Computer simulated versus observed NO2 and SO2 emitted from elevated point source complex

Abstract

ISC-AERMOD dispersion model was used to predict air dispersion plumes from an diesel power plant complex. Emissions of NO2 and SO2 from stacks (5 numbers) and a waste oil incinerator were studied to evaluate the pollutant dispersion patterns and the risk of nearby population. Emission source strengths from the individual point sources were also evaluated to determine the sources of significant attribution. Results demonstrated the dispersions of pollutants were influenced by the dominant easterly wind direction with the cumulative maximum ground level concentrations of 589.86 μg/m(3) (1 h TWA NO2) and 479.26 μg/m(3) (1 h TWA SO2). Model performance evaluation by comparing the predicted concentrations with observed values at ten locations for the individual air pollutants using rigorous statistical procedures were found to be in good agreement. Among all the emission sources within the facility complex, SESB-Power (diesel power plant) had been singled out as a significant source of emission that contributed >85% of the total pollutants emitted.