

MODEL QUALITY ASSURANCE PLAN
(QAP) FOR ELECTRICAL
WORKSHOP



 BHEL-EMRP MUMBAI	TECHNICAL SPECIFICATION PART-I FOR ELECTRICAL WORKSHOP EQUIPMENTS TESTING DEVICES		SPECIFICATION NO. EM-MHDA-MAN-00	
			Rev. No	00
	4 x 180 MW MANGDECHHU HEP		Date	01.07.2014

Annexure-I

Table 1

LIST OF DOCUMENTS TO BE SUBMITTED ALONG WITH BID

Sl.No	Documents:	No of copies
1	Details of Equipments as per Specific technical Specifications (Duly Filled)	2 copies
2	Product Catalogue for all equipments/ instruments referred in Specific technical Specifications	2 copies
3	Schedule of Deviation as per Specific technical Specifications	2 copies

NOTE: All above documents to be submitted strictly, failing which the offer may likely be rejected.

Table 2

LIST OF DOCUMENTS TO BE SUBMITTED AFTER AWARD OF ORDER FOR BHEL / END CUSTOMER APPROVAL and ALONG WITH EQUIPMENT

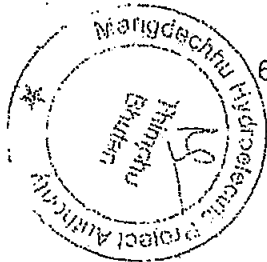
Sl.No	Documents	No of copies
1	Product catalog with complete specifications, model nos. physical dimensions etc.	3 copies (2 for MHDA + 1 for BHEL)
2	Quality Assurance Plan along with test certificates and calibration certificates for MDCCs	4 copies (3 for MHDA + 1 for BHEL)
2	Test Certificates of all acceptance and routine tests as applicable.	3 copies (2 for MHDA + 1 for BHEL)
3	Calibration certificates as applicable.	3 copies (2 for MHDA + 1 for BHEL)
4	Guarantee certificate as per NIT.	2 copies (1 for MHDA + 1 for BHEL)
5	Instruction manual of individual equipment Instruction manual of individual equipment shall clearly indicate in English the installation and connection method. Operating, Maintenance and Calibration methods shall be provided in the manual.	7 copies (6 for MHDA + 1 for BHEL)

19. MODEL QUALITY ASSURANCE PLAN (QAP) FOR ELECTRICAL WORKSHOP**Special Instructions: -**

1. Contractors/Manufacturers/Sub-suppliers are advised to submit QAP for equipments/ system/ materials after incorporating all tests for bought out items, in process inspection and final inspections as per their latest manufacturing practice and Indian/ International Standards (with latest amendments, if any).
2. Contractors/Manufacturers/Sub-suppliers are required to use properly calibrated instruments / equipments during testing/inspection, for which necessary calibration certificates are required to be provided/presented to the Inspecting Officer.
3. Contractors/Manufacturers/Sub-suppliers have to make on their own all arrangements for testing facilities at their works for testing of equipments/materials.
4. One set of complete test certificates as per the requirement of QAP be made available to the MHPA for acceptance.
5. All the records, as per the requirement of QAP may be made available for review by the Inspecting Officer during inspection.
6. Field tests are to be carried out as per the requirements of the contract/purchase order.



291



QUALITY ASSURANCE PLAN (MODEL)

PROJECT : MANGDECHHU HE PROJECT, BHUTAN
NAME OF
EQUIPMENT : ELECTRICAL WORKSHOP EQUIPMENT

CLIENT: MANGDECHHU HYDROELECTRIC PROJECT AUTHORITY.
VENDOR NAME & ADDRESS:
NIT/P.O. REFERENCE :

Page: 19-2

SL. NO.	ITEM /COMPONENTS & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	RECORD FORMAT	INSP. AGENCY			REMARKS
							Perform	Witness	Verify	
1	General Equipment Universal Vice for Bench, Electronic Tools, Cable-Shoe Pressing Pliers Set, Spirit Level, Hydraulic Crimping Machine, Vacuum Cleaner & Hot Air Blower									
a)	Routine Test	Test	100%	Tech.Spec./Appd.drg./IEC:Code		TC	3-2	-	1	TC
b)	Checking of Rating, Make & Model	Visual	-do-		-do-	TC	3-2	-	1	TC
2	Accessories L.V. Short-Circuiting device, Voltage Tester, High Freq. Welding Set, Extension Cable.									
a)	Routine Test	Test	-do-		-do-	TC	3-2	-	1	TC
b)	Checking of Rating, Make & Model	Visual	-do-		-do-	TC	3-2	-	1	TC
3	Measuring Devices Megger (A.C. & D.C.), Portable Universal Bridge, Portable Power Measuring									

Note: In 'Inspection Agency' column figure 1,2, or 3 to be filled. 1- will indicate 'MHPA', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point.
Test certificates shall be submitted at the time of final inspection.

Signature
MHPA (Client)

Signature
NHPC (Consultant)

Signature & Seal
Vendor



292

QUALITY ASSURANCE PLAN (MODEL)

PROJECT : MANGDECHHU HE PROJECT, BHUTAN
NAME OF
EQUIPMENT : ELECTRICAL WORKSHOP EQUIPMENT

CLIENT: MANGDECHHU HYDROELECTRIC PROJECT AUTHORITY.
VENDOR NAME & ADDRESS:
NIT/P.O. REFERENCE :

Page: 10-3

SL. NO.	ITEM /COMPONENTS & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE / ACCEPTANCE DOCUMENTS / NORMS	RECORD FORMAT	INSP. AGENCY			REMARKS
						Perform	Witness	Verify	
	Device, Digital Multimeter (A.C. & D.C.), Analog Multimeter (A.C. & D.C.). High Frequency Generator, Decade Resistor, Connection Leads, Constant Current Supply Unit, Volt Meter, Ammeter, Single Phase Toroidal Transformer, Universal Digital Voltmeter, Universal Instrument, Phase Sequence Indicator, P.F. Measuring Instrument, Digital Frequency Meter, Temp. Measuring Instrument, Sound Level Meter, Digital Mechanical Revolution Counter, Tan Delta Measuring Instrument, Transformer Turn Ratio Meter, Stop-Watch, Hook-on Volt-Ammeter, Vibration Meter, Ohm & Capacitance Meters, Earth Resistance Measuring								

Note: a. In 'Inspection Agency' column figure 1, 2, or 3 to be filled, 1- will indicate 'MHPA', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer 'Hold Point'.

c. Test certificates shall be submitted at the time of final inspection.

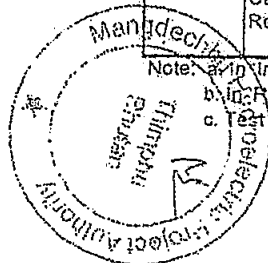
Signature
MHPA (Client)

Signature
NHPC (Consultant)

Signature & Seal
Vendor



293



QUALITY ASSURANCE PLAN (MODEL)

PROJECT : MANGDECHHU HE PROJECT, BHUTAN
NAME OF
EQUIPMENT : ELECTRICAL WORKSHOP EQUIPMENT

CLIENT: MANGDECHHU HYDRO-ELECTRIC PROJECT AUTHORITY.
VENDOR NAME & ADDRESS:
NIT/P.O. REFERENCE :

Page: 19-4

SL. NO.	ITEM /COMPONENTS & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE / ACCEPTANCE DOCUMENTS / NORMS	RECORD FORMAT	INSP. AGENCY			REMARKS
						Perform	Witness	Verify	
1	Devices, Stroboscopes, CRO, Voltage Source with Varying Frequency Output, Micro-Ohm Meter.								
	a) Routine Test	Electrical	100%	Tech.Spec./Appd.drg./IEC:Code	TC	3-2	-	1	TC
	b) Checking of Make & Model	Visual	-do-	-do-	TC	3-2	-	1	TC
	4 Testing Devices								
2	Primary Current Injection Kit, Relay Testing Unit, H.V. Testing Kit (AC & DC), H.V. Insulation Oil Testing, Device, DC Rectifier, Silicagel & Motor Drying Oven								
	a) Routine Test	Electrical	100%	-do-	TC	3-2	-	1	TC
	b) Checking of Rating, Make & Model	Visual	-do-	-do-	TC	3-2	-	1	TC
	5 Instrument Testing & Calibrating Devices								
3	Pressure Transmitter, Differential Transmitter, Ammeter, Voltmeter, Ohm Meter (Bridge principle), Temperature Meter,								

Note: a) In 'Inspection Agency' column figure 1,2,or 3 to be filled, 1- will indicate 'MHPA', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.

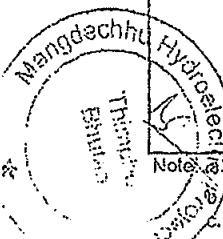
b) In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point

c) Test certificates shall be submitted at the time of final inspection.

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Vendor



QUALITY ASSURANCE PLAN (MODEL)

PROJECT : MANGDECHHU HE PROJECT, BHUTAN
NAME OF
EQUIPMENT : ELECTRICAL WORKSHOP EQUIPMENT

CLIENT: MANGDECHHU HYDROELECTRIC PROJECT AUTHORITY.
VENDOR NAME & ADDRESS:
NIT/P.O. REFERENCE :

Page: 19-5



295

SL. NO.	ITEM /COMPONENTS & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS / ACCEPTANCE NORMS	RECORD FORMAT	INSP. AGENCY			REMARKS
						Perform	Witness	Verify	
	Hygrometer, Drilling-machine Rheostats.								
a)	Routine Test	Electrical	100%	Tech.Spec./Appd.drg./IEC:Code	TC	3-2	-	1	TC
b)	Checking of Rating, Make & Model	Visual	-do-						
6	Silica Gel Drying Oven								
a)	Routine Test	Electrical	-do-	-do-	TC	3-2	-	1	TC
b)	Checking of Rating, Make & Model.	Visual	-do-						
7	Workbenches, Lockers & Instrument								
a)	Check of BOM	Visual	100%	-do-	TC	3-2	-	1	TC

Note: a. In 'Inspection Agency' column figure 1,2,or 3 to be filled. 1- will indicate 'MHPA', 2- will indicate 'supplier' & 3- will indicate 'sub-supplier'.
b. In 'Remarks' column following abbreviations shall be used - RR-Review of Records, T.C. - Test Certificate Submission & CHP - Customer Hold Point.
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