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Assessment of Gaseous and Particulate Pollutants in the Ambient Air in Al Mirfa City, United Arab Emirates

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ABSTRACT

From 2007-2009, National Energy and Water Research Center (NEWRC) on behalf of Abu Dhabi Water and Electricity Authority (ADWEA) conducted a long term baseline study of nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), ozone (O_3) and particulate matter <10 μm in diameter (PM10) using ambient air quality station located in the vicinity of Al Mirfa power plant in Abu Dhabi, United Arab Emirates (UAE).The objective of this study was to establish baseline levels and study the behavior of airborne pollutants from natural as well as anthropogenic origins with temporal variations. The study reveals that the average hourly values for NO_2, SO_2, and 8 hour average of CO were within the acceptable levels of 400, 300 and 30,000 μg/m^3 respectively, whereas the levels of O_3 as 8 hour average (<200 μg/Nm^3) and PM10 (<150 μg/Nm^3) occasionally exceeded the FEA permissible limits during the study period. Seasonal variation based on three years data reveals that the highest concentration of NO_2 and SO_2 were during winter and for CO and O_3 during summer months. Results indicate that the levels of SO_2 and CO were significantly controlled and improved while the fuel combustion of Al Mirfa power plant had increased from 2007 to 2009. Dust has significantly impact on the air quality by elevated levels of PM10 exceed in several instances associated with regional sand- storm during the monitoring period.

KEYWORDS

Ambient Air Quality Monitoring; Seasonal Variations; Sandstorm

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