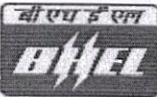


| SL. NO.                                                                                                                                                                                                                                                                                                                                                                 |                                               | COMPONENT & OPERATIONS                                                            | CHARACTERISTICS                                                                                   | CLASS                                                                            | TYPE OF CHECK | Quantum of Check               |                           | REFERENCE DOCUMENT                                                                 | ACCEPTANCE NORMS/ STANDARD        | FORMAT OF RECORDS | AGENCY |    |    | REMARKS      |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------|--------------------------------|---------------------------|------------------------------------------------------------------------------------|-----------------------------------|-------------------|--------|----|----|--------------|----|
| 1                                                                                                                                                                                                                                                                                                                                                                       |                                               | 2                                                                                 | 3                                                                                                 | 4                                                                                | 5             | M                              | C/B                       | 6                                                                                  | 7                                 | 8                 | 9      | M  | C  | B            | 11 |
| <b>MANUFACTURING QUALITY PLAN</b><br>Customer : BANGALADESH INDIA<br>FRIENDSHIP COMPANY PVT LTD, BANGALADESH<br>Project : 2x660 MW MAITREE STPP<br>Contract No : 16-013-X-2<br>Main - Supplier : BHEL RUDRAPUR                                                                                                                                                          |                                               |                                                                                   |                                                                                                   |                                                                                  |               |                                |                           |                                                                                    |                                   |                   |        |    |    |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               |  |                                                                                                   | MANUFACTURER'S NAME AND ADDRESS<br>Component Fabrication Plant(CFP)<br>,RUDRAPUR |               | Item: AC Cable<br>Sub- System: |                           | QP No: QP/AC Cable /MAITREE-01<br>Rev No: 05<br>Date: 19.11.2020<br>Page: 01 Of 08 |                                   |                   |        |    |    |              |    |
| Instructions: 1) Cable Manufacturer to maintain records to show co-relation of raw materials to finished cables i.e raw material batch/ lot no. should be traceable to the cable drum<br>2) Cable Manufacturer to maintain all quality control records identified as per all QP stage enumerated below whether it is identified for BHEL verification or witness or not |                                               |                                                                                   |                                                                                                   |                                                                                  |               |                                |                           |                                                                                    |                                   |                   |        |    |    |              |    |
| 1.0 Raw Material/Bought out Item Checks-                                                                                                                                                                                                                                                                                                                                |                                               |                                                                                   |                                                                                                   |                                                                                  |               |                                |                           |                                                                                    |                                   |                   |        |    |    |              |    |
| 1.01                                                                                                                                                                                                                                                                                                                                                                    | Aluminum/ Copper                              | 1                                                                                 | Make                                                                                              | MA                                                                               | Verify        | 100%                           | --                        | Manufacturer Approved sources                                                      | Manufacturer Approved sources     | QCR               | V      | -- | -- |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               | 2                                                                                 | Resistivity                                                                                       | MA                                                                               | Elect         | As per Cable Mnfr Strd         | --                        | IS5082                                                                             | IS5082                            | --do--            | P      | -- | -- |              |    |
| 1.02                                                                                                                                                                                                                                                                                                                                                                    | PVC / XLPE comp ound for insulation           | 1                                                                                 | Make                                                                                              | MA                                                                               | Verify        | --do--                         | 100%                      | Manufacturer Approved sources                                                      | Manufacturer Approved sources     | --do--            | V      | V  | -- |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               | 2                                                                                 | Type/ Cable                                                                                       | MA                                                                               | Verify        | 100%                           | 100%                      | BIFPCL ADS                                                                         | BIFPCL ADS                        | --do--            | V      | V  | V  |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               | 3                                                                                 | All acceptance test as per manufacturer norms including thermal stability test for PVC insulation | MA                                                                               | Verify        | As per Manufacturer norms      | As per Manufacturer norms | BIFPCL ADS                                                                         | BIFPCL ADS                        | --do--            | V      | V  | V  | Refer Note 1 |    |
| 1.03                                                                                                                                                                                                                                                                                                                                                                    | PVC Compound for Inner sheath                 | 1                                                                                 | Make                                                                                              | MA                                                                               | Verify        | --do--                         | --do--                    | Manufacturer Approved sources                                                      | Manufacturer Approved sources     | --do--            | V      | V  | V  |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               | 2                                                                                 | Type/ Grade                                                                                       | MA                                                                               | Verify        | --do--                         | --do--                    | BIFPCL ADS                                                                         | BIFPCL ADS                        | --do--            | V      | V  | V  |              |    |
| 1.04                                                                                                                                                                                                                                                                                                                                                                    | Steel wire / Formed Wire (As per applicable ) | 1                                                                                 | Make                                                                                              | MA                                                                               | Verify        | --do--                         | --do--                    | Manufacturer Approved sources                                                      | Manufacturer Approved sources     | --do--            | V      | V  | V  |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               | 2                                                                                 | Demension                                                                                         | MA                                                                               | Meas          | 1 Sample from each size / lot  | --                        | BIFPCL Approved data sheet IS3975                                                  | BIFPCL Approved data sheet IS3975 | --do--            | P      | -- | -- |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               | 3                                                                                 | All acceptance tasts as per IS 3975                                                               | MA                                                                               | Verify        | As per IS 3975                 | --                        | IS 3975                                                                            | IS 3975                           | Supplier TC       | V      | V  | -- |              |    |
| 1.05                                                                                                                                                                                                                                                                                                                                                                    | PVC compound for Sheath                       | 1                                                                                 | Make                                                                                              | MA                                                                               | Verify        | As per Manufacturer norms      | 100%                      | Manufacturer Approved sources                                                      | Manufacturer Approved sources     | QCR               | V      | V  | -- |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               | 2                                                                                 | Type/ Grade                                                                                       | MA                                                                               | Verify        | 100%                           | 100%                      | BIFPCL ADS                                                                         | BIFPCL ADS                        | QCR               | V      | V  | V  |              |    |
|                                                                                                                                                                                                                                                                                                                                                                         |                                               | 3                                                                                 | All acceptance teat as per manufacturer norms                                                     | MA                                                                               | Verify        | As per Manufacturer norms      | As per Manufacturer norms | BIFPCL ADS                                                                         | BIFPCL ADS                        | QCR               | V      | V  | V  | Refer Note 1 |    |

*Signature*





MANUFACTURER'S NAME AND ADDRESS

Component Fabrication Plant(CFP)  
RUDRAPUR

## MANUFACTURING QUALITY PLAN

Item: AC Cable

Sub- System:

QP No: QP/AC Cable /MAITREE-01

Rev No: 05

Date: 19.11.2020

Page: 02 Of 08

Customer : BANGALADESH INDIA  
FRIENDSHIP COMPANY PVT LTD, BANGALADESH  
Project : 2x660 MW MAITREE STPP  
Contract No : 16-013-X-2  
Main - Supplier : BHEL RUDRAPUR

| SL. NO.                                 | COMPONENT & OPERATIONS | CHARACTERISTICS                                          | CLASS | TYPE OF CHECK | Quantum of Check                 |        | REFERENCE DOCUMENT                     | ACCEPTANCE NORMS/ STANDARD                  | FORMAT OF RECORDS |    | AGENCY |    |    | REMARKS                                                                        |
|-----------------------------------------|------------------------|----------------------------------------------------------|-------|---------------|----------------------------------|--------|----------------------------------------|---------------------------------------------|-------------------|----|--------|----|----|--------------------------------------------------------------------------------|
|                                         |                        |                                                          |       |               | M                                | C/B    |                                        |                                             |                   |    | M      | C  | B  |                                                                                |
| 1                                       | 2                      | 3                                                        | 4     | 5             | 6                                |        | 7                                      | 8                                           | 9                 | 10 | ** 10  |    |    | 11                                                                             |
|                                         |                        | 4 Thermal Stability                                      | MA    | Chem          | One Sample / Batch               | --     | BIFPCL ADS                             | BIFPCL ADS                                  | QCR               |    | P      | -- | -- |                                                                                |
|                                         |                        | 5 Oxygen Index                                           | MA    | Chem          | --do--                           | --     | BIFPCL ADS/ IS 10810 PART 58           | BIFPCL ADS/ IS 10810 PART 58                | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 6 Acid Gas Emission                                      | MA    | Chem          | One Sample / Batch               | --     | BIFPCL ADS /IEC60754                   | BIFPCL ADS /IEC60754                        | QCR               |    | P      | -- | -- |                                                                                |
| 1.06                                    | Wooden Drum            | 1 Dimenssion                                             | MI    | Meas          | Manf. Std                        | --     | IS 10418                               | IS 10418                                    | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 2 Anti termite treatment                                 | MI    | Chem          | Cable Manf std.                  | --     | CABLE MANUF STD                        | CABLE MANUF STD                             | COC               |    | V      | V  | -- | COC from drum manuf                                                            |
| 1.07                                    | Steel Drum             | 1 Dimenssion                                             | MI    | Meas          | --do--                           | --     | --do--                                 | --do--                                      | QCR               |    | P      | -- | -- |                                                                                |
|                                         |                        | 2 Surface finish                                         | MI    | Meas          | --do--                           | --     | --do--                                 | --do--                                      | --do--            |    | P      | -- | -- |                                                                                |
| <b>B Process &amp; Stage Inspection</b> |                        |                                                          |       |               |                                  |        |                                        |                                             |                   |    |        |    |    |                                                                                |
| 2.01                                    | Wire Drawing           | 1 Surface finish                                         | MA    | Visual        | One Sample/Settin g of each Size | --     | SHOULD BE SMOOTH & FREE FROM SCRATCHES | SHOULD BE SMOOTH & FREE FROM SCRATCHES      | QCR               |    | P      | -- | -- |                                                                                |
|                                         |                        | 2 Wire Diameter                                          | MA    | Meas          | --do--                           | --     | BIFPCL ADS                             | BIFPCL ADS                                  | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 3 Tensile test                                           | CR    | Mech          | --do--                           | --do-- | --do--                                 | --do--                                      | --do--            |    | P      | V  | -- | Refer St. No.3.03(iii)                                                         |
|                                         |                        | 4 Wrapping test                                          | CR    | Mech          | --do--                           | --do-- | --do--                                 | --do--                                      | --do--            |    | P      | V  | -- | --do--                                                                         |
| 2.02                                    | Bunching / Stranding   | 1 No. of wires                                           | MA    | Meas          | --do--                           | --     | BIFPCL ADS                             | BIFPCL ADS                                  | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 2 Dia of wire                                            | MA    | Meas          | --do--                           | --     | --do--                                 | --do--                                      | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 3 Dimension of Conductor                                 | MA    | Meas          | --do--                           | --     | --do--                                 | --do--                                      | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 4 Direction of Lay                                       | MA    | Visual        | --do--                           | --     | --do--                                 | --do--                                      | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 5 Record of Strands / Welding during conductor stranding | MA    | Verify        | --do--                           | --     | IS 8130                                | IS 8130                                     | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 6 Surface finish                                         | MA    | Visual        | --do--                           | -      | --do--                                 | --do--                                      | --do--            |    | P      | -- | -- |                                                                                |
|                                         |                        | 7 DC Resistance                                          | CR    | Meas          | --do--                           | -      | IS8130/BIFPCL ADS                      | IS8130/BIFPCL ADS                           | --do--            |    | P      | -- | -- |                                                                                |
| 2.03                                    | Insulation extrusion   | 1 Surface finish                                         | MA    | Visual        | One Sample/Settin g of each Size | -      | BIFPCL SPEC                            | SHOULD BE SMOOTH. NO POROSITY IS PERMITTED. | QCR               |    | P      | -- | -- | XLPE/PVC compound shall be preferably loaded in to extruder by suction method. |

*Signature*





MANUFACTURER'S NAME AND ADDRESS

Component Fabrication Plant(CFP)  
RUDRAPUR

## MANUFACTURING QUALITY PLAN

Item: AC Cable

Sub- System:

QP No: QP/AC Cable /MAITREE-01

Rev No: 05

Date: 19.11.2020

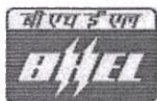
Page: 03 Of 08

Customer : BANGLADESH INDIA  
FRIENDSHIP COMPANY PVT LTD, BANGLADESH  
Project : 2x660 MW MAITREE STPP  
Contract No : 16-013-X-2  
Main - Supplier : BHEL RUDRAPUR

| SL. NO. | COMPONENT & OPERATIONS  | CHARACTERISTICS          | CLASS | TYPE OF CHECK | Quantum of Check                 |      | REFERENCE DOCUMENT              | ACCEPTANCE NORMS/ STANDARD        | FORMAT OF RECORDS |    | AGENCY |    |    | REMARKS                                                                         |
|---------|-------------------------|--------------------------|-------|---------------|----------------------------------|------|---------------------------------|-----------------------------------|-------------------|----|--------|----|----|---------------------------------------------------------------------------------|
|         |                         |                          |       |               | M                                | C/B  |                                 |                                   |                   |    | M      | C  | B  |                                                                                 |
| 1       | 2                       | 3                        | 4     | 5             | 6                                |      | 7                               | 8                                 | 9                 | 10 | 11     |    |    | 11                                                                              |
|         |                         | Colour of cores          | MA    | Visual        | One Sample/Settin g of each Size | -    | BIFPCL ADS                      | BIFPCL ADS                        | QCR               |    | P      | -- | -- |                                                                                 |
|         |                         | 2 Thickness              | CR    | Meas          | --do--                           | --   | BIFPCL ADS                      | BIFPCL ADS                        | --do--            |    | P      | -- | -- |                                                                                 |
|         |                         | 3 Spark Test             | CR    | Elect         | 100%                             | 100% | CABLE MANUF.STD                 | NO FAILURE                        | --do--            |    | P      | V  | -- | 1. Spark test failure record is to be verified. 2. Core rapairing not permitted |
|         |                         | 4 Hot Set                | CR    | Mech          | One Sample/Settin g of each Size | --   | IS7098-Part1                    | IS7098-Part2                      | --do--            |    | P      | -- | -- | Sample is to be taken both top & botten end                                     |
|         |                         | 5                        |       |               |                                  |      |                                 |                                   |                   |    |        |    |    |                                                                                 |
| 2.04    | Laying up               | 1 Core sequence          | MA    | Visual        | --do--                           | --   | IS 1554 (Part 1) & 7098- Part 1 | IS 1554 (Part 1) & 7098- Part 1   | --do--            |    | P      | -- | -- |                                                                                 |
|         |                         | 2 Direction of lay       | MA    | Visual        | --do--                           | --   | --do--                          | --do--                            | --do--            |    | P      | -- | -- |                                                                                 |
|         |                         | 3 Dia. Over laid up core | MA    | Meas          | --do--                           | --   | BIFPCL ADS                      | BIFPCL ADS                        | --do--            |    | P      | -- | -- |                                                                                 |
| 2.05    | Inner Sheath            | 1 Colour                 | MA    | Visual        | --do--                           | --   | --do--                          | --do--                            | --do--            |    | P      | -- | -- |                                                                                 |
|         |                         | 2 Surface Finish         | MA    | Visual        | 100%                             | --   | BHEL SPECIFICATION              | FISH EYE, BLUE HOLE NOT PERMITTED | --do--            |    | P      | -- | -- |                                                                                 |
|         |                         | 3 Thickness              | MA    | Meas          | One Sample/Settin g of each Size | --   | BIFPCL ADS                      | BIFPCL ADS                        | --do--            |    | P      | -- | -- |                                                                                 |
|         |                         | 4 Dia over inner sheath  | MI    | Meas          | --do--                           | --   | --do--                          | --do--                            | --do--            |    | P      | -- | -- |                                                                                 |
| 2.06    | Armouring As Applicable | 1 Diamention             | MA    | Meas          | --do--                           | --   | --do--                          | --do--                            | --do--            |    | P      | -- | -- |                                                                                 |
|         |                         | 2 No. of wires/strip     | MA    | Meas          | --do--                           | --   | --do--                          | --do--                            | --do--            |    | P      | -- | -- |                                                                                 |
|         |                         | 3 Direction of lay       | MA    | Visual        | --do--                           | --   | IS 1554 (Part 1) & 7098- Part 1 | IS 1554 (Part 1) & 7098- Part 1   | QCR               |    | P      | -- | -- |                                                                                 |

*Signature*





MANUFACTURER'S NAME AND ADDRESS

Component Fabrication Plant(CFP)  
RUDRAPUR

## MANUFACTURING QUALITY PLAN

Item: AC Cable  
Sub- System:

QP No: QP/AC Cable /MAITREE-01  
Rev No: 05  
Date: 19.11.2020  
Page: 04 Of 08

Customer : BANGALADESH INDIA  
FRIENDSHIP COMPANY PVT LTD, BANGALADESH  
Project : 2x660 MW MAITREE STTP  
Contract No : 16-013-X-2  
Main - Supplier : BHEL RUDRAPUR

| SL. NO. | COMPONENT & OPERATIONS                             | CHARACTERISTICS | CLASS                                     | TYPE OF CHECK | Quantum of Check |                                 | REFERENCE DOCUMENT | ACCEPTANCE NORMS/ STANDARD                                                                                                                                                                                                                                                                                                                                                                                                           | FORMAT OF RECORDS                                                     |        | AGENCY |    |    | REMARKS                                                                       |
|---------|----------------------------------------------------|-----------------|-------------------------------------------|---------------|------------------|---------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------|--------|----|----|-------------------------------------------------------------------------------|
|         |                                                    |                 |                                           |               | M                | C/B                             |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                       |        | M      | C  | B  |                                                                               |
| 1       | 2                                                  | 3               | 4                                         | 5             | 6                |                                 | 7                  | 8                                                                                                                                                                                                                                                                                                                                                                                                                                    | 9                                                                     | 10     | ** 10  |    |    | 11                                                                            |
|         |                                                    | 4               | Coverage & Quality of armouring           | MA            | Meas             | 100%                            | --                 | Min area of coverage of armouring shall be 90% The gap between amour wires / formed wires shall not exceed one amour wire formed wire space & there shall be no cross over / over riding of amour wire / formed wire Zn rich paint shall be applied on amour joint surface of G.S. Wire / formed wire. The breaking load of amour wire joint shall not be less than 95% of that armour wire / formed wire(As per BHEL Specification) | QCR                                                                   |        | P      | -- | -- |                                                                               |
|         |                                                    | 5               | Dia over armouring                        | MA            | Meas             | One sample/Setting of each size | --                 | BIFPCL ADS                                                                                                                                                                                                                                                                                                                                                                                                                           | --do--                                                                |        | P      | -- | -- | --                                                                            |
| 2.07    | Outer Sheath                                       | 1               | Surface finish                            | MA            | Visual           | 100%                            | --                 | Pimple finish Eye, Burnt Particles, Blow Hole not permitted, Repairing on outer sheath not permitted (As. Per BHEL specification)                                                                                                                                                                                                                                                                                                    | --do--                                                                |        | P      | -- | -- | PVC FRLS compound shall be preferably loaded in to extruder by suction method |
|         |                                                    | 2               | Colour of Sheath                          | MA            | Visual           | One sample/Setting of each size | --                 | BIFPCL ADS                                                                                                                                                                                                                                                                                                                                                                                                                           | BIFPCL ADS                                                            | --do-- | P      | -- | -- |                                                                               |
|         |                                                    | 3               | Dia over outer sheath                     | MA            | Meas             | --do--                          | --                 | BIFPCL ADS                                                                                                                                                                                                                                                                                                                                                                                                                           | BIFPCL ADS                                                            | --do-- | P      | -- | -- |                                                                               |
|         |                                                    | 4               | Thickness of outer sheath                 | CR            | Meas             | --do--                          | -                  | --do--                                                                                                                                                                                                                                                                                                                                                                                                                               | --do--                                                                | --do-- | P      | -- | -- |                                                                               |
|         |                                                    | 5               | Embossing quality                         | MA            | Visual           | 100%                            | -                  | Drum no., IS1554-1 / IS7098-1, Cable size, Voltage grade & Words "FRLS" at every 5 Meter is to be embossed. Embossing shall be automatic, in line & marking shall be legible & indelible . (As Per BHEL specification)                                                                                                                                                                                                               | --do--                                                                |        | P      | -- | -- | Drum no. on cable may be embossed /printed                                    |
|         |                                                    | 6               | Sequential marking                        | MA            | Visual           | Full length                     | --                 | Sequential marking of length of Cable in meter at every one meter is to be embossed / printed Embossing/ Printing shall be progressive, automatic, in line & marking shall be legible & indelible (As Per BHEL specification)                                                                                                                                                                                                        | --do--                                                                |        | P      | -- | -- |                                                                               |
| C       | Finished Cable                                     |                 |                                           |               |                  |                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                       |        |        |    |    |                                                                               |
| 3.01    | Type test report clearance from BIFPCL engineering |                 | All type test as per BIFPCL specification | CR            | DOC.             | 100%                            | 100%               | BIFPCL specification / BIFPCL ADS / IS 1554 (Part 1) & IS 7098-Part 1                                                                                                                                                                                                                                                                                                                                                                | BIFPCL specification / BIFPCL ADS / IS 1554 (Part 1) & IS 7098-Part 1 | --do-- | V      | P  | V  | --                                                                            |

30/11/20



|  |                                             | <b>MANUFACTURER'S NAME AND ADDRESS</b><br><br>Component Fabrication Plant(CFP)<br>,RUDRAPUR |                                       | <b>MANUFACTURING QUALITY PLAN</b> |                  |                                                                                    |                    | Customer : BANGLADESH INDIA<br>FRIENDSHIP COMPANY PVT LTD, BANGLADESH<br>Project : 2x660 MW MAITREE STPP<br>Contract No : 16-013-X-2<br>Main - Supplier : BHEL RUDRAPUR |                                              |                  |        |   |   |         |              |
|-----------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------|------------------|------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------|--------|---|---|---------|--------------|
|                                                                                   |                                             |                                                                                             |                                       | Item: AC Cable<br>Sub- System:    |                  | QP No: QP/AC Cable /MAITREE-01<br>Rev No: 05<br>Date: 19.11.2020<br>Page: 05 Of 08 |                    |                                                                                                                                                                         |                                              |                  |        |   |   |         |              |
| SL. NO.                                                                           | COMPONENT & OPERATIONS                      | CHARACTERISTICS                                                                             | CLASS                                 | TYPE OF CHECK                     | Quantum of Check |                                                                                    | REFERENCE DOCUMENT | ACCEPTANCE NORMS/ STANDARD                                                                                                                                              | FORMAT OF RECORDS                            |                  | AGENCY |   |   | REMARKS |              |
|                                                                                   |                                             |                                                                                             |                                       |                                   | M                | C/B                                                                                |                    |                                                                                                                                                                         |                                              |                  | M      | C | B |         |              |
| 1                                                                                 | 2                                           | 3                                                                                           | 4                                     | 5                                 | 6                |                                                                                    | 7                  | 8                                                                                                                                                                       | 9                                            | 10               | 11     |   |   |         |              |
| 3.02                                                                              | Routin Tests                                | 1                                                                                           | hight Voltage test at room temprature | CR                                | Elect            | 100%                                                                               | 100%               | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1                                                                                                                            | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1 | Test Certificate | ✓      | P | W | V       | Refer Note 2 |
|                                                                                   |                                             | 2                                                                                           | Conductor Resistance                  | CR                                | Elect            | 100%                                                                               | 100%               | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1                                                                                                                            | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1 | Test Certificate | ✓      | P | W | V       | Refer Note 2 |
| 3.03                                                                              | Acceptance Test                             |                                                                                             |                                       |                                   |                  |                                                                                    |                    |                                                                                                                                                                         |                                              |                  |        |   |   |         |              |
| 3.03 (i)                                                                          | Construction of finished Cable              | 1                                                                                           | OD of Cable                           | MA                                | Meas             | Each Type & size of Cable as per sampling plan of IS 1554 (Part1) & IS 7098-Part 1 |                    | BIFPCL ADS                                                                                                                                                              | BIFPCL ADS                                   | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 2                                                                                           | Laying of Core                        | CR                                | Visual           | --do--                                                                             |                    | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1                                                                                                                            | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1 | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 3                                                                                           | Core Identification                   | CR                                | Visual           | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 4                                                                                           | Colour of outer sheath                | MA                                | Visual           | --do--                                                                             |                    | BIFPCL ADS                                                                                                                                                              | BIFPCL ADS                                   | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 5                                                                                           | Inner Sheath Thickness                | CR                                | Meas             | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 6                                                                                           | Inner Sheath colour                   | MA                                | Visual           | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |
| 3.03 (ii)                                                                         | Armour wires/ formed Wires (if Applicable ) | 1                                                                                           | Dimensions                            | CR                                | Meas             | --do--                                                                             |                    | BIFPCL ADS /IS1554 (Part 1) & IS 3975                                                                                                                                   | BIFPCL ADS /IS1554 (Part 1) & IS 3975        | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 2                                                                                           | No. of wires/formed wire              | CR                                | Mech             | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 3                                                                                           | tensile Test                          | CR                                | Mech             | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 4                                                                                           | Elongation Test                       | CR                                | Mech             | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 5                                                                                           | Torsion Test (for round wires only)   | CR                                | Mech             | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 6                                                                                           | Wrapping Test                         | CR                                | Mech             | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |
|                                                                                   |                                             | 7                                                                                           | Resistance Test                       | CR                                | Mech             | --do--                                                                             |                    | --do--                                                                                                                                                                  | --do--                                       | --do--           | ✓      | P | W | V       |              |

- 20/11/20





MANUFACTURER'S NAME AND ADDRESS

Component Fabrication Plant(CFP)  
RUDRAPUR

# MANUFACTURING QUALITY PLAN

Item: AC Cable

Sub- System:

QP No: QP/AC Cable /MAITREE-01

Rev No: 05

Date: 19.11.2020

Page: 06 Of 08

Customer : BANGLADESH INDIA  
FRIENDSHIP COMPANY PVT LTD, BANGLADESH  
Project : 2x660 MW MAITREE STPP  
Contract No : 16-013-X-2  
Main - Supplier : BHEL RUDRAPUR

| SL. NO.   | COMPONENT & OPERATIONS | CHARACTERISTICS                               | CLASS | TYPE OF CHECK | Quantum of Check                                                                   |     | REFERENCE DOCUMENT                 | ACCEPTANCE NORMS/ STANDARD         | FORMAT OF RECORDS |    | AGENCY |   |   | REMARKS                                                                                                                                                                                             |
|-----------|------------------------|-----------------------------------------------|-------|---------------|------------------------------------------------------------------------------------|-----|------------------------------------|------------------------------------|-------------------|----|--------|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |                        |                                               |       |               | M                                                                                  | C/B |                                    |                                    |                   |    | M      | C | B |                                                                                                                                                                                                     |
| 1         | 2                      | 3                                             | 4     | 5             | 6                                                                                  |     | 7                                  | 8                                  | 9                 | 10 | 11     |   |   | 12                                                                                                                                                                                                  |
|           |                        | 8 Mass of Zinc Coating                        | CR    | Meas          | Each Type & size of Cable as per sampling plan of IS 1554 (Part1) & IS 7098-Part 1 |     | BIFPCL ADS /IS1554(part I)/IS 3975 | BIFPCL ADS /IS1554(part I)/IS 3975 | Test Certificate  | V  | P      | W | V |                                                                                                                                                                                                     |
|           |                        | 9 Uniformity of Zinc Coating                  | CR    | Chem          | --do--                                                                             |     | --do--                             | --do--                             | --do--            | V  | P      | W | V |                                                                                                                                                                                                     |
|           |                        | 10 Adhesion Test                              | CR    | Mech          | --do--                                                                             |     | --do--                             | --do--                             | --do--            | V  | P      | W | V |                                                                                                                                                                                                     |
|           |                        | 11 Freedom From defects                       | CR    | Visual        | --do--                                                                             |     | --do--                             | --do--                             | --do--            | V  | P      | W | V |                                                                                                                                                                                                     |
| 3.03(iii) | Conductor              |                                               |       |               |                                                                                    |     |                                    |                                    |                   | V  | P      | W | V |                                                                                                                                                                                                     |
|           |                        | 1 Resistance Test                             | CR    | Elect         | --do--                                                                             |     | --do--                             | --do--                             | --do--            | V  | P      | W | V |                                                                                                                                                                                                     |
|           |                        | 2 Tensile test (for aluminum Conductor only)  | CR    | Mech          | Each Type & size of Cable as per sampling plan of IS 1554 (Part1) & IS 7098-Part 1 |     | BIFPCL ADS/ IS 8130                | BIFPCL ADS/ IS 8130                | --do--            | V  | P      | W | V | Test Report of Manufacturer to be reviewed as per SI. No. 2.01 for Tensile test & wrapping test (for Aluminum) in case this test is not applicable for cable under inspection as per IS 8130 cl.6.2 |
|           |                        | 3 Wrapping Test (for aluminum Conductor only) | CR    | Mech          | --do--                                                                             |     | --do--                             | --do--                             | --do--            | V  | P      | W | V | --do--                                                                                                                                                                                              |

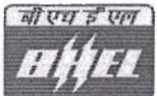
*Signature*



|  |                                  | <b>MANUFACTURER'S NAME AND ADDRESS</b><br><br>Component Fabrication Plant(CFP)<br>,RUDRAPUR |       | <b>MANUFACTURING QUALITY PLAN</b> |                                                                                    |              |                                              | Customer : BANGLADESH INDIA<br>FRIENDSHIP COMPANY PVT LTD, BANGLADESH<br>Project : 2x660 MW MAITREE STPP<br>Contract No : 16-013-X-2<br>Main - Supplier : BHEL RUDRAPUR |                   |        |    |                                |                                                                                    |
|-----------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------|-------|-----------------------------------|------------------------------------------------------------------------------------|--------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------|----|--------------------------------|------------------------------------------------------------------------------------|
|                                                                                   |                                  |                                                                                             |       |                                   |                                                                                    |              |                                              |                                                                                                                                                                         |                   |        |    | Item: AC Cable<br>Sub- System: | QP No: QP/AC Cable /MAITREE-01<br>Rev No: 05<br>Date: 19.11.2020<br>Page: 07 Of 08 |
| SL. NO.                                                                           | COMPONENT & OPERATIONS           | CHARACTERISTICS                                                                             | CLASS | TYPE OF CHECK                     | Quantum of Check                                                                   |              | REFERENCE DOCUMENT                           | ACCEPTANCE NORMS/ STANDARD                                                                                                                                              | FORMAT OF RECORDS | AGENCY |    |                                | REMARKS                                                                            |
| 1                                                                                 | 2                                | 3                                                                                           | 4     | 5                                 | M                                                                                  | C/B          | 6                                            | 7                                                                                                                                                                       | 8                 | 9      | 10 | 11                             | 12                                                                                 |
| 3.03 (iv)                                                                         | PVC/XLPE/Insulation & PVC Sheath | 1 Thickness of insulation & PVC Sheth                                                       | CR    | Meas                              | Each Type & size of Cable as per sampling plan of IS 1554 (Part1) & IS 7098-Part 1 |              | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1 | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1                                                                                                                            | Test Certificate  | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 2 Tensile strength & Elongation at break of insulation & Outer sheath (before Ageing)       | CR    | Mech                              | Each Type & size of Cable as per sampling plan of IS 1554 (Part1) & IS 7098-Part 1 |              | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1 | BIFPCL ADS /IS1554 (Part 1) & IS 7098-Part 1                                                                                                                            | Test Certificate  | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 3 Tensile strength & Elongation at break of insulation & Outer sheath (after Ageing)        | CR    | Mech                              | Refer note 3                                                                       |              | --do--                                       | --do--                                                                                                                                                                  | --do--            | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 4 Insulation resistance (Volume resistivity method)                                         | CR    | Elect                             | Each Type & size of Cable as per sampling plan of IS 1554 (Part1) & IS 7098-Part 1 |              | --do--                                       | --do--                                                                                                                                                                  | --do--            | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 5 High voltage test at room temprature                                                      | CR    | Elect                             | Each Type & size of Cable as per sampling plan of IS 1554 (Part1) & IS 7098-Part 1 |              | --do--                                       | --do--                                                                                                                                                                  | --do--            | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 6 Hot Set test ( for XLPE Insulation only)                                                  | CR    | Phy                               | --do--                                                                             |              | --do--                                       | --do--                                                                                                                                                                  | --do--            | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 7 Thermal stability on PVC Insulation and outer sheath                                      | CR    | Chem                              | One sample of each offered lot of all offered sizes                                |              | --do--                                       | --do--                                                                                                                                                                  | --do--            | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 8 Oxygen Index Test on outer sheath                                                         | CR    | Chem                              | One sample of each offered lot of all offered sizes                                |              | BIFPCL ADS / IS 10810 Part 58                | BIFPCL ADS                                                                                                                                                              | --do--            | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 9 Smoke Density rating test on outer sheath                                                 | CR    | Chem                              | One sample of each offered lot of all offered sizes                                |              | BIFPCL ADS & ASTM D2843                      | BIFPCL ADS                                                                                                                                                              | --do--            | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 10 Acid gas generation test on outer sheath                                                 | CR    | Chem                              | One sample of each offered lot of all offered sizes                                |              | BIFPCL ADS & IEC 60754-1                     | BIFPCL ADS                                                                                                                                                              | Test Certificate  | ✓      | P  | W                              | V                                                                                  |
|                                                                                   |                                  | 11 Flammability test on completed cable                                                     | CR    | Chem                              | Refer Note 4                                                                       | Refer Note 4 | BIFPCL ADS & IEC 60332 Part-3 (Category-B)   | BIFPCL ADS                                                                                                                                                              | --do--            | ✓      | P  | W                              | V                                                                                  |

*Signature*



|                                                                                                                       |                        | <b>MANUFACTURER'S NAME AND ADDRESS</b><br><br>Component Fabrication Plant(CFP)<br>,RUDRAPUR |       | <b>MANUFACTURING QUALITY PLAN</b>                                                                                                                                                                                                                                                                                                                                  |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                              | Customer : BANGALADESH INDIA<br>FRIENDSHIP COMPANY PVT LTD, BANGALADESH<br>Project : 2x660 MW MAITREE STPP<br>Contract No : 16-013-X-2<br>Main - Supplier : BHEL RUDRAPUR |                   |                                                                                    |    |             |                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------|----|-------------|----------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                        |                        |                                                                                             |       |                                                                                                                                                                                                                                                                                                                                                                    |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                              | Item: AC Cable<br>Sub-System:                                                                                                                                             |                   | QP No: QP/AC Cable /MAITREE-01<br>Rev No: 05<br>Date: 19.11.2020<br>Page: 08 Of 08 |    |             |                                                                                                          |
| SL. NO.                                                                                                                                                                                                | COMPONENT & OPERATIONS | CHARACTERISTICS                                                                             | CLASS | TYPE OF CHECK                                                                                                                                                                                                                                                                                                                                                      | Quantum of Check        |                         | REFERENCE DOCUMENT                                                                                                                                                                                                                                                                                                                                                                           | ACCEPTANCE NORMS/ STANDARD                                                                                                                                                | FORMAT OF RECORDS | AGENCY                                                                             |    |             | REMARKS                                                                                                  |
| 1                                                                                                                                                                                                      | 2                      | 3                                                                                           | 4     | 5                                                                                                                                                                                                                                                                                                                                                                  | M                       | C/B                     | 6                                                                                                                                                                                                                                                                                                                                                                                            | 7                                                                                                                                                                         | 8                 | 9                                                                                  | 10 | 11          | 12                                                                                                       |
|                                                                                                                                                                                                        |                        | 12 surface finish & length measurement                                                      | CR    | Visual & Meas                                                                                                                                                                                                                                                                                                                                                      | One length of each size | One length of each size | (1) Drum no. (2) IS1554-1 /IS7098-1,CabJc size, Voluage grade & Words " FRL,.S" at every 5 meter is to be embossed. Embossing shall be automatic, in line & marking shall be indelible (3) Sequential marking of length of cable in meter at every one meter is to be embossed / printed. Embossing / printed shall be progressive, automatic, in line & marking shall be length & indelible | --do--                                                                                                                                                                    | V                 | P                                                                                  | W  | V           | Pimple, fish Eye, Burnt particals, Blow Hole etc. not permitted. Repairing on outer sheath not permitted |
|                                                                                                                                                                                                        |                        | 13 Sequence of cores armour coverage, gap between two consevive armour / formed wire        | CR    | Visual & Meas                                                                                                                                                                                                                                                                                                                                                      | One length of each size | One length of each size | Min. area of coverage of armouring shall be 90%. The gap between armour wires / formed wires shall not exceed one armour wire/ formed wire space & there shall be no cross over/ over riding of armour wire / formed wire Zn rich paint shall be applied on armour joint surface of G.S Wire / forned wire                                                                                   | --do--                                                                                                                                                                    | V                 | P                                                                                  | W  | --          |                                                                                                          |
| 4                                                                                                                                                                                                      | Packing                | 1 Sealing                                                                                   | MA    | Visual                                                                                                                                                                                                                                                                                                                                                             | 100%                    | 100%                    | (1)IS1554(Part-1) & IS 7098-Pant 1 (2) The surface of the drum and the outer most cable layer shall be covered with water proof cover (3) Both the ends of cables shall be properly sealed with heat shrinkable PVC/ rubber caps secured by "U" nails.                                                                                                                                       | QCR                                                                                                                                                                       | V                 | P                                                                                  | W  | --          |                                                                                                          |
| 4.01                                                                                                                                                                                                   | Identification         | Supplier/Manufacturer Sealing                                                               | MA    | Visual                                                                                                                                                                                                                                                                                                                                                             | 100%                    | 100%                    | Sealing shall be visible                                                                                                                                                                                                                                                                                                                                                                     | QCR                                                                                                                                                                       | V                 | P                                                                                  | W  | --          |                                                                                                          |
| <b>Note:</b> Makes shall be as per vendor list in approved Inspection Categorisation Plan: MAITREE-00-BAA-DA-500027-RDP. After finalization of vendor, vendor's MQP will be submitted to the customer. |                        |                                                                                             |       |                                                                                                                                                                                                                                                                                                                                                                    |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                           |                   |                                                                                    |    |             |                                                                                                          |
| Manufacturer/<br>Sub-Supplier                                                                                                                                                                          |                        |                                                                                             |       | <b>Legend:</b><br>* RECORDS, IDENTIFIED WITH "TICK" SHALL BE ESSENTIALLY BY SUPPLIER IN QA DOCUMENTATION.<br>** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, B: BIFPCL P: PERFORM<br>W: WITNESS AND V: VERIFICATION. AS APPROPRIATE,<br>CHP: BIFPCL SHALL IDENTIFY IN COLUMN "B" AS "W"<br>IR: Inspection Report TC: Test Certificate, TDS: Technical Data Sheet |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                              | For BIFPCL Use                                                                                                                                                            |                   | Doc. No:                                                                           |    | Rev-----CAT |                                                                                                          |
|                                                                                                                                                                                                        |                        |                                                                                             |       |                                                                                                                                                                                                                                                                                                                                                                    |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                           |                   | Reviewed By                                                                        |    | Approved By |                                                                                                          |
| Signature                                                                                                                                                                                              |                        |                                                                                             |       |                                                                                                                                                                                                                                                                                                                                                                    |                         |                         |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                           |                   |                                                                                    |    |             |                                                                                                          |

- 20/11/20