

**PUBLIC HEALTH AND SAFETY DATA**

### Emissions from Emergency Diesel Firewater Pump

<b>Rated Horsepower</b>	<b>300</b>	<b>BHP</b>			
<b>Testing duration</b>	<b>30</b>	<b>min/week</b>			
<b>Yearly testing</b>	<b>52</b>	<b>week/year</b>			
<b>Expected non-emergency usage</b>	<b>26</b>	<b>hr/yr</b>			
<b>Pollutant</b>	Emission Factor	Emission Rate per Testing	Yearly Emission Rate	Hourly Emission Rate	Annual Emission Rate
	g/HP/Hr	lb/hr	lb/yr	g/s	g/s
<b>PM<sub>10</sub></b>	0.14	0.05	1.20	0.006	1.73E-05

Note: SO<sub>2</sub> emission calculated from spec sheet gpm of fuel usage and sulfur content of 15 ppm in fuel.

#### Engine parameters

Flow Rate (acfm)	1740	64.825	m/s
Exhaust Temp (degrees F)	770	683.15	K
Stack Diameter (feet)	0.4167	0.127	m
Stack height (feet) above ground	18	5.486	m
fire pump building height (ft)	15	4.572	m
Building width (ft)	20	6.096	m
Building length (ft)	50	15.240	m
fuel usage (gph)	14		
diesel density (lb/gal)	7.1		

MNHC+NOx emission factor = 4.90

Sulfur content 15 ppm in fuel

Data from Vendor

Clarke JW6H-UF40

Stack diameter determined from the CARB "Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines" Oct 2000

## Carrizo Energy Solar Farm HRA Calculations

### Cancer Risk Calculations

PM <sub>10</sub> annual emission rate	1.73E-05	g/s
SCREEN3 modeled 1-hour $\chi/Q$ value using 1 gram/second emission rate	714.7	( $\mu\text{g}/\text{m}^3$ )/(g/s)
SCREEN3 modeled annual $\chi/Q$ value using 1 gram/second emission rate	57.176	( $\mu\text{g}/\text{m}^3$ )/(g/s)
Maximum annual PM <sub>10</sub> concentration using actual emission rate	0.00099	$\mu\text{g}/\text{m}^3$
Inhalation Cancer Potency Factor for diesel particulate matter (from OEHHA) is	1.10E+00	(mg/kg-day) <sup>-1</sup>
Inhalation dose (mg/kg-day) = (Annual conc) * DBR * A * EF * ED * 1e-6 / AT		
DBR = daily breathing rate (L/kg-day), used 95th percentile	393	L/kg-day
A = Inhalation absorption factor (fraction of chemical absorbed), default	1	
EF = Exposure frequency (days/year)	52	days/year
ED = Exposure duration (years), default	70	years
AT = Averaging time period over which exposure is averaged (days), default (e.g., 25,550 days for 70 year cancer risk)	25550	days
Inhalation dose (mg/kg-day) =	5.55E-08	mg/kg-day
Inhalation cancer risk = (Inhalation dose) * (cancer potency factor)	6.10E-08	
Inhalation cancer risk =	0.061	in a million

### Chronic Non-cancer Hazard Index Calculations

PM <sub>10</sub> annual emission rate	1.73E-05	g/s
SCREEN3 modeled 1-hour $\chi/Q$ value using 1 gram/second emission rate	714.7	( $\mu\text{g}/\text{m}^3$ )/(g/s)
SCREEN3 modeled annual $\chi/Q$ value using 1 gram/second emission rate	57.176	( $\mu\text{g}/\text{m}^3$ )/(g/s)
Maximum annual PM <sub>10</sub> concentration using actual emission rate	0.00099	$\mu\text{g}/\text{m}^3$
Diesel particulate matter chronic reference exposure level (REL) from OEHHA	5	$\mu\text{g}/\text{m}^3$
Chronic Non-cancer Hazard Index (HI)	0.00020	