

GENERAL SPECIFICATION

SUBSEA SYSTEMS

GS EP SPS 047

AUV Spread Minimum Requirements
--

00	11/2017	First issue
Rev.	Date	Purpose of the revision

Owning entity: DSO/IP/TEC	Managing entity: DSO/IP/TEC/SBS
Other Approving entity(ies):	

General Specification		GS EP SPS 047
AUV Spread Minimum Requirements		
Rev.: 00	Effective date: 11/2017	Page: 2 of 20

Contents

1. Scope	4
2. Reference documents	4
3. Definitions and Abbreviations	5
3.1 Abbreviations	5
4. Material Requirements	6
4.1 General Requirements	6
4.2 Mission Planning & Monitoring	7
4.3 Launch and Recovery System	8
4.4 AUV Minimum Requirements	8
4.5 AUV Battery Minimum Specification	12
4.6 Storage / Garage Container	12
4.7 CTD sensor c/w LARS	13
4.8 Acoustic fish LARS	13
4.9 Operational Limitations	14
5. Equipment Certification & Maintenance Requirements	14
5.1 General Requirement	14
5.2 Pre and Post Mission Procedures and Checks	14
5.3 Planned and Periodic Maintenance	15
5.4 Spare parts	15
5.5 Equipment Register	15
5.6 Log Books	15
5.7 System Documentation	16
6. Interfaces	16
6.1 Interfaces with Company Provided Vessel	16
6.2 Contractor Provided Vessel	17
7. Personnel Requirements	17
7.1 General	17
7.2 Team Size	18



General Specification		GS EP SPS 047
AUV Spread Minimum Requirements		
Rev.: 00	Effective date: 11/2017	Page: 3 of 20

7.3	Working Periods.....	18
7.4	Training.....	18
	Bibliography.....	20

General Specification		GS EP SPS 047
AUV Spread Minimum Requirements		
Rev.: 00	Effective date: 11/2017	Page: 4 of 20

1. Scope

The purpose of this General Specification is to define the minimum requirements for each AUV spread, equipment and personnel, to be installed on any offshore installation for the following applications:

- Inspection
- Seabed Mapping
- Survey.

Contractor shall comply with the requirements which is needed to fulfil the above applications as per the following GSs:

- [GS EP GEO 201](#)
- [GS EP GEO 202](#)
- [GS EP GEO 203](#)
- [GS EP GEO 204](#).

The intent of this GS is to allow sufficient flexibility to maximize the benefits from Contractor's experience and designs.

Contractor shall use field proven equipment and sensors, any new equipment / sensors with limited track record shall be approved by Company.

It is the Contractor's responsibility to provide a safe and technically fit for purpose AUV spread.

This GS shall be complementary to project particular specification (PPS) or Scope of Work where further requirements shall be addressed such as (specific payload equipment - operations mode - reporting - deliverables data format - etc.).

This GS doesn't cover shore Launch AUV systems, and shallow water AUV systems, also known as low logistics AUV, which is launched manually from shallow draft boats.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
EN 12079 (Parts 1; 2; 3)	Offshore containers and associated lifting sets - Parts 1; 2; 3

General Specification		GS EP SPS 047
AUV Spread Minimum Requirements		
Rev.: 00	Effective date: 11/2017	Page: 5 of 20

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published.

Reference	Title
GS EP GEO 110	Requirements for Offshore Survey Vessels
GS EP GEO 201	Offshore Geophysical Site Investigation
GS EP GEO 202	ROV Survey Work for the Installation and/or the Inspection of Offshore Structures and Flowlines
GS EP GEO 203	Geophysical survey for offshore pipeline inspection
GS EP GEO 204	Geophysical debris survey
GS EP POS 001	Offshore surface positioning works
GS EP POS 002	Subsea positioning works
GS EP POS 004	The use of Differential Global Navigation Satellite System
GS EP POS 009	Positioning representatives

3. Definitions and Abbreviations

For the purpose of this document, the following terms and definitions apply:

AUV Spread	A complete AUV system including all equipment, spare parts, consumables and dedicated personnel.
Service	Means all activities to be performed by Contractor under the Contract, which include the provision by Contractor of Equipment, Contractor's Personnel, and project data deliverables.
Site	Means any location where Contractor shall perform the Service.
Company	TOTAL E&P and/or its affiliates
Contractor	AUV Service Provider

3.1 Abbreviations

AC	Air Condition
AUV	Autonomous Underwater Vehicle
BOSIET	Basic Offshore Safety Induction and Emergency Training
CTD	Conductivity, Temperature, Density
DP	Dynamic Positioning
DVL	Doppler Velocity Logger
FRC	Fast Rescue Craft

General Specification		GS EP SPS 047
AUV Spread Minimum Requirements		
Rev.: 00	Effective date: 11/2017	Page: 6 of 20

FOV	Field Of View
GA	General Arrangements
GPS	Global Positioning System
GS	General Specifications
HPU	Hydraulic Power Unit
HUET	Helicopter Underwater Escape Training
IMU	Inertia Motion unit
INS	Inertia Navigation System
LAN	local-area network
LARS	Launch and Recovery System
LED	Light-Emitting Diode
MBES	Multi Beam Echo Sounder
MCM	Mission Control & Monitoring
MSDS	Material Safety Data Sheet
OAS	Obstacle Avoidance Sonar
RF	Radio Frequency
SAS	Synthetic Aperture Sonar
SPS	Subsea Production Systems
UPS	Uninterrupted Power Supply
USBL	Ultra-short Baseline Acoustics system
VHF	Very High frequency

4. Material Requirements

4.1 General Requirements

All the AUV equipment and sensors shall be certified to work on the scope of work depth.

All the AUV system shall be able to:

- Navigate from surface to depth, follow a pre-programmed 3D mission line pattern in the real world and return to surface with a reasonable accuracy
- Find its way from surface to pre-programmed start point / end point, and then back to surface
- Follow 3D mission plan
- Maintain constant height (within .5 meters accuracy)
- Maintain constant heading (within 5 degrees accuracy)