



Exploration & Production

GENERAL SPECIFICATION

GEOMATICS

GS EP POS 006

Deep Water Rig Positioning

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1. Scope

The objective of this Specification is to ensure that the positioning requirements of Company during deep water drilling operations are met. The drilling unit could be a DP or an Anchoring Unit.

This Specification is to be used in conjunction with the other documents referred to in section 2 and section Bibliography, especially with Company Specification for the offshore surface and subsea positioning works.

This Specification is designed to be complementary to the project Scope of Work which outlines the nature and the requirements of the entire project. It shall be incorporated in any project (involving drilling operations) documentation and provided to bidders during the call for tender phase.

Additionally the objective of this Specification is to provide reliable three-dimensional underwater and surface positioning for deepwater drilling operations conducted by Contractor.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

All documents referred to in this section shall be considered as the latest versions and it shall be Contractor responsibility to ensure that Contractor is in possession of these particular documents and that any qualifications are valid.

Standards

Reference	Title
ISO/TS 29001: 2010	Quality management system requirements for the design, development, production, installation and service of products for the petroleum, petrochemical and natural gas industries, based on ISO 9001:2010

Professional Documents

Reference	Title
IMCA M 103 UKOOA Guidelines	Guidelines Design & Operation of Dynamically Positioned Vessels Guidelines for the Measurement of Quality and Basic Quality Control of Offshore Positioning Data published by the UKOOA Survey and Positioning Committee, June 1992



Reference	Title
UKOOA Guidelines	Guidelines for the Use of Differential G.P.S. in Offshore Positioning published by the UKOOA Survey and Positioning Committee, September 1994
UKOOA P2/94	Recommended format for recording of raw offshore navigation data which is an extension of the existing P2/91 format with additional records for raw GPS data and associated pseudo-range corrections

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP POS 001	Offshore surface positioning works
GS EP POS 002	Subsea positioning works

3. Scope of work

Positioning of a Drilling Unit in deep water is not a standard task; it requires a thorough preparation phase and a good cooperation with DRILLING Contractor.

Surface positioning is not only part of the requirement, as in water depth greater than five hundred meters (500 m) it is not realistic to position rigs over targets using only surface positioning. In deepwater, the assumption that the sea surface position of the top of the string through the moon pool (Rotary Table Center) and the position on the sea bottom (True Well position) are the same is no longer valid. This method may be adopted in case of contingency



only. The discrepancy between both positions may reach several tenths of metres depending on the depth as well as on the prevailing currents.

In deepwater it becomes mandatory to use fully calibrated acoustic positioning systems.

Drilling Units are currently equipped with very powerful USBL/LBL (so called L/USBL) or SBL/LBL (so called LSBL) systems which can be used when calibrated, for accurate positioning.

Most of the time and when possible the Drilling Unit Acoustic reference systems shall be used.

Due to the fact that reference systems are more dedicated to station-keeping than to accurate positioning, a detailed audit of all positioning references and parameters used by DP system has to be performed and reported.

In the case of semi-submersible units the anchor laying vessels shall be positioned using either RGPS (Relative Global Positioning System) or DGPS. In either case the positions of the vessels in both co-ordinate and visual form shall be transmitted to both anchor handling vessels and the offshore unit. The laser systems shall be used at the discretion of Company Representative.

In some cases the underwater positioning system may be provided by an UNDERWATER POSITIONING Contractor and the surface positioning by another POSITIONING Contractor

Responsibilities regarding positioning of the Drilling Unit and the well head shall be clearly defined prior to the beginning of the operations.

From this point the term Contractor is used independently of the task which has to be done.

Contractor shall carry out all surface and subsurface positioning tasks of the project on a highly professional manner, in accordance with industry standard, current surveying practice and to the satisfaction of the Company.

Contractor shall carry-out all surface and subsurface positioning tasks with fully qualified personnel and state of the art equipment, fully calibrated and in perfect working order. Contractor shall retain its equipment and personnel for the exclusive use of Company for the duration of the positioning operations of the drilling unit.

Contractor shall ensure that all specified underwater navigation, surface and subsurface positioning equipment including computer hardware and software are installed, calibrated and operational. The positioning work shall only commence with all systems fully calibrated and properly functioning.

The Contractor shall supply the surface and subsurface positioning systems, providing the required information with sufficient redundancy and quality control output, in order to ensure that positioning is within the required accuracy.

The Contractor shall supply equipment with full back-up, unless otherwise specified.

3.1 Geodetic system

The Project Geodetic system to be used shall be specified by Company by means of an official Company geodetic system data sheet including an example of coordinates transformation.

All geodetic data, spheroid and projection parameters, datum shift values shall be input in the navigation or DP system, verified and submitted for approval of the Company representative before the start of the operation