



Title: Impact of Green House Gases (GHG) Emissions from Oil Production Facilities at Northern Kuwait Oilfields: Simulated Results

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Abstract: Air pollution and its effects on the ecosystem has been a source of concern for many environmental pollution organizations in the world. In particular climatologists who are not directly involved in petroleum industry sometimes express concerns about the environmental impacts of gaseous emissions from flaring at various despised points. For environmental and resource conservation reasons, flaring should always be minimized as much as practicable and be consistent with safety considerations. However, any level of flaring has a local environmental impact, as well as producing emissions which have the potential to contribute to the global warming. In this study the Industrial Source Complex (ISCST3) Dispersion Model is used to calculate the ground level concentrations of two selected primary pollutants (i.e. methane and non-methane hydrocarbons) emitted from flaring activities at oil production facilities at North Kuwait. Model validation is based on the comparison of the 50 highest daily measured values and their respective predicted concentrations of methane and non-methane hydrocarbons. At discrete receptors, it is noticed that the predicted values are in good agreement with the observed data (accuracy range of 60-90%) from the monitoring stations maintained by the Kuwait Environmental Public Authority (EPA). The predicted results are based on emission inventories. Therefore, accurate emission inventory strategy for Kuwait Oil Company (KOC) as means of monitoring and minimizing the impact of methane and non-methane hydrocarbons emissions is of prime importance.