PETROBRAS	TECHNICAL SPECIFICATION	Nº: I-ET-3010.00-5511-768-PPT-001	
	CLIENT: SRGE		SHEET: 1 of 17
	JOB: TELECOMMUNICATION SPECIALIZED		
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			OI/CS

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1. SUBJECT

1.1 The subject of this document is to establish the criteria and basic characteristics for the detailed design, supply, installation and configuration of IT EQUIPMENT that shall be installed in PETROBRAS FPSO Unit to provide IT corporative services.

2. ABBREVIATIONS

ABNT	Associação Brasileira de Normas Técnicas
AC	Alternating Current
ANATEL	Agência Nacional de Telecomunicações
ASCII	American Standard Code for Information Interchange
CCR	Central Control Room
CD-ROM	compact disc read-only memory
CE	Conformitè Europëenne
CIFS	Common Internet File System
CPU	Central Processing Unit
CUPS	Common UNIX Printing System
DC	Direct current
DDR	Double-Data-Rate
DVD-ROM	Digital versatile disc-read only memory
ESXi	Elastic Sky X Integrated
FCC	Federal Communications Commission
FFC	Flat Field Correction
FIPS	Federal Information Processing Standards
GPS	Global Positioning System
HART	Highway Addressable Remote Transducer
HDMI	High-Definition Multimedia Interface
HTTPS	Hyper Text Transfer Protocol Secure
ICA	Independent Computing Architecture
IEC	International Electrotechnical Commission
IETF	Internet Engineering Task Force
INMETRO	Instituto Nacional de Metrologia, Qualidade e Tecnologia
ISCSI	Internet Small Computer Systems Interface
IT	Information Technology
LDAP	Lightweight Directory Access Protocol
LED	Light Emitting Diode
MB	Mega Byte
MFP	Multifunction Printer
NBR	Norma Brasileira
NFS	Network File System
NVMe	nonvolatile memory express
PCIe	Peripheral Component Interconnect Express
PCL	Printer Control Language
PIV	Personal Identity Verification
RAID	Redundant Array of Inexpensive Drives
RAM	Random Access Memory
RFC	Request for Comments
RPM	Rotation Per Minute

RoHS	Restriction of Hazardous Substances in Electrical and Electronic Equipment
SAMBA	Server Message Block
SAS	Serial Attached SCSI
SATA	Serial Advanced Technology Attachment
SMB	Server Message Block
SMTP	Simple Mail Transfer Protocol
SSD	Solid State Drives
SSH	Secure Socket Shell
TB	Tera Bytes
TCP/IP	Transmission Control Protocol/Internet Protocol
UDIMM	Unbuffered Dual Inline Memory Module
USB	Universal Serial Bus
VAAI	Value Added Assessment Initiative
VASA	vSphere Storage APIs - Storage Awareness
VDC	Voltage in Direct Current
VGA	Video Graphics Array
VM	Virtual Machine
VMS	Video management system
WHQL	Windows Hardware Quality Labs
Wi-Fi	Wireless Fidelity
XGA	Extended Graphics Array

3. GENERAL REQUIREMENTS

3.1 For PETROBRAS detailed design requirements, Installation, Configuration, Tests and Commissioning the CONTRACTOR shall comply with the DESCRIPTIVE MEMORANDUM I-MD-3010.00-5510-760-PPT-001 – GENERAL CRITERIA FOR TELECOMMUNICATIONS DESIGN.

3.2 For telecommunications symbols, the Detailed design shall comply with the Technical Specification: I-ET-3000.00-0000-940-P4X-002 – SYMBOLS FOR PRODUCTION UNITS DESIGN.

3.3 For telecommunications TAGs, the Detailed design shall comply with the Technical Specification: I-ET-3000.00-1200-940-P4X-001 – TAGGING PROCEDURE FOR PRODUCTION UNITS DESIGN.

3.4 CONTRACTOR shall provide all materials, accessories, cables and infrastructure necessaries to install all IT EQUIPMENT in offices, workshops, CCR, radio room, internet room and other places that require workstations.

3.5 Some IT EQUIPMENT shall be supplied to be installed in the 19” cabinets on the following locations, Telecom Upper Room and Telecom Lower Room at Accommodation Module.

3.6 CONTRACTOR shall supply all equipment, cables, accessories approved and certified, if necessary, by Classifying Society and in technical conformity with the International and National standardization organism: ABNT, IEC and INMETRO.

3.7 Equipment and materials shall be supplied packed in suitable cases/boxes for long periods of storage and also to be protected against mechanical impact and adverse weather conditions.

4. SYSTEM DEFINITIONS

4.1 Multifunction Printer (MFP)

4.1.1. It is a device that consolidates the functionality of a printer, copier, scanner into one machine and with all following basic characteristics:

a) Documents printing;
b) Documents copying;
c) Documents digitalization to be sent by email from printer;
d) Copy Resolution 600 x 600 dpi
e) Automatic two-sided printing (duplex);
f) Automatic two-sided document feeder for scanning function;
g) Collect and send multiple documents in a single file;
h) Network interface (LAN): RJ-45, Ethernet standard, TCP/IP V4 compatible (IPv4);
i) Scanning with sending via email (SMTP);
j) Use PCL driver (versions 3, 5, 6 or XL) or PostScript driver;
k) Compatibility to print documents from SAP/R3 and Citrix ICA client;
l) Compatibility to print documents from LPD/LPR, AppSocket or Internet
m) Printing Protocol (IPP/HTTP);
n) Shall provide secure network administration interface that allows remote
o) Configuration of equipment (eg HTTPS, SSH, etc);
p) Support, at least, A3 and/or A4 size paper;
q) Shall provide remote supervisioning (paper, status, ink/tonner level) from
r) control software, Toolbox, Common driver;
s) Shall provide the email address search on the address catalogue on the LDAP server;
t) All printers shall be made in accordance with RFC 1759 or RFC 3805 of IETF.
u) All printers shall print documents from different ambient, such as:
    i. Open Virtual Memory System (Open VMS);
    ii. Microsoft Windows (32 and 64 bits);
    iii. Red Hat Linux – SAMBA and CUPS;
    iv. IBM System Z (Mainframe) in ASCII mode and normal mode;
v) All multifunction printer shall make multiple copies, simple and grouped by;
w) All multifunction printer shall be ready to log the quantity of sheets printed;
x) All equipment shall be supplied for 220 VAC and in accordance with NBR14.136 standard from ABNT.

4.1.2. MFP type #1

a) Small Multifunction Printer;
b) Color Laserjet/LED technology;
c) Standard 250 to 350 sheets capacity, at least;

d) Paper Feed size A4 (210 × 297 mm).

4.1.3. MFP type #2

a) Medium Multifunction Printer;
b) Color Laserjet/LED Printing technology;
c) Standard 500 sheets capacity, at least;
d) Paper Feed size A4 (210 × 297 mm);

4.1.4. MFP type #3

a) Medium Multifunction Printer;
b) Color Laserjet/LED Printing technology;
c) Standard 500 sheets capacity, at least;
d) Paper Feed size A4 (210 × 297 mm) and A3 (297 × 420 mm);

4.2 Desktop Computer

4.2.1. It is a device with, at least, the following requirements and basic characteristics:

a) Central Processing Unit (CPU)	Intel Core i7 vPRO released in the last 18 months or better latest generation
b) Memory (Random Access Memory - RAM)	16 GB - DDR4 UDIMM 2666 Mhz or better
c) Display Adapter	1024 MB - Intel HD Graphics 530 - Integrated Graphics Controller
d) Secondary Storage	Hard Disk - type SSD – 256 GB or better 1x SATA 2.5" or 1x M.2 PCIe NVMe to SSD
e) Operational System	Windows 10 (64 bits) or latter
f) Interfaces	Front: 4x USB 3.0, 1x Line in, 1x Headphone (Line Out) Rear: 1x DC in, 2x USB 3.0, 1x HDMI, 1x DisplayPort, 1x VGA, 1x COM Port, 1x Audio (Line out)
g) Network Interface	1x Ethernet (RJ-45), Gigabit Ethernet – 10/100/1000 Mbps – DASH 1.1 supported
h) Dimensions	Cabinet: 200 x 200 x 50 mm or less
i) Accessories	Keyboard (ABNT2 standard) and Mouse – optic
j) Monitor	LED
k) Power	AC – 100 ~ 240V / 50 ~ 60 Hz

Table 01

4.2.2. Each computer shall be installed behind the monitor by means of a specific support hold on VESA holes, as per illustrated bellow:

Figure 01 – desktop support vesa

4.2.3. Accessories:

4.2.3.1. Surge Protector AC power strip: it shall be provided and installed one surge protector power strip for each computer and printers with the specs below:

a. Minimum of 04 (four) outlets;

b. AC cable with minimum of 6ft;

c. AC socket Brazilian standard.

4.2.4. It shall be provided all FTP patch cords needed to connect the equipment.

4.2.5. Each Desktop Computers to be installed inside the Internet Room shall be supplied with biometric fingerprint reader destined to access the public internet in order to guarantee control and to track its use. The biometric readers shall be from PERSONA DIGITAL manufacturer, U.areU 4000B or U.areU 4500 models or other indicated by PETROBRAS during the Detailed Design, meeting the requirements below:

a. USB 2.0 plug and play interface;
b. Resolution 480 x 320, 500 dpi;
c. Compatible with operational systems: Windows 10, 64 bit or higher;
d. Certifications: FIPS 201/PIV 071006 Image Quality specification, Microsoft, WHQL, FCC, CE, RoHS.

4.3 Desktop Monitor

4.3.1. It is a device with, at least, all following requirements and basic characteristics:

a)	Technology	LED
b)	Video inputs Interfaces	HDMI and Display Port or D-Sub
c)	Power	AC – 100 ~ 240V / 50 ~ 60 Hz
d)	Accessories	Support and video cables
e)	Size	24”
f)	Max Resolution	1920 x 1080 @ 60 Hz, or better
g)	Other inputs	USB 3.0 and USB-C (at least one of each)

4.4 Notebook Computer

4.4.1. It is a device with, at least, all following requirements and basic characteristics:

a) Central Processing Unit (CPU)	Intel Core i7 vPRO released in the last 18 months or better latest generation
b) Memory (Random Access Memory - RAM)	16 GB - DDR4 UDIMM 2666 Mhz or better
c) Screen / Display	14.0", Full HD (1920 x 1080), Integrated Graphics Controller Anti-Glare screen
d) Secondary Storage	Hard Disk - type SSD – 256 GB or better 1x SATA 2.5" or 1x M.2 PCIe NVMe to SSD
e) Operational System	Windows 10 (64 bits) or latter
f) Interfaces	Bluetooth, 3x USB 3.0, 1x USB-C, 1x HDMI, 1x Audio in/out and microphone Port, 01 VGA, micro SD card reader
g) Network Interface	1x RJ-45 Gigabit Ethernet – 10/100/1000 Mbps, or better, and Wireless 802.11n, 802.11an, 802.11ac
h) Battery	Li-ion, 4-cell or better
i) Weight	2.5 kg or less
j) Features	Web camera (HD), microphone, speakers Keyboard (ABNT2 standard, retro backlight)
k) Power	AC – 100 ~ 240V / 50 ~ 60 Hz with Brazilian standard power line plug

4.5 Servers

4.5.1. It is a device with, at least, all following requirements and basic characteristics:

a) Central Processing Unit (CPU)	2x processors (12) twelve-core from AMD EPYC, Intel Xeon Scalable or better
b) Memory (Random Access Memory - RAM)	512 GB, installed - DDR4 UDIMM 2666 Mhz or better Expansible until 2048 GB or better, all memories modules for 64 GB – DDR4, or better
c) SAS RAID Controller	Array controller SAS 12 Gb, SATA 6 Gb, capable of implementing RAID 0, 1, 5, 10, or better; 02 (two) SAS 2.5" or SSD 2,5" Hard Disk Drives, Hot-Swap, 10k RPM, 600GB or better
d) Internal Storage Capability	Useful capability 14 TB – Hard Disk Drives on RAID 5
e) Display Adapter	Integrated Graphics Controller – 1024 x 768 minimal resolution
f) Operational System	Compatible to Windows Server, Red Hat Enterprise Linux and Vmware ESXi
g) Interfaces	4x USB 3.0, 1x HDMI, 1x SVGA (DB-15 connector), 1x COM Port (RS-232 – DB-9)
h) Network Interface	8x Gigabit Ethernet (RJ-45), Remote control interface (iLO/iDRAC Remote) and manufacture software license to complete management
i) I/O Expansion Slot	Minimum of 2 (two) PCIe 3.0 or better available with x8 lanes or higher;

j) Dimensions	19” rack-mountable servers, 2U maximum height
k) Storage Connection	10Gb Ethernet network adapter with 4 ports (quad port) over twisted pair (RJ-45). Card for connection between the Automation DMZ and the Storage;
l) Power supply	02 (two) AC power supply hot-plug, 220V, 50 ~ 60Hz
m) Accessories	Sliding rails and cable management arm (Rear organizer arms) 1 (one) optical drive, capable to read CD-ROM and DVD-ROM;
n) The servers shall be certified by Microsoft (HCL), Red Hat and VMware for the following products at delivery time: i. Windows Server (operating system compatible with the last two major versions); ii. Red Hat Enterprise Linux (operating system compatible with the last two major versions); iii. VMware ESXi (operating system compatible with the last three major versions of ESXi).	

4.6 Storage and Backup Servers

4.6.1. It is a device with, at least, all following requirements and basic characteristics:

a) NetApp All-Flash Storage Array	Active-Active System (Dual Controller, Fully Redundant)
b) Cache Memory	128 GB
c) RAID Support	RAID 6
d) Internal Storage Capability	24 SSD drives or more with at least 100TB
e) Spare Drives	Support for global Hot Spare
f) Network Interface	8 x 10Gbase-T (with 1GbE autoranging) 4 x 10GbE SFP+ 2 x 1GbE RJ45 Console for remote control
g) Back end Connectivity	12 Gb SAS
h) Storage networking Protocols	NFSv3, NFSv4, NFSv4.1, SMB/CIFS 2.0, SMB/CIFS 2.1, SMB/CIFS 3.0, SMB/CIFS 3.1.1 and ISCSI.
i) Dimensions	19” rack-mountable servers, 2U maximum height
j) Power supply	02 (two) AC power supply hot-plug, 220V, 50 ~ 60Hz
k) Accessories	Sliding rails and cable management arm (rear organizer arms)
l) Required Licensed Features (for all storage area)	1) Thin Provisioning 2) Inline Deduplication 3) Inline Compression 4) Snapshot 5) Clone 6) Asynchronous Replication 7) Enterprise Antivirus Support: i. Symantec Protection Engine (SPE) for Network Attached Storage 8.0 or newer ii. Trend Micro ServerProtect for Storage 6.0 or newer iii. McAfee VirusScan Enterprise for Storage (VSES) 1.3 or newer 8) Management/Performance Monitor Software 9) Virtualization Integration: VMware VAAI and VASA

m) Replication Target	The Storage shall be able to replicate data to a Netapp FAS Storage running, at least, CDOT 9.5 or later.
n) Services	5 Years Warranty 24x7; Advanced Deployment The subscription and support shall be associated with PETROBRAS account, after the commissioning of equipment.

4.6.2. Backup server: it is a device with, at least, all following requirements and basic characteristics:

a) Veritas Backup Appliance 5250 technical specifications	Veritas minimum 72TB hardware capacity - Fully Redundant
b) System memory	64 GB
c) Usable MSDP and d) Advanced Disk storage capacity (TiB)	RAID 5
e) Internal Storage Backup Capability	Minimum 72TB hardware capacity
f) Spare Drives	Support for global Hot Spare
g) Network Interface	4 x 10Gbase-T (with 1GbE autoranging) 2 x 1GbE RJ45 Console for remote control 1x 10Gb optic port (to interconnect to DMZ switch between decks)
h) Back end Connectivity	12 Gb SAS
i) Storage networking Protocols	NDMP / NFS
j) Dimensions	19” rack-mountable servers, 2U maximum height
k) Power supply	2 (two) AC power supplies redundant, hot-plug, 220V, 50 ~ 60Hz
l) Accessories	Sliding rails and cable management arm (rear organizer arms)
m) Required Licensed Features (for all storage area)	Full Bundle include replication another Veritas Appliance
n) Replication Target	Veritas Appliance
o) Services	5 Years Warranty 24x7; Advanced Deployment The subscription and support shall be associated with PETROBRAS account, after the commissioning of equipment.

4.7 Mobile Devices

4.7.1. Smartphones – Android – Zone 1

a) Operational System	The device provided must be among the latest 3 versions of the Android operating system released. The most current version of the Android Operating System for counting the last 3 versions will be verified on the website:

	https://pt.wikipedia.org/wiki/Hist%C3%B3rico_de_vers%C3%B5es_do_Android.
b) Memory (Random Access Memory - RAM)	03 GB or better
c) Network Interface	WiFi 802.11 b/g/n/ac (2,4 and 5GHz)
d) Internal Storage	32 GB or better
e) Temperature	-20°C a +55°C
f) Dimensions	At least 4.5”
g) Screen / Display	Minimal resolution 480 x 800
h) Central Processing Unit (CPU)	Quad-Core 1.2 Ghz or better
i) Connectivity	1) 4G / LTE 700MHz (band 28) and 1.800MHz (band 03). 2) Bluetooth® 4.2 BLE (Bluetooth Low Energy) or superior. 3) GPS; USB for computer connection
j) Adapter	AC 100 to 240 V
k) Camera	Rear: 08 Megapixels minimum Front: 03 Megapixels minimum
l) Protection class	1) IP64 or better 2) MIL-STD-810G or better
m) Brazilian Certified - Marking	1) INMETRO: BR EX ib IIC T4 - Zone 1 2) ANATEL

4.7.2. Smartphones – Accessories

a) For Non-potentially explosive areas	i. Protective casing or cover ii. Screen protector iii. Shoulder strap iv. Hand strap and belt (hands free operation) v. Universal Tripod Mount vi. Charger – USB charger (100 to 240 VAC) and USB cable vii. Charging docking station (it can be a multi charger unit, considering the total amount of devices that are been supplied).
b) For potentially explosive areas, Zone-1	viii. RSM (remote speaker microphone) Bluetooth for zone 1: 1) PTT button 2) Volume up/down 3) IP 64 (minimum) ix. Headset Bluetooth cellular connection for conversation and audio streaming as part of the Personal Protection Equipment approved for hazardous locations with: 1) Wearing Type: Behind-the-neck (HB) 2) Loudspeaker internally to earmuffs 3) Earmuffs to reduce noise levels at least in 20 decibels

Figure 02 - Headset Bluetooth illustration example

4.7.3. Tablets – Android – Zone 1

a) Operational System	The device provided must be among the latest 3 versions of the Android operating system released. The most current version of the Android Operating System for counting the last 4 versions will be verified on the website https://pt.wikipedia.org/wiki/Hist%C3%B3rico_de_vers%C3%B5es_do_Android
b) Memory (Random Access Memory - RAM)	4 GB or better
c) Network Interface	Wi-Fi 802.11 a/b/g/n/ac (2.4 GHz + 5 GHz)
d) Internal Storage	64 GB or better
e) Temperature	-20°C a +55°C
f) Display Dimensions	At least 8.0”
g) Screen / Display	Touch screen, also with gloves / in wet conditions & snow
h) Interfaces	USB 2.0 MicroSD card slot Micro SIM card slot Docking station port External battery
i) Adapter	AC 100 to 240 V
j) Connectivity	4G / LTE 700MHz (band 28) and 1.800MHz (band 03). WI-FI 802.11 a/b/g/n/ac (2,4 GHz and 5GHz) Bluetooth® 5 incl. BLE (Bluetooth Low Energy) GPS
k) Camera	8.0 Megapixels rear 5.0 Megapixels front
l) Protection class	IP64 or better MIL-STD-810G or better

m) Brazilian Certified	INMETRO BR EX ib IIC T4 - Zone 1 ANATEL

4.7.4. Tablets – Accessories

a) Non-potentially explosive areas	i. Shoulder strap ii. Hand strap and belt iii. Pen for capacitive touchscreen iv. External battery (hot-swappable) v. Battery bag vi. USB stick vii. MicroSD card viii. Screen protector ix. Leather carry case x. 4-point belt and shoulder strap xi. Charging docking station (it can be a multi charger unit, considering the total amount of devices that are been supplied): 100 to 240 VAC input xii. Charging station: 2-slot battery - 100 to 240 VAC input
b) Potentially explosive areas	xiii. Headset Bluetooth cellular connection for conversation and audio streaming as part of the Personal Protection Equipment approved for hazardous locations with: 1) Wearing Type: Behind-the-neck (HB) 2) Loudspeaker internally to earmuffs 3) Earmuffs to reduce noise levels at least in 20 decibels xiv. HART Add-on kit communication

4.7.5. Camera – Zone 1

a) Optical performance	10 MP camera (minimum) Automatic focus and white balance Integrated LED illumination
b) Thermal imaging camera	Longwave infrared, 8 ... 14 µm < 50 mK thermal sensitivity Auto flat field correction (FFC)
c) Audio	Built-in omni-directional microphone for ambient sound
d) Video standard	H.264 / AVC HD capture and stream up to 1080 pixels resolution Frame rates up to 30fps
e) Network Interface	Wi-Fi 802.11 a/b/g/n/ac (2.4 GHz + 5 GHz)
f) Internal Storage	32 GB onboard storage
g) Temperature	-20°C a +50°C
h) Display Dimensions	At least 3”
i) Connectivity	Bluetooth® 4.0 (minimum)
j) Protection class	IP64 or better

k) Brazilian Certified	INMETRO BR EX ib IIC T4 - Zone 1 ANATEL
l) Power	Rechargeable 2000 mAh Li-Ion battery or better 5 V DC, 1.8 A AC adapter
m) Accessories	Helmet support

4.7.5.1. It shall be a Wi-Fi nomadic camera for a temporary use, for example, during a maintenance of an equipment. These cameras will be connected in the corporate WI-FI, and it shall be included brackets for each one for temporarily installation in a tubular support beyond the helmet.

5. SCOPE OF SUPPLY

5.1 Items and quantity

Ref number	ITEM	QUANTITY	NOTE
1)	MFP type #1	15	According to drawings of Basic Design and to be evaluated and improved during Detail Design
2)	MFP type #2	08	
3)	MFP type #3	03	
4)	Desktop Computer	116	According to drawings of Basic Design and to be evaluated and improved during Detail Design
5)	Biometric fingerprint reader	20	To be install in Internet Cafe computers
6)	Surge protector AC power strip	116	According to drawings of Basic Design and to be evaluated and improved during Detail Design
7)	Monitor 24”	116	According to drawings of Basic Design and to be evaluated and improved during Detail Design
8)	Notebook Computer	05	-----
9)	Corporative Server	02	Network Server
10)	Server for DMZ automation (PI collector server)	04	Automation Application
11)	Storage for corporative Network	01	Corporative Network
12)	Storage for Automation DMZ	01	Automation - DMZ
13)	Back up server for corporative Network	01	Corporative Network

Ref number	ITEM	QUANTITY	NOTE
14)	Back up server for Automation DMZ	01	Automation - DMZ
15)	Smartphones – Android – Zone 1	50	
16)	Tablets – Android – Zone 1	20	
17)	Camera – Zone 1 with brackets	20	
	Smartphones – Accessories		
18)	Protective casing or cover	50	
19)	Screen protector	50	
20)	Shoulder strap	50	
21)	Hand strap and belt (hands free operation)	50	
22)	Universal Tripod Mount	50	
23)	Bluetooth Headset	50	
24)	Bluetooth RSM microphone	50	
25)	Charger - USB charger (100 to 240 VAC) and USB cable	50	
26)	Docking station	50	Or according to item 4.7.2.a.(vii)
	Tablets – Accessories		
27)	Shoulder strap	20	
28)	Hand strap and belt	20	
29)	Pen for capacitive touchscreen	20	
30)	External battery (hot-swappable)	20	
31)	Battery bag	20	
32)	USB stick	20	
33)	MicroSD card	20	
34)	Screen protector	20	
35)	Leather carry case	20	

Ref number	ITEM	QUANTITY	NOTE
36)	4-point belt and shoulder strap	20	
37)	HART Add-on kit communication	02	
38)	Bluetooth Headset	20	
39)	Docking station: 100 to 240 VAC input	20	Or according to item 4.7.2.a.(xi)
40)	Charging station: 2-slot battery - 100 to 240 VAC input	20	

Table 02

6. COMMISSIONING

6.1 All data equipment shall be configured with parameters informed by PETROBRAS during Commissioning phase and under the witness of PETROBRAS Telecom Team.

6.2 Acceptance tests consist of the performance assessment of all the tests established in the Test Plan ran for the assembled and commissioned system specified herein. Additionally, it takes into account PETROBRAS verification and approval of detail design to certify the perfect functioning of the Corporate Network of PETROBRAS within the specified technical characteristics and requirements.

6.3 Local tests: execution of all necessary tasks for the activation and verification of basic features of each equipment within the specified technical characteristics, according to the Test Plan.

6.4 Servers and computers will need to be updated and re-entered corporate domain controller at offshore location.