LASSEN COUNTY AIR POLLUTION CONTROL DISTRICT

RULE 6:9 - AIR QUALITY IMPACT ANALYSIS

The following table is provided as a screening method to estimate the worst case air quality impact of carbon monoxide, particulate matter, oxides of sulfur and oxides of nitrogen of a proposed point source without the use of sophisticated modeling techniques. For oxidant, or where another source with unknown impact is being constructed in the affected area, or if the values obtained from this method approach the ambient air quality standards or increments established pursuant to this rule, modeling may be required at the discretion of the APCO to determine more precisely if a violation could occur. In such instances the models, data bases, and other requirements specified in EPA's Guidelines on Air Quality models (OAQPS 1.2080) must be used. The use of alternative models requires concurrence of the executive office of the ARB and the regional administrator of EPA.

The effective stack height should be calculated for use with the impact table. The effective stack height is the height of the proposed stack plus the expected plume rise. Since the plume rise may vary under different operating conditions, the table should be used with several projected effective stack heights to determine which would represent worst case conditions. If the proposed stack height is higher than is dictated by good engineering practices, the effective stack height for use with the impact table should be calculated as if the stack had been designed according to good engineering practices.

Using the impact table, determine the estimated downwind concentrations by reading the value which corresponds to the effective stack height and source strength of the proposed source. The table also provides the estimated distance from the source to the point of maximum ground level impact. If the precise effective stack height for the proposed source is not listed, interpolation can be used to determine the approximate downwind concentration.

Example - To determine the downwind concentrations attributable to a proposed source with an effective stack height of 45 meters and a source strength of 137 lb/hr;

1. Use 40 meter stack height
2. Source strength lies between max. 1 hr. concentrations values for 120 lb/hr = 1300 ug/m3 and 140 lb/hr = 120 lb/hr + 20 lb/hr = 1300 ug/m3 + 220 ug/m3 = 1520 ug/m3
3. Interpolate

$$x_{ug/m^3} = (1520 - 1300) \times \frac{(137 - 120)}{140 - 120} + 1300$$

= 1478 ug/m3 (this estimated maximum one-hour concentration for the proposed 137 lb/hr source is to be added to ambient concentration levels).
Values for maximum concentrations for 3 hour, 8 hour, and 24 hour may be obtained by multiplying the 1 hour concentrations by following factors: 3 hour = O.9; 8 hr = 0.8; 24 hr = 0.4.

WORST CASE ESTIMATES OF POINT SOURCE AIR QUALITY

IMPACTS

Stack Height (m)	**Downwind Distances to Maximum Estimated Concentration (m)**	**ESTIMATE MAXIMUM ONE-HOUR CONCENTRATIONS ($\mu g/m^3$)**					
		SOURCE STRENGTH					
.	.	**5 lb/hr**	**10 lb/hr**	**20 lb/hr**	**40 lb/hr**	**80 lb/hr**	**120 lb/hr**
5	<100	3150	6300	12800	25200	50400	75700
10	100	945	1890	3840	7560	15120	22700
15	150	380	760	1530	3020	6040	9080
20	200	220	440	900	1760	3530	5300
30	300	90	190	380	760	1510	2270
40	200 to 400	50	110	220	430	870	1300
50	250 to 450	40	70	150	290	580	880
70	350	20	40	80	170	330	500
100	450	10	20	40	90	190	290