AN ON-LINE FUGITIVE DUST MONITORING NETWORK

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Fugitive dust emissions from coal and iron ore storage and handling sites may cause nuisance in residential areas, due to dust deposition, and add to the PM10 dust concentration. To reduce the dust emissions and to minimise these environmental effects, a co-operation was established between the Environmental Protection Agency Rijnmond and the dry bulk terminals EECV and EMO, in order to install an on-line fugitive dust-monitoring network. Dust is continuously measured at six locations around both terminals. A method has been developed to estimate the hourly dust emission rate of the terminals, using the measured dust concentrations, the actual weather conditions (wind direction, wind speed) and a dust dispersion model (reverse dispersion modelling). Thus, the terminals are able to monitor their fugitive dust emissions on-line and to take adequate measures when the emission rate is increased. Every three months, the collected data are analysed in more detail to investigate the course in time of the fugitive dust emissions and the performance of the terminals. Correlations between emission rates and weather conditions (rain, wind speed) or industrial activities (unloading ships, traffic, conveyors) reveal the characteristics of the dust sources and the effectiveness of the dust reduction measures. This project was started in 2003 and will last for at least five years. When the results are successful it will be continued. This paper presents the layout of the monitoring network, the choice of dust samplers, the method to estimate the dust emission rates and the results obtained by now.