Appendix B2

# Health Risk Assessment

**Terminal Is. MSF - AERMOD Input / Settings**

**Source Type = AREA Configuration**

**Scenario : onsite DPM during construction represented by one AREA source**

| | | | | |
|---|---|---|---|---|
| 1 | # of AREA sources in model | | | |
| 72 | acres for on-site truck idling and HDT movement | | | |
| 72 | acre per AREA | Rel Height (cen) | SyInit | SzInit |
| 291384 | m sq. | (m) | (m) | (m) |
| 539.80 | (m) side of square per VOL or AREA | 4 | 125.53 | 1.86 |
| | | (12-ft tailpipe | | (6-ft vert mix tailpipes |

539.80 (m) side of square per VOL or AREA

125.53 sigma-y max

[for VOL Source: sigma-y < (dist vol.center-to-ambient) / 2.15 factor]

[Ref: SCAQMD, Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (2003)

[On-site truck activity as AREA sources width = actual plus 3 meter wake each side, release Ht = 4 m for Szinit = 1.86 (ARB 2006 Ports DPM Study)

[Option: Use of volume sources for mobile configurations (SCAQMD, 2003), construction spread & overlapping to make roadway segments (EPA 2015 Transp Conformity Gude Appxs ).

**AERMOD Input / Output Summary**

**Source Type = AREA Configuration**

| **Modeled Emission Rates** | **DPM (ton/year)** |
|---|---|
| Construction Emissions, year 1 | 0.15 |
| Construction Emissions, year 2 | 0.12 |
| Operation Emissions, opening year | 0.11 |

| **Modeled Emission Rates** | **Q, DPM (g/s)** |
|---|---|
| Construction Emissions, year 1 | 0.0043151 |
| Construction Emissions, year 2 | 0.0034521 |
| Operation Emissions, opening year | 0.0031644 |

**AERMOD Input** **>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> AERMOD input .DTA >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>**

| **Q, unit** (g/s) | **Q, unit** (lb/d) | **Q, unit** (ton/year) |
|---|---|---|
| 1.00 | 190.48 | 34.76 |

**AERMOD Output** **>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> AERMOD output .LST >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>**

| | PMI **chi, unit** (ug/m3) | Residential **chi, unit** (ug/m3) | Worker **chi, unit** (ug/m3) |
|---|---|---|---|
| WLCS (2012-2016) met data | 23.123 | 0.194 | 5.172 |

Max impact by receptor type (m), in UTM zone 11 S

Residential receptor: 407 N. Beacon Street, San Pedro (E: 381,400; N: 3,734,800)

Worker receptor: 300 Ferry Street (E: 383,250; N: 3,734,900)

**Modeled Concentration (chi, DPM = [chi/Q], unit * Q, DPM)**

| | PMI **DPM** (ug/m3) | Residential **DPM** (ug/m3) | Worker **DPM** (ug/m3) |
|---|---|---|---|
| Construction Emissions, year 1 | 0.09978 | 0.00084 | 0.02232 |
| Construction Emissions, year 2 | 0.07982 | 0.00067 | 0.01785 |
| Operation Emissions, opening year | 0.07317 | 0.00061 | 0.01637 |

## Initial Screening, Operation-phase Results

### Summary Annual Average Concentration (DPM)

| | Initial Screening Annual (DPM) | |
|---|---|---|
| | Residential (ug/m3) | Worker (ug/m3) |
| | 0.00061 | 0.01637 |

## Initial Screening (DPM)

### Risk Assessment (SCAQMD 2017), Screening, Maximum Individual Cancer Risk (DPM)

| | | Residential | Worker | |
|---|---|---|---|---|
| | Inhalation Cancer Potency (CP) Factor [(mg/kg-day)^-1] : | 1.1 | 1.1 | Ref 1. |
| | SCAQMD Table 4.1_ or 4.2_ = CEF (unitless) : | 677.4 | 55.86 | Ref 2. |
| For MICR from CEFr, per SCAQMD Risk Assessment Procedures for Rules 1401 et al | MICR : | 4.57E-07 | 1.01E-06 | |

MICR = Cancer Potency (CP) x Dose (D) x 10-6 — ^^^^ *CEF's for lifetime exposure - not scaled to short-term construction*

or, MICR = CP x concentration x CEFr x MPr x 10^-6

where MPr = 1.0 for multi-pathway exposure, as only DPM

CEFr or CEFw = Combined Exposure Factor, residential or worker

### Screen for Info Only, using pre-OEHHA 2015 and DPM unit risk factor

| | | Residential | Worker | |
|---|---|---|---|---|
| Cancer risk w/o age-specific sensitivity factors (pre-OEHHA 2015) | Inhalation Unit Risk Factor [(ug/m3)^-1] : | 3.00E-04 | 3.00E-04 | Ref 1. |
| For comparison with results per Hot Spots program | Cancer Risk w/o worker adjustment, DBR, or ASF's : | 1.84E-07 | 4.91E-06 | |

Age sensitivity factors (ASFs) take into account the increased sensitivity to carcinogens during early-in-life exposure (OEHHA 2015)

| | | Residential | Worker | |
|---|---|---|---|---|
| Chronic, non-cancer health effects | Reference Exposure Level (REL), Chronic Inhalation [ug/m3] : | 5.00E+00 | 5.00E+00 | Ref 1. |
| | Chronic Hazard Index : | 0.000122778 | 0.003273238 | |

Ref 1: OEHHA, 2023 - Table 1. CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES

Ref 2: SCAQMD, 2017 - Table 4.1 D (resid.) or Table 4.2 D (worker) in SCAQMD PERMIT APPLICATION PACKAGE “N” for use in conjunction with Risk Assessment Procedures (Version 8.1).

### Screening Level (SCAQMD, 2017), Cancer Burden Estimate

| | | | | |
|---|---|---|---|---|
| | | | 2.25 | km - radius of zone of impact, where > 1 in one million |
| Default worst-case population density | 7,000 ppl/km2 | | 15.9043 | km2 - area of zone, where > 1 in one million |
| | 4.57E-07 MICR | Cancer Burden : | 0.051 | = MICR * total residential population in the zone |

Ref: SCAQMD, 2017 - "INSTRUCTIONS FOR CALCULATING CANCER BURDEN" in RISK ASSESSMENT PROCEDURES for Rules 1401, 1401.1 and 212 (Version 8.1).

## Health Risk Assessment, Results Summary

### Exposure Period and Intake Rate Scenarios for Use in HARP2 RAST

Residential, Cancer - 30 yr. "RMP Using the Derived Method" w/ SCAQMD mandatory minimum pathways
Residential, Non-cancer - "OEHHA Derived Method”
Worker, Cancer - 25 yr. "OEHHA Derived Method”
Worker, Non-cancer - "OEHHA Derived Method”
Ref: SCAQMD, 2024. "AB 2588 and Rule 1402 Supplemental Guidelines" (September 2024, Table 7).

| Exposure Scenarios | | Residential | Worker |
|---|---|---|---|
| **ages : years** | | **DPM** (ug/m3) | **DPM** (ug/m3) |
| 3rd trim - one | Construction Emissions, year 1 | 0.00084 | 0.02232 |
| one - two | Construction Emissions, year 2 | 0.00067 | 0.01785 |
| 3 to end of exposure | Operation Emissions, opening year | 0.00061 | 0.01637 |

### Summary HARP, Ouput from RAST (Cancer Risk)

| INDEX | GRP1 | POLID | POLABBREV | CONC | RISK_SUM | SCENARIO | DETAILS | INH_RISK |
|---|---|---|---|---|---|---|---|---|
| *HARP - HRACalc v22118 12/22/2025 12:17:04 PM - Cancer Risk - Input File: C:\B_disp\3571.5-laxt\rast-dpm\Resid_y0_HRAInput.hra | | | | | | | | |
| 1 | Resid_y0 | 9901 | DieselExhPM | 0.00084 | 1.4939E-07 | 1YrCancerRMP_InhSoilDermMMilkCrops_FAH16to70 | * | 1.4939E-07 |
| *HARP - HRACalc v22118 12/22/2025 12:19:07 PM - Cancer Risk - Input File: C:\B_disp\3571.5-laxt\rast-dpm\Resid_y1_HRAInput.hra | | | | | | | | |
| 1 | Resid_y1 | 9901 | DieselExhPM | 6.70E-04 | 1.1005E-07 | 1YrCancerRMP_InhSoilDermMMilkCrops_FAH16to70 | * | 1.1005E-07 |
| *HARP - HRACalc v22118 12/22/2025 12:20:23 PM - Cancer Risk - Input File: C:\B_disp\3571.5-laxt\rast-dpm\Resid_y2_HRAInput.hra | | | | | | | | |
| 1 | Resid_y2 | 9901 | DieselExhPM | 6.10E-04 | 2.4534E-07 | 28YrCancerRMP_InhSoilDermMMilkCrops_FAH16to70 | * | 2.4534E-07 |
| | | | | Residential, Total Cancer Risk | 5.0478E-07 | | | |

*HARP - HRACalc v22118 12/22/2025 12:29:59 PM - Cancer Risk - Input File: C:\B_disp\3571.5-laxt\rast-dpm\Worker_HRAInput.hra

| INDEX | GRP1 | POLID | POLABBREV | CONC | RISK_SUM | SCENARIO | DETAILS | INH_RISK |
|---|---|---|---|---|---|---|---|---|
| 1 | Worker | 9901 | DieselExhPM | 0.02232 | 1.3814E-06 | 25YrCancerDerived_InhSoilDermMMilkCrops | * | 1.3814E-06 |

### Summary HARP, Ouput from RAST (Non-cancer Chronic Risk)

*HARP - HRACalc v22118 12/22/2025 12:17:04 PM - Chronic Risk - Input File: C:\B_disp\3571.5-laxt\rast-dpm\Resid_y0_HRAInput.hra

| INDEX | GRP1 | POLID | POLABBREV | CONC | SCENARIO | RESP |
|---|---|---|---|---|---|---|
| 1 | Resid_y0 | 9901 | DieselExhPM | 0.00084 | NonCancerChronicDerived_InhSoilDermMMilkCrops | 0.000168 |

*HARP - HRACalc v22118 12/22/2025 12:29:59 PM - Chronic Risk - Input File: C:\B_disp\3571.5-laxt\rast-dpm\Worker_HRAInput.hra

| INDEX | GRP1 | POLID | POLABBREV | CONC | SCENARIO | RESP |
|---|---|---|---|---|---|---|
| 1 | Worker | 9901 | DieselExhPM | 0.02232 | NonCancerChronicDerived_InhSoilDermMMilkCrops | 0.004464 |