

Environmental Impact of Gas Field Decommissioning

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Abstract : The effective decommissioning of oil and gas fields and related assets is one of the most important challenges facing the oil and gas industry today and in the future. Decommissioning decisions can no longer be avoided by the operators and the industry as a whole. Decommissioning yields no return on investment and carries significant regulatory liabilities. The main objective of this paper is to provide an approach and mechanism for the estimation of emissions associated with decommissioning of Oil and Gas fields. The model uses gate to gate approach and considers field life from development phase up to asset end life. The model incorporates decommissioning processes which includes; well plugging, plant dismantling, wellhead, and pipeline dismantling, cutting and temporary fabrication, new manufacturing from raw material and recycling of metals. The results of the GHG emissions during decommissioning phase are 2.31×10^{-2} Kg CO₂ Eq. per Mcf of the produced natural gas. Well plug and abandonment evolved to be the most GHG emitting activity with 84.7% of total field decommissioning operational emissions.

Keywords : LCA (life cycle analysis), gas field, decommissioning, emissions

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