

## 2011 Year HRA Inputs

		grams/second/source	tons/year	
<b>Long Haul Trains</b>	Idling	2.93E-05	0.0035	
	Notch 1	1.32E-05	0.0031	
	Notch 2	9.65E-06	0.0066	
	Notch 3	1.19E-05	0.0092	
	total		0.0224	16%
<b>Cargo Area</b>		1.01E-04		
Container Handler			0.0026	2%
Manlift			0.0001	0%
Light Towers			0.0004	0%
<b>Railyard</b>		3.01E-04		
RTGs			0.0173	12%
Switcher			0.0184	13%
Trucks		1.08E-05	0.0826	57%
Total			0.1438	100%

**Year 2011 HRA Inputs**

**Initial Lateral Dimension - Volume Source**

ROW width meters (Right of way) (ft) 100  
 ROW width meters (Right of way) (meters) 30.5  
 Standard Deviation 2.15  
**Lateral Dimension 14.18**

$SY = (source\ separation\ distance)/2.15$

**Initial Vertical Dimension - Volume Source**

Width of Traveled Way (m) 30.5  
 Average Wind Speed (m/s) 1.85 Based on Pico Rivera Met Set  
**Vertical Dimension 3.11** Calculated but used the Roseville Values

$SZ = (1.8 + 0.11(TR)) \times (60/30)^{0.2}$

$TR = W2/U$

$W2 = traveled\ way\ half\ width\ (m)$

$U = average\ wind\ speed\ (m/s)$

From Caline Manual

Roseville Railyard uses 2.6 (5.6/2.15) meters for Sigma Z and release height of 5.6 meters  
 14.6 meters for night time due to cooler temperatures which promote plume rise

**Emissions**

Year 2013	grams/day	grams/second	Number of Sources	grams/second per source	tons/year
Idling	10.1316	0.000117264	4	0.0000293	0 1.4658E-05
Notch 1	9.1184	0.000105537	8	0.0000132	0.003
Notch 2	19.1842	0.000222039	23	0.0000097	0.007
Notch 3	26.6930	0.000308947	26	0.0000119	0.009
Emission rates from "Parameters for Railroad dispersion modeling August 19.doc"					0.022

**Distance Traveled by Notch**

Minutes	hours	mph	Miles	Feet	Meters	Distance Traveled by Notch
1	0.016666667	2	0.033333333	88	27	notch1
2	0.016666667	4	0.066666667	352	107	notch1
3	0.016666667	6	0.1	792	241	notch1 241
4	0.016666667	8	0.133333333	1408	429	notch 2
5	0.016666667	10	0.166666667	2200	671	notch 2
6	0.016666667	12	0.2	3168	966	notch 2 724
7	0.016666667	14	0.233333333	4312	1314	notch3
8	0.016666667	16	0.266666667	5632	1717	notch3 751
Total	8					1717

Assumes 2 mph acceleration/deceleration per minute

5708.6616

**Composite Idling Parameters**

Locomotive Model	Engine Model	Locomotive Composition	Stack Height (meters)	For Idling		
				Temperature (K)	Diameter (meters)	Flow Rate (m <sup>3</sup> /s)
Switcher	12-645E	0.89%		342	0.3048	0.8221
GP-3X	16-645E	3.55%		342	0.3048	1.1
GP-4X	16-645E3B	51.40%		351	0.666	1.3
GP-5X	16-645F3B	1.59%		352	0.666	1.15
GP-6X	16-710G3A	10.47%		362	0.6253	0.96
SD-70	16-710G3B	4.99%		364	0.6253	0.94
SD-90	16V265H	1.27%		550	0.666	1.15
C30-7	Dash-7	1.29%				
C40-8	Dash-8	16.22%				
C50-9	Dash-9	7.54%				
C60-A	GE HDL	0.78%				
				<b>Composite Idling</b>		
				356	0.636	1.207

Locomotive Compositions based on Table G:1 from the Roseville Railyard Health Risk Study  
 Temp, Diameter and flow rate based on Table B:2 from the Roseville Railyard Health Risk Study

Year 2011 HRA Inputs

Cargo Emission Source

	PM10 (lbs/day)	PM10 (grams/day)	PM10 (grams/second)	PM10 (grams/second/source)	tons/year
Equipment Type					
Container Handler	0.01650		0.000086701		0.0026
Fork Lifts			0.000000000		0.0000
Manlift	0.00053		0.000002802		0.0001
Light Towers	0.00227		0.000011906		0.0004
Total	0.0193		0.000101410	0.00010141	0.0030

Emissions from "PHIMF year 2013 August 16 Minus Travel.xls"

Forklift and Container Loading Area (meters)

Based on approximate fit to area

Railyard width (feet)	250
Railyard width (meters)	76.2
Standard Deviation	2.15
<b>Cargo Lateral Dimension</b>	<b>35.44</b>

Railyard Emission Source

	PM10 (lbs/day)	PM10 (grams/day)	PM10 (grams/second)	PM10 (grams/second/source)	tons/year
RTGs	0.11104397	50.41396256	0.000583495	0.000145874	0.0173
Switcher	0.117984581	53.565	0.000619965	0.000154991	0.0184
Total			0.00120346	0.000300865	0.0357

Emissions from "PHIMF year 2013 August 16 Minus Travel.xls"

Railyard width (feet)	230
Railyard width (meters)	70.104
Standard Deviation	2.15
<b>Railyard Lateral Dimension</b>	<b>32.61</b>

Source

1	404546.8 Initial X Coordinate
2	404616.9
3	404687.0
4	404757.1

Year 2011 HRA Inputs

Equipment Type	PM10 (lbs/day)	PM10 (grams/ day)	PM10 (grams/ second)	PM10 (grams/ second/ source)	tons/year
Total Heavy-Heavy Truck Emissions		240.51	0.00278368		0.082642
Hostler Trucks			0		
Total Heavy and Hostler Truck Emissions			0.00278368	0.00001079	
Number of Volume Sources	258				
Emissions from "PHIF HR TRUCK averages August 16.xls"					

Roadway width (feet)	24
Roadway width (meters)	7.3152
Standard Deviation	2.15
<b>Lateral Dimension</b>	<b>3.40</b>

**Initial Vertical Dimension - Volume Source**

Width of Traveled Way (m)	3.7
Average Wind Speed (m/s)	1.85
<b>Vertical Dimension</b>	<b>2.19</b>

$SZ = (1.8 + 0.11(TR)) \times (60/30)^{0.2}$   
 $TR = W2/U$

*W2 = traveled way half width (m)*  
*U = average wind speed (m/s)*

From Caline Manual

On-Road Mobile Source Emissions	
Vehicle Class	PM10
Workers (Inc. Autos & Trks Under 5,151 Lbs)	0.048393
Heavy-Heavy Trucks (33,001 - 60,000 lb)	7.868224
Heavy-Heavy Trucks (Maneuvering)	0.399879
Heavy-Heavy Trucks (Idling)	0.129886
Total Daily Mobile-Source Emissions (Pounds per Day)	8.446381
Off-Road Mobile Source Emissions	
	PM10
Road Engines	3.043097
Road Engines (Idling)	0.04477
Total Daily Emission (Pounds per Day)	PM10
	12.03217

## 2013 Year HRA Inputs

	grams/second/source	tons/year	
<b>Long Haul Trains</b>			
Idling	5.86E-05	0.0070	
Notch 1	2.64E-05	0.0063	
Notch 2	1.93E-05	0.0132	
Notch 3	2.38E-05	0.0183	
total		0.0448	27%
<b>Cargo Area</b>	1.01E-04		
Container Handler		0.0026	2%
Manlift		0.0001	0%
Light Towers		0.0004	0%
<b>Railyard</b>	3.01E-04		
RTGs		0.0173	10%
Switcher		0.0184	11%
Trucks	1.08E-05	0.0826	50%
<b>Total</b>		0.1661	100%

**Year 2013 HRA Inputs**

**Initial Lateral Dimension - Volume Source**

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**Lateral Dimension 14.18**

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**Vertical Dimension 3.11** Calculated but used the Roseville Values

$SZ = (1.8 + 0.11(TR)) \times (60/30)^{0.2}$   
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From Caline Manual

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 14.6 meters for night time due to cooler temperatures which promote plume rise

**Emissions**

Year 2013	grams/day	grams/second	Number of Sources	grams/second per source	tons/year
Idling	20.2632	0.000234528	4	0.0000586	0 2.9316E-05
Notch 1	18.2368	0.000211074	8	0.0000264	0.006
Notch 2	38.3684	0.000444079	23	0.0000193	0.013
Notch 3	53.3860	0.000617894	26	0.0000238	0.018
Emission rates from "Parameters for Railroad dispersion modeling August 19.doc"					0.045

**Distance Traveled by Notch**

Minutes	hours	mph	Miles	Feet	Meters	Distance Traveled by Notch
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2	0.016666667	4	0.066666667	352	107	notch1
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*Appendix B.*  
*ISCST3 Modeling*

**Available in CD format upon request.**

