Characterisation of Offshore Drill-Cuttings for Simulation Purposes

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ABSTRACT

Several models exist to predict the dispersion of drill-cuttings from offshore installations in the North-Sea. The sensitivity of one of these models to oceanographic data and drill-cuttings characteristics has been tested. Questions about the relevance of the required input data have arisen. A better knowledge of drill-cuttings characteristics would result in more accuracy and appropriateness of the input data and therefore of the output data. Some correlations between drilling procedures and drill-cuttings characteristics can be obtained from historical data, surveys on new wells and laboratory experiments.

KEY WORDS: Dispersion, Drill-Cuttings, North Sea, Correlations.

INTRODUCTION

In 1995, the oil and gas industry was allowed to release into the marine environment the following operational wastes: produced water, water-based drilling muds (WBM), cuttings (from both WBM and oil-based drilling-based (OBM) applications - with certain requirements), ballast, bilge, and storage water, sanitary and food wastes, deck drainage, produced sand, well treatment fluids, cooling water, desalination water, and other wastes and residues. The predominant environmental concerns over offshore oil and gas operations have centred on the impacts of hydrocarbons on the benthic environment. The effects of discharges of particulate drill wastes- drill muds and cuttings- typically have been viewed within the framework of their effects on benthic communities, either through physical impacts (burial, smothering) or chemical toxicities (Carles, 1997).

Figure 1: Separation of material into an upper and lower plume (Littleton, 1986).