SOIL TO AMBIENT AIR PATHWAY: PARAMETERS AND PARTICULATE EMISSION FACTOR INPUTS

Exposure Factors (ED, EF, ET)

Particulate Emission Factor

\[ \text{PEF} = \frac{(Q/C \times M)}{(E_v + E_w)} \]

Toxicity Values (IURF, ITSL)

Others: TR, HQ, RSC

Dispersion Factor (Q/C)

Emissions due to Wind Erosion (Ew)

Emissions due to Vehicular Traffic (Ev)

Modifiers (M)

Table of Q/Cs and Modifiers

Vegetative Cover (V)

F(x) Derived function

Mean vehicle speed

Silt content (%)

Length & area of unpaved road

Surface Material moisture

Vegetative Cover (V)

Wind speed (Umz); 90th percentile

Threshold friction velocity (Utadj)

Mean vehicle weight

No. of days with traffic

No. of days with 0.1 inch precipitation

AERMOD Dispersion model

2010 Met data

Q/C values (90th percentile)

Source Area size

Measurement height (10m)

Aggregate size mode

Average daily traffic

2005-10 Met data

Mean vehicle speed

2005-10 Met data
SOIL TO AMBIENT AIR PATHWAY: PARAMETERS AND VOLATILIZATION FACTOR INPUTS

VSIC

Exposure Factors (ED, EF, ET)

Volatilization Factor
PEF = (Q/C x M) / Jave

Toxicity Values (IURF, ITSL)

Others: TR, HQ, RSC

Dispersion Factor (Q/C)

Modifiers (M)

Q/C values (90th percentile)

Representative Monitoring Locations (2005-2010 Met data)

Table of Q/Cs and Modifiers

Source Area size

2010 Meteorological data

AERMOD Dispersion model

Flux, normalized average (Jave)

Dry soil bulk density

Diffusivities: air, water, apparent

Exposure time (t); ED in sec

Temperature Adjustment (TAF)

Porosities: Air, water, total

Solubility

Infinite source model

Finite source Model; site-specific

Source Area size

Table of Q/Cs and Modifiers

Dry soil bulk density

Diffusivities: air, water, apparent

Temperature Adjustment (TAF)

Porosities: Air, water, total

Solubility

Infinite source model

Finite source Model; site-specific

Organic carbon content (foc)

Organic carbon partition (Koc)

MDEQ – RD Cleanup Criteria Issue Group/DR