REFERENCE DOCUMENTS

I-MD-3010.1M-1200-940-P4X-017 - DESCRIPTIVE MEMORANDUM - GENERAL
I-DE-3010.1M-1200-944-P4X-001 - PIPING AND INSTRUMENT DIAGRAM - GENERAL NOTES
I-ET-3010.1M-1200-200-P4X-002 - PIPING SPECIFICATION FOR HULL
I-ET-3000.00-0000-940-P4X-002 - SYMBOLS FOR PRODUCTION UNITS DESIGN
I-ET-3000.00-1200-940-P4X-001 - TAGGING PROCEDURE FOR PRODUCTION UNITS DESIGN
I-DE-3010.1M-1350-960-P4X-002 - CAPACITIES PLAN
I-ET-3010.00-1200-800-P4X-013 - GENERAL CRITERIA FOR INSTRUMENTATION PROJECTS
I-ET-3010.1M-1200-800-P4X-014 - AUTOMATION INTERFACE OF PACKAGE UNITS.

EQUIPMENT

TAG	DESCRIPTION	TYPE	CAPACITY
B-5241506 (1 x 100%)	FWD DIESEL OIL OVERFLOW PUMP	CENTRIFUGAL	5m³/h
B-GG-5241501A/B (2 x 100%)	DIESEL OIL PUMP UNIT FOR INERT GAS	CENTRIFUGAL	-
EXT-GG-5241501A-A (1 x 100%)	EXHAUST FANS FOR FUEL GAS PIPE CASING		-
EXT-GG-5241501A-B (1 x 100%)	EXHAUST FANS FOR FUEL GAS PIPE CASING		-
EXT-GG-5241501B-A (1 x 100%)	EXHAUST FANS FOR FUEL GAS PIPE CASING		-
EXT-GG-5241501B-B (1 x 100%)	EXHAUST FANS FOR FUEL GAS PIPE CASING		-
GG-5241501A/B (2 x 100%)	INERT GAS GENERATOR		9000m³/h
PN-GG-5241501A-01 (1 x 100%)	INERT GAS GENERATOR UNIT REMOTE CONTROL PANEL	CONTROL PANEL	-
PN-GG-5241501A-02 (1 x 100%)	INERT GAS GENERATOR UNIT LOCAL CONTROL PANEL	CONTROL PANEL	-
PN-GG-5241501B-01 (1 x 100%)	INERT GAS GENERATOR UNIT REMOTE CONTROL PANEL	CONTROL PANEL	-
PN-GG-5241501B-02 (1 x 100%)	INERT GAS GENERATOR UNIT LOCAL CONTROL PANEL	CONTROL PANEL	-
TQ-5133503 (1 x 100%)	FWD DIESEL OIL OVERFLOW TANK	STRUCTURAL	17.3 m³
TQ-GG-5241501A/B-04 (1 x 100%)	INERT GAS GENERATORS DIESEL DAILY TANK	RECTANGULAR	20m³
VT-GG-5241501A (1 x 100%)	INERT GAS GENERATOR BLOWER	CENTRIFUGAL	9000 m³/h
VT-GG-5241501B (1 x 100%)	INERT GAS GENERATOR BLOWER	CENTRIFUGAL	9000 m³/h
Z-GG-5241501A (1 x 100%)	VENTILATED FUEL GAS SUPPLY CABINET		-

GENERAL NOTES

1 - THE INERT GAS GENERATORS, THE DIESEL SUPPLYING TO THE INERT GAS GENERATORS, THE FUEL GAS SUPPLYING TO THE INERT GAS GENERATORS AND THE ITEMS MARKED WITH THE LETTER (S) SHALL BE SUPPLIED BY THE INERT GAS GENERATORS VENDOR. ALL OF THESE ITEMS SHALL BE CONTROLLED ONLY BY TWO PANELS: ONE REMOTE PANEL IN THE CENTRAL CONTROL ROOM OR ONE LOCAL PANEL, BOTH TO BE SUPPLIED BY INERT GAS GENERATORS VENDOR.

2 - THE ENTIRE INSTRUMENTS PROVIDED BY VENDOR OF THE INERT GAS SYSTEM WITH SYMBOLS (S) WILL BE CONNECTED IN THE PANELS OF THE INERT GAS SYSTEM.

3 - THE MATERIAL OF VALVES AND ACCESSORIES IDENTIFIED WITH "S" SHALL BE SUITABLE TO THE FLUID ACCORDING TO VENDORS STANDARD.

4 - INERT GAS GENERATORS FANS AIR SUCTIONS SHALL BE LOCATED IN A SAFE AREA, OUTSIDE THE INERT GAS GENERATORS ROOM. THESE AIR SUCTIONS SHALL BE LOCATED FAR FROM THE FUEL GAS PIPE IN PIPE LINES ANNULAR EXHAUST FANS DISCHARGE, TO AVOID THE RISK OF GAS SHORT CIRCUIT. THIS INSTALLATION SHALL BE FORMALLY APPROVED BY CLASSIFICATION SOCIETY.

5 - THE INERT GAS GENERATORS SHALL BE TRIPPED OUT IN CASE OF LACK OF AIR SUPPLYING, VERY REACH MIXTURES FUEL/ AIR AND IN THE CASE OF FAIL OF IGNITOR.

6 - THE INERT GAS GENERATORS SETS SHALL BE INSTALLED BY CONTRACTOR IN A DEDICATED, CLOSED AND NON-CLASSIFIED COMPARTMENT. CONTRACTOR SHALL INSTALL THE EQUIPMENT AND THE GAS PIPING SO THAT THE INSTALLATION DOES NOT CLASSIFY THE AREA

7 - THE INERT GAS PIPING IN NON-CLASSIFIED AREAS SHALL BE OF PIPE IN PIPE TYPE. THIS PIPING SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:

A) IT SHALL BE FABRICATED WITH STAINLESS STEEL AISI 316L OR SIMILAR;
B) THE ANNULAR OF THIS PIPING SHALL BE CONTINUOUSLY EXHAUSTED BY 2 X 100% EXHAUST FANS WITH AUTOMATIC STAND-BY SYSTEM.
C) THESES EXHAUST FANS SHALL BE DISCHARGED IN A SAFE AREA OUTSIDE THE INERT GAS GENERATORS ROOM, THIS DISCHARGE SHALL HAVE FLAME ARRESTERS AND ITS LOCATION SHALL BE APPROVED BY CLASSIFICATION SOCIETY.
D) THE GAS DETECTORS IN THE ANNULAR SHALL BE LOCATED IN THE ANNULAR DISCHARGE.
E) THE PRESENCE OF GAS IN THIS DISCHARGE SHALL START THE SAFETY PROCEDURES REQUIRED BY CLASSIFICATION SOCIETY.
F) THE FUEL GAS LINE SHALL BE WELDED.

8 - THE FUEL GAS SUPPLY CABINET SHALL BE PERMANENTLY VENTILATED BY EXTRACTING FAN WITH GAS DETECTION.

9 - FUEL GAS DOUBLE WALLED FLEXIBLE HOSE, LENGTH 4000 mm.

10 - THE INERT GAS GENERATORS SHALL HAVE FRESH WATER FLUSHING OF COOLING JACKET.

11 - PNEUMATIC CONTROL VALVES SHALL HAVE ACTUATORS FO/FC TO INDICATEVALVE IN SHUTDOWN/STANDBY POSITION.

12 - THE VENT POSTS IN THE INERT GAS GENERATORS DISCHARGE SHALL BE SENT TO SAFE LOCATION. THE LOCATION SHALL CONSIDER THAT THE GAS MAY HAVE WATER FROM THE SCRUBBER.

13 - FOLLOWING DESIGN PARAMETERS SHALL BE CONFIRMED AND REVISED ACCORDING THE INERT GAS GENERATORS VENDOR, DURING THE DETAILED ENGINEERING PHASE:
- MAXIMUM DELIVERY PRESSURE AT INERT GAS GENERATOR ASSEMBLY OUTLET: 1200 mmWC;
- MAXIMUM TEMPERATURE AT SCRUBBER OUTLET: 10°C (ABOVE SEA WATER TEMPERATURE);
- SEA WATER MAXIMUM TEMPERATURE REQUIREMENTS: 32°C;
- O2 CONTENT: 1 - 4% Vol.

14 - ALL INSTRUMENTS ON HORIZONTAL PIPES TO BE CONNECTED ON THE TOP OF PIPE. NO POCKETS ON INSTRUMENT SIGNAL LINES.

15 - MOTOR SHAFTS AND LEVEL SWITCHES TO BE ORIENTED ACCORDING TO THE SHIP LONGITUDINAL AXIS.

16 - INSTRUMENT AIR DISTRIBUTION SHALL BE DEFINED DURING THE DETAIL DESIGN.

17 - MINIMUM HEIGHT ACCORDING TO VENDOR REQUIREMENTS.

18 - INERT GAS SYSTEM DATA: HOLD 1
A) WORKING PRESSURE: 11.77 kPag
B) DESIGN PRESSURE: 343 kPag
C) TEST PRESSURE: 1.5 DP = 515 kPag
D) WORKING TEMPERATURE: 30°C
E) DESIGN TEMPERATURE: 70°C

19 - POSITIVE CLOSING VALVE CONNECTED DIRECTLY ON THE TANK. THE VALVE IS NOT TO BE MADE OF CAST IRON, ALTHOUGH THE USE OF NODULAR CAST IRON IS PERMISSIBLE, REFERS TO CLASSIFICATION SOCIETY THE POSITIVE CLOSING VALVE IS TO BE PROVIDED WITH MEANS OF CLOSURE BOTH LOCALLY AND FROM A READILY ACCESSIBLE AND SAFE POSITION OUTSIDE OF THE SPACE.

20 - CONNECTION WITH BLIND FLANGE TO ENABLE THE FILLING LINE IN THE EVENT OF LOSS OF PRIMING.

21 - HIGH LEVEL SHALL BE SET AT 20% FOR FWD DIESEL OIL OVERFLOW TANK.

22 - HIGH LEVEL ALARM FOR INERT GAS GENERATOR DIESEL DAILY TANK SHALL BE SET WITH LEVEL BELOW THE LEVEL OF OVERFLOW OUTLET.

23 - BILGE WELL LOCATED IN FORE CASTLE (I-DE-3010.1M-5330-944-P4X-003 - COFFERDAM, VOID SPACES AND STORES DRAINING SYSTEM.

24 - THIS P&ID SHALL BE UPDATED DURING DETAILED DESIGN PHASE FOLLOWING ALL EQUIPMENT MANUFACTURERS RECOMMENDATION.

HOLD TABLE

1 - FINAL SYSTEM DATA

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
B	REVISED WHERE INDICATED ACCORDING TO HAZOP COMMENTS.	08 Jul 2019	APMOREIRA.TGP	BAVILA	CHRISTINO
A	REVISED WHERE INDICATED	06 Jun 2019	GMONTEIRO	RODBAT	CHRISTINO
0	ORIGINAL ISSUE	24 Apr 2019	APMOREIRA.TGP	RODBAT	CHRISTINO

SPPID/V2014/I-DE-3010.1M-5241-944-P4X-003_B.pid

PETROBRAS | DP&T-SRGE

CLIENT: SRGE

JOB: REFERENCE BASIC DESIGN

AREA: BÚZIOS

TITLE: PIPING AND INSTRUMENT DIAGRAM INERT GAS SYSTEM

DESIGN ESUP	EXEC. APMOREIRA.TGP	CHECK RODBAT	APPROV. CHRISTINO
SCALE NO SCALE	DRAWING	1001056398 0010	SHEET 01 of 01
NP-1		ESUP	
DATE 4/24/2019	No. I-DE-3010.1M-5241-944-P4X-003		