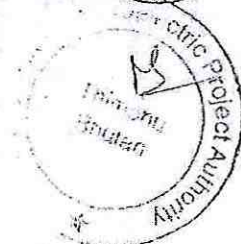


MODEL QUALITY ASSURANCE PLAN (QAP) FOR ELECTRICAL WORKSHOP

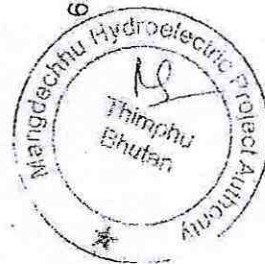


19. MODEL QUALITY ASSURANCE PLAN (QAP) FOR ELECTRICAL WORKSHOP**Special Instructions: -**

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.



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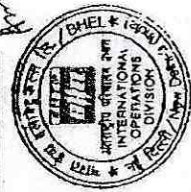
QUALITY ASSURANCE PLAN (MODEL)

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	
1	General Equipment Universal Vice for Bench, Electronic Tools, Cable-Shoe Pressing Pliers Set, Spirit Level, Hydraulic Crimping Machine, Vacuum Cleaner & Hot Air Blower	Test Visual	100% -do-	Tech. Spec./Appd.drg./IEC:Code -do-	TC TC	3-2 3-2	-	-	TC TC
a) b)	Routine Test Checking of Rating, Make & Model	Test Visual	-do- -do-	-do- -do-	TC TC	3-2 3-2	-	-	TC TC
2	Accessories L.V. Short-Circuiting device, Voltage Tester, High Freq. Welding Set, Extension Cable.	Test Visual	-do- -do-	-do- -do-	TC TC	3-2 3-2	-	-	TC TC
a) b)	Routine Test Checking of Rating, Make & Model	Test Visual	-do- -do-	-do- -do-	TC TC	3-2 3-2	-	-	TC TC
3	Measuring Devices Megger (A.C. & D.C.), Portable Universal Bridge, Portable Power Measuring	Test Visual	-do- -do-	-do- -do-	TC TC	3-2 3-2	-	-	TC TC
a) b)	Routine Test Checking of Rating, Make & Model	Test Visual	-do- -do-	-do- -do-	TC TC	3-2 3-2	-	-	TC TC

Note: a) In 'Inspection Agency' column figure 1, 2 or 3 to be filled. 1- 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.
 Test certificates shall be submitted at the time of final inspection.



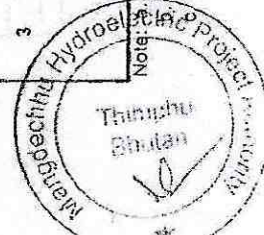
Signature & Seal
Vendor

Signature
NHPC (Consultant)

Signature
MHPA (Client)



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QUALITY ASSURANCE PLAN (MODEL)

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

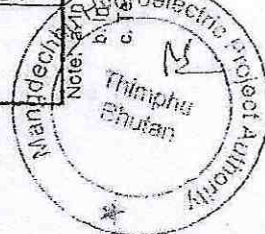
CLIENT: MANGDECHHU HYDROELECTRIC PROJECT AUTHORITY.
VENDOR NAME & ADDRESS:
NIT/P.O. REFERENCE :

Page: 19-3

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							



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

QUALITY ASSURANCE PLAN (MODEL)

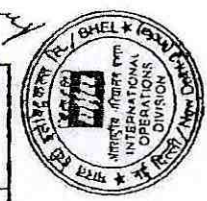
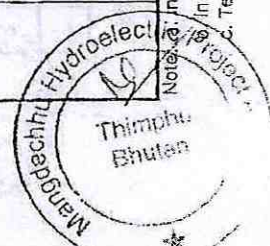
PROJECT : MANGDECHHU HE PROJECT, BHUTAN
EQUIPMENT : ELECTRICAL WORKSHOP EQUIPMENT
CLIENT : MANGDECHHU HYDROELECTRIC PROJECT AUTHORITY.
VENDOR NAME & ADDRESS :
NIT/P.O. REFERENCE :

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SL. NO.	ITEM / COMPONENTS & CHARACTERISTICS	NATURE OF CHECKS	QUANTUM OF CHECKS	REFERENCE DOCUMENTS	ACCEPTANCE / NORMS	RECORD FORMAT	INSP. AGENCY		REMARKS	
							Perform	Witness / Verify		
a) b) 4	Devices, Stroboscope, CRO, Voltage Source with Varying Frequency Output, Micro-Ohm Meter.	Electrical Visual	100% -do-	Tech. Spec./Appd.drg./IEC:Code -do-		TC TC	3-2 3-2	- -	1 1	TC TC
a) b) 5	Testing Devices 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	Electrical Visual	100% -do-			TC TC	3-2 3-2	- -	1 1	TC TC
	Routine Test Checking of Rating, Make & Model Instrument Testing & Calibrating Devices Pressure Transmitter, Differential Transmitter, Ammeter, Voltmeter, Ohm Meter (Bridge principle), Temperature Meter,									



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Note: a) In 'Inspection Agency' column figure 1,2, or 3 to be filled. 1- 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
 Test certificates shall be submitted at the time of final inspection.

Signature
 MHPA (Client)

Signature
 NHPC (Consultant)

Signature & Seal
 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

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

Signature
MHPA (Client)

Signature
NHPC (Consultant)

Signature & Seal
Vendor



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