ENGINEERING, PROCUREMENT AND CONSTRUCTION OF MOTOR CONTROL CENTER (MCC) AND DISTRIBUTION PANELS (DPs)

REFERENCE PROJECT

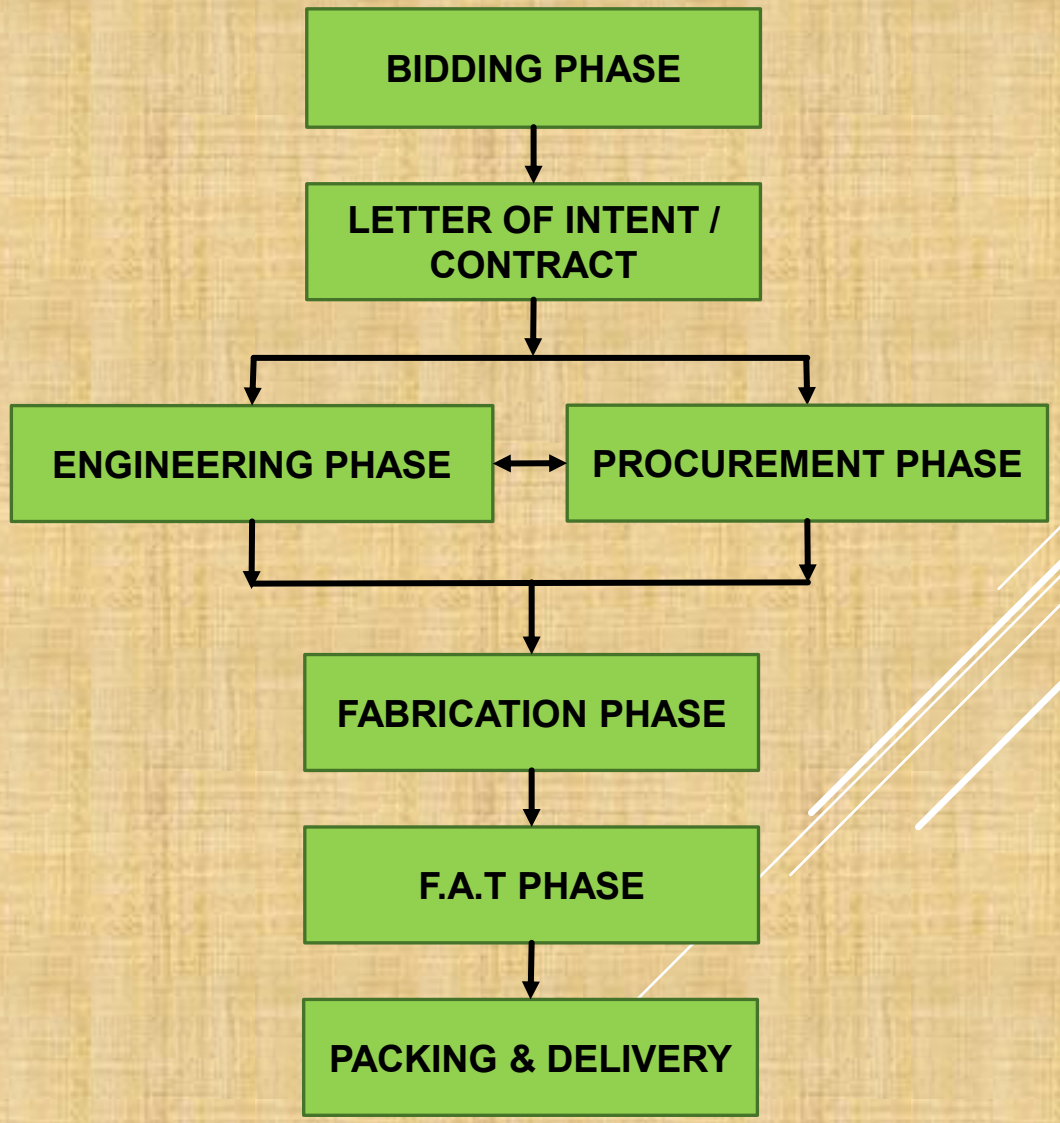
NO	PROJECT NAME	DESCRIPTION	YEAR
1	MCC - RC5RC9 MCC, EMCC - BKTHTC3 MCC, EMCC - CTC1 MCC, EMCC - MKS	End User: RC5RC9, THTC3, CTC1, MKS - Vietsovpetro. Type: Indoor with air conditioner Design Standard: IEC 60947, IEC 61439	2015-2019
2	MCC, DPs - BK20 MCC, DPs - BK21	End User: BK20, BK21 - Vietsovpetro. Type: Indoor with air conditioner Design Standard: IEC 60947, IEC 61439	2019-2020
3	MCC, DPs - BK18A MCC, DPs - BK19	End User: BK18A, BK19 - Vietsovpetro. Type: Indoor with air conditioner Design Standard: IEC 60947, IEC 61439	2020-2021
4	MCC, DPs – CTC2 MCC, DPs – RC10 MCC, DPs – RC-RB1	End User: CTC2, RC10, RC-RB1 - Vietsovpetro. Type: Indoor with air conditioner Design Standard: IEC 60947, IEC 61439	2021-2022
5	MCC, DPs – RC8 MCC, DPs – BK22 MCC, DPs – KTP630 – RP3	End User: RC8, BK22, RP3 - Vietsovpetro. Type: Indoor with air conditioner Design Standard: IEC 60947, IEC 61439	2022-2023
6	MCC, DPs – KNT MCC, DPs – KTN MCC, DPs – MSP10 MCC, DPs – BK23 MCC, DPs – BK24	End User: KNT, KTN, MSP10, BK23, BK24 - Vietsovpetro. Type: Indoor with air conditioner Design Standard: IEC 60947, IEC 61439	2023-2024

MCC – BK21

MCC, EMCC – CTC1

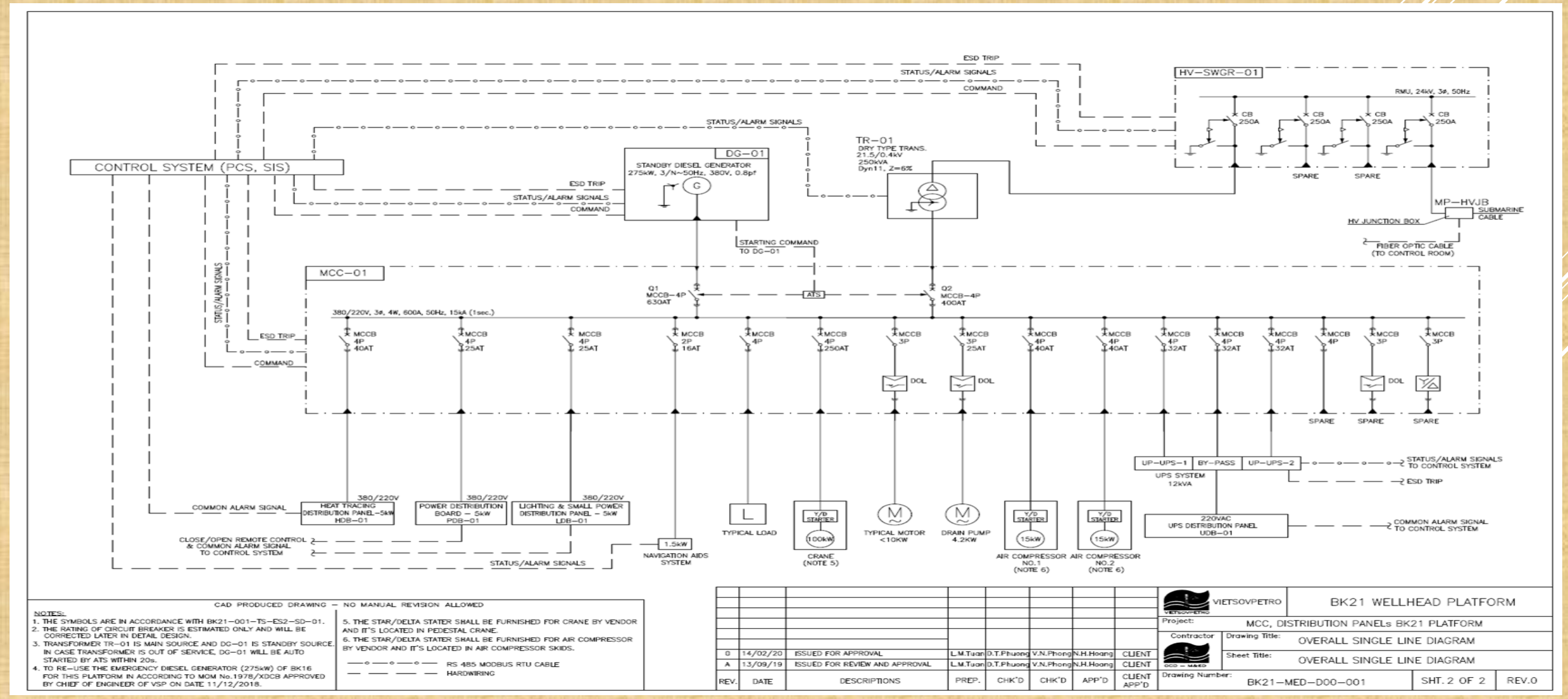
MCC – MKS

PROJECT CHART



BASIC DESIGN PROCESS

Single Line Diagram



CAD PRODUCED DRAWING – NO MANUAL REVISION ALLOWED

NOTES:
1. THE SYMBOLS ARE IN ACCORDANCE WITH BK21–001–TS–ES2–SD–01.
2. THE RATING OF CIRCUIT BREAKER IS ESTIMATED ONLY AND WILL BE CORRECTED LATER IN DETAIL DESIGN.
3. TRANSFORMER TR–01 IS MAIN SOURCE AND DG–01 IS STANDBY SOURCE. IN CASE TRANSFORMER IS OUT OF SERVICE, DG–01 WILL BE AUTO STARTED BY ATS WITHIN 20s.
4. TO RE–USE THE EMERGENCY DIESEL GENERATOR (275kW) OF BK16 FOR THIS PLATFORM IN ACCORDING TO MOM No.1978/XDCB APPROVED BY CHIEF OF ENGINEER OF VSP ON DATE 11/12/2018.
5. THE STAR/DELTA STATER SHALL BE FURNISHED FOR CRANE BY VENDOR AND IT'S LOCATED IN PEDESTAL CRANE.
6. THE STAR/DELTA STATER SHALL BE FURNISHED FOR AIR COMPRESSOR BY VENDOR AND IT'S LOCATED IN AIR COMPRESSOR SKIDS.

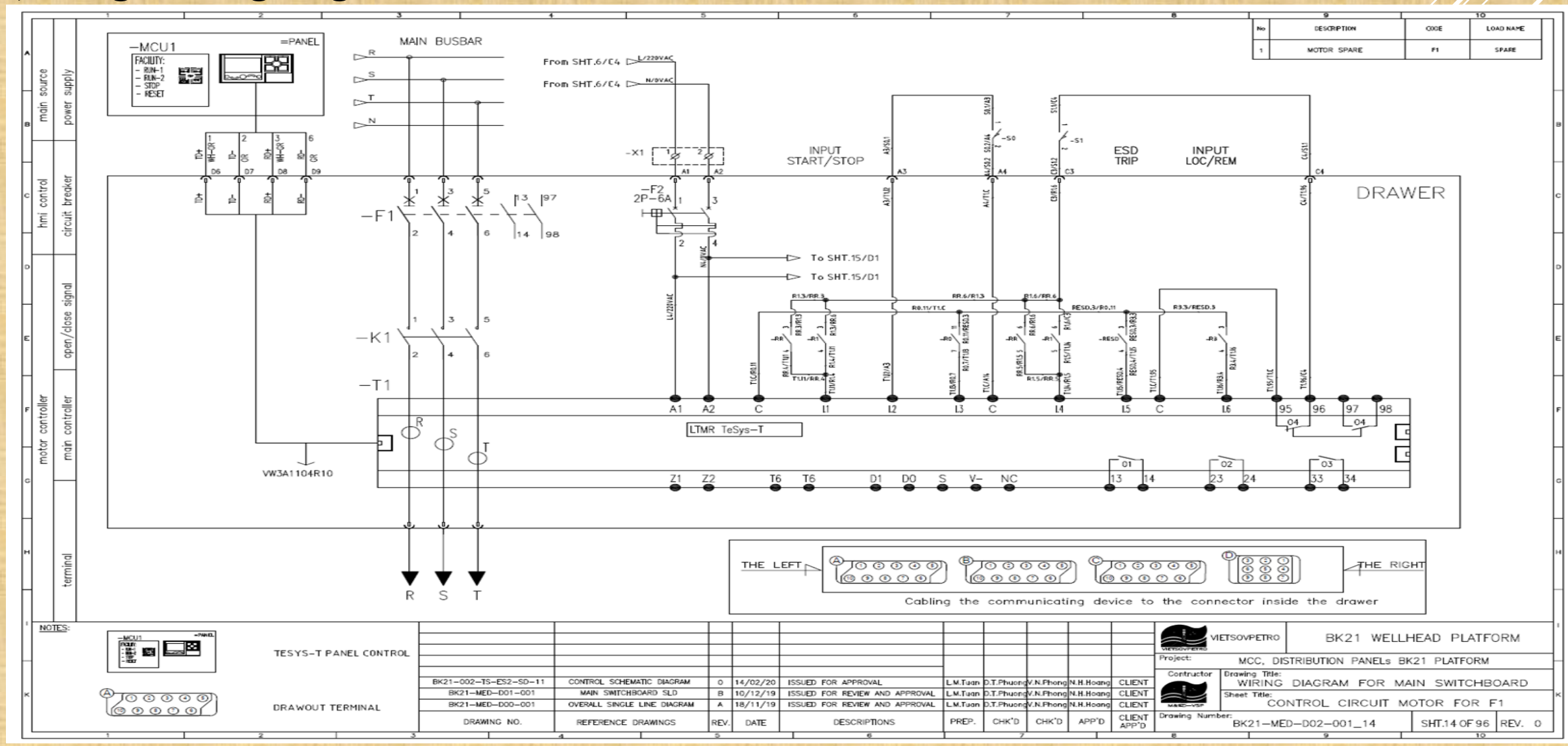
RS 485 MODBUS RTU CABLE
HARDWIRING

REV.	DATE	DESCRIPTIONS	PREP.	CHK'D	CHK'D	APP'D	CLIENT APP'D
0	14/02/20	ISSUED FOR APPROVAL	L.M.Tuan	D.T.Phuong	V.N.Phong	N.H.Hoang	CLIENT
A	13/09/19	ISSUED FOR REVIEW AND APPROVAL	L.M.Tuan	D.T.Phuong	V.N.Phong	N.H.Hoang	CLIENT

VIETSOVPETRO
BK21 WELLHEAD PLATFORM
Project: MCC, DISTRIBUTION PANELs BK21 PLATFORM
Contractor
Drawing Title: OVERALL SINGLE LINE DIAGRAM
Sheet Title: OVERALL SINGLE LINE DIAGRAM
Drawing Number: BK21–MED–D00–001
SHT. 2 OF 2
REV.0

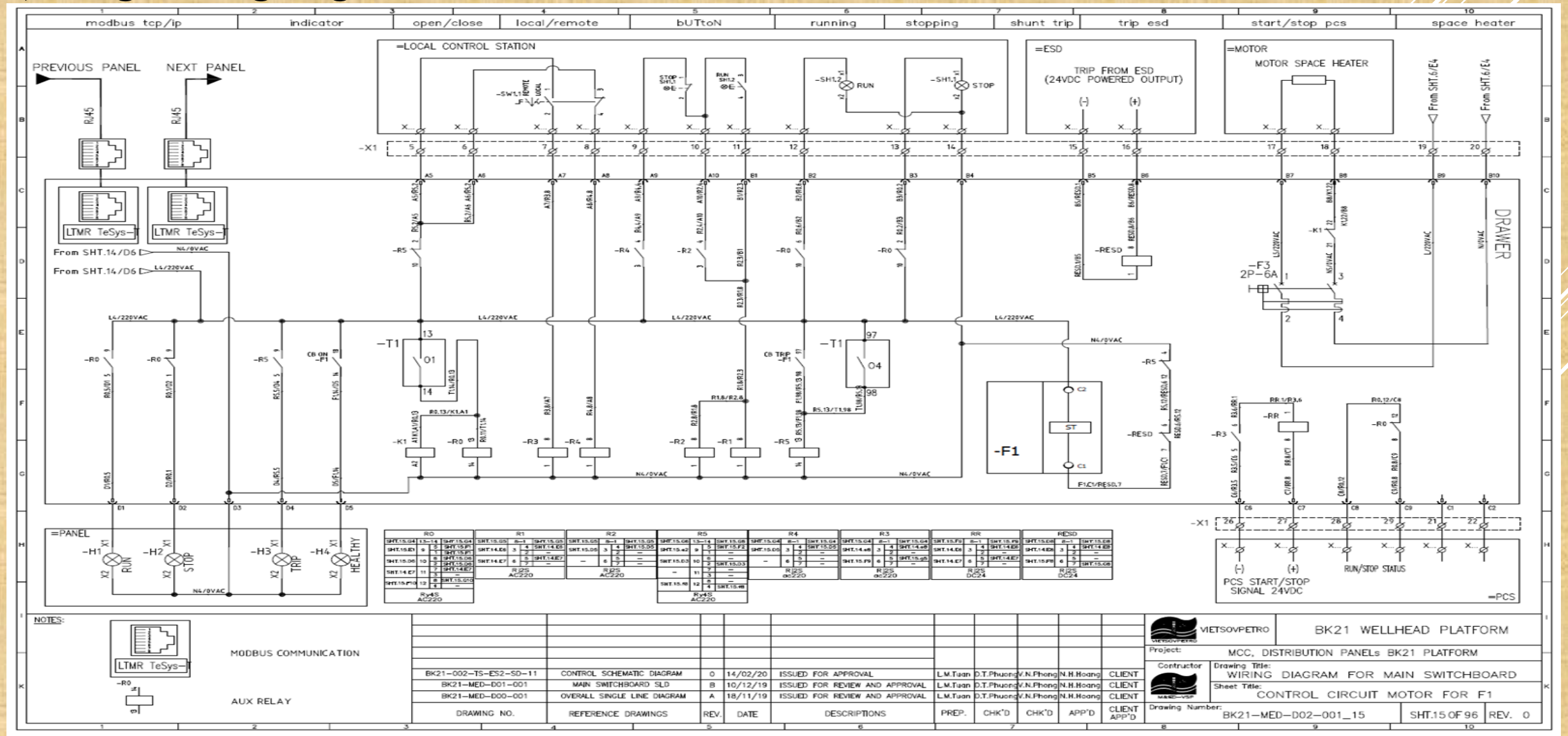
DETAILED DESIGN

1) Design wiring diagram



DETAILED DESIGN

1) Design wiring diagram



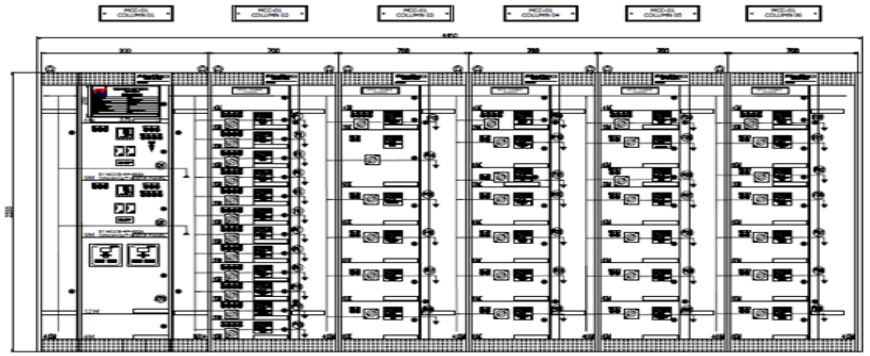
DETAILED DESIGN

2) Design General Arrangement

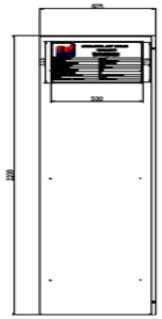
No.	DESCRIPTION	CIRCUIT BREAKER	LOAD LIST	ORDER CODE
MP	MEASUREMENT AND PROTECT RELAY			
Q1	INCOMING FROM GENERATOR	4P 500A 36kA		LV432877
Q2	INCOMING FROM TRANSFORMER	4P 500A 36kA		LV432877
ATS	ATS CONTROL			
F1	MOTOR SPARE	3P 10A	3.0kW	GV2L14
F2	OIL CLEANING MODULE OCM-8301	3P 10A	3.0kW	GV2L14
F3	DRAIN PUMP P-H211	3P 16A	4.2kW	GV2L20
F4	VOLUME CONTROL DAMPERS E&I ROOM # 1 VN-VDM-1	2P 10A	0.005kW	GV2L14
F5	VOLUME CONTROL DAMPERS E&I ROOM # 2 VN-VDM-2	2P 10A	0.005kW	GV2L14
F6	EXHAUST FAN OF LIVING ROOM # 1 VN-AF-1	2P 10A	0.055kW	GV2L14
F7	EXHAUST FAN OF E&I ROOM # 1 VN-AF-3	2P 10A	0.27kW	GV2L14
F8	EXHAUST FAN OF E&I ROOM # 2 VN-AF-4	2P 10A	0.27kW	GV2L14
F9	EXHAUST FAN OF STANDBY GENERATOR ROOM # 1 VN-AF-5	3P 10A	0.47kW	GV2L14
F10	EXHAUST FAN OF STANDBY GENERATOR ROOM # 2 VN-AF-6	3P 10A	0.47kW	GV2L14
F11	EXHAUST FAN OF STANDBY GENERATOR ROOM # 3 VN-AF-7	3P 10A	0.47kW	GV2L14
F12	EXHAUST FAN OF STANDBY BATT.ROOM #1 VN-AF-11	2P 10A	0.16kW	GV2L14
F13	EXHAUST FAN OF STANDBY BATT.ROOM #2 VN-AF-12	2P 10A	0.16kW	GV2L14
F14	CRANE	4P 250A 36kA	100kW	LV431640
F15	CRANE'S UTILITIES	4P 20A 36kA	5.0kW	LV429646
F16	AIR COMPRESSOR 1 M-AU-AE-01	4P 40A 36kA	15kW	LV429644
F17	AIR COMPRESSOR #2 M-AU-AE-02	4P 40A 36kA	15kW	LV429644
F18	POWER DISTRIBUTION BOARD PDB-01	4P 25A 36kA	5.0kW	LV429646
F19	LIGHTING & SMALL POWER SYSTEM LDB-1	4P 25A 36kA	5.0kW	LV429646
F20	HEAT TRACING DISTRIBUTION PANEL HDB-01	4P 40A 36kA	5.0kW	LV429644
F21	NAVIGATION AIDS SYSTEM NAV-01	2P 16A 36kA	1.5kW	LV429637
F22	UPS SYSTEM #1 UP-UPS-01	4P 32A 36kA	12kVA	LV429645
F23	UPS SYSTEM #2 UP-UPS-02	4P 32A 36kA	12kVA	LV429645
F24	UPS SYSTEM #BYPASS UP-UPS-03	4P 32A 36kA	12kVA	LV429645
F25	WELDING SOCKET	4P 63A 36kA	63A	LV429642
F26	AIR CONDITIONER FOR LIVING ROOM AC-ACU-1	2P 16A 36kA	2.1kW	LV429637
F27	AIR CONDITIONER #1 FOR E&I ROOM AC-ACU-2	4P 20A 36kA	4.5kW	LV429646
F28	AIR CONDITIONER FOR E&I ROOM #3 AC-ACU-3	4P 20A 36kA	4.5kW	LV429646
F29	AIR CONDITIONER FOR E&I ROOM #4 AC-ACU-4	4P 20A 36kA	4.5kW	LV429646
F30	AIR CONDITIONER FOR TRANSFORMER ROOM #1 AC-ACU-5	4P 10A 36kA	2.5kW	LV429647
F31	AIR CONDITIONER FOR TRANSFORMER ROOM #2 AC-ACU-6	4P 10A 36kA	2.5kW	LV429647
F32	AIR CONDITIONER FOR BATT ROOM AC-ACU-7	2P 16A 36kA	1.5kW	LV429637
F33	MOTOR SPARE	3P 20A	SPARE	GV2L20
F34	MOTOR SPARE	3P 20A	SPARE	GV2L20
F35	MOTOR SPARE	3P 40A	SPARE	GV2L32
F36	POWER SPARE	4P 16A 36kA	SPARE	LV429647
F37	POWER SPARE	4P 25A 36kA	SPARE	LV429646
F38	POWER SPARE	4P 25A 36kA	SPARE	LV429646
F39	POWER SPARE	4P 40A 36kA	SPARE	LV429644

TECHNICAL DATA EMCC DETAILED

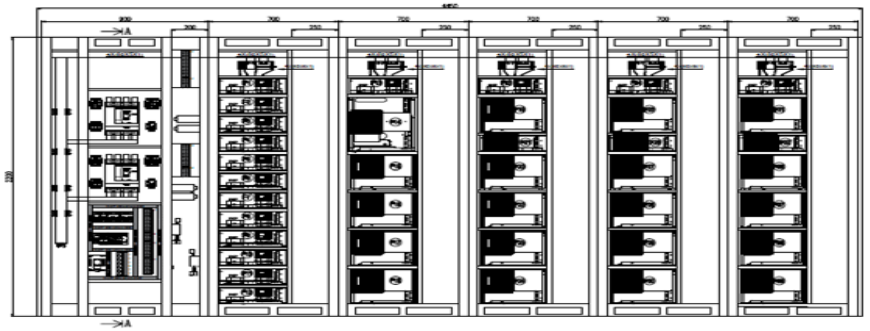
SWITCHGEAR NAME	: MCC-01		IP PROTECTION FOR SWITCHGEAR	☐ IP31 ☒ IP42 ☐ IP65	
DIMENSION WxHxD (mm)	: 4450W x 2200H x 650D		FORMS OF SEPERATION	☐ 1 ☐ 2b ☒ 3b ☐ 4a ☐ 4b	
POWER COATING	: RAL 7035		OPERATION	☒ FRONT ☐ FRONT & REAR	
	☒ INDOOR ☐ OUTDOOR		LOCATION	☒ INDOOR ☐ OUTDOOR	
	☒ SMOOTH ☐ TEXTURE		ACCESSIBILITY	☒ STANDING TYPE ☐ WALL MOUNTED	
MATERIAL	: STEEL SHEET		CABLES ENTRY	: BOTTOM	
FRAME THICKNESS	☐ 1.2mm ☐ 1.5mm ☒ 2.0mm		TYPE OF CABLE	: LSHF AND FLAME RETARDANT	
INNER DOOR THICKNESS	☐ 1.2mm ☐ 1.5mm ☒ 2.0mm		LABEL	: WHITE LETTER – BLACK BACKGROUND	
OUTER DOOR THICKNESS	☐ 1.2mm ☐ 1.5mm ☒ 2.0mm		WEIGHT	: 3000 Kg	
BACK COVER THICKNESS	☐ 1.2mm ☐ 1.5mm ☒ 2.0mm		UNIT	: mm	
SIDE PLATE THICKNESS	☐ 1.2mm ☐ 1.5mm ☒ 2.0mm				



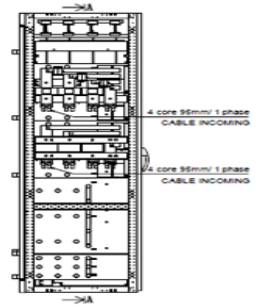
FRONT VIEW



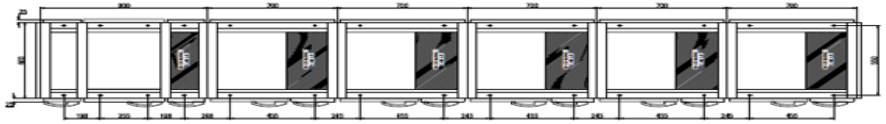
SIDE VIEW



ARRANGE VIEW



SECTION VIEW



BOTTOM VIEW

DRAWING NO.	REFERENCE DRAWINGS	REV.	DATE	DESCRIPTIONS	PREP.	CHK'D	CHK'D	APP'D	CLIENT APP'D
		0	14/02/20	ISSUED FOR APPROVAL	L.M.Tuan	D.T.Phuong	V.N.Phong	N.H.Hoang	CLIENT
		A	13/09/19	ISSUED FOR REVIEW AND APPROVAL	L.M.Tuan	D.T.Phuong	V.N.Phong	N.H.Hoang	CLIENT

VIETSOVPETRO — BK21 WELLHEAD PLATFORM

Project: MCC, DISTRIBUTION PANELs BK21 PLATFORM

Contractor: OCD – MMED

Drawing Title: GENERAL ARRANGEMENT DRAWING FOR MAIN SWITCHBOARD

Sheet Title: GENERAL ARRANGEMENT DRAWING FOR MAIN SWITCHBOARD

Drawing Number: BK21-MED-D03-001 | SHT. 2 OF 2 | REV.0

PROCUREMENT, SYNCHRONIZATION

- Follow list of materials which have approval
  (Theo danh mục đơn hàng đã phê duyệt sau khi bóc tách vật tư chi tiết)

- Check the list of materials proposed by contractor according to technical requirements
  (Kiểm tra danh mục vật tư nhà thầu đề xuất theo đúng yêu cầu kỹ thuật)

- Receiving, checking and synchronizing the list of materials follow labor
  (Nhận, kiểm tra và đồng bộ danh mục vật tư theo hợp đồng)

FABRICATION, EQUIPMENT INSTALLATION

- Install equipment follow design and standard IEC 60947, IEC 61439

TESTING

MCC, DPs CERTIFICATES

BUREAU VERITAS

CERTIFICATE OF CONFORMITY

N°: INY-VT-CER/16/153

Pursuant to the Contract Number: 190/15/CĐ-BV between Vietsovl
Energetic Division and Bureau Veritas Vietnam Ltd, after having
General Conditions of Services:

- Performed review of design as per Design review report MED/DRR/01_Rev0
- Performed review of documents, procedures and test report of fabrication, test as per Inspection Report No: INY-v-15/06

issued by Bureau Veritas to VietsovPetro J.V – Mechanical & E

Bureau Veritas hereby certifies that, as a result of and to the e
review and inspections, within the provisions of the Inspecti
mentioned equipment:

Project : **SUPPLY OF RC9 LV SWITCHGEAR AND DISTRIBU**
ON RC5 WELLHEAD PLATFORM – DRAGON OIL FI
Item(s) : **RC9 LV Switchgear and Distribution Boards**
Location : **VietsovPetro J.V – Mechanical & Energetic Division**
No. 15 Le Quang Dinh street, Thang Nhat Ward, Vu

have been found to be designed, installed and tested in con
Technical Specifications and relevant codes & standards applie
equipment.

Issued in Vung Tau City, Vietnam on 21st April, 2016.

For and on behalf of B

LE XUA

Industrial Tech

"This certificate reflects only the subject matters as regards the condition of the asset at the tim
reflect subsequent modifications of the asset or any wear and tear. This certificate is NOT ar
purpose and does not release designers, engineers, architects and any other party from their r
and/or indemnity in connection with the asset."

CỤC ĐĂNG KIỂM VIỆT NAM
VIETNAM REGISTER

GIẤY CHỨNG NHẬN SẢN PHẨM CÔI

CERTIFICATE OF MARINE PRODI

Số: 0269/20VT01.CP
No.

CỤC ĐĂNG KIỂM VIỆT NAM CHỨNG NHẬN (các) sản phẩm sau đây
Hướng dẫn về kiểm tra và chứng nhận sản phẩm công nghiệp dùng cho
Đăng kiểm Việt Nam
VIETNAM REGISTER CERTIFIES THAT *The following products have been ins*
the Guidance for Inspection and Approval of Marine Products of VietNam Register.

MAIN LOW VOLTAGE SWITCHGEAR

Cơ sở sản xuất: ..... Mechanical & Energy Division - Joint Venture Viet
Manufacturer.
Sử dụng cho: ..... BK-21 Platform
Intended for
Số chứng nhận duyệt: ..... 005/20CTB-D.OFF ..... Số duyệt thiết kế: .....
Approval Certificate No *Approval design No*
Số xuất xưởng: MCC-01
Serial No.
Hạn chế áp dụng: ..... N/A
Restriction for Application

Tiêu chuẩn kiểm tra/Inspection Standards:

QCVN 49: 2012/BGTGVT: National Regulation for Classification and Superv
Amendment No.1:2017.

Được đóng dấu ấn chỉ và số kiểm tra như sau.
For identification inspection mark and test number were stamped as follows.

Cấp tại: VUNG TAU Ngày: 26/05/2020
Issued at *Date*

CỤC ĐĂNG KIỂM VIỆT
VIETNAM REGISTER

PHÓ GIÁ

VRTB 2020 01668

CỤC ĐĂNG KIỂM
VIETNAM REG

GIẤY CHỨNG NHẬN SẢN

CERTIFICATE OF MA

Số: 0566/19VT01-CP
No.

CỤC ĐĂNG KIỂM VIỆT NAM CHỨNG NHẬN (các) sản
Hướng dẫn về kiểm tra và chứng nhận sản phẩm công r
Đăng kiểm Việt Nam
VIETNAM REGISTER CERTIFIES THAT *The following prod*
the Guidance for Inspection and Approval of Marine Products of V

MCC SWITCHGI

Cơ sở sản xuất: ..... Mechanical & Energy Division - J
Manufacturer.
Sử dụng cho: ..... BK-20 Platform
Intended for
Số chứng nhận duyệt: ..... 020/19CTB-D.OFF ..... Số d
Approval Certificate No *Appro*
Số xuất xưởng: MCC-01
Serial No.
Hạn chế áp dụng: ..... N/A
Restriction for Application

Tiêu chuẩn kiểm tra/Inspection Standards:

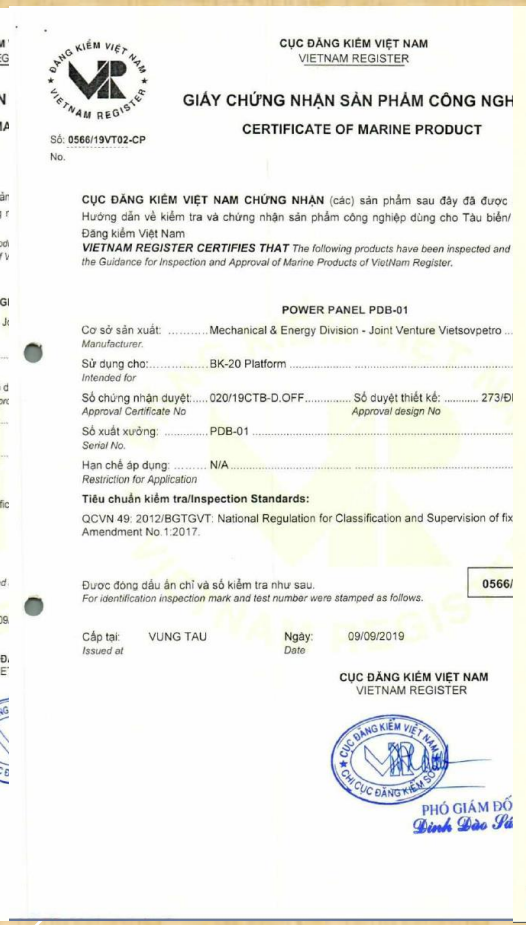
QCVN 49: 2012/BGTGVT: National Regulation for Classific
Amendment No.1:2017.

Được đóng dấu ấn chỉ và số kiểm tra như sau.
For identification inspection mark and test number were stamped

Cấp tại: VUNG TAU Ngày: 09/09
Issued at *Date*

CỤC Đ
VIE

VRTB 2019 05487



CỤC ĐĂNG KIỂM VIỆT NAM
VIETNAM REGISTER

GIẤY CHỨNG NHẬN SẢN PHẨM CÔNG NGH

CERTIFICATE OF MARINE PRODUCT

Số: 0566/19VT02-CP
No.

CỤC ĐĂNG KIỂM VIỆT NAM CHỨNG NHẬN (các) sản phẩm sau đây đã được
Hướng dẫn về kiểm tra và chứng nhận sản phẩm công nghiệp dùng cho Tàu biển/
Đăng kiểm Việt Nam
VIETNAM REGISTER CERTIFIES THAT *The following products have been inspected and*
the Guidance for Inspection and Approval of Marine Products of VietNam Register.

POWER PANEL PDB-01

Cơ sở sản xuất: ..... Mechanical & Energy Division - Joint Venture Vietsovpetro ...
Manufacturer.
Sử dụng cho: ..... BK-20 Platform
Intended for
Số chứng nhận duyệt: ..... 020/19CTB-D.OFF ..... Số duyệt thiết kế: 273/Đ
Approval Certificate No *Approval design No*
Số xuất xưởng: PDB-01
Serial No.
Hạn chế áp dụng: ..... N/A
Restriction for Application

Tiêu chuẩn kiểm tra/Inspection Standards:

QCVN 49: 2012/BGTGVT: National Regulation for Classification and Supervision of fix
Amendment No.1:2017.

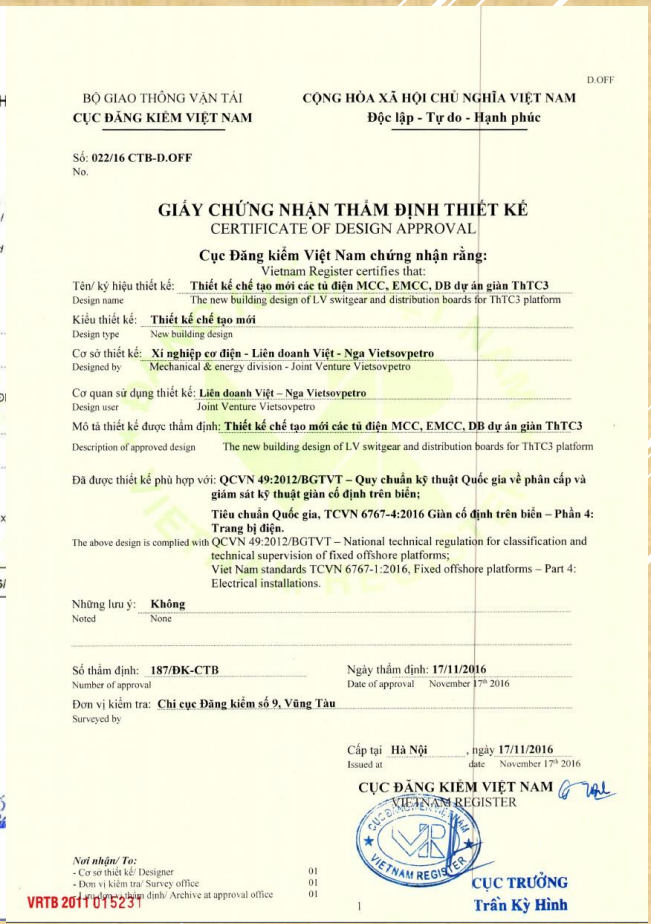
Được đóng dấu ấn chỉ và số kiểm tra như sau. 0566/
For identification inspection mark and test number were stamped as follows.

Cấp tại: VUNG TAU Ngày: 09/09/2019
Issued at *Date*

CỤC ĐĂNG KIỂM VIỆT NAM
VIETNAM REGISTER

PHÓ GIÁM ĐỐ

VRTB 2011 01231



D.OFF

BỘ GIAO THÔNG VẬN TẢI
CỤC ĐĂNG KIỂM VIỆT NAM

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Số: **022/16 CTB-D.OFF**
No.

GIẤY CHỨNG NHẬN THẨM ĐỊNH THIẾT KẾ

CERTIFICATE OF DESIGN APPROVAL

Cục Đăng kiểm Việt Nam chứng nhận rằng:
Vietnam Register certifies that:

Tên/ ký hiệu thiết kế: **Thiết kế chế tạo mới các tủ điện MCC, EMCC, DB dự án giàn ThTC3**
Design name The new building design of LV switgear and distribution boards for ThTC3 platform

Kiểu thiết kế: **Thiết kế chế tạo mới**
Design type New building design

Cơ sở thiết kế: **Xí nghiệp cơ điện - Liên doanh Việt - Nga Vietsovpetro**
Designed by Mechanical & energy division - Joint Venture Vietsovpetro

Cơ quan sử dụng thiết kế: **Liên doanh Việt – Nga Vietsovpetro**
Design user Joint Venture Vietsovpetro

Mô tả thiết kế được thẩm định: **Thiết kế chế tạo mới các tủ điện MCC, EMCC, DB dự án giàn ThTC3**
Description of approved design The new building design of LV switgear and distribution boards for ThTC3 platform

Đã được thiết kế phù hợp với: **QCVN 49:2012/BGTVT – Quy chuẩn kỹ thuật Quốc gia về phân cấp và giám sát kỹ thuật giàn cố định trên biển;**
Tiêu chuẩn Quốc gia, TCVN 6767-4:2016 Giàn cố định trên biển – Phần 4: Trang bị điện.
The above design is complied with QCVN 49:2012/BGTVT – National technical regulation for classification and technical supervision of fixed offshore platforms;
Viet Nam standards TCVN 6767-1:2016, Fixed offshore platforms – Part 4: Electrical installations.

Những lưu ý: **Không**
Noted None

Số thẩm định: **187/ĐK-CTB** Ngày thẩm định: **17/11/2016**
Number of approval Date of approval November 17th 2016

Đơn vị kiểm tra: **Chi cục Đăng kiểm số 9, Vũng Tàu**
Surveyed by

Cấp tại **Hà Nội**, ngày **17/11/2016**
Issued at date November 17th 2016

CỤC ĐĂNG KIỂM VIỆT NAM
VIETNAM REGISTER

Nơi nhận/ To:
- Cơ sở thiết kế/ Designer 01
- Đơn vị kiểm tra/ Survey office 01
- Lưu hồ sơ thẩm định/ Archive at approval office 01

CỤC TRƯỞNG
Trần Kỳ Hình

1

MCC, DPs MANUFACTURERS LIST

No.	Description	Manufacturer	Origin
1	ACB, MCCB, Relay	Siemens, Schneider, ABB,…	EU/G7/Asia
2	Enclosure	Hawee, Hai Anh, Sang Tao, Schneider,…	EU/G7/Asia
3	Pilot lights, Ampemeter, Voltmeter, Switch contact	IDEC, Siemens, Schneider, ABB,…	EU/G7/Asia
4	Lockout Relay	KrausNaimer	EU/G7/Asia
5	Cable, cable gland, cable tie	LS-Korea, Cadivi, Hawke, Halukabel	EU/G7/Asia
6	Accesories	All manufacturers	Asia

Thank you!