O-lay; A New Technology Concept in a Traditional Industry

Jan G. Buijvoets
Industrial Innovations,
Hengelo, Overijssel, the Netherlands

ABSTRACT

This paper is aimed at the leaders and managers of the offshore oil and gas pipeline industry. It is about the concept of the O-lay offshore pipeline installation technique and how it can affect the future of offshore pipeline installation.

The main difference between the new, state of the art, O-lay technique and the traditional systems is that the total length of the pipe is welded and tested onshore at a site near the waterfront and that the pipeline, after it is coated according its specifications, will be transported in a huge floating, single layer, flat spiral to the location where it will be installed.

The goal of the paper is to encourage the industry to embrace new technologies and develop them further to make the offshore industry as innovative as it can be.

KEYWORDS:
Offshore; pipeline; installation; O-lay; deep water; shallow water; disruptive innovation

INTRODUCTION

This paper will provide the reader some insight of a new concept to install pipelines for the oil and gas industry in deep and shallow waters.

The method of O-lay pipeline installation is originally developed specially for small offshore oil and gas fields for which the exploitation and especially the installation of pipelines is too expensive with the current pipeline installation methods. During the development of the method it became clear that the method is very efficient and effective for almost any pipeline installation under 32”.

With the O-lay installation method it is possible to use concrete weight coating around the pipe due to specific characteristics of concrete.

The deep water operation and the possibility to prepare and construct the insulated “Pipe in Pipe” on an onshore location has several advantages compared to the preparation being done offshore and gives a lot of timesaving during offshore operations.

For shallow waters the method has many advantages For waters of several meters of depth, sometimes even as low as 50 centimeters the O-lay method can be used.

Several tests in laboratory and under real conditions have shown that the method described is feasible for pipelines of all diameters. However, because of some practical restrictions, pipelines with diameters above 32 inch are not considered to be installed with the O-lay method at this moment.

O-LAY, OFFSHORE PIPELINE INSTALLATION

The O-lay method is a combination of some already known technologies like S-lay with some new ideas. The enormous advantage of the system is that pipe is not being constructed and welded on a lay barge at the position where the pipe will be lowered on the seabed.

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