

## **ANNEXURE-1: SWITCHYARD ERECTION GUIDELINES**

### **1.0 GENERAL**

Loading / Unloading, verification, handling, shifting to & from stores, proper storage, assembly, installation, pre-commissioning test and commissioning tests (As per BHEL FQP) are included in the scope.

### **2.0 TESTING AND COMMISSIONING**

2.1 An indicative list of tests for testing and commissioning is given below. Contractor shall perform any additional test based on specialties of the items as per the field Q.P./instructions of the equipment Contractor or Owner without any extra cost to the Owner. The Contractor shall arrange all equipments instruments and auxiliaries required for testing and commissioning of equipments along with calibration certificates and shall furnish the list of instruments to the Owner for approval.

### **2.2 GENERAL CHECKS**

- (a) Check for physical damage.
- (b) Visual examination of zinc coating/plating.
- (c) Check from name plate that all items are as per order/specification.
- (d) Check tightness of all bolts, clamps and connecting terminals using torque wrenches.
- (e) For oil filled equipment, check for oil leakage, if any. Also check oil level and top up wherever necessary.
- (f) Check ground connections for quality of weld and application of zinc rich paint over weld joint of galvanised surfaces.
- (g) Check cleanliness of insulator and bushings.
- (h) All checks and tests specified by the manufacturers in their drawings and manuals as well as all tests specified in the relevant code of erection.
- (i) Check for surface finish of grading rings (Corona control ring).
- (j) Pressure test on all pneumatic lines at 18.5 times the rated pressure shall be conducted.

### **2.3 STATION EARTHING**

- a) Check continuity of grid wires
- c) Check earth resistance of the entire grid as well as various sections of the same.
- d) Check for weld joint and application of zinc rich paint on

galvanised surfaces.

- e) Dip test on earth conductor prior to use.

2.4

#### **ACSR CONDUCTOR STRINGING WORK, TUBULAR BUS WORK AND POWER CONNECTORS**

- a) Physical check for finish
- b) Electrical clearance check
- c) Testing of torque by torque wrenches on all bus bar power connectors and other accessories.
- d) Millivolt drop test on all power connectors.
- e) Sag and tension check on conductors.

2.5

#### **ALUMINIUM TUBE WELDING**

- a) Physical check
- b) Millivolt drop test on all joints.
- c) Dye penetration test & Radiography test on 10% sample basis on weld joints.
- d) Test check on 5% sample joints after cutting the weld piece to observe any voids etc.