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	AREA: ATAPU 2 AND SÉPIA 2								
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**TECHNICAL SPECIFICATION**

Nº I-ET-3010.2D-1200-91A-P4X-001

REV. 0

ATAPU 2 AND SÉPIA 2

FOLHA 2 de 7

TITLE:

**REQUIREMENTS FOR OPERATION AND  
MAINTENANCE MANUALS AND DATABOOKS**

INTERNAL

ESUP

## SUMMARY

<b>1</b>	<b>INTRODUCTION .....</b>	<b>3</b>
<b>2</b>	<b>REFERENCE DOCUMENTS.....</b>	<b>3</b>
<b>3</b>	<b>SCOPE OF SUPPLY .....</b>	<b>3</b>
<b>3.1</b>	<b>AS BUILT DOCUMENTS .....</b>	<b>3</b>
<b>3.2</b>	<b>Data Books .....</b>	<b>3</b>

## 1 INTRODUCTION

This technical specification describes all requirements related to operation and maintenance manuals and databooks for all FPSO operation systems subject of this contract.

This technical specification summarizes and complements what is referred or required in exhibits of contract.

SELLER shall forward this technical specification for all equipment/packages and system suppliers in order to give them knowledge of all requirements related to operation and maintenance manuals and databooks associated to their scope of supply.

## 2 REFERENCE DOCUMENTS

Exhibit I - SCOPE OF SUPPLY

Exhibit III - DIRECTIVES FOR ENGINEERING EXECUTION

Exhibit IV - DIRECTIVES FOR CONSTRUCTION AND ASSEMBLY

Exhibit V - DIRECTIVES FOR PROCUREMENT

Exhibit VIII - DIRECTIVES FOR COMMISSIONING

Exhibit XV - DIRECTIVES FOR FPSO CLASSIFICATION

## 3 SCOPE OF SUPPLY

### 3.1 AS BUILT DOCUMENTS

SELLER shall delivery the as-built documentation in a Data Book format approved by BUYER.

### 3.2 Data Books

For general documentation for all FPSO Design, SELLER shall issue to BUYER's approval the complete Data Books including the documents / registers as the following basic organization:

- Part I – FPSO Unit Operation Manuals and Certificates
- Part II – Engineering Data Book – including final as-built documents dully stamped by Classification Society, where applicable
- Part III – Vendors Data Books
- Part IV – NR12 according to I-ET-3010.00-1200-970-P4X-012 - COMPLIANCE WITH NR-12 REQUIREMENTS and NR-13 according to I-ET-3010.00-1200-970-P4X-013 - COMPLIANCE WITH NR-13 AND SPIE REQUIREMENTS
- Part V – Construction Data Book

- Part VI – Commissioning Data Books/Folders
- Part VII – NR-10 dossiers

Weight limit, maximum dimensions, drawings, documents, advanced instruction, maintenance, operation and installations manuals shall be presented in Brazilian Portuguese language.

### 3.2.1 Part I- FPSO Unit Operation Manuals and Documents

The FPSO Operation Manuals shall be organized as the following:

➤ Section I- Plant Operation Manuals:

Plant Operation Manuals shall be organized as the following:

- Process Systems
- Naval Systems
- Safety Systems

Plant Operation Manuals shall present, as minimum:

- General and detailed functional plant and systems description, features, characteristics, and specifications.
- Plant and systems start-up procedures;
- Main operational parameters monitoring (cause & effect matrix alarms and trips),
- Emergency and normal shut-down procedures and cautions.
- Protection parameters settings and safety limits

➤ Section II- FPSO Unit Documents

All FPSO Unit Documents as per EXHIBIT I – SCOPE OF SUPPLY Item 1.5.6.1 Interface Communication- shall be listed in Part I- Section II

### 3.2.2 Part II- Engineering Data Book

Engineering Data Book requirements and Format Standard shall be according EXHIBIT III DIRECTIVES FOR ENGINEERING EXECUTION item 8.19 and 8.20.

### 3.2.3 Part III- Vendors Data Books

Vendors Data Book shall be according to EXHIBIT III – DIRECTIVES FOR ENGINEERING EXECUTION item 8.19, 8.20 and 8.21, and EXHIBIT V DIRECTIVES FOR PROCUREMENT item 3.4 Vendor Documentation.

The basic organization of all Vendors Data Books shall be according to:

**REQUIREMENTS FOR OPERATION AND  
MAINTENANCE MANUALS AND DATABOOKS**

INTERNAL

ESUP

- Section 1- Engineering Documents
- Section 2- Section II – Operation & Maintenance Manual, Instruction for Installation, Preservation and Commissioning
- Section 3 – Certificates Quality Manual, comprising Material Certificates, Tests and Procedures, Weld and NDT reports and traceability
- Section 4 – Vendor NR-13 Data Book
- Section 5 – Vendor NR-10 Data Book

### 3.2.3.1 Section 1 – Engineering Documents

Section 1 shall be according to EXHIBIT V DIRECTIVES FOR PROCUREMENT item 3.4.2.2.

### 3.2.3.2 Section 2 – Operation & Maintenance Manual, Instruction for Installation, Preservation and Commissioning

Section 2 shall be according to EXHIBIT V DIRECTIVES FOR PROCUREMENT item 3.4.2.3.

The following is the minimum content for each Vendor skid/package Operation & Maintenance Manual:

- ✓ General and detailed functional equipment and systems description, features and lay-out presentation,
- ✓ System/ Equipment start-up procedures and cautions,
- ✓ Operational parameters monitoring (cause & effect matrix alarms and trips),
- ✓ Emergency and normal shut-down procedures and cautions,
- ✓ Operational routines and checking, troubleshooting, and maintenance.
- ✓ Preventive maintenance activities schedule, procedures, applicable consumables, tools and cautions,
- ✓ Corrective maintenance assembly and dismantle procedures, torques, adjustments and gaps, applicable consumables, tools and cautions,
- ✓ Recommended and complete spare parts and consumables list.
- ✓ Instruction for Installation, Preservation and Commissioning;
- ✓ Protection parameters settings and safety limits
- ✓ Procedures for handling and disposal of parts and wastes

3.2.3.3 Section 3 – Certificates Quality Manual, comprising Material Certificates, Tests and Procedures, Weld and NDT reports and traceability.

Section 3 shall be according to

- EXHIBIT V DIRECTIVES FOR PROCUREMENT item 3.4.2.4,
- EXHIBIT V DIRECTIVES FOR PROCUREMENT Appendix II - GENERAL SURVEY INSPECTION REQUIREMENTS item 3.1;
- Exhibit VII – DIRECTIVES FOR QUALITY ASSURANCE SYSTEM.

3.2.3.4 Section 4 – Vendor NR-13 Data Book

Section 4 shall be according EXHIBIT V DIRECTIVES FOR PROCUREMENT 3.4.2.5.

SELLER shall comply with all requirements of I-ET-3010.00.1200-970-P4X-012 COMPLIANCE WITH NR-12 REQUIREMENTS and I-ET-3010.00-1200-970-P4X-013 - COMPLIANCE WITH NR-13 AND SPIE REQUIREMENTS, related to NR-13 and Dossiers data that shall be provided by vendors.

3.2.3.5 Section 5 – Vendor NR-10 Data Book

Section 5 shall be according EXHIBIT V DIRECTIVES FOR PROCUREMENT 3.4.2.6, and I-ET-3010.00-5140-700-P4X-001 - SPECIFICATION FOR ELECTRICAL DESIGN FOR OFFSHORE UNITS

3.2.4 Part IV – NR-13 and Documentation for compliance with regulatory agencies and Classification Society, with stamp of approval of the Classification Society.

SELLER shall comply with I-ET-3010.00-1200-970-P4X-012 - COMPLIANCE WITH NR-12 REQUIREMENTS and I-ET-3010.00-1200-970-P4X-013 - COMPLIANCE WITH NR-13 AND SPIE REQUIREMENTS.

NR-13 Dossiers shall be archived on UNIT's library.

3.2.5 Part V – Construction Data Book

Construction Data Book shall be according to item 9 CONSTRUCTION AND ASSEMBLY, SELLER shall issue construction and assembly data-books, to be delivered to BUYER.

### 3.2.6 Part VI – Commissioning Data Books/Folders

SELLER shall provide all System and Sub-systems (SOP/SSOP) Commissioning Data Books/Folders according to EXHIBIT VIII DIRECTIVES FOR COMMISSIONING.

These Systems and Sub-systems (SOP/SSOP) Commissioning Data Books/Folders are collection of commissioning document used during all Commissioning Phase, includes all necessary documentation, lists, information to allow inspections, tests, checks, during Pre-Commissioning and Commissioning activities. These folders are deliverable products of the Commissioning and shall be prepared by the SELLER and transferred together with the Subsystem (SSOP) for BUYER.

### 3.2.7 Part VII- NR-10 dossiers

In NR-10 Dossiers, SELLER shall provide and list, per operation system/sub-system, all documents required to comply with NR-10 and I-ET-3010.00-5140-700-P4X-001 - SPECIFICATION FOR ELECTRICAL DESIGN FOR OFFSHORE UNITS requirements, as, but not only:

- a) the as-built electric diagrams,
- b) electric equipment and material inspection certificates, including commissioning activities, applied in hazardous and classified area;
- c) specifications and measurements of the lightning protection system and electrical grounds.
- d) Emergency procedures
- e) set of health and safety procedures and instructions related to electric equipment and system;
- f) test certificates of electric insulation of personal and collective protective equipment and tools ;

All NR-10 inspections related to Operation System and Subsystem shall be completed and reports shall be presented, including Ex Certificates when applicable.