

Impact of Applying Bag House Filter Technology in Cement Industry on Ambient Air Quality - Case Study: Alexandria Cement Company

Authors : Haggag H. Mohamed, Ghatass F. Zekry, Shalaby A. Elsayed

Abstract : Most sources of air pollution in Egypt are of anthropogenic origin. Alexandria Governorate is located at north of Egypt. The main contributing sectors of air pollution in Alexandria are industry, transportation and area source due to human activities. Alexandria includes more than 40% of the industrial activities in Egypt. Cement manufacture contributes a significant amount to the particulate pollution load. Alexandria Portland Cement Company (APCC) surrounding was selected to be the study area. APCC main kiln stack Total Suspended Particulate (TSP) continuous monitoring data was collected for assessment of dust emission control technology. Electro Static Precipitator (ESP) was fixed on the cement kiln since 2002. The collected data of TSP for first quarter of 2012 was compared to that one in first quarter of 2013 after installation of new bag house filter. In the present study, based on these monitoring data and metrological data a detailed air dispersion modeling investigation was carried out using the Industrial Source Complex Short Term model (ISC3-ST) to find out the impact of applying new bag house filter control technology on the neighborhood ambient air quality. The model results show a drastic reduction of the ambient TSP hourly average concentration from 44.94 $\mu\text{g}/\text{m}^3$ to 5.78 $\mu\text{g}/\text{m}^3$ which assures the huge positive impact on the ambient air quality by applying bag house filter technology on APCC cement kiln

Keywords : air pollution modeling, ambient air quality, baghouse filter, cement industry

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