4511	4734
Reactive Organic Gas Emissions																
Run Exh	0.07	0.26	0.14	0.14	0.21	0.32	0.44	0.44	0.48	0.64	0.7	0.51	0.17	0.22	0.22	0.16
Idle Exh	0.01	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.08	0.28	0.15	0.15	0.23	0.34	0.47	0.46	0.5	0.66	0.72	0.53	0.18	0.24	0.23	0.17
Diurnal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Soak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Running	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Resting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	0.08	0.28	0.15	0.15	0.23	0.34	0.47	0.46	0.5	0.66	0.72	0.53	0.18	0.24	0.23	0.17
Carbon Monoxide Emissions																
Run Exh	0.37	1.46	0.57	0.57	0.87	1.3	1.78	1.78	1.95	2.58	2.81	2.08	0.48	0.65	0.64	0.46
Idle Exh	0.03	0.06	0.05	0.04	0.06	0.08	0.1	0.09	0.08	0.1	0.11	0.08	0.05	0.07	0.07	0.07
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.4	1.52	0.62	0.61	0.93	1.37	1.88	1.87	2.03	2.68	2.92	2.15	0.53	0.72	0.71	0.53
Oxides of Nitrogen Emissions																
Run Exh	0.31	1.2	0.97	0.98	1.52	2.21	3.09	3.23	3.7	5.06	5.7	4.4	2.62	3.75	4	2.48
Idle Exh	0.02	0.09	0.09	0.08	0.12	0.17	0.22	0.2	0.22	0.27	0.29	0.2	0.14	0.2	0.2	0.21
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.33	1.29	1.06	1.06	1.64	2.38	3.31	3.43	3.92	5.33	5.99	4.6	2.76	3.95	4.21	2.7
Carbon Dioxide Emissions (000)																
Run Exh	0.03	0.11	0.09	0.09	0.15	0.21	0.3	0.32	0.36	0.5	0.57	0.44	0.38	0.56	0.61	0.66
Idle Exh	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.03	0.12	0.1	0.1	0.15	0.22	0.31	0.33	0.37	0.51	0.58	0.45	0.39	0.57	0.62	0.67
PM10 Emissions																
Run Exh	0.05	0.17	0.08	0.08	0.13	0.13	0.18	0.18	0.19	0.26	0.29	0.21	0.08	0.11	0.12	0.02
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.05	0.18	0.08	0.08	0.13	0.13	0.18	0.18	0.2	0.26	0.29	0.22	0.08	0.12	0.12	0.02
TireWear	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
BrakeWr	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0	0.01	0.01	0.01
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	0.05	0.18	0.09	0.09	0.13	0.14	0.19	0.19	0.21	0.28	0.3	0.23	0.09	0.13	0.13	0.03
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0.01	0.01	0.01
Fuel Consumption (000 gallons)																
Gasoline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel	2.77	10.36	8.91	8.95	13.94	19.9	27.93	29.44	33.43	46.01	52.35	40.77	34.73	50.97	55.93	60.61

Calculation of Fleet Average Emission Factors - Idling Exhaust
Mira Loma Auto Facility

Model Year	Riverside County, CY 2010 Annual Average HHDD Emission Factors (g/hr)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1985	33.212	70.939	59.064	6.616	0.063	1
1990	19.449	58.485	85.533	3.300	0.063	7
1991	15.519	53.810	101.415	2.468	0.063	16
1992	15.519	53.810	101.415	2.468	0.063	12
1993	15.519	53.810	101.415	2.468	0.063	13
1994	12.413	49.525	110.267	1.853	0.063	11
1995	12.413	49.525	110.267	1.853	0.063	5
1997	12.413	49.525	110.267	1.853	0.063	2
1998	9.314	44.514	119.076	1.282	0.063	1
1999	9.314	44.514	119.076	1.282	0.063	17
2000	9.314	44.514	119.076	1.282	0.063	48
2001	9.314	44.514	119.076	1.282	0.063	7
2004	7.652	41.429	123.519	0.994	0.063	14
2005	7.652	41.429	123.519	0.994	0.063	14
2006	7.652	41.429	123.519	0.994	0.063	14
2007	7.652	41.429	123.519	0.110	0.063	42
Fleet Avg.	***10.499***	***46.016***	***115.486***	***1.358***	***0.063***	224

Notes:
1. Model year distribution provided by each motor carrier.
2. Emission factors calculated using EMFAC2007 with the EMFAC output option.

Title : EMFAC_HHD_MY1985
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/03/19 13:21:10
Scen Year: **2010**
Season : Annual
Area : Riverside
****

Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Riverside

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Temperature: 60F Relative Humidity: 65%

Model Year		1985	1990	1991	1992	1993	1994	1995	1997	1998	1999	2000	2001	2004	2005	2006	2007
Pollutant	Speed	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD
	MPH	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL
ROG	0	33.212	19.449	15.519	15.519	15.519	12.413	12.413	12.413	9.314	9.314	9.314	9.314	7.652	7.652	7.652	7.652
CO	0	70.939	58.485	53.81	53.81	53.81	49.525	49.525	49.525	44.514	44.514	44.514	44.514	41.429	41.429	41.429	41.429
Nox	0	59.064	85.533	101.415	101.415	101.415	110.267	110.267	110.267	119.076	119.076	119.076	119.076	123.519	123.519	123.519	123.519
CO2	0	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.135	6617.134	6617.134	6617.134	6617.134	6617.134	6617.135
SOx	0	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063
PM10	0	6.616	3.3	2.468	2.468	2.468	1.853	1.853	1.853	1.282	1.282	1.282	1.282	0.994	0.994	0.994	0.11
PM10-Tire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM10-Brake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gasoline (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Calculation of Fleet Average Emission Factors - Running Exhaust
Mira Loma Auto Facility

Model Year	Riverside County, CY 2015 Annual Average HHDD Emission Factors (g/mi)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1985	6.05	30.24	24.19	3.02	0.04	1
1990	5.58	32.80	25.82	4.19	0.04	7
1991	3.78	15.12	24.95	2.27	0.04	16
1992	3.49	15.35	25.12	2.09	0.04	12
1993	3.71	14.84	24.74	2.06	0.04	13
1994	3.85	15.94	25.29	1.65	0.04	11
1995	3.81	15.60	25.22	1.45	0.04	5
1997	3.66	14.96	24.67	1.43	0.04	2
1998	3.71	14.84	25.29	1.37	0.04	1
1999	3.57	14.48	25.19	1.35	0.04	17
2000	3.43	13.98	24.76	1.39	0.04	48
2001	3.38	13.61	24.61	1.35	0.04	7
2004	1.39	4.07	17.96	0.65	0.04	14
2005	1.35	3.86	17.68	0.64	0.04	14
2006	1.27	3.70	17.33	0.61	0.04	14
2007	0.88	2.54	10.65	0.09	0.04	42
Fleet Avg.	***2.72***	***10.98***	***20.91***	***1.25***	***0.04***	224

Notes:
1. Assumed an average speed of 15 mph.
2. Model year distribution provided by each motor carrier.
3. Emission factors calculated using EMFAC2007 with the BURDEN output option.
4. EMFAC did not provide data for SOx emissions for all vehicles.
   The closest model year data available was used for missing data.

Title : BURDEN_HHD_MY1985
Version : Emfac2007 V2.3 Nov 1 2006 ** WIS Enabled **
Run Date : 2009/03/19 12:47:30
Scen Year: **2015**
Season : Annual
Area : Riverside County Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 61 Riverside (SC)
Emissions: Tons Per Day

Model Year	**1985**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1997**	**1998**	**1999**	**2000**	**2001**	**2004**	**2005**	**2006**	**2007**
	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL
Vehicles	109	260	225	228	347	487	689	672	730	960	1033	805	638	917	966	1024
VMT/1000	3	13	12	13	22	33	50	57	66	94	111	94	98	155	179	207
Trips	554	1318	1138	1154	1754	2465	3484	3401	3696	4859	5229	4074	3226	4638	4888	5183
Reactive Organic Gas Emissions																
Run Exh	0.02	0.08	0.05	0.05	0.09	0.14	0.21	0.23	0.27	0.37	0.42	0.35	0.15	0.23	0.25	0.2
Idle Exh	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.02	0.09	0.06	0.06	0.1	0.15	0.23	0.25	0.28	0.39	0.44	0.36	0.16	0.24	0.26	0.21
Diurnal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Soak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Running	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Resting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	0.02	0.09	0.06	0.06	0.1	0.15	0.23	0.25	0.28	0.39	0.44	0.36	0.16	0.24	0.26	0.21
Carbon Monoxide Emissions																
Run Exh	0.1	0.47	0.2	0.22	0.36	0.58	0.86	0.94	1.08	1.5	1.71	1.41	0.44	0.66	0.73	0.58
Idle Exh	0.01	0.03	0.02	0.02	0.03	0.04	0.06	0.06	0.06	0.08	0.09	0.07	0.05	0.07	0.07	0.08
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.11	0.5	0.23	0.24	0.4	0.62	0.93	1	1.14	1.58	1.8	1.48	0.49	0.73	0.8	0.66
Oxides of Nitrogen Emissions																
Run Exh	0.08	0.37	0.33	0.36	0.6	0.92	1.39	1.55	1.84	2.61	3.03	2.55	1.94	3.02	3.42	2.43
Idle Exh	0.01	0.04	0.04	0.04	0.07	0.1	0.14	0.14	0.16	0.21	0.23	0.18	0.15	0.21	0.22	0.24
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.09	0.41	0.37	0.41	0.66	1.02	1.53	1.69	2	2.82	3.26	2.73	2.09	3.23	3.65	2.67
Carbon Dioxide Emissions (000)																
Run Exh	0.01	0.03	0.03	0.03	0.06	0.09	0.13	0.15	0.17	0.25	0.29	0.24	0.25	0.4	0.46	0.54
Idle Exh	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.01	0.04	0.03	0.04	0.06	0.09	0.14	0.16	0.18	0.26	0.3	0.25	0.26	0.41	0.48	0.55
PM10 Emissions																
Run Exh	0.01	0.06	0.03	0.03	0.05	0.06	0.08	0.09	0.1	0.14	0.17	0.14	0.07	0.11	0.12	0.02
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.01	0.06	0.03	0.03	0.05	0.06	0.09	0.1	0.11	0.15	0.17	0.14	0.07	0.11	0.12	0.02
TireWear	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01
BrakeWr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	0.01	0.06	0.03	0.03	0.06	0.06	0.09	0.1	0.11	0.15	0.18	0.15	0.08	0.12	0.13	0.04
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01
Fuel Consumption (000 gallons)																
Gasoline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel	0.76	3.24	3.05	3.34	5.47	8.24	12.46	13.96	16.3	23.12	26.95	22.83	23.63	37.19	42.81	49.4

Calculation of Fleet Average Emission Factors - Idling Exhaust
Mira Loma Auto Facility

Model Year	Riverside County, CY 2015 Annual Average HHDD Emission Factors (g/hr)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1985	33.212	70.939	59.064	6.616	0.063	1
1990	19.449	58.485	85.533	3.300	0.063	7
1991	15.519	53.810	101.415	2.468	0.063	16
1992	15.519	53.810	101.415	2.468	0.063	12
1993	15.519	53.810	101.415	2.468	0.063	13
1994	12.413	49.525	110.267	1.853	0.063	11
1995	12.413	49.525	110.267	1.853	0.063	5
1997	12.413	49.525	110.267	1.853	0.063	2
1998	9.314	44.514	119.076	1.282	0.063	1
1999	9.314	44.514	119.076	1.282	0.063	17
2000	9.314	44.514	119.076	1.282	0.063	48
2001	9.314	44.514	119.076	1.282	0.063	7
2004	7.652	41.429	123.519	0.994	0.063	14
2005	7.652	41.429	123.519	0.994	0.063	14
2006	7.652	41.429	123.519	0.994	0.063	14
2007	7.652	41.429	123.519	0.110	0.063	42
Fleet Avg.	***10.499***	***46.016***	***115.486***	***1.358***	***0.063***	224

Notes:
1. Model year distribution provided by each motor carrier.
2. Emission factors calculated using EMFAC2007 with the EMFAC output option.

Title : EMFAC_HHD_MY1985
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/03/19 13:28:44
Scen Year: **2015**
Season : Annual
Area : Riverside
****

Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Riverside

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Temperature: 60F Relative Humidity: 65%

Model Year		1985	1990	1991	1992	1993	1994	1995	1997	1998	1999	2000	2001	2004	2005	2006	2007
Pollutant	Speed	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD
	MPH	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL
ROG	0	33.212	19.449	15.519	15.519	15.519	12.413	12.413	12.413	9.314	9.314	9.314	9.314	7.652	7.652	7.652	7.652
CO	0	70.939	58.485	53.81	53.81	53.81	49.525	49.525	49.525	44.514	44.514	44.514	44.514	41.429	41.429	41.429	41.429
Nox	0	59.064	85.533	101.415	101.415	101.415	110.267	110.267	110.267	119.076	119.076	119.076	119.076	123.519	123.519	123.519	123.519
CO2	0	6617.134	6617.135	6617.134	6617.134	6617.135	6617.134	6617.134	6617.135	6617.134	6617.134	6617.135	6617.134	6617.134	6617.134	6617.134	6617.134
SOx	0	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063
PM10	0	6.616	3.3	2.468	2.468	2.468	1.853	1.853	1.853	1.282	1.282	1.282	1.282	0.994	0.994	0.994	0.11
PM10-Tire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM10-Brake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gasoline (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Calculation of Fleet Average Emission Factors - Running Exhaust
Mira Loma Auto Facility

Model Year	Riverside County, CY 2020 Annual Average HHDD Emission Factors (g/mi)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1985	9.07	18.14	18.14	3.02	0.04	1
1990	6.05	33.26	24.19	3.02	0.04	7
1991	3.02	15.12	24.19	3.02	0.04	16
1992	3.02	18.14	27.22	3.02	0.04	12
1993	3.63	16.33	27.22	1.81	0.04	13
1994	4.03	16.13	25.20	2.02	0.04	11
1995	3.89	16.20	25.27	1.30	0.04	5
1997	3.82	16.23	24.83	1.43	0.04	2
1998	3.94	16.17	26.03	1.58	0.04	1
1999	3.89	15.81	25.66	1.56	0.04	17
2000	3.92	15.46	25.57	1.44	0.04	48
2001	3.82	15.52	25.78	1.43	0.04	7
2004	1.65	4.74	18.97	0.62	0.04	14
2005	1.53	4.60	18.91	0.77	0.04	14
2006	1.51	4.44	18.55	0.71	0.04	14
2007	1.06	3.11	11.93	0.08	0.04	42
Fleet Avg.	***2.90***	***11.93***	***21.74***	***1.36***	***0.04***	224

Notes:
1. Assumed an average speed of 15 mph.
2. Model year distribution provided by each motor carrier.
3. Emission factors calculated using EMFAC2007 with the BURDEN output option.
4. EMFAC did not provide data for SOx emissions for any vehicles show. The data from calendar year 2015 was used.
5. EMFAC did not provide DPM data for the 1985 MY vehicle. The data from calendar year 2015 was used.

Title : BURDEN_HHD_MY1985
Version : Emfac2007 V2.3 Nov 1 2006 ** WIS Enabled **
Run Date : 2009/03/19 12:57:58
Scen Year: **2020**
Season : Annual
Area : Riverside County Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 61 Riverside (SC)
Emissions: Tons Per Day

Model Year	**1985**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1997**	**1998**	**1999**	**2000**	**2001**	**2004**	**2005**	**2006**	**2007**
	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL	HHDT-DSL
Vehicles	45	116	96	94	140	199	285	323	368	514	604	492	448	667	768	871
VMT/1000	1	3	3	3	5	9	14	19	23	35	44	38	44	71	90	111
Trips	228	587	484	473	708	1006	1440	1634	1863	2601	3054	2488	2267	3376	3888	4405
Reactive Organic Gas Emissions																
Run Exh	0	0.02	0.01	0.01	0.02	0.04	0.06	0.08	0.1	0.15	0.19	0.16	0.08	0.12	0.15	0.13
Idle Exh	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.01	0.02	0.01	0.02	0.03	0.04	0.07	0.09	0.11	0.16	0.2	0.17	0.09	0.13	0.16	0.15
Diurnal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Soak	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Running	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Resting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	0.01	0.02	0.01	0.02	0.03	0.04	0.07	0.09	0.11	0.16	0.2	0.17	0.09	0.13	0.16	0.15
Carbon Monoxide Emissions																
Run Exh	0.02	0.11	0.05	0.06	0.09	0.16	0.25	0.34	0.41	0.61	0.75	0.65	0.23	0.36	0.44	0.38
Idle Exh	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.03	0.04	0.05	0.04	0.03	0.05	0.06	0.07
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.02	0.12	0.06	0.07	0.11	0.18	0.28	0.37	0.44	0.65	0.8	0.69	0.26	0.41	0.5	0.45
Oxides of Nitrogen Emissions																
Run Exh	0.02	0.08	0.08	0.09	0.15	0.25	0.39	0.52	0.66	0.99	1.24	1.08	0.92	1.48	1.84	1.46
Idle Exh	0	0.02	0.02	0.02	0.03	0.04	0.06	0.07	0.08	0.11	0.13	0.11	0.1	0.15	0.18	0.2
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0.02	0.1	0.1	0.11	0.18	0.29	0.45	0.59	0.74	1.1	1.37	1.19	1.03	1.63	2.02	1.66
Carbon Dioxide Emissions (000)																
Run Exh	0	0.01	0.01	0.01	0.01	0.02	0.04	0.05	0.06	0.09	0.11	0.1	0.11	0.19	0.23	0.29
Idle Exh	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0	0.01	0.01	0.01	0.02	0.02	0.04	0.05	0.06	0.1	0.12	0.11	0.12	0.19	0.24	0.3
PM10 Emissions																
Run Exh	0	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.06	0.07	0.06	0.03	0.06	0.07	0.01
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total Ex	0	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.04	0.06	0.07	0.06	0.04	0.06	0.07	0.01
TireWear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BrakeWr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	0	0.01	0.01	0.01	0.01	0.02	0.03	0.04	0.04	0.06	0.08	0.07	0.04	0.06	0.08	0.02
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Consumption (000 gallons)																
Gasoline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel	0.17	0.8	0.76	0.85	1.42	2.25	3.54	4.73	5.81	8.69	10.92	9.53	10.79	17.4	21.78	26.9

Calculation of Fleet Average Emission Factors - Idling Exhaust
Mira Loma Auto Facility

Model Year	Riverside County, CY 2020 Annual Average HHDD Emission Factors (g/hr)					Model Yr Distribution (vehicles)
	ROG	CO	NOx	DPM	SOx	
1985	33.212	70.939	59.064	6.616	0.063	1
1990	19.449	58.485	85.533	3.300	0.063	7
1991	15.519	53.810	101.415	2.468	0.063	16
1992	15.519	53.810	101.415	2.468	0.063	12
1993	15.519	53.810	101.415	2.468	0.063	13
1994	12.413	49.525	110.267	1.853	0.063	11
1995	12.413	49.525	110.267	1.853	0.063	5
1997	12.413	49.525	110.267	1.853	0.063	2
1998	9.314	44.514	119.076	1.282	0.063	1
1999	9.314	44.514	119.076	1.282	0.063	17
2000	9.314	44.514	119.076	1.282	0.063	48
2001	9.314	44.514	119.076	1.282	0.063	7
2004	7.652	41.429	123.519	0.994	0.063	14
2005	7.652	41.429	123.519	0.994	0.063	14
2006	7.652	41.429	123.519	0.063	0.063	14
2007	7.652	41.429	123.519	0.110	0.063	42
Fleet Avg.	***10.499***	***46.016***	***115.486***	***1.300***	***0.063***	224

Notes:
1. Model year distribution provided by each motor carrier.
2. Emission factors calculated using EMFAC2007 with the EMFAC output option.

Title : EMFAC_HHD_MY1985
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/03/19 13:35:19
Scen Year: **2020**
Season : Annual
Area : Riverside
****

Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Riverside

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Temperature: 60F Relative Humidity: 65%

Model Year		1985	1990	1991	1992	1993	1994	1995	1997	1998	1999	2000	2001	2004	2005	2006	2007
Pollutant	Speed	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD
	MPH	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL	DSL
ROG	0	33.212	19.449	15.519	15.519	15.519	12.413	12.413	12.413	9.314	9.314	9.314	9.314	7.652	7.652	7.652	7.652
CO	0	70.939	58.485	53.81	53.81	53.81	49.525	49.525	49.525	44.514	44.514	44.514	44.514	41.429	41.429	41.429	41.429
Nox	0	59.064	85.533	101.415	101.415	101.415	110.267	110.267	110.267	119.076	119.076	119.076	119.076	123.519	123.519	123.519	123.519
CO2	0	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134	6617.134
SOx	0	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063
PM10	0	6.616	3.3	2.468	2.468	2.468	1.853	1.853	1.853	1.282	1.282	1.282	1.282	0.994	0.994	0.994	0.11
PM10-Tire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM10-Brake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gasoline (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diesel (mi/gal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shuttle Vans

Summary of Emissions from Diesel Fueled Shuttle Vans
Mira Loma Auto Facility

Running Exhaust Emissions

Owner	Model Yr	Annual VMT (mi/yr)	2005 Emission Factors (g/mi)					2005 Emissions (tpy)				
			ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
IRT	2000	15,000	0.53	1.07	7.47	0.53	0.53	0.009	0.018	0.124	0.009	0.009
IRT	2004	15,000	0.20	1.13	4.88	0.05	0.05	0.003	0.019	0.081	0.001	0.001
Total								**0.012**	**0.036**	**0.204**	**0.010**	**0.010**

Idling Exhaust Emissions

Model Yr	Idling		2005 Emission Factors (g/hr)					2005 Emissions (tpy)				
	(min/day)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
2000	30	183	3.17	26.30	75.05	0.75	0.35	0.001	0.005	0.015	0.0002	0.000
2004	30	183	3.17	26.30	75.05	0.75	0.35	0.001	0.005	0.015	0.0002	0.000
Total								**0.001**	**0.011**	**0.030**	**0.0003**	**0.000**

Notes:
1. Vehicle specifications and annual VMT provided by IRT personnel. Assumed no change from 2005 for 2007-2020.
2. Idling time (min/day) is an engineering estimate.
3. Running exhaust emission factors calculated from EMFAC2007 with the BURDEN output option.
4. The SOx running exhaust emission factor for the 2000 model year vehicle provided by the EMFAC model was zero. The emission factor for the 2004 model year vehicle was also used for the 2000 model year vehicle.
5. Idling exhaust emission factors calculated from EMFAC2007 with the EMFAC output option.

Summary of Emissions from Diesel Fueled Shuttle Vans
Mira Loma Auto Facility

Running Exhaust Emissions

Owner	Model Yr	Annual VMT (mi/yr)	2007 Emission Factors (g/mi)					2007 Emissions (tpy)				
			ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
IRT	2000	15,000	0.23	1.01	8.06	0.11	0.05	0.004	0.017	0.133	0.002	0.001
IRT	2004	15,000	0.23	1.36	4.88	0.11	0.05	0.004	0.023	0.081	0.002	0.001
Total								**0.008**	**0.039**	**0.214**	**0.004**	**0.002**

Idling Exhaust Emissions

Model Yr	Idling		2007 Emission Factors (g/hr)					2007 Emissions (tpy)				
	(min/day)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
2000	30	183	3.17	26.30	75.05	0.72	0.04	0.001	0.005	0.015	0.0001	0.000
2004	30	183	3.17	26.30	75.05	0.72	0.04	0.001	0.005	0.015	0.0001	0.000
Total								**0.001**	**0.011**	**0.030**	**0.0003**	**0.000**

Notes:
1. Vehicle specifications and annual VMT provided by IRT personnel. Assumed no change from 2005 for 2007-2020.
2. Idling time (min/day) is an engineering estimate.
3. Running exhaust emission factors calculated from EMFAC2007 with the BURDEN output option.
4. The ROG, DPM, and SOx running exhaust emission factors for the 2000 model year vehicle provided by the EMFAC model were zero. The emission factor for the 2004 model year vehicle was also used for the 2000 model year vehicle.
5. Idling exhaust emission factors calculated from EMFAC2007 with the EMFAC output option.

Summary of Emissions from Diesel Fueled Shuttle Vans
Mira Loma Auto Facility

Running Exhaust Emissions

Owner	Model Yr	Annual VMT (mi/yr)	2010 Emission Factors (g/mi)					2010 Emissions (tpy)				
			ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
IRT	2000	15,000	0.34	1.30	7.78	0.17	0.05	0.006	0.021	0.129	0.003	0.001
IRT	2004	15,000	0.34	1.54	4.96	0.17	0.05	0.006	0.025	0.082	0.003	0.001
Total								**0.011**	**0.047**	**0.211**	**0.006**	**0.002**

Idling Exhaust Emissions

Model Yr	Idling		2010 Emission Factors (g/hr)					2010 Emissions (tpy)				
	(min/day)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
2000	30	183	3.17	26.30	75.05	0.72	0.04	0.001	0.005	0.015	0.0001	0.000
2004	30	183	3.17	26.30	75.05	0.72	0.04	0.001	0.005	0.015	0.0001	0.000
Total								**0.001**	**0.011**	**0.030**	**0.0003**	**0.000**

Notes:
1. Vehicle specifications and annual VMT provided by IRT personnel. Assumed no change from 2005 for 2007-2020.
2. Idling time (min/day) is an engineering estimate.
3. Running exhaust emission factors calculated from EMFAC2007 with the BURDEN output option.
4. The ROG and DPM running exhaust emission factors for the 2000 model year vehicle provided by the EMFAC model were zero. The emission factor for the 2004 model year vehicle was also used for the 2000 model year vehicle.
5. The SOx running exhaust emission factors for both vehicles provided by EMFAC were zero. The 2007 emission factors were used.
6. Idling exhaust emission factors calculated from EMFAC2007 with the EMFAC output option.

Summary of Emissions from Diesel Fueled Shuttle Vans
Mira Loma Auto Facility

Running Exhaust Emissions

Owner	Model Yr	Annual VMT (mi/yr)	2015 Emission Factors (g/mi)					2015 Emissions (tpy)				
			ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
IRT	2000	15,000	0.27	1.81	7.26	0.17	0.05	0.005	0.030	0.120	0.003	0.001
IRT	2004	15,000	0.27	1.92	4.95	0.17	0.05	0.005	0.032	0.082	0.003	0.001
Total								**0.009**	**0.062**	**0.202**	**0.006**	**0.002**

Idling Exhaust Emissions

Model Yr	Idling		2015 Emission Factors (g/hr)					2015 Emissions (tpy)				
	(min/day)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
2000	30	183	3.17	26.30	75.05	0.72	0.04	0.001	0.005	0.015	0.0001	0.000
2004	30	183	3.17	26.30	75.05	0.72	0.04	0.001	0.005	0.015	0.0001	0.000
Total								**0.001**	**0.011**	**0.030**	**0.0003**	**0.000**

Notes:
1. Vehicle specifications and annual VMT provided by IRT personnel. Assumed no change from 2005 for 2007-2020.
2. Idling time (min/day) is an engineering estimate.
3. Running exhaust emission factors calculated from EMFAC2007 with the BURDEN output option.
4. The ROG running exhaust emission factor for the 2000 model year vehicle provided by the EMFAC model was zero.
   The emission factor for the 2004 model year vehicle was also used for the 2000 model year vehicle.
5. The DPM and SOx running exhaust emission factors for both vehicles provided by EMFAC were zero. The 2010 emission factors were used.
6. Idling exhaust emission factors calculated from EMFAC2007 with the EMFAC output option.

Summary of Emissions from Diesel Fueled Shuttle Vans
Mira Loma Auto Facility

Running Exhaust Emissions

Owner	Model Yr	Annual VMT (mi/yr)	2020 Emission Factors (g/mi)					2020 Emissions (tpy)				
			ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
IRT	2000	15,000	0.39	3.02	9.07	0.17	0.05	0.007	0.050	0.150	0.003	0.001
IRT	2004	15,000	0.39	1.97	5.13	0.17	0.05	0.007	0.033	0.085	0.003	0.001
Total								**0.013**	**0.083**	**0.235**	**0.006**	**0.002**

Idling Exhaust Emissions

Model Yr	Idling		2020 Emission Factors (g/hr)					2020 Emissions (tpy)				
	(min/day)	(hr/yr)	ROG	CO	NOx	DPM	SOx	ROG	CO	NOx	DPM	SOx
2000	30	183	3.17	26.30	75.05	0.72	0.04	0.001	0.005	0.015	0.0001	0.000
2004	30	183	3.17	26.30	75.05	0.72	0.04	0.001	0.005	0.015	0.0001	0.000
Total								**0.001**	**0.011**	**0.030**	**0.0003**	**0.000**

Notes:
1. Vehicle specifications and annual VMT provided by IRT personnel. Assumed no change from 2005 for 2007-2020.
2. Idling time (min/day) is an engineering estimate.
3. Running exhaust emission factors calculated from EMFAC2007 with the BURDEN output option.
4. The ROG running exhaust emission factor for the 2000 model year vehicle provided by the EMFAC model was zero.
   The emission factor for the 2004 model year vehicle was also used for the 2000 model year vehicle.
5. The DPM and SOx running exhaust emission factors for both vehicles provided by EMFAC were zero. The 2010 emission factors were used.
6. Idling exhaust emission factors calculated from EMFAC2007 with the EMFAC output option.

Title : Shuttle_Van_MY2000_CY2005
Version : Emfac2007 V2.3 Nov 1 2006 ** WIS Enabled **
Run Date : 2009/03/23 13:58:12
Scen Year: 2005
Season : Annual
Area : Riverside County Average
I/M Stat : Enhanced Interim (2005) -- Using I/M schedule for area 61 Riverside (SC)
Emissions: Tons Per Day

Scenario Year	2005		2007		2010		2015		2020	
Vehicle Model Year	2000	2004	2000	2004	2000	2004	2000	2004	2000	2004
	LHDT2-DSL	LHDT1-DSL	LHDT2-DSL	LHDT1-DSL	LHDT2-DSL	LHDT1-DSL	LHDT2-DSL	LHDT1-DSL	LHDT2-DSL	LHDT1-DSL
Vehicles	398	3274	233	1656	200	1262	156	935	103	721
VMT/1000	17	184	9	80	7	53	5	33	3	23
Trips	5007	41183	2933	20826	2521	15880	1968	11759	1295	9072
Reactive Organic Gas Emissions										
Run Exh	0.01	0.04	0	0.02	0	0.02	0	0.01	0	0.01
Idle Exh	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---
Total Ex	0.01	0.04	0	0.02	0	0.02	0	0.01	0	0.01
Diurnal	0	0	0	0	0	0	0	0	0	0
Hot Soak	0	0	0	0	0	0	0	0	0	0
Running	0	0	0	0	0	0	0	0	0	0
Resting	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---
Total	0.01	0.04	0	0.02	0	0.02	0	0.01	0	0.01
Carbon Monoxide Emissions										
Run Exh	0.02	0.23	0.01	0.12	0.01	0.09	0.01	0.07	0.01	0.05
Idle Exh	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---
Total Ex	0.02	0.24	0.01	0.12	0.01	0.09	0.01	0.07	0.01	0.05
Oxides of Nitrogen Emissions										
Run Exh	0.14	0.99	0.08	0.43	0.06	0.29	0.04	0.18	0.03	0.13
Idle Exh	0	0.01	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---
Total Ex	0.14	0.99	0.08	0.44	0.06	0.29	0.04	0.19	0.03	0.13
Carbon Dioxide Emissions (000)										
Run Exh	0.01	0.11	0.01	0.05	0	0.03	0	0.02	0	0.01
Idle Exh	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---
Total Ex	0.01	0.11	0.01	0.05	0	0.03	0	0.02	0	0.01
PM10 Emissions										
Run Exh	0	0.01	0	0.01	0	0	0	0	0	0
Idle Exh	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---
Total Ex	0	0.01	0	0.01	0	0	0	0	0	0
TireWear	0	0	0	0	0	0	0	0	0	0
BrakeWr	0	0	0	0	0	0	0	0	0	0
	---	---	---	---	---	---	---	---	---	---
Total	0	0.02	0	0.01	0	0.01	0	0	0	0
Lead	0	0	0	0	0	0	0	0	0	0
SOx	0	0.01	0	0	0	0	0	0	0	0
Fuel Consumption (000 gallons)										
Gasoline	0	0	0	0	0	0	0	0	0	0
Diesel	0.88	9.52	0.48	4.13	0.37	2.73	0.25	1.72	0.15	1.18

Title : Shuttle Van_MY2000_CY2005
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/03/23 14:04:47
Season : Annual
Area : Riverside
****

Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Riverside

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Temperature: 60F **Relative Humidity: 65%**

Vehicle Model Year				**2000**					**2004**		
Calendar Year		**2005**	**2007**	**2010**	**2015**	**2020**	**2005**	**2007**	**2010**	**2015**	**2020**
Pollutant	Speed	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD	HHD
	MPH	LHD2	DSL	DSL	DSL	DSL	LHD1	DSL	DSL	DSL	DSL
ROG	0	3.173	3.173	3.173	3.173	3.173	3.173	3.173	3.173	3.173	3.173
CO	0	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
Nox	0	75.051	75.051	75.051	75.051	75.051	75.051	75.051	75.051	75.051	75.051
CO2	0	4098	4098	4098	4098	4098	4098	4098	4098	4098	4098
SOx	0	0.351	0.039	0.039	0.039	0.039	0.351	0.039	0.039	0.039	0.039
PM10	0	0.753	0.723	0.723	0.723	0.723	0.753	0.723	0.723	0.723	0.723
PM10-Tire	0	0	0	0	0	0	0	0	0	0	0
PM10-Brake	0	0	0	0	0	0	0	0	0	0	0
Gasoline (mi/gal)	0	0	0	0	0	0	0	0	0	0	0
Diesel (mi/gal)	0	0	0	0	0	0	0	0	0	0	0

Forklifts

Summary of Emissions from Diesel Fueled Forklifts
Mira Loma Auto Facility

Owner	Make & Model	Model Yr	Fuel Type	Rated Capacity (hp)	No. of Units	Load Factor	Hours of Operation (hr/yr)	Exhaust and Crankcase Emission Factors (g/hp-hr)					VOC Evaporative Emission Factors		Emissions (tpy)				
								VOC	CO	NOx	DPM	SOx	Part 1 (lb/hr)	Part 2 (lb/yr)	VOC	CO	NOx	DPM	SOx
Progress Rail	Cat DP30	2003	Diesel	62	1	0.30	1,460	1.44	3.91	7.22	0.75	0.06	-	-	0.043	0.117	0.216	0.023	0.002
Progress Rail	Cat DP70	2003	Diesel	84	1	0.30	6,570	1.44	3.91	7.22	0.75	0.06	-	-	0.263	0.713	1.318	0.137	0.011
Progress Rail	Cat DP70	2004	Diesel	84	1	0.30	6,570	0.66	3.46	5.61	0.38	0.06	-	-	0.121	0.632	1.024	0.070	0.011
Total															**0.426**	**1.461**	**2.559**	**0.230**	**0.024**

Notes:
1. Equipment make and model from Progress Rail staff.
2. Per Jesse Collett of Progress Rail, the DP30 is operated approximately 4 hour/day and the DP70's operate 16 to 18 hours per day, each. To be conservative, 18 hours/day of operation was used for the DP70's. It was assumed that there was no change in operations for 2007-2020.
3. Emission factors and load factors calculated from CARB's OFFROAD2006 Model.
4. Assumes a Diesel fuel sulfur content of 130 ppm.

Air Compressor

Summary of Emissions from Diesel-Fueled Air Compressor
Mira Loma Auto Facility

									Operating Schedule		Exhaust and Crankcase Emission Factors (g/hp-hr)					VOC Evaporative Emission Factors		Emissions (tpy)				
Owner	Equipment	Make	Engine Make	Model Year	Fuel Type	Rating (hp)	No. of Units	Load Factor	(hr/day)	(hr/yr)	VOC	CO	NOx	DPM	SOx	Part 1 (g/hr)	Part 2 (g/yr)	VOC	CO	NOx	DPM	SOx
Progress Rail	Portable Air Compressor	Sullair	John Deere	2003	Diesel	125	1	0.48	4	1,460	0.202	0.957	4.179	0.048	0.100	-	-	0.020	0.092	0.404	0.005	0.010
Total																		**0.020**	**0.092**	**0.404**	**0.005**	**0.010**

Notes:
1. Emission factors and load factors from CARB's OFFROAD Model.
2. Assumes a Diesel fuel sulfur content of 130 ppm.

Appendix B
Growth Rate Data

Union Pacific Railroad: Key Operating Measures

Annual Gross Ton-Miles, Revenue Ton-Miles, & Diesel Fuel Consumption

Year	U.P. Revenue Ton Miles per Gallon of Diesel Consumed	% Change	Diesel Fuel Consumed *(millions)*	% Change	U.P. Revenue Ton Miles *(billions)*	% Change	U.P. Gross Ton Miles *(billions)*	% Change
1996	392	-	824	-	323	-	760	-
1997	368	-	1,229	-	452	-	860	13.2%
1998	376	2.2%	1,150	-6.4%	432	-4.4%	826	-3.9%
1999	380	1.2%	1,244	8.2%	473	9.5%	898	8.7%
2000	375	-1.3%	1,293	3.9%	485	2.6%	931	3.7%
2001	391	4.2%	1,287	-0.5%	504	3.8%	958	2.8%
2002	394	0.8%	1,315	2.2%	519	3.0%	994	3.8%
2003	401	1.6%	1,330	1.1%	533	2.7%	1019	2.5%
2004	397	-1.0%	1,377	3.5%	546	2.5%	1038	1.8%
2005	406	2.2%	1,353	-1.7%	549	0.5%	1044	0.6%
2006	412	1.6%	1,372	1.4%	565	3.0%	1073	2.7%
2007	424	2.8%	1,326	-3.4%	562	-0.6%	1052	-1.9%
Average % Change		**1.4%**		**0.8%**		**2.3%**		**2.1%**

Notes:
Source: Union
Quarterly Earnings Releases and Analyst Presentations (4th Quarter each year 1997-2007)
http://www.up.com/investors/earnings/index.shtml

1996 data from UPRR Report R-1 to Surface Transportation Board, provided as reference point to pre-UP/SP merger.

1996-1997 data not included in averages shown above. UP/SP merger was completed on Sept. 11, 1996; 1998 is first year that is representative for comparison to current operations.

New Vehicle Counts
Mira Loma Auto Facility

Calendar Year	No. of Vehicles
2005	702,454
2007	641,678
2008	648,095
2009	654,576
2010	661,121
2011	667,733
2012	674,410
2013	681,154
2014	687,966
2015	694,845
2016	701,794
2017	708,812
2018	715,900
2019	723,059
2020	730,289

Notes:
1. Data for 2005 and 2007 are from UPRR.
2. Data for 2008-2020 assume a 1% per year growth rate from 2007.