

 PETROBRAS E&P	TECHNICAL SPECIFICATION		N°: I-ET-3010.2Q-1200-91A-P4X-001				
	CLIENT: AGP			SHEET: 1 of 6			
	JOB: BASIC PROJECT - REVIT I						
	AREA: MLL/MLS						
		TITLE: REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS AND DATABOOKS		UN-BC			
				INTERNAL			
I-ET-3010.2Q-1200-91A-P4X-001_0.DOCX							
INDEX OF REVISION							
REV.	DESCRIPTION AND/OR REVISED SHEETS						
0	ORIGINAL						
		REV. 0	REV. A	REV. B	REV. C	REV. D	REV. E
DATE		APR/24/24					
EXECUTION		CMMJ					
CHECK		URK8					
APPROVAL		PDLI					
THE INFORMATION CONTAINED IN THIS DOCUMENT IS PETROBRAS' PROPERTY AND MAY NOT BE USED FOR PURPOSES OTHER THAN THOSE SPECIFICALLY INDICATED HEREIN. THIS FORM IS PART OF PETROBRAS' NI-381-REV.M.							

ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.	TECHNICAL SPECIFICATION	I-ET-3010.2Q-1200-91A-P4X-001	REV.: 0
	AGP		SHEET 2 of 6
	TITLE: REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS AND DATABOOKS		ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA. ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.

1. INTRODUCTION.....	3
2. REFERENCE DOCUMENTS	3
3. SCOPE OF SUPPLY.....	3
3.1. AS BUILT documents	3
3.2. Data Books	3
3.2.1. Part I- FPSO Unit Operation Manuals and Documents	3
3.2.2. Part II- Engineering Data Book	4
3.2.3. Part III- Vendors Data Books	4
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.	5
3.2.5. Part V – Construction Data Book	5
3.2.6. Part VI – Commissioning Data Books/Folders	5
3.2.7. Part VII- NR-10 dossiers.....	5
3.2.8. Part VIII - NR-37 – Compliance with NR-37 Requirements.....	6

ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.	TECHNICAL SPECIFICATION	I-ET-3010.2Q-1200-91A-P4X-001	REV.: 0
	AGP		SHEET 3 of 6
	TITLE: REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS AND DATABOOKS		ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA. ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.

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
- Part VIII – NR-37 - COMPLIANCE WITH NR-37 REQUIREMENTS

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:

ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.	TECHNICAL SPECIFICATION	I-ET-3010.2Q-1200-91A-P4X-001	REV.: 0
	AGP		SHEET 4 of 6
	TITLE: REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS AND DATABOOKS		ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA. ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.
<div><ul style="list-style-type: none">○ Process Systems○ Naval Systems○ Safety Systems<p>Plant Operation Manuals shall present, as minimum:</p><ul style="list-style-type: none">○ 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<ul style="list-style-type: none">● Section II- FPSO Unit Documents<p>All FPSO Unit Documents as per EXHIBIT I – SCOPE OF SUPPLY - shall be listed in Part I- Section II</p><p>3.2.2. Part II- Engineering Data Book</p><p>Engineering Data Book requirements and Format Standard shall be according EXHIBIT III DIRECTIVES FOR ENGINEERING EXECUTION</p><p>3.2.3. Part III- Vendors Data Books</p><p>Vendors Data Book shall be according to EXHIBIT III – DIRECTIVES FOR ENGINEERING EXECUTION, and EXHIBIT V DIRECTIVES FOR PROCUREMENT.</p><p>The basic organization of all Vendors Data Books shall be according to:</p><ul style="list-style-type: none">● 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<p>3.2.3.1. Section 1 – Engineering Documents</p><p>Section 1 shall be according to EXHIBIT V DIRECTIVES FOR PROCUREMENT</p><p>Section 2 – Operation & Maintenance Manual, Instruction for Installation, Preservation and Commissioning</p><p>Section 2 shall be according to EXHIBIT V DIRECTIVES FOR PROCUREMENT</p><p>The following is the minimum content for each Vendor skid/package Operation & Maintenance Manual:</p><ul style="list-style-type: none">● 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,</div>			

ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.	TECHNICAL SPECIFICATION	I-ET-3010.2Q-1200-91A-P4X-001	REV.: 0
	AGP		SHEET 5 of 6
	TITLE: REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS AND DATABOOKS		ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA. ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.
<div><ul style="list-style-type: none">Procedures for handling and disposal of parts and wastes,<div>3.2.3.2. Section 3 – Certificates Quality Manual, comprising Material Certificates, Tests and Procedures, Weld and NDT reports and traceability. Section 3 shall be according to:<ul style="list-style-type: none">EXHIBIT V DIRECTIVES FOR PROCUREMENTEXHIBIT V DIRECTIVES FOR PROCUREMENT Appendix II - GENERAL SURVEY INSPECTION REQUIREMENTSEXHIBIT VII – DIRECTIVES FOR QUALITY ASSURANCE SYSTEM.</div><div>3.2.3.3. Section 4 – Vendor NR-13 Data Book Section 4 shall be according EXHIBIT V DIRECTIVES FOR PROCUREMENT 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.</div><div>3.2.3.4. Section 5 – Vendor NR-10 Data Book Section 5 shall be according EXHIBIT V DIRECTIVES FOR PROCUREMENT and I-ET-3010.00-5140-700-P4X-001 - SPECIFICATION FOR ELECTRICAL DESIGN FOR OFFSHORE UNITS.</div><div>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. SELLER shall comply with I-ET-3010.2C.1200-91K–P4X-001 GUIDELINES FOR INTEGRITY AND LABOR AUTHORITY STANDARD RULES COMPLIANCE</div><div>3.2.5. Part V – Construction Data Book Construction Data Book shall be according to CONSTRUCTION AND ASSEMBLY, SELLER shall issue construction and assembly data-books, to be delivered to BUYER.</div><div>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.</div><div>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,</div></div>			

ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.	TECHNICAL SPECIFICATION	I-ET-3010.2Q-1200-91A-P4X-001	REV.: 0
	AGP		SHEET 6 of 6
	TITLE:		ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.
	REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS AND DATABOOKS		ERRO! FONTE DE REFERÊNCIA NÃO ENCONTRADA.

- 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.

3.2.8. Part VIII - NR-37 – Compliance with NR-37 Requirements

SELLER shall assure that all requirements from NRs (Brazilian Regulatory Standards), Technical Standards and Rules mentioned in the NR-37 will be fulfilled and followed on the design, construction, fabrication, assembly and installation of all equipment/packages and system by the suppliers, including all the documentation and certificates which shall be issued for them.