

## Acrolein Idling Emissions Data

Exhaust Temp	885 F		
Stack Diameter	8 in		
Height	16.25 ft		
Flow Rate	4410 cfm	at	1800 RPM
Idle Flow Rate	1960 cfm	at	800 RPM
Acrolein Emission Rate <sup>1</sup>	0.00018 g/bhp-hr		
Idle Power	67 bhp		
Idle Time/pass	15 min		
pass/hr	3 hypothetical maximum for 3 trains		
Pass/day-train (at one siding location)	1 each way of travel		
trains/day	6 round trip		
daily idle hrs	1.5 hrs/day		
day/yr	312 at 6 days/week		
annual idling time	468 idle hr/yr		
Acrolein Idling Emissions (annual basis)	1.79E-07 g/s (annualized)		
Acrolein Idling Emissions (hourly basis)	8.38E-07 g/s (1-hr)		

**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  $0.003 \times 0.06 \text{ g/bhp-hr} = 0.00018 \text{ g-bhp-hr}$ .
- 2) The maximum emissions at a single location occurs between Lombard and Santa Rosa were 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  
Idling 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 Train (ft)</b>	<b>REL (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>HI (unitless)</b>
1a	NCRA_SR03-300_Acrolein_IDLE_1-hr	1-hr	0.00029	30	20	118	0.19	0.0015
2a	NCRA_SR03-300_Acrolein_IDLE_ANN	Annual	0.00001	0	70	230	0.06	0.0002