

## Results

The MKC stack was modeled as a continuous (steady-state) release using a one gram per second (g/s) emission rate. Each maximum hourly and annual average concentration predicted in this study has units of  $10E-6 \text{ s/m}^3$  and represents the stack's dilution factor at that receptor for a specific time period. The dilution factor is also known as  $\chi/Q$  (i.e. concentration  $\chi$  divided by emission rate  $Q$ ). Results from this study can be translated into pollutant-specific receptor concentrations (in  $\mu\text{g/m}^3$ ) by multiplying the each dilution factor by a pollutant-specific emission rate (in g/s). For example:

- (1 g/s pollutant emission rate) \* ( $185.7 \text{ } 10E-6\text{s/m}^3$ ) =  $185.7 \mu\text{g/m}^3$  pollutant concentration
- (10 g/s pollutant emission rate) \* ( $185.7 \text{ } 10E-6\text{s/m}^3$ ) =  $1,857 \mu\text{g/m}^3$  pollutant concentration

Contours of the ground level dilution factors were generated and overlaid onto aerial maps of the project site. Figure 5 displays the peak 1-hour dilution factor contours while Figure 6 displays the 5-year average dilution factor contours. See Table 3 and Figure 7 for a summary of the maximum dilution factors by averaging time and receptor flagpole height. Also, see Attachment #1 for the vertical profile dilution factors evaluated at the 35 locations along the project's S. Fair Oaks Avenue boundary.

**TABLE 3 Maximum 1-Hour and 5-Year Dilution Factors**

Averaging Time	Receptor Height (ft)	Dilution Factor ( $10E-6 \text{ s/m}^3$ )	Time of Peak *	Wind Speed (m/s) **	Wind Direction (deg) ***	Receptor Coordinate UTM X (m)	Receptor Coordinate UTM Y (m)	See Figure 7 Map Icon
1-Hour	0	185.7	11071905	0.7	278	309920	4774130	J
1-Hour	10	189.1	11071905	0.7	278	309920	4774130	J
1-Hour	20	161.0	11071905	0.7	278	309920	4774130	J
1-Hour	30	139.6	11073124	0.6	269	309920	4774140	K
1-Hour	40	141.0	11071905	0.7	278	309910	4774120	I
1-Hour	50	140.8	11071905	0.7	278	309900	4774120	H
1-Hour	60	143.7	11071905	0.7	278	309870	4774130	G
5-Year	0	6.2	-----	-----	-----	309710	4774160	A
5-Year	10	4.9	-----	-----	-----	309870	4774120	F
5-Year	20	4.2	-----	-----	-----	309920	4774130	J
5-Year	30	4.1	-----	-----	-----	309710	4774200	B
5-Year	40	4.8	-----	-----	-----	309720	4774250	E
5-Year	50	6.2	-----	-----	-----	309720	4774230	D
5-Year	60	8.6	-----	-----	-----	309720	4774210	C

\* Year, Month, Day, and Hour (YYMMDDHH) when the peak 1-hour impact occurs.

\*\* Wind speed from meteorological data corresponding to the YYMMDDHH when the peak 1-hour impact occurs.

\*\*\* Wind direction corresponding to the YYMMDDHH when the peak 1-hour impact occurs.

Wind direction indicates the direction which the wind is blowing from and is measured in degrees, clockwise, starting from the north (e.g. wind blowing from the north = 0 degrees, wind blowing from the east = 90 degrees, wind blowing the south = 180 degrees, and wind blowing from the west = 270 degrees).

Winds of 0.5 to 1.0 m/s from degrees 265-275 occur about 0.15% of the time.

Winds of 0.5 to 1.0 m/s from degrees 275-285 occur about 0.20% of the time.