

**Staging Yard DPM Emissions**

Staging Yard	Location (Latitude/Longitude)		Count of Staging Yards Near Sensitive Receptors	Total Count of Staging Yards	% of project	DPM lb/day	Total DPM lb/year	Annual DPM per Staging Yard lb/year
SR-18 & Joshua Rd.	34.451	-117.049	1	15	6.67%	0.082	25.584	1.706
Lugo 1	34.366	-117.372	1		6.67%			1.706
Lugo 2	34.365	-117.366	1		6.67%			1.706

**Staging Yard HRA Results**

Staging Yard	MICR (in one million)		Chronic (HIC)		8hr Chronic		Acute	
	Sensitive Receptor	Worker	Sensitive Receptor	Worker	Sensitive Receptor	Worker	Sensitive Receptor	Worker
SR-18 & Joshua Rd.	1.294	2.295E-02	7.42E-04	7.42E-04	N/A	N/A	N/A	N/A
Lugo 1	1.826	3.239E-02	1.05E-03	1.05E-03	N/A	N/A	N/A	N/A
Lugo 2	0.434	7.691E-03	2.49E-04	2.49E-04	N/A	N/A	N/A	N/A
<b>Thresholds of Significance:</b>	<b>10.0 in a million</b>		<b>1.0 (unitless)</b>		<b>N/A</b>		<b>N/A</b>	

**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for Staging Yard Located at SR-18 and Joshua Rd.**

AERSCREEN General Inputs		
Parameter	Input Value	Comments
Projection	UTM	Universal Traverse Mercator
Datum	NAD83	North American Datum 1983
UTM Zone	11	
Hemisphere	Northern	
Reference Point	495499.01 m E, 3812164.89 m N	Project location reference, roughly center of staging area

AERSCREEN Source Creation Input		
Parameter	Input Value	Comments
Source Type:	Area	Worst case compared to point source or volume source
X coordinate	495457.17 m E	Bottom left corner of the staging area
Y coordinate	3812113.23 m N	Bottom left corner of the staging area
Average Release Height (ft)	5	Assumed average emissions release height
Staging Area Side Length, X axis (meters)	120	Approximate length of staging area
Staging Area Side Length, Y axis (meters)	120	Approximate length of staging area
Orientation Offset Angle	0 degrees	No rotation needed

AERSCREEN Scenario Parameters		
Parameter	Input Value	Comments
Dispersion Option (Rural vs. Urban)	Rural	
Pollutant	DPM	
Emission Rate	1.0 grams/second	
Minimum Temperature	274 K	Based on historical average of annual minimum for Apple Valley
Maximum Temperature	310 K	Based on historical average of annual maximum for Apple Valley
Minimum Wind Speed	0.5 m/s	Default
Adjust Surface Friction Velocity (ADJ_U*)	Yes (checked)	For low wind speed conditions; considered default.
Land Use Type	Desert Shrubland	
Land Use Condition	Dry	
Land Use Season	Annual Average	
Albedo	0.3275	Auto-populated by AERSCREEN from land use selections
Bowen Ratio	7.75	Auto-populated by AERSCREEN from land use selections
Surface Roughness	0.2625	Auto-populated by AERSCREEN from land use selections
Terrain Effects	Not included	Not considered for area sources
Distance to Nearest Receptor	201 meters	
Maximum distance of downwind receptor	1,300 meters	
Inversion Break Fumigation	None	No nearby bodies of water, does not apply
Shoreline Fumigation	None	No nearby bodies of water, does not apply

**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for Staging Yard Located at SR- 18 and Joshua Rd.**

Scenario	Annual Emissions (lb/year)	Hourly Emissions (lb/hour)	Maximum Modeled 1-Hour X/Q ( $\mu\text{g}/\text{m}^3$ )/(g/s)	Maximum Annual X/Q Concentration ( $\mu\text{g}/\text{m}^3$ )/(g/s)	Average Annual Emission Rate (g/s)	Annual DPM Concentration at the Maximally Exposed Individual Receptor ( $\mu\text{g}/\text{m}^3$ )
SR18 and Joshua Rd. Staging Area	1.7056	0.000194703	1,510	151	2.46E-05	0.00371

**DPM Cancer Risk and Chronic Hazard Index Calculation for Sensitive Receptors**

**Sensitive Receptor Inhalation Dose and Inhalation Cancer Risk Parameters (OEHA Equations 5.4.1.1 and 8.2.4 A & B)**

Parameter	Value	Units	Comments
$C_{air}$	0.00371	$\mu\text{g}/\text{m}^3$	Maximum Annual Concentration of DPM at maximally impacted receptor
Inhalation Absorption Factor (A)	1	unitless	Default = 1
Exposure Frequency (EF)	0.96	unitless	Days/365 days - default = 350 days/365 days in a year for a resident
Inhalation Cancer Potency Factor (CPF)	1.1	mg/(kg/day)	Value for DPM
Averaging time for lifetime cancer risk (AT)	70	years	Recommended default
Chronic Inhalation Reference Exposure Level (REL)	5	$\mu\text{g}/\text{m}^3$	Chronic REL value for DPM

Age Range	Daily Breathing Rate <sup>1</sup> {BR/BW} (L/kg-day)	Daily inhalation dose <sup>2</sup> (DOSEair) (mg/kg-day)	Age Sensitivity Factor (ASF)	Exposure Duration <sup>3</sup> (ED) (yr)	Fraction of Time at Home <sup>4</sup> (FAH)	Residential Inhalation Cancer Risk by Age Range
Third trimester	361	1.29E-06	10	0.25	1	5.05E-08
0 to <2 yrs	1090	3.88E-06	10	2	1	1.22E-06
2 to <16 yrs	572	2.04E-06	3	0.25	1	2.40E-08
16 to <30 yrs	261	9.29E-07	1	0	0.73	0.00E+00
16 to <70 yrs	233	8.30E-07	1	0	0.73	0.00E+00

Cancer Risk Exposure Duration (years) <sup>5</sup>	Maximum Individual Cancer Risk (MICR) <sup>6</sup> (in a million)	Chronic Hazard Index <sup>7</sup>
2.5	1.294	7.42E-04

**Notes and Definitions:**

- {BR/BW} values are normalized to body weight (L/kg bodyweight -day) - taken from OEHA Table 5.7 at 95th percentile breathing rate.
- Daily inhalation dose (DOSEair) is calculated using OEHA Eq. 5.4.1.1
- 30 months (2.5 years) total is assumed as the maximum exposure duration (ED) rather than recommended defaults.
- Fraction of time at home (FAH) is set to 1 for <=16 years old as a worst case scenario.
- Operations at any individual staging yard are not expected to exceed 30 months (2.5 years).
- MICR is maximum of the sum of calculated residential cancer risks by age range for each ED equal to one year or adding up to one year.
- Chronic Hazard Index = Annual Concentration ( $\mu\text{g}/\text{m}^3$ )/Chronic REL ( $\mu\text{g}/\text{m}^3$ )

**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for Staging Yard Located at SR-18 and Joshua Rd.**

**DPM Cancer Risk and Chronic Hazard Index Calculation for Worker Receptors**

**Worker Receptor Inhalation Dose and Inhalation Cancer Risk Parameters (OEHHA Equations 5.4.1.2 and 8.2.4 A & B)**

Parameter	Value	Units	Comments
Worker air concentration adjustment factor (WAF)	1	unitless	Taken from OEHHA Table 5.10
Inhalation Absorption Factor (A)	1	unitless	Default = 1
Exposure Frequency (EF)	0.685	unitless	250 days / 365 days. Equivalent to working 5 days/week, 50 weeks/year

Age Range	8-Hour Breathing Rate 95th Percentile <sup>8</sup> {BR/BW} (L/kg-day)	Daily inhalation dose (DOSE <sub>air</sub> ) (mg/kg-day)	Age Sensitivity Factor (ASF)	Exposure Duration (ED) (yr)	Worker inhalation cancer risk	Worker Cancer Risk (in a million)
16 to <70 yrs	230	5.84E-07	1	2.5	2.30E-08	0.02

**Notes and Definitions:**

8.) {BR/BW} values are normalized to body weight (L/kg bodyweight -day) - taken from OEHHA Table 5.8 for 8-hour 95th percentile breathing rate.

**Source:**

Office of Environmental Health Hazard Assessment (OEHHA). Feb 2015. Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments.

<https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>

**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for the Lugo 1 Staging Yard**

<b>AERSCREEN General Inputs</b>		
<b>Parameter</b>	<b>Input Value</b>	<b>Comments</b>
<b>Projection</b>	UTM	Universal Traverse Mercator
<b>Datum</b>	NAD83	North American Datum 1983
<b>UTM Zone</b>	11	
<b>Hemisphere</b>	Northern	
<b>Reference Point</b>	465817.46 m E, 3802799.30 m N	Project location reference, roughly center of staging area

<b>AERSCREEN Source Creation Input</b>		
<b>Parameter</b>	<b>Input Value</b>	<b>Comments</b>
<b>Source Type:</b>	Area	Worst case compared to point source or volume source
<b>X coordinate</b>	465764	Bottom left corner of the staging area
<b>Y coordinate</b>	3802614	Bottom left corner of the staging area
<b>Average Release Height (ft)</b>	5	Assumed average emissions release height
<b>Staging Area Side Length, X axis (meters)</b>	115	Approximate length of staging area
<b>Staging Area Side Length, Y axis (meters)</b>	403	Approximate length of staging area
<b>Orientation Offset Angle</b>	0 degrees	No rotation needed

<b>AERSCREEN Scenario Parameters</b>		
<b>Parameter</b>	<b>Input Value</b>	<b>Comments</b>
<b>Dispersion Option (Rural vs. Urban)</b>	Rural	
<b>Pollutant</b>	DPM	
<b>Emission Rate</b>	1.0 grams/second	
<b>Minimum Temperature</b>	266 K	Based on historical average of annual minimum for Hesperia.
<b>Maximum Temperature</b>	316 K	Based on historical average of annual minimum for Hesperia.
<b>Minimum Wind Speed</b>	0.5 m/s	Default
<b>Adjust Surface Friction Velocity (ADJ_U*)</b>	Yes (checked)	For low wind speed conditions; considered default.
<b>Land Use Type</b>	Desert Shrubland	
<b>Land Use Condition</b>	Dry	
<b>Land Use Season</b>	Annual Average	
<b>Albedo</b>	0.3275	Auto-populated by AERSCREEN from land use selections
<b>Bowen Ratio</b>	7.75	Auto-populated by AERSCREEN from land use selections
<b>Surface Roughness</b>	0.2625	Auto-populated by AERSCREEN from land use selections
<b>Terrain Effects</b>	Not included	Not considered for area sources
<b>Distance to Nearest Receptor</b>	120 meters	
<b>Maximum distance of downwind receptor</b>	2000 meters	
<b>Inversion Break Fumigation</b>	None	No nearby bodies of water, does not apply
<b>Shoreline Fumigation</b>	None	No nearby bodies of water, does not apply

**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for the Lugo 1 Staging Yard**

Scenario	Annual Emissions (lb/year)	Hourly Emissions (lb/hour)	Maximum Modeled 1-Hour X/Q ( $\mu\text{g}/\text{m}^3$ )/(g/s)	Maximum Annual X/Q Concentration ( $\mu\text{g}/\text{m}^3$ )/(g/s)	Emission Rate (g/s)	Maximum Annual DPM Concentration ( $\mu\text{g}/\text{m}^3$ )
Lugo 1 Staging Area	1.7056	0.000194703	2,131	213	2.46E-05	0.00523

**DPM Cancer Risk and Chronic Hazard Index Calculation for Sensitive Receptors**

**Sensitive Receptor Inhalation Dose and Inhalation Cancer Risk Parameters (OEHA Equations 5.4.1.1 and 8.2.4 A & B)**

Parameter	Value	Units	Comments
C <sub>air</sub>	0.00523	$\mu\text{g}/\text{m}^3$	Maximum Annual Concentration of DPM at maximally impacted receptor
Inhalation Absorption Factor (A)	1	unitless	Default = 1
Exposure Frequency (EF)	0.96	unitless	Days/365 days - default = 350 days/365 days in a year for a resident
Inhalation Cancer Potency Factor (CPF)	1.1	mg/(kg/day)	Value for DPM
Averaging time for lifetime cancer risk (AT)	70	years	Recommended default
Chronic Inhalation Reference Exposure Level (REL)	5	$\mu\text{g}/\text{m}^3$	Chronic REL value for DPM

Age Range	Daily Breathing Rate <sup>1</sup> {BR/BW} (L/kg-day)	Daily inhalation dose <sup>2</sup> (DOSEair) (mg/kg-day)	Age Sensitivity Factor (ASF)	Exposure Duration <sup>3</sup> (ED) (yr)	Fraction of Time at Home <sup>4</sup> (FAH)	Residential Inhalation Cancer Risk by Age Range
Third trimester	361	1.81E-06	10	0.25	1	7.12E-08
0 to <2 yrs	1090	5.48E-06	10	2	1	1.72E-06
2 to <16 yrs	572	2.87E-06	3	0.25	1	3.39E-08
16 to <30 yrs	261	1.31E-06	1	0	0.73	0.00E+00

Cancer Risk Exposure Duration (years) <sup>5</sup>	Maximum Individual Cancer Risk (MICR) <sup>6</sup> (in a million)	Chronic Hazard Index <sup>7</sup>
2.5	1.83	0.0010

**Notes and Definitions:**

- {BR/BW} values are normalized to body weight (L/kg bodyweight -day) - taken from OEHA Table 5.7 at 95th percentile breathing rate.
- Daily inhalation dose (DOSEair) is calculated using OEHA Eq. 5.4.1.1
- 30 months (2.5 years) total is assumed as the maximum exposure duration (ED) rather than recommended defaults.
- Fraction of time at home (FAH) is set to 1 for <=16 years old as a worst case scenario.
- Operations at any individual staging yard are not expected to exceed 30 months (2.5 years).
- MICR is maximum of the sum of calculated residential cancer risks by age range for each ED equal to one year or adding up to one year.
- Chronic Hazard Index = Annual Concentration ( $\mu\text{g}/\text{m}^3$ )/Chronic REL ( $\mu\text{g}/\text{m}^3$ )

**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for the Lugo 1 Staging Yard**

**DPM Cancer Risk and Chronic Hazard Index Calculation for Worker Receptors**

**Worker Receptor Inhalation Dose and Inhalation Cancer Risk Parameters (OEHHA Equations 5.4.1.2 and 8.2.4 A & B)**

Parameter	Value	Units	Comments
Worker air concentration adjustment factor (WAF)	1	unitless	Taken from OEHHA Table 5.10
Inhalation Absorption Factor (A)	1	unitless	Default = 1
Exposure Frequency (EF)	0.685	unitless	250 days / 365 days. Equivalent to working 5 days/week, 50 weeks/year

Age Range	8-Hour Breathing Rate 95th Percentile <sup>8</sup> {BR/BW} (L/kg-day)	Daily inhalation dose (DOSE <sub>air</sub> ) (mg/kg-day)	Age Sensitivity Factor (ASF)	Exposure Duration (ED) (yr)	Worker inhalation cancer risk	Worker Cancer Risk (in a million)
16 to <70 yrs	230	8.24E-07	1	2.5	3.2386E-08	0.03

**Notes and Definitions:**

8.) {BR/BW} values are normalized to body weight (L/kg bodyweight -day) - taken from OEHHA Table 5.8 for 8-hour 95th percentile breathing rate.

**Source:**

Office of Environmental Health Hazard Assessment (OEHHA). Feb 2015. Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments.  
<https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>

**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for the Lugo 2 Staging Yard**

<b>AERSCREEN General Inputs</b>		
<b>Parameter</b>	<b>Input Value</b>	<b>Comments</b>
<b>Projection</b>	UTM	Universal Traverse Mercator
<b>Datum</b>	NAD83	North American Datum 1983
<b>UTM Zone</b>	11	
<b>Hemisphere</b>	Northern	
<b>Reference Point</b>	466325.00 m E, 3802700.00 m N	Project location reference, roughly center of staging area

<b>AERSCREEN Source Creation Input</b>		
<b>Parameter</b>	<b>Input Value</b>	<b>Comments</b>
<b>Source Type:</b>	Area	Worst case compared to point source or volume source
<b>X coordinate</b>	466237.00	Bottom left corner of the staging area
<b>Y coordinate</b>	3802668.00	Bottom left corner of the staging area
<b>Average Release Height (ft)</b>	5	Assumed average emissions release height
<b>Staging Area Side Length, X axis (meters)</b>	150	Approximate length of staging area
<b>Staging Area Side Length, Y axis (meters)</b>	130	Approximate length of staging area
<b>Orientation Offset Angle</b>	22 degrees	

<b>AERSCREEN Scenario Parameters</b>		
<b>Parameter</b>	<b>Input Value</b>	<b>Comments</b>
<b>Dispersion Option (Rural vs. Urban)</b>	Rural	
<b>Pollutant</b>	DPM	
<b>Emission Rate</b>	1.0 grams/second	
<b>Minimum Temperature</b>	266 K	Based on historical average of annual minimum for Hesperia.
<b>Maximum Temperature</b>	316 K	Based on historical average of annual minimum for Hesperia.
<b>Minimum Wind Speed</b>	0.5 m/s	Default
<b>Adjust Surface Friction Velocity (ADJ_U*)</b>	Yes (checked)	For low wind speed conditions; considered default.
<b>Land Use Type</b>	Desert Shrubland	
<b>Land Use Condition</b>	Dry	
<b>Land Use Season</b>	Annual Average	
<b>Albedo</b>	0.3275	Auto-populated by AERSCREEN from land use selections
<b>Bowen Ratio</b>	7.75	Auto-populated by AERSCREEN from land use selections
<b>Surface Roughness</b>	0.2625	Auto-populated by AERSCREEN from land use selections
<b>Terrain Effects</b>	Not included	Not considered for area sources
<b>Distance to Nearest Receptor</b>	500 meters	
<b>Maximum distance of downwind receptor</b>	2000 meters	
<b>Inversion Break Fumigation</b>	None	No nearby bodies of water, does not apply
<b>Shoreline Fumigation</b>	None	No nearby bodies of water, does not apply



**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for the Lugo 2 Staging Yard**

Scenario	Annual Emissions (lb/year)	Hourly Emissions (lb/hour)	Maximum Modeled 1-Hour X/Q ( $\mu\text{g}/\text{m}^3$ )/(g/s)	Maximum Annual X/Q Concentration ( $\mu\text{g}/\text{m}^3$ )/(g/s)	Emission Rate (g/s)	Maximum Annual DPM Concentration ( $\mu\text{g}/\text{m}^3$ )
Lugo 2 Staging Area	1.7056	0.000194703	506	51	2.46E-05	0.00124

**DPM Cancer Risk and Chronic Hazard Index Calculation for Sensitive Receptors**

**Sensitive Receptor Inhalation Dose and Inhalation Cancer Risk Parameters (OEHHA Equations 5.4.1.1 and 8.2.4 A & B)**

Parameter	Value	Units	Comments
C <sub>air</sub>	0.00124	$\mu\text{g}/\text{m}^3$	Maximum Annual Concentration of DPM at maximally impacted receptor
Inhalation Absorption Factor (A)	1	unitless	Default = 1
Exposure Frequency (EF)	0.96	unitless	Days/365 days - default = 350 days/365 days in a year for a resident
Inhalation Cancer Potency Factor (CPF)	1.1	mg/(kg/day)	Value for DPM
Averaging time for lifetime cancer risk (AT)	70	years	Recommended default
Chronic Inhalation Reference Exposure Level (REL)	5	$\mu\text{g}/\text{m}^3$	Chronic REL value for DPM

Age Range	Daily Breathing Rate <sup>1</sup> {BR/BW} (L/kg-day)	Daily inhalation dose <sup>2</sup> (DOSE <sub>air</sub> ) (mg/kg-day)	Age Sensitivity Factor (ASF)	Exposure Duration <sup>3</sup> (ED) (yr)	Fraction of Time at Home <sup>4</sup> (FAH)	Residential Inhalation Cancer Risk by Age Range
Third trimester	361	4.31E-07	10	0.25	1	1.69E-08
0 to <2 yrs	1090	1.30E-06	10	2	1	4.09E-07
2 to <16 yrs	572	6.82E-07	3	0.25	1	8.04E-09
16 to <30 yrs	261	3.11E-07	1	0	0.73	0.00E+00

Cancer Risk Exposure Duration (years) <sup>5</sup>	Maximum Individual Cancer Risk (MICR) <sup>6</sup> (in a million)	Chronic Hazard Index <sup>7</sup>
2.5	0.43	0.000249

**Notes and Definitions:**

- {BR/BW} values are normalized to body weight (L/kg bodyweight -day) - taken from OEHHA Table 5.7 at 95th percentile breathing rate.
- Daily inhalation dose (DOSE<sub>air</sub>) is calculated using OEHHA Eq. 5.4.1.1
- 30 months (2.5 years) total is assumed as the maximum exposure duration (ED) rather than recommended defaults.
- Fraction of time at home (FAH) is set to 1 for ≤16 years old as a worst case scenario.
- Operations at any individual staging yard are not expected to exceed 30 months (2.5 years).
- MICR is maximum of the sum of calculated residential cancer risks by age range for each ED equal to one year or adding up to one year.
- Chronic Hazard Index = Annual Concentration ( $\mu\text{g}/\text{m}^3$ )/Chronic REL ( $\mu\text{g}/\text{m}^3$ )

**Eldorado-Pisgah-Lugo TLRR Project HRA  
Programmatic Screening Scenario for the Lugo 2 Staging Yard**

**DPM Cancer Risk and Chronic Hazard Index Calculation for Worker Receptors**

**Worker Receptor Inhalation Dose and Inhalation Cancer Risk Parameters (OEHHA Equations 5.4.1.2 and 8.2.4 A & B)**

Parameter	Value	Units	Comments
Worker air concentration adjustment factor (WAF)	1	unitless	Taken from OEHHA Table 5.10
Inhalation Absorption Factor (A)	1	unitless	Default = 1
Exposure Frequency (EF)	0.685	unitless	250 days / 365 days. Equivalent to working 5 days/week, 50 weeks/year

Age Range	8-Hour Breathing Rate 95th Percentile <sup>8</sup> {BR/BW} (L/kg-day)	Daily inhalation dose (DOSE <sub>air</sub> ) (mg/kg-day)	Age Sensitivity Factor (ASF)	Exposure Duration (ED) (yr)	Worker inhalation cancer risk	Worker Cancer Risk (in a million)
16 to <70 yrs	230	1.96E-07	1	2.5	7.69E-09	0.0077

**Notes and Definitions:**

8.) {BR/BW} values are normalized to body weight (L/kg bodyweight -day) - taken from OEHHA Table 5.8 for 8-hour 95th percentile breathing rate.

**Source:**

Office of Environmental Health Hazard Assessment (OEHHA). Feb 2015. Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>