

### Acrolein Traveling Emissions Data

Train	Travel Destinations	Max No. of cars	No of Gen		Trips/day (loaded + unloaded)	Trips/yr (loaded + unloaded)	Engine Load Factor			Factored HP			Time to travel 450 meters at 30 mph (Sec)	Daily hrs of operation in 450 meter segment (hr/day)	Annual hrs of operation in 450 meter segment (hr/yr)	Hourly Emissions (g/s)	Annual Emissions (g/s)	Maximum (g/s) <sup>2</sup>	Unitized Maximum (g/s-m <sup>2</sup> ) <sup>3</sup>
			Sets	HP Potential			Loaded	Unloaded	Ave	Loaded	Unloaded	Ave							
1	Redwood to Willits	10	1	2100	2	624	60%	40%	50%	1260	840	1050	33.55	0.02	5.82	2.04E-08	3.49E-08		
2	Lombard to Redwood	25	1	2100	2	624	60%	40%	50%	1260	840	1050	33.55	0.02	5.82	2.04E-08	3.49E-08		
3	Lombard to Willits	60	2	4200	2	624	70%	25%	48%	2940	1050	1995	33.55	0.02	5.82	3.87E-08	6.62E-08		
4	Lombard to Santa Rosa	60	2	4200	2	624	40%	25%	33%	1680	1050	1365	33.55	0.02	5.82	2.65E-08	4.53E-08		
																8.56E-08	1.46E-07		
																<b>2.11E-11</b>	<b>3.61E-11</b>		

Acrolein Emission Factor (g/bhp-hr)<sup>1</sup>  
0.00018

**Notes:**

- 1) Acrolein emission rate based on U.S. Environmental Protection Agency. Documentation For Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory, Volume I - Methodology. Emission Factor and Inventory Group, Emissions Monitoring and analysis Division. November 11, 2002. (<ftp://ftp.epa.gov/EmisInventory/draftnei99ver3/haps/documentation/nonroad/>)  
As provided in the National Emissions Inventory, acrolein is 0.3% of the VOC emissions. The VOC emission rate for the N-ViroMotive locomotive engine set is 0.06 g/bhp-hr. Therefore, an emission rate for acrolein is calculated as 0.003 x 0.06 g/bhp-hr = 0.00018 g-bhp-hr.
- 2) The maximum emissions at a single location occurs between Lombard and Santa Rosa where there is a maximum of overlapping operations (trains 2, 3, & 4)
- 3) Totals (g/s-m<sup>2</sup>) are based on a 450 m by 9 m area that is used for modeling the concentrations as an area source (approximately 1/4 mile of track).

**Acrolein Model Results  
Traveling Trains**

<b>Run #</b>	<b>File Name</b>	<b>Averaging Time</b>	<b>Max Result (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>X (m)</b>	<b>Y (m)</b>	<b>Distance from track (ft)</b>	<b>REL (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>HI (unitless)</b>
13a	NCRA_SR03-300_DPM_TRAV_1-Hr_SE-NW Bound	1-hr	0.00011	-176.07	163.34	50.5	0.19	0.001
13b	NCRA_SR03-300_DPM_TRAV_ANN_SE-NW Bound	Annual	0.00003	-14.85	27.58	30.0	0.06	0.0005