ITEM	MACHINE TYPE (NOTE 14, 33)	DESCRIPTION	TAG	LOCATION	NOTES
1	PHYSICAL & VIRTUAL	TOPSIDES MAIN HMI	PN-5523003	HULL - CCR-OA	
2	PHYSICAL & VIRTUAL	HULL MAIN HMI	PN-5523503	HULL - CCR-OA	
3	PHYSICAL & VIRTUAL	FIRE AND GAS HMI	PN-5523004	HULL - CCR-OA	3, 6
4	PHYSICAL & VIRTUAL	TOPSIDES SOS HMI	PN-5523002A/E	HULL - CCR-OA	3, 6
5	PHYSICAL & VIRTUAL	HULL SOS HMI	PN-5523502A/E	HULL - CCR-OA	3, 6
6	PHYSICAL & VIRTUAL	OPERATORS ROOM SOS HMI	PN-5523007A/B	LABORATORY OPERATOR'S ROOM	3, 26
7A	PHYSICAL & VIRTUAL	AUTOMATION ENGINEERING WORKSTATION	PN-5500001A	HULL - CCR-ATR	3, 6, 30
7B	PHYSICAL	AUTOMATION ENGINEERING WORKSTATION	PN-5500001B	HULL - CCR-ATR	3, 6, 30
8A	PHYSICAL & VIRTUAL	AUTOMATION MAINTENANCE WORKSTATION	PN-5500005A	HULL - CCR-ATR	3, 6, 30
8B	PHYSICAL	AUTOMATION MAINTENANCE WORKSTATION	PN-5500005B	HULL - CCR-ATR	3, 6, 30
9	PHYSICAL & VIRTUAL	ASSET MANAGEMENT SYSTEM (AMS) WORKSTATION	PN-5500011	HULL - CCR-ATR	6
10	PHYSICAL & VIRTUAL	ASSET MANAGEMENT SYSTEM (AMS) WORKSTATION	PN-5500013	HULL INSTRUMENTATION WORKSHOP	6
11	PHYSICAL & VIRTUAL	REMOTE ACCESS WORKSTATION	PN-5523006A/B	HULL - CCR-OA	3, 8
12	PHYSICAL	PACKAGE MAINTENANCE WORKSTATION	PN-5523008A/B	HULL - CCR-ATR	3, 31
13	PHYSICAL	FLOW METERING SYSTEM PANEL	PN-1223001	TOPSIDES - AEPR	6
14	PHYSICAL	MULTIPHASE FLOW METERING SYSTEM PANEL	PN-1223005	TOPSIDES - AEPR	6
15	PHYSICAL & VIRTUAL	FMS REMOTE HMI △A	PN-1223002	HULL - CCR-OA	6
16	PHYSICAL	MMS SERVER PANEL	PN-5500007	TOPSIDES - AEPR	6
17	PHYSICAL	MMS SERVER PANEL	PN-5500014	TOPSIDES - AEPR	6
18	PHYSICAL	MMS WORKSTATION	PN-5500008	HULL - CCR-ATR	
19	PHYSICAL	MMS WORKSTATION	PN-5500015	HULL - CCR-ATR	
20	PHYSICAL	CORROSION MONITORING SYSTEM PANEL	PN-5500004	TOPSIDES - AEPR	
21	PHYSICAL	REMOTE ULLAGE, PRESSURE AND TEMPERATURE MONITORING PANEL	PN-1358501	HULL - CCR-EA	
22	PHYSICAL & VIRTUAL	STABILITY AND LOAD CALCULATION WORKSTATION	PN-1358503	HULL - CCR-OA	3, 6
23	PHYSICAL	HULL STRUCTURE HEALTH MONITORING SYSTEM PANEL	PN-1358510	FWD PANELS ROOM	
24	PHYSICAL	SUBSEA INTERFACE PANEL	PN-5524001A/B	TOPSIDES - AEPR	3, 6
25	PHYSICAL	TOPSIDE ELECTRICAL SYSTEM AUTOMATION MAINTENANCE WORKSTATION	Z-5140002	TOPSIDES - AEPR	6, 7, 10
26	PHYSICAL	TOPSIDE ELECTRICAL SYSTEM AUTOMATION OPERATIONAL WORKSTATION	Z-5140001A/B	Z-5140001B - CCR-OA Z-5140001A - TOPSIDES - AEPR	6, 7, 10
27	PHYSICAL	HULL ELECTRICAL SYSTEM OPERATIONAL WORKSTATION	Z-5140501	HULL - ELEC. WORKSHOP	7, 10
28	PHYSICAL	POWER MANAGEMENT SYSTEM (PMS)	PN-5140001	TOPSIDES - AEPR	7, 10
29	PHYSICAL	ELECTRICAL SYSTEM AUTOMATION TIME SERVER A	Z-PN-5140002-03A	TOPSIDES - AEPR	13
30	PHYSICAL	ELECTRICAL SYSTEM AUTOMATION TIME SERVER B	Z-PN-5140002-03B	TOPSIDES - AEPR	13
31	PHYSICAL	TOPSIDE ELECTRICAL SYSTEM AUTOMATION REAL TIME DATA SERVER	Z-PN-5140002-02A/B	TOPSIDES - AEPR	7, 10, 15
32	PHYSICAL	HULL ELECTRICAL SYSTEM AUTOMATION REAL TIME DATA SERVER	Z-PN-5140501-02A/B	HULL - EPR	7, 10, 15
33	PHYSICAL	HULL ELECTRICAL SYSTEM AUTOMATION MAINTENANCE WORKSTATION	Z-5140502	HULL - ELEC. WORKSHOP	7, 10
34A	PHYSICAL	TOPSIDE ELETRICAL SYSTEM AUTOMATION DMZ SERVERS	Z-PN-5140002-04A	TOPSIDES - AEPR	7, 10
34B	PHYSICAL	TOPSIDE ELETRICAL SYSTEM AUTOMATION DMZ SERVERS	Z-PN-5140002-04B	TOPSIDES - AEPR	7, 10
35	CANCELED	CANCELED	CANCELED	CANCELED	△A
36	PHYSICAL	RACK FOR ENVIRONMENT MONITORING SYSTEM	PN-5521501	HULL - TELECOM PANELS ROOM	
37	PHYSICAL	POSITIONING SYSTEM FOR OFFSET DIAGRAM PANEL	PN-5537502	HULL - TELECOM PANELS ROOM	
38	CANCELED	CANCELED	CANCELED	CANCELED	△A
39	PHYSICAL	MODA PANEL	PN-5529001 PN-5529002 PN-5529003	TOPSIDES - AEPR	3, 6 △A
40	PHYSICAL	RACK FOR CCTV SYSTEM	CTV-5514501	HULL - TELECOM CCR	11
41	PHYSICAL	CORPORATE FIREWALL	FW-5517501	TELECOM ROOM	
42	PHYSICAL	CORPORATE FIREWALL △A	FW-5517502	TELECOM ROOM	
43	PHYSICAL	PETROBRAS DMZ SWITCH A	SW-5517504	TELECOM ROOM	
44	PHYSICAL	PETROBRAS DMZ SWITCH B	SW-5517505	TELECOM ROOM	
45A/B	PHYSICAL	NAV SENSOR	-	TOPSIDES - AEPR & CCR-EA	

TABLE 1 - WORSTATIONS, PANELS, AND OTHER AUTOMATION AUXILIARY EQUIPMENT

SYMBOLOGY

- 1 GIGABIT ETHERNET (IEEE 802.3ab)
- 10 GIGABIT ETHERNET (IEEE 802.3an)
- MRP/REP OVER 10GBASE ETHERNET (OPTICAL)
- MRP/REP OVER 10GBASE ETHERNET (ELECTRICAL)
- 1 GIGABIT ETHERNET (OPTICAL)

LAYER 2 SWITCH

LAYER 3 SWITCH

OR — RING MANAGER

SRV — SERVER

CLUSTER — CLUSTER

PI — REDUNDANT OPC DRIVERS (REDUNDANT OPC SERVERS FOR PI COLLECTOR) (NOTE 20)

PI — REDUNDANT OPC DRIVERS (REDUNDANT OPC SERVERS FOR PI COLLECTOR) (NOTE 20)

PI — PI SERVER (NOTE 20)

FIREWALL

EXTERNAL PHYSICAL STORAGE IN HOT STAND-BY

A

REFERENCE DOCUMENTS

I-DE-3010.2Q-5520-800-P4X-002 - AUTOMATION AND CONTROL ARCHITECTURE
I-ET-3010.2Q-1200-800-P4X-001 - SPECIAL MONITORING SYSTEMS
I-ET-3010.2Q-1200-800-P4X-014 - AUTOMATION INTERFACE OF PACKAGE UNITS
I-MD-3010.2Q-5520-800-P4X-001 - AUTOMATION AND CONTROL SYSTEM FUNCTIONS
I-DE-3010.2Q-5517-766-PPT-007 - DATA NETWORK ONE LINE DIAGRAM
I-ET-3010.00-5520-861-P4X-001 - CONTROL AND SAFETY SYSTEM - CSS
I-ET-3010.00-5520-861-P4X-003 - VIRTUALIZATION OF AUTOMATION SYSTEM COMPUTERS
I-DE-3010.00-5140-797-P4X-001 - ELECTRICAL SYSTEM AUTOMATION ARCHITECTURE DIAGRAM

ABBREVIATIONS, ACRONYMS AND INITIALISMS

AEPR - AUTOMATION AND ELECTRICAL PERIPHERALS ROOM
CCR-ATR - CENTRAL CONTROL ROOM - AUTOMATION TURBOMACHINERY ROOM
CCR-EA - CENTRAL CONTROL ROOM - EQUIPMENT AMBIANCE
CCR-OA - CENTRAL CONTROL ROOM - OPERATIONAL SPACE
CCTV - CLOSED CIRCUIT TV
CSS - CONTROL & SAFETY SYSTEM
DMZ - DEMILITARIZED ZONE
HMI - HUMAN-MACHINE INTERFACE
LAN - LOCAL AREA NETWORK
MMS - MACHINERY MONITORING SYSTEM
MODA - MODA RISER MONITORING SYSTEM
MRP - MEDIA REDUNDANCY PROTOCOL
NAV - NETWORK ANALYSIS AND VISIBILITY
PI - PLANT INFORMATION SYSTEM
POS - POSITIONING SYSTEM FOR OFFSET DIAGRAM
REP - RESILIENT ETHERNET PROTOCOL
SOS - SUPERVISION AND OPERATION SYSTEM

GENERAL NOTES

△1 - 1- IN SHEET 2, DUE TO LACK OF SPACE, SOMETIMES WORKSTATIONS AND OTHER EQUIPMENT SHOWN IN TABLE 1 ARE NOT REPRESENTED IN THE ROOM/PANEL WHERE THEY ARE ACTUALLY ALLOCATED. CHECK TABLE OF SHEET 1 FOR WORKSTATION / AUXILIARY EQUIPMENT CORRECT PLACEMENT.

△1 - 2 - THIRD PARTY SERVERS SHALL OBTAIN PI DATA FROM PETROBRAS DMZ, VIA THE CORPORATE FIREWALLS FW-5517501 AND FW-5517502. BESIDES, THIRD PARTY SERVERS MAY POSSESS DIRECT CONNECTION TO THE EQUIPMENT THAT THEY CONTROL.

3 - CONNECTIONS REPRESENTED IN THE DRAWING ARE PER HMI: WORKSTATIONS SHALL BE CONNECTED TO TWO DIFFERENT SWITCHES IN ORDER TO BE REDUNDANTLY CONNECTED TO A NETWORK.

4 - TOTAL QUANTITY WILL DEPEND ON THE QUANTITY OF TOPSIDES PACKAGES. FOR FORESEEN TOPSIDES PACKAGES CONSULT I-ET-3010.2Q-1200-800-P4X-014 - AUTOMATION INTERFACE OF PACKAGED UNITS.

5 - REPRESENTATION OF A TYPICAL CONNECTION OF A PACKAGE UNIT'S NETWORK SWITCH TO THE PACKAGE UNITS LAN. TOTAL QUANTITY WILL DEPEND ON THE QUANTITY OF PACKAGES. SEE NOTE 19. FOR FORESEEN HULL PACKAGES CONSULT I-ET-3010.2Q-1200-800-P4X-014 - AUTOMATION INTERFACE OF PACKAGED UNITS.

6 - THIS MACHINE/SYSTEM SHALL BE ACCESSIBLE FROM ONSHORE INSTALLATIONS, BY COMMUNICATING TO AN INTERMEDIATE SERVER PLACED IN PETROBRAS DMZ

7 - FOR DETAILS ON THE ELECTRICAL SYSTEM, SEE I-DE-3010.00-5140-797-P4X-001 - ELECTRICAL SYSTEM AUTOMATION ARCHITECTURE DIAGRAM.

8 - THESE WORKSTATIONS ARE DEDICATED TO ACCESSING PACKAGE SCREENS IN ORDER TO REMOTELY OPERATE AND MONITOR THEIR SUPERVISORY SYSTEM.

9 - A ROUTING REDUNDANCY PROTOCOL (SUCH AS VRRP - VIRTUAL ROUTER REDUNDANCY PROTOCOL - OR SIMILAR PROTOCOLS) SHALL BE IMPLEMENTED FOR THIS NETWORK, DUE TO THE PRESENCE OF MULTIPLE LAYER 3 SWITCHES.

10 - ELECTRICAL LAN SWITCHES, WORKSTATIONS AND PANELS OF THE ELECTRICAL SYSTEM ARE PART OF THE ELECTRICAL TECHNICAL DISCIPLINE'S SCOPE OF SUPPLY. ALL ELECTRICAL SYSTEM DEVICES REPRESENTED IN THIS DRAWING SHALL ALLOW EXTERNAL USER ACCESS (I.E., ACCESS FROM CORPORATIVE NETWORK USING JUMP HOSTS AT DMZ), WITHOUT FURTHER ADDITIONAL COSTS TO PETROBRAS.

11 - CCTV IS TELECOM TECHNICAL DISCIPLINE'S SCOPE OF SUPPLY.

12 - THE SWITCHES RING REDUNDANCY PROTOCOL SHALL BE MRP (IEC 62439-2) OR REP.

13 - ALL NETWORKS REPRESENTED ON THIS DRAWING (EXCEPT FOR CORPORATE LAN, DMZ LAN, AND THIRD-PARTY DMZ LAN) SHALL BE CONNECTED TO THE TIME SERVERS LOCATED IN ELECTRICAL SYSTEM'S PANEL. TIME SERVERS ALONG WITH TOPSIDE ELECTRICAL SYSTEM AUTOMATION PANEL (PN-5140002) AND ELECTRICAL LAN ARE PART OF THE ELECTRICAL SYSTEM'S SCOPE OF SUPPLY (SEE I-DE-3010.00-5140-797-P4X-001 - ELECTRICAL SYSTEM AUTOMATION ARCHITECTURE DIAGRAM).

14 - COMPUTERS MARKED AS PHYSICAL ARE WORKSTATIONS, COMPLETE, WITH THEIR OWN OPERATIONAL SYSTEM AND APPLICATIONS. COMPUTERS MARKED AS PHYSICAL & VIRTUAL ARE THIN CLIENTS THAT ACCESS A VIRTUAL IMAGE AT THE CLUSTERS (UNLESS STATED OTHERWISE ON THEIR NOTES).

15 - REDUNDANT SERVERS EXIST INSIDE THE ELECTRICAL SYSTEM AUTOMATION PANELS. EACH OF THEM SHALL BE CONNECTED TO THE AUTOMATION PACKAGE UNITS LAN THROUGH DIFFERENT SWITCHES.

16 - EACH SERVER SHALL HAVE AT LEAST 2 (TWO) NETWORK INTERFACE CARDS (NIC) FOR CONNECTING TO DMZ SWITCHES. SEE TELECOM DISCIPLINE DOCUMENTATION FOR DETAILS.

17 - FAILOVER CONNECTION.

18 - IN ORDER TO SEE WHICH SERVERS SHALL BE CONNECTED TO WHICH NETWORK, SEE I-DE-3010.2Q-5520-800-P4X-002 - AUTOMATION AND CONTROL ARCHITECTURE.

19 - LOOPS RESULTING FROM THE CONNECTION OF THE PACKAGES ENTRY SWITCHES ON TWO DIFFERENT SWITCHES OF THE MAIN RING SHALL BE AVOIDED. THIS CAN BE DONE BY USING A SWITCH ON THE MAIN RING THAT ALLOWS RSTP PACKETS IN THE MRP/REP PORTS (PREFERRED); OR USING ENTRY SWITCHES THAT SUPPORT A COUPLING PROTOCOL (A PROTOCOL THAT AUTOMATICALLY DISABLES ONE OF THE PORTS USED TO CONNECT TO THE MAIN RING, AVOIDING LOOPS). THIS REQUIREMENT IS ALSO APPLICABLE, BUT NOT LIMITED TO, ALL OTHER NETWORK RINGS THAT INTERCONNECT TO THE MAIN AUTOMATION RINGS, SUCH AS SUBSEA LAN, AND ANY OTHER SYSTEM AND EQUIPMENT THAT CONNECTS TO THE MAIN RINGS IN ANY TWO POINTS, SUCH AS FLOW METERING SYSTEM.

20 - REDUNDANT OPC DRIVERS (OPC SERVERS) SHALL BE INSTALLED ~~IN ALL~~ TOPSIDES AND HULL SOS REAL TIME DATA SERVERS (PCS, PSD, FGS, TOPSIDES PACKAGE, HCS, HSD, HFGS, HULL PACKAGE); MMS SERVERS; SPCS SERVERS; TOPSIDES ELECTRICAL SYSTEM AUTOMATION DMZ SERVERS (ELECTRICAL SYSTEM); PRIM/PRM UPS. TELECOM ELECTRICAL INFORMATION SENSORS SHALL HAVE MODBUS DRIVERS FOR PUBLISHING DATA TO PI. ADDITIONALLY, REDUNDANT PI COLLECTORS (PI INTERFACES) SHALL BE INSTALLED IN THE AUTOMATION CLUSTER AT THE DMZ. THESE OPC DRIVERS / PI COLLECTORS SHALL SEND ANALOG, DISCRETE AND DIGITAL DATA POINTS FROM THE MENTIONED SYSTEMS (SOS, SUBSEA, ELECTRICAL SYSTEM, MMS) TO AN ONSHORE PI SERVER. FOR FURTHER DETAILS, CONSULT DOCUMENT I-ET-3010.2Q-1200-850-P4X-001 - SPECIAL MONITORING SYSTEMS.

21 - TIME SERVERS AND GPS ANTENNA TIME READING ARE PART OF ELECTRICAL SYSTEM'S SCOPE OF SUPPLY. THE TIME SERVERS SHALL POSESS SNTP PORTS BOTH FOR ELECTRICAL SYSTEM APPLICATIONS AND FOR AUTOMATION APPLICATIONS. SOS SUPERVISORY LAN, CSS DATA ACQUISITION LAN AND PACKAGE UNITS LAN SHALL BE CONNECTED TO SNTP PORTS.

22 - THE QUANTITIES OF ALL COMPONENTS REPRESENTED IN THE DRAWING (INCLUDING BUT NOT LIMITED TO SERVERS, PANELS, CABLE CONNECTIONS, NETWORK DEVICES, LICENSE QUANTITIES, SOFTWARE AND SO ON) SHALL BE CONFIRMED DURING DETAIL ENGINEERING DESIGN. EVENTUAL CHANGES IN THESE QUANTITIES, FINAL NETWORK TOPOLOGY AND CONFIGURATION SHALL NOT INCUR IN ADDITIONAL COSTS TO PETROBRAS.

23 - THESE EQUIPMENT ARE AUTOMATION SCOPE OF SUPPLY. HOWEVER, THEY SHALL BE INSTALLED INSIDE PDD-5517004, WHICH IS UNDER TELECOM SCOPE OF SUPPLY.

24 - LAYER 3 SWITCHES IN THE SAME NETWORK SHALL BE ADJACENT IN THE TOPOLOGY, IN ORDER TO EASE THEIR CONFIGURATION.

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APROV.
A	REVISED WHERE INDICATED	APR/12/2024	U.HO.	U.DE.	U.WI.
Ø	ORIGINAL	NOV/17/2023	U.HO.	U.DE.	U.WI.

PETROBRAS | ESUP

CLIENT: MARLIM LESTE E SUL
PROGRAM: BASIC DESIGN - REVIT I
AREA: MARLIM LESTE E SUL
TITLE: NETWORK INTERCONNECTION DIAGRAM
TECHNICAL DRAWING
SCALE: NO SCALE
SHEET: 01 of 03
INTERNAL
I-DE-3010.2Q-5520-800-P4X-004
REV: A

A0 - 1.189 X 841

OPERATOR'S ROOM - M-15B

TOPSIDES - AEPR

HULL - CCR-EA

PDD-5517004
RACK FOR M-15B NETWORK
TELECOM SCOPE OF SUPPLY

SW-5523001G (NOTE 23)

SW-5523001H (NOTE 23)

TOPSIDES SOS CLUSTERS PANEL
PN-5523011

SW-5523001A

SW-5523001B

PN-5523009 TOPSIDES SOS PROCESS CLUSTER (NOTE 18)

PN-5523010 TOPSIDES SOS SAFETY CLUSTER (NOTE 18)

TO/FROM CSS DATA ACQUISITION LAN AND TO/FROM PACKAGE UNITS LAN

SW-5523005A

SW-5523005B

TOPSIDES STORAGE / MANAGEMENT LAN

TOPSIDES PROCESS STORAGE A/B

TOPSIDES SAFETY STORAGE A/B

SW-5523002A

SW-5523002B

TOPSIDES PACKAGES ENTRY SWITCHES (NOTES 4, 5, 19, 28)

SW-5523003A

SW-5523003B

SUBSEA INTERFACE PANEL (PN-5524001A/B) (NOTE 32)

SUBSEA LAN (NOTES 9, 19, 37)

SW-1210001A

SW-1210001B

M-16B

PN-1210024
SUBSEA INTERFACE LAN EXPANSION PANEL

SW-1210001C

SW-1210001D

TOPSIDE ELECTRICAL SYSTEM AUTOMATION PANEL

TIME SERVER A (NOTES 13, 21)

TIME SERVER B (NOTES 13, 21)

SRV

GPS ANTENNA

FIELD

ELECTRICAL SYSTEM SCOPE OF SUPPLY (NOTE 7)

TELECOM SYSTEM SCOPE OF SUPPLY

DMZ SWITCH #3
SW-5517011

TOPSIDE ELECTRICAL SYSTEM AUTOMATION DMZ SERVERS

HULL SOS CLUSTERS PANEL
PN-5523508

SOS SUPERVISORY LAN (NOTES 9, 12, 24)

SW-5523001C

SW-5523001D

PN-5523507 HULL SOS SAFETY CLUSTER (NOTE 18)

PN-5523506 HULL SOS PROCESS CLUSTER (NOTE 18)

CSS DATA ACQUISITION LAN (NOTES 9, 12, 24, 25)

SW-5523002C

SW-5523002D

SW-5523004A

SW-5523004B

HULL STORAGE / MANAGEMENT LAN

HULL PROCESS STORAGE A/B

HULL SAFETY STORAGE A/B

PACKAGE UNITS LAN (NOTES 9, 12, 19, 24, 25)

SW-5523003C

SW-5523003D

HULL PACKAGES ENTRY SWITCHES (NOTES 4, 5, 19, 28)

TO/FROM ELECTRICAL SYSTEM

* LOCATED IN TOPSIDES

ELECTRICAL SYSTEM HULL A&C INTERFACE SWITCHES (NOTES 7, 10, 28)

ELECTRICAL SYSTEM SCOPE OF SUPPLY

TELECOM ROOMS

PETROBRAS DMZ SERVERS (NOTES 16, 20, 29, 40)

PETROBRAS DMZ SWITCHES SW-5517503 - DECK F SW-5517504 - DECK C

THIRD-PARTY DMZ SERVERS (NOTES 2, 16)

THIRD-PARTY DMZ SWITCHES SW-5517505 - DECK F SW-5517506 - DECK C

CORPORATE FIREWALL FW-5517501 - DECK F

CORPORATE FIREWALL FW-5517502 - DECK C

(NOTE 17)

PETROBRAS SPECIAL M. S. SW-5517507 - DECK F SW-5517508 - DECK C SW-5517564 - FORECASTLE

TELECOM SYSTEM SCOPE OF SUPPLY

REFERENCE DOCUMENTS

SEE SHEET 01

ABBREVIATIONS, ACRONYMS AND INITIALISMS

SEE SHEET 01

GENERAL NOTES

25 - THE SCOPE OF THIS DOCUMENT ENDS ON CSS DATA ACQUISITION LAN AND ON PACKAGE UNITS LAN. THE FOLLOWING ARE NOT PART OF THE SCOPE OF THIS DOCUMENT:
- FIELD NETWORKS (NETWORKS INTERCONNECTING PLCs AMONG THEMSELVES AND/OR TO THEIR REMOTE PANELS, INCLUDING INTERCONNECTION WITH THE ELECTRICAL SYSTEM CONTROLLERS);
- DETAILS OF EQUIPMENT INTERCONNECTED TO SUBSEA LAN;
- INTERCONNECTION AMONG PACKAGES.

FOR THESE NETWORKS (SUCH AS HSDN, ELECTRICAL LAN AND REMOTE PANELS) SEE DOCIMENTS:
- I-DE-3010.2Q-5520-800-P4X-002 - AUTOMATION AND CONTROL ARCHITECTURE
- I-ET-3010.00-5520-861-P4X-001 - CONTROL AND SAFETY SYSTEM - CSS
- I-ET-3010.2Q-1200-850-P4X-001 - SPECIAL MONITORING SYSTEMS

26 - THESE WORKSTATIONS SHALL BE THIN CLIENTS ACCESSING THEIR VIRTUAL IMAGE AT THE CLUSTERS.

27 - THERE SHALL BE REDUNDANT OPC DRIVERS FOR THE ELECTRICAL SYSTEM. THESE OPC DRIVERS SHALL SEND ANALOG AND DIGITAL DATA FROM THE ELECTRICAL SYSTEM TO THE SAME REDUNDANT PI COLLECTORS (LOCATED IN THE DMZ) AND PI SERVER (LOCATED ONSHORE) USED BY THE AUTOMATION SYSTEMS.

28 - HULL AND TOPSIDES PACKAGES ENTRY SWITCHES, AS WELL AS ELECTRICAL SYSTEM HULL A&C INTERFACE SWITCHES, SHALL BE FROM THE SAME MANUFACTURER AS THE ONES FROM THE PACKAGE UNIT LAN MAIN RING.

29 - NO DIRECT EXTERNAL USER ACCESS IS ALLOWED FROM THE CORPORATIVE NETWORK (RC) TO THE AUTOMATION NETWORK (RAI). IN OTHER WORDS, SOME OF THESE PETROBRAS DMZ SERVERS SHALL BE USED AS JUMP HOSTS. FOR FURTHER DETAILS, SEE DOCUMENT I-MD-3010.2Q-5520-800-P4X-003 - AUTOMATION NETWORK DESCRIPTION AND SEE TELECOM DISCIPLINE DOCUMENTATION.

30 - PN-5500001A - AUTOMATION ENGINEERING WORKSTATION AND PN-5500005A - AUTOMATION MAINTENANCE WORKSTATION ARE THIN CLIENTS ACCESSING THEIR IMAGE AT THE CLUSTERS. PN-5500001B - AUTOMATION ENGINEERING WORKSTATION AND PN-5500005B - AUTOMATION MAINTENANCE WORKSTATION ARE LAPTOPS (EACH) CONTAINING A STANDALONE VIRTUAL IMAGE PLAYER. THEY SHALL RUN THE SAME IMAGE THAT IS RUNNING IN THE CLUSTER (MINOR CONFIGURATION CHANGES). INDEPENDENT NETWORK POINTS SHALL BE PREPARED FOR ALL THESE MACHINES AT CCR-ATR, REGARDLESS IF THEY ARE THIN CLIENTS OR LAPTOPS (I.E., LAPTOPS AND THIN CLIENTS SHALL BE CONNECTED TO ALL APPLICABLE NETWORKS AT ALL TIMES).

31 - PN-5523008A/B - PACKAGE MAINTENANCE WORKSTATIONS ARE LAPTOPS CONTAINING A SERIES OF APPLICATIONS AIMED TOWARDS ALLOWING PACKAGE PANELS' MAINTENANCE. SEE I-DE-3010.2Q-5520-800-P4X-002 - AUTOMATION AND CONTROL ARCHITECTURE FOR DETAILS. A PACKAGE UNITS LAN ACCESS POINT SHALL BE FORESEEN AT CCR-ATR FOR EACH OF THESE LAPTOPS.

32 - PN-5524002A, PN-5524002B CONTAINS RESPECTIVELY ETHERNET L3 SWITCH A AND B. SWITCH QUANTITIES SHALL BE DEFINED DURING DETAIL ENGINEERING DESIGN.

33 - ALL VIRTUAL IMAGES AND THIN CLIENTS SHALL BE SUPPLIED CONTAINING THE LATEST WINDOWS OPERATING SYSTEM. IN ADDITION TO THIS, ALL SOFTWARE APPLICATIONS REQUIRED FOR VIRTUAL IMAGES AND THIN CLIENTS USAGE SHALL BE PROPERLY LICENSED.

34 - PN-1305810 - HULL STRUCTURE HEALTH MONITORING SYSTEM PANEL SHALL BE CONNECTED TO SW-5517564 IN FORECASTLE. /1\

35 - THESE CONNECTIONS ARE FORESEEN IN ORDER TO ENSURE PROPER MONITORING AND MANAGEMENT OF SW-5523004A/B AND SW-5523005A/B.

36 - A VIRTUAL MACHINE SHALL BE FORESEEN IN PETROBRAS DMZ CLUSTER IN ORDER TO PUBLISH SOS SCREENS IN HTML5 SO THAT THEY CAN BE ACCESSED REMOTELY FROM RC FOR MONITORING PURPOSES. NO COMMANDS ARE ALLOWED FROM PUBLISHED SCREENS TO THE SUPERVISORY SYSTEM. /1\

37 - CONNECTION BETWEEN SWITCHES INSTALLED IN PN-5524001A/B AND SWITCHES INSTALLED IN PN-1210024 SHALL BE MADE VIA FIBER OPTIC CABLE.

38 - THIS CONNECTION HAS MANAGEMENT PURPOSES.

39 - FOR FURTHER INFORMATION REGARDING NAV SYSTEM, SEE I-MD-3010.2Q-5520-800-P4X-003 - AUTOMATION NETWORK DESCRIPTION.

40 - VIRTUAL MACHINES SHALL BE FORESEEN IN PETROBRAS DMZ SERVERS FOR BACKUP SYSTEM, ANTIVIRUS SERVER AND AUTOMATION AND CONTROL UPDATE MANAGEMENT SYSTEM. FOR MORE INFORMATION SEE I-MD-3010.2Q-1200-800-P4X-002 - AUTOMATION AND CONTROL SYSTEM - SCOPE DEFINITION AND I-MD-3010.2Q-5520-800-P4X-003 - DESCRIPTIVE MEMORANDUM - AUTOMATION & CONTROL.

41 - A DOCUMENT INDICATING THE IP ADDRESSES OF ALL EQUIPMENT CONNECTED TO THE NETWORKS SHALL BE ISSUED DURING PROJECT'S DETAILING DESIGN PHASE

42 - THIS DOCUMENT IS A TYPICAL DRAWING AND, THEREFORE, SHALL NOT BE USED FOR ESTIMATING THE QUANTITIES OF CABLES, SERVERS AND SO ON. FOR MORE DETAILS, I-DE-3010.2C-5520-800-P4X-002 - AUTOMATION AND CONTROL ARCHITECTURE SHALL BE CONSULTED.

43 - THE ELECTRICAL SYSTEM SHALL BE TREATED AS A PACKAGE UNIT (SEE NOTE 7)

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APROV.
A	REVISED WHERE INDICATED	APR/12/2024	U44D	U3D6	U26I
0	ORIGINAL	NOV/17/2022	U44D	U3D6	U26I

ACCORDING TO CLYPER-0037, INFORMATION IN THIS DOCUMENT IS PROPERTY OF PETROBRAS. BEING PROHIBITED OUTSIDE OF THEIR PURPOSE. FORM OWNED TO PETROBRAS N.09 REV. M

PETROBRAS | ESUP

CLIENT: MARLIM LESTE E SUL

PROGRAM: BASIC DESIGN - REVIT I

AREA: MARLIM LESTE E SUL

TITLE: NETWORK INTERCONNECTION DIAGRAM

TECHNICAL DRAWING

SCALE: NO SCALE | SHEET: 02 of 03

INTERNAL

N° I-DE-3010.2Q-5520-800-P4X-004

A0 - 1.189 X 841

NAV TYPICAL ARCHITECTURE DIAGRAM

(NOTE 39)

TOPSIDES - AEPR

TOPSIDES SOS CLUSTERS PANEL
PN-5523011

TO/FROM TIME SERVER A (NOTE 21) — 29
TO/FROM TIME SERVER B (NOTE 21) — 30
A

SW-5523006A

45B NAV SENSOR 2

(NOTE 38)

SW-5523001A
SW-5523001B
SW-5523005A

SW-5523007A
TOPSIDES AGGREGATOR SWITCH

SW-5523002A
SW-5523002B
SW-5523003A
SW-5523003B
SW-5523005B

OPERATOR'S ROOM M-15B

PDD-5517004
RACK FOR M-15B NETWORK TELECOM SCOPE OF SUPPLY

SW-5523001G
SW-5523001H

M-16B

PN-1210024
SUBSEA INTERFACE LAN EXPANSION PANEL

SW-5523001C
SW-5523001D

SUBSEA INTERFACE PANEL
PN-5524001A/B

SW-5523001A
SW-5523001B
A

HULL - CCR-EA

HULL CPU PANEL
PN-5500516

NETWORK ANALYSIS LAN
(NOTES 9, 12, 24, 25)

SW-5523006B

42 TO/FROM CORPORATE FIREWALL

SW-5523006C

41 TO/FROM CORPORATE FIREWALL

(NOTE 38)

45A NAV SENSOR 1

HULL SOS CLUSTERS PANEL
PN-5523508

SW-5523001C
SW-5523001D
SW-5523002C
SW-5523002D

SW-5523007B
HULL AGGREGATOR SWITCH

SW-5523003C
SW-5523003D
SW-5523004A
SW-5523004B

REFERENCE DOCUMENTS

SEE SHEET 01

ABBREVIATIONS, ACRONYMS AND INITIALISMS

SEE SHEET 01

GENERAL NOTES

SEE SHEETS 1 AND 2

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APROV.
A	REVISED WHERE INDICATED	APR/12/2024	U.HID	U.DOS	U.DEI
Ø	ORIGINAL	NOV/17/2023	U.HID	U.DOS	U.DEI

PETROBRAS | ESUP

CLIENT: MARLIM LESTE E SUL
PROGRAM: BASIC DESIGN - REVIT I
AREA: MARLIM LESTE E SUL
TITLE: NETWORK INTERCONNECTION DIAGRAM

TECHNICAL DRAWING
SCALE: NO SCALE
SHEET: 03 of 03

INTERNAL
N° I-DE-3010.2Q-5520-800-P4X-004

A0 - 1.189 X 841