# DETERMINATION OF PROJECT REQUIREMENTS

## 1.0 Purpose

Provide a standard process to determine customer requirements and project specific design parameters.

## 2.0 Customer Information

Provide a standard process to determine customer requirements and project specific design parameters.

| | | | |
|---|---|---|---|
| **Customer:** | Compagnie Tunisienne de Forage | **Rig Name:** | Rig06 |
| **Customer Contact:** | kaies.sbaouelgi@ctf.com.tn | **Destination Country:** | Tunisia |
| **Contact Email / Number:** | kaies.sbaouelgi@ctf.com.tn | **Projected Delivery Date:** | ASAP |

## 3.0 System Type and Approval

| ***Where will the system be used?*** | Offshore - ☐ \| Land - ☑ \| Tender Assist - ☐ \| Other - ☐ | √ |
|---|---|---|
| System Approval: *Checkoff all that apply* | BOP Control Unit Sizing Calculation Requirements - API 16D 3rd Ed. | ☑ |
| | BOP Control Unit Sizing Calculation Requirements - API 16D 2nd Ed. | ☐ |
| | ABS / CDS Approval | ☐ |
| | CE / ATEX Approval | ☐ |
| | North Sea (Norwegian Sector) | ☐ |
| | Det Norske Veritas (DNV) | ☐ |
| | Other: | ☐ |
| | Not Sure – Will Contact to Discuss | ☐ |

## 4.0 Rig Power Configuration

| Power for Electrical Driven Pumps | √ |
|---|---|
| 480 VAC / 3 Phase / 60Hz | ☑ |
| 600 VAC / 3 Phase / 60Hz | ☐ |
| 230 VAC / 3 Phase / 60Hz | ☐ |
| 380 VAC / 3 Phase / 50Hz | ☐ |
| Other: | ☐ |

| Incoming Power for UPS System | √ |
|---|---|
| 120 VAC / Single Phase / 60Hz | ☑ |
| 110 VAC / Single Phase / 50 Hz | ☐ |
| 240 VAC / Single Phase / 60Hz | ☐ |
| 230 VAC / Single Phase / 50 Hz | ☐ |
| Other: | ☐ |

## 5.0 Hazardous Area Classification

It is the equipment owner's responsibility to determine the hazardous area requirements for all areas of installation. BOP Control equipment for both land and offshore operations is rarely installed in Class 1 Division 1 locations but other factors may drive the need for equipment to be rated for Class 1 Division 1. Driller's panels and the main hydraulic power unit are often rated for Class 1 Division 2. UPS systems and Tool pusher's or OIM panels are usually not rated for hazardous atmospheres. Please note that there can be considerable cost differences for equipment rated to higher Zones. For location, please indicate one of the following:

**Climate Controlled** - areas equipped with heating & cooling capabilities such as a driller's cabin or office.
**Enclosed Area** - areas protected from external environmental conditions but not provided with heating or cooling capabilities.
**Open Deck** – areas subject to external environmental factors including wind, rain, sunlight, salt spray etc.

| Equipment | Hazardous Area Class 1 DIV 1 | Hazardous Area Class 1 DIV 2 | Non Hazardous | Location | Panel Type *(IP56, NEMA, 4X, etc.)* | Notes |
|---|---|---|---|---|---|---|
| BOP HPU | ☐ | ☑ | ☐ | Open Deck | | |
| Fixed Diverter | ☐ | ☐ | ☐ | Select From List | | |
| Driller's Remote | ☐ | ☑ | ☐ | Open Deck | | |
| Toolpusher's Panel | ☐ | ☐ | ☑ | Open Deck | | |
| Auxiliary Panel | ☐ | ☐ | ☐ | Open Deck | | |
| UPS System | ☐ | ☐ | ☑ | Open Deck | | |
| DAQ System | ☐ | ☐ | ☐ | Open Deck | | |

## 6.0 Remote Operation Panels and Battery Back-up

| Equipment | Pneumatic | PLC Pushbutton | Touchscreen (HMI) |
|---|---|---|---|
| Driller's Remote | ☑ | ☑ | ☐ |
| Toolpusher's Panel | ☑ | ☑ | ☐ |
| Additional / Auxiliary Panel | ☐ | ☐ | ☐ |

Cable lengths – Please ensure that lengths are based on actual runs through cable trays etc. It is advisable to specify 10-15% greater length than required to account for termination requirements.

| Equipment to Equipment | Cable Length |
|---|---|
| Driller's Remote Panel to BOP Hydraulic Power Unit | 50 m |
| Toolpusher/OIM Remote Panel to BOP Hydraulic Power Unit | 30 m |
| Driller's Remote Panel to UPS | 50 M |
| Toolpusher/OIM Remote Panel to UPS | |
| HPU to UPS | 30M |
| Driller's Remote Panel to Toolpusher's Remote panel (offshore systems only) | |
| Fixed Diverter Hydraulic Control Panel to BOP Hydraulic Power Unit | |
| Fixed Diverter Hydraulic Control Panel to Driller's Remote Panel | |
| Fixed Diverter Hydraulic Control Panel to OIM/ Toolpusher's Remote Panel | |
| Fixed Diverter Hydraulic Control Panel to UPS | |

| Remote Panel Communication Type | √ |
|---|---|
| Optical Fiber Cable, Receptacles (typically for land rigs) | ☐ |
| Optical Fiber Cable, Hardwire (typically for fixed installations) | ☐ |
| Copper Communications, Receptacles (typically for land rigs) | ☑ |
| Copper Communications, Hardwire (typically for fixed installations) | ☐ |
| Pneumatic Air Signal Hose Bundle | ☑ |
| Other: | ☐ |

## 7.0 Size and Weight Consideration

| Are there size requirements for the equipment? YES - ☑ \| NO - ☐ | | Are there weight restrictions? YES - ☑ \| NO - ☐ | |
|---|---|---|---|
| **Equipment Dimensions** | | **Equipment Weights** | |
| Maximum Width | 3M | Maximum Weight | 16 tons maximum |
| Maximum Height | 3M | Wet Weight | |
| Maximum length | 10M | Other | |

## 8.0 BOP Stack Information

| ***API 16D 3rd edition requires the following information in order to properly design the control system.*** | **PRESSURE (PSI)** |
|---|---|
| **Shear Rams Only:** Maximum shearing & sealing pressure - This pressure is based on the highest pressure required to shear and seal the wellbore. It should account for the shear ram assembly, shear ram model, and all possible combinations of pipe, tube, wireline etc. that could require shearing and sealing. This information is available from the BOP manufacturer. (*See API 16D 3rd Edition Section 5.10.2)* | 3000 |
| **Pipe, Blind & Shear Rams:** Minimum Operating Pressure for Low Pressure Seal (MOPFLPS) – This data is available from the BOP manufacturer. *(See API 16D 3rd Edition Section 5.10.1)* | 1500 |

Is functionality for a Wellhead Style Diverter required? YES - ☐ | NO - ☑

*Integrated or shared function allows the annular function, choke, and kill to be used as diverter with port/starboard interlocking control. Note: only one mode can be done at a time.*

### Blowout Preventer Stack #1

| | Manufacture | Model / Size | Working Pressure | Operator Pressure | Closing Volume | Open Volume | Closing Ratio |
|---|---|---|---|---|---|---|---|
| Annular 1 | Any Manufacturer | All 21 1/4 | 2000 | 1000PSI | 33 gal | 19 gal | |
| Annular 2 | | | | | | | |
| Ram 1 | Any Manufacturer | All 21 1/4 | 2000 | 1500 PSI | 15 gal | 14 gal | |
| Ram 2 | Any Manufacturer | All 21 1/4 | 2000 | 1500 PSI | 15 gal | 14 gal | |
| Ram 3 | | | | | | | |
| Ram 4 | | | | | | | |
| Ram 5 | | | | | | | |
| Valve | MCM | F & FC 4-1/16 | 10000 | 1500 | | | |
| Valve | MCM | F & FC 2-1/16 | 10000 | 1500 | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Valve | | | | | | | |
| Valve | | | | | | | |
| Spare 1 | | | | | | | |
| Spare 2 | | | | | | | |

**Blowout Preventer Stack #2**

| | Manufacture | Model / Size | Working Pressure | Operator Pressure | Closing Volume | Open Volume | Closing Ratio |
|---|---|---|---|---|---|---|---|
| Annular 1 | Any Manufacturer | 13 5/8 | 10000 | 1000 | 40 | 33 | |
| Annular 2 | | | | | | | |
| Ram 1 | Any Manufacturer | 13 5/8 | 10000 | 1500 | 13 | 12 | |
| Ram 2 | Any Manufacturer | 13 5/8 | 10000 | 1500 | 13 | 12 | |
| Ram 3 | Any Manufacturer | 13 5/8 | 10000 | 1500 | 13 | 12 | |
| Ram 4 | | | | | | | |
| Ram 5 | | | | | | | |
| Valve | MCM | F & FC 4-1/16 | 10000 | 1500 | | | |
| Valve | MCM | F & FC 2-1/16 | 10000 | 1500 | | | |
| Valve | | | | | | | |
| Valve | | | | | | | |
| Spare 1 | | | | | | | |
| Spare 2 | | | | | | | |

## 9.0 Fixed Diverter Controls – Offshore Systems

***Are fixed diverter controls required?*** YES - ☐ | NO - ☑ ***If yes, please fill out below:***

| Manufacture | Model / Size | Working Pressure |
|---|---|---|
| | | |

| Functions | √ | Functions | √ |
|---|---|---|---|
| Overshot Packer – Upper | ☐ | Fill Up Valve | ☐ |
| Overshot Packer – Lower | ☐ | Trip Tank Valve | ☐ |
| Diverter Lockdown Dogs | ☐ | Deluge Valve | ☐ |
| Flow line Seals | ☐ | Starboard Vent Valve | ☐ |
| Flow line Valve | ☐ | Port Vent Valve | ☐ |
| Other: | ☐ | Other: | ☐ |

## 10.0 Control Fluid

| | |
|---|---|
| ***What type of control fluid will be used in the system?*** | Hydraulic Oil - ☑ \| Water Based - ☐ \| Mineral Based - ☐ |

## 11.0 Client Connectivity

| ***Does the system require any of the connectivity items listed below?*** | √ |
|---|---|
| Data Logger (DAQ System) | ☐ |
| OPC Connection | ☐ |
| Any-Rams Closed Output (to client's system) | ☐ |
| Alarm Output (to client's system) | ☐ |
| Other: | ☐ |

## 12.0 Testing Requirements

| ***Does the client require any of the testing items listed below?*** | √ |
|---|---|
| Client Provided Testing Procedures | ☐ |
| Witnessed Factory Acceptance Test | ☑ |
| Other: | ☐ |

## 13.0 Storage and Preservation

| ***Will this equipment be stored long term before use?*** YES - ☐ \| NO - ☑ | |
|---|---|
| *If yes, please provide information below.* | |
| Storage duration before use? | |
| Type of storage environment? | |

## 14.0 Customer Acknowledgement

*Completed By: (print name)* _____ *Position:* _____

*Signature:* _____ *Date:* _____

*Additional Needs/Project Notes:*

*Change in point03 Documents: BOP control unit page06 in the inquiry as (change in red):*

| | | |
|---|---|---|
| 3 | Certificate of conformity /compliance of accumulator bottles, manifolds & High pressure pipes as per API 16D recommendation : ASME, Boiler and Pressure Vessel Code (BPVC), Section VIII, Division 2, | Mandatory |