



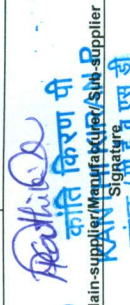




ENDORSEMENT SHEET FOR QP
REFERENCE / STANDARD / FIELD QUALITY PLAN (RQP / SQP/RFQP/SFQP)

<p>TO BE FILLED IN BY SUPPLIER AT TIME OF SUBMISSION</p> <p>PROJECT NAME: 5*50MW SPV AT MANDSAUR,P4 BLOCK CONTRACT NO: RE-CS-5714-004-9(R)-SC-NOA-0016 DATED 31-03-20163 CONTRACT NAME: 5*50MW SPV AT MANDSAUR,P4 BLOCK MAIN SUPPLIER: M/S BHEL,PE&SD, RAMACHANDRAPURAM,HYDERABAD MANUFACTURER WORKS & ADDRESS: ---- ITEM/EQUIPMENT / SYSTEM/ SUB-SYSTEM DETAILS i.e. MODEL TYPE / SIZE /RATING etc. POWER AND CONTROL CABLES AND ACCESSARY UPTO 33KV SUB-SYSTEM APPROVED QP NO.: RQP/SQP/RFQP/SFQP 0000-999-QO-E-I-004 - - REV. NO.: 0 DATED **:26.03.2008 <i>Confirmation by Main Supplier (TICK WHICH EVER APPLICABLE)</i></p> <p>I. That the item/ component is identical to that considered for QP approval. OR. <input checked="" type="checkbox"/></p> <p>II. That there are minor changes in the item/ component with respect to that considered for QP approval, however the same do not affect the contents of QP. OR</p> <p>III. That there are minor changes in the item/ component with respect to that considered for QP approval, however the same affect the QP slightly, as indicated below / in attached sheet.</p> <p align="center"><i>Format of Record</i></p>	<p align="center">To be filled in by NTPC</p> <p>REVIEW & ENDORSEMENT BY NTPC PROJECT SPECIFIC QP NUMBER ALLOTTED QP NO.:</p> <p>REV. NO.: DATE:</p> <p>** The RQP/SQP/RFQP/SFQP once endorsed for a particular contract shall remain valid even though the original QP may have expired or revised, unless / otherwise mutually agreed with the supplier. ①</p> <p align="center"><i>(TICK APPLICABLE)</i></p> <p>The QP is endorsed for this project without any change</p> <p>The QP is endorsed for this project with changes as indicated.</p> <p>DISTRIBUTION OF ENDORSEMENT OF</p> <p>A) RQP/SQP: 1. MAIN SUPPLIER (WITH A COPY OF QP) 2. MANUFACTURER 3. RIO 4. CQA-SPL 5. CQA-O/C</p> <p>B) RFQP/SFQP: 1. MAIN SUPPLIER (with a copy of QP) 2. MANUFACTURER 3. NTPC FQA (with a copy of QP) 4. NTPC Erection (with a copy of QP) 5. CQA-SPL 6. CQA-O/C</p>
<p>SIGN: (Main Supplier) DATE: 10/08/16</p> <p align="right">  कांति किरण पी MANOJ KIRAN P (Main Supplier) DATE: 10/08/16 </p>	<p>SIGN: (Manufacturer) DATE:</p> <p align="right"> NTPC (Reviewed /Approved by/ Date & Seal) </p>

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		M/s BHEL, PE&SD RAMACHANDRAPURAM, HYDERABAD	STANDARD FIELD QUALITY PLAN ITEM: POWER AND CONTROL CABLES AND ACCESSARY UPTO 33KV SUB-SYSTEM	OP NO:0000-999-QO E-I-004 REV NO:00 DATE:26/03/08 PAGE: 1 OF 2	PROJECT:5*50MW SPV AT MANDSAUR,P4 BLOCK CONTRACT NO.-RE-CS-5714-004-9(R)-SC-NOA-0016 DATED 31-03-20163 MAIN-SUPPLIER:BHEL,PE&SD,HYDERABAD					
Sl. No	Activity and operation	Characteristics / Instruments	Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks	
1	2	3	4	5	6	7	8	9	10	
2.10	Securing of cables	-----	C	V	100%	NTPC apprvd. Layout drgs./Cable schedules/NTPC Tech. Spec.Refer cable installation	Power & control cable shall be secured fixed to tray /support with self locking type nylon cable trays type straps with deinterlinking facilities for horizontal type arrangements. Multipower cable & control cable shall be secured at every five meter interval for vertical trays arrangement in individual multicore power and control cable shall be secured at every one meter by Nylon cable strap.			
2.11	Control cable securing in vertical trays	-----	C	V	100%	NTPC apprvd. Layout drgs./Cable schedules/NTPC Tech. Spec.Refer cable installation	Control cables shall be bounded to trays/supports by strips at every five meter interval & at every bend.			
2.12	Protection of cable on road crossing	Mech	C	V	100%	NTPC apprvd. Layout drgs./Cable schedules/S 1255	NTPC apprvd. Layout drgs./Cable schedules/S 1255			
2.13	Laying of control cables & power cables in different layers of trays	Mech	C	V	100%	NTPC apprvd. Layout drgs./Cable schedules/S 1255 /NTPC Tech. Spec.Refer cable installation/	HT cable shall be laid in topmost tier & cables of subsequent lower voltage grades on lower tiers of the tray.			
2.14	IR check of cables	Megger	C	V	100%	Should not show zero value	Should not show zero value.	Check list		
2.15	Earthing and bonding (metal sheathing, metal screening and armour of cable should earthed at both ends.	Mech	B	V	100%	NTPC apprvd. Layout drgs./Cable schedules/NTPC Tech. Spec.Refer earthing system installation.	Metallic sheaths/screens and armour of multicore cable shall be earthed at both ends. Metallic sheets and armour of single core cable shall be earthed at switchyard end only or as per apprd. Cable schedule.			
2.16	Cable identification tag	V	C	V	100%	NTPC apprvd. Layout drgs./Cable schedules/S 1255 /NTPC Tech. Spec.Refer cable installation	NTPC apprvd. Layout drgs./Cable schedules/S 1255 /NTPC Tech. Spec.Refer cable installation/			
2.17	Straight throgh joints & termination									
2.18	LT straight through joints and termination	V	C	V	100%	NTPC apprvd. Layout drgs./Cable schedules/S 1255 /NTPC Tech. Spec./Termination manufacturer recommendation	NTPC apprvd. Layout drgs./Cable schedules/S 1255 /NTPC Tech. Spec.Refer cable installation/		1. Cable jointer shall be qualified to carry out cable jointing/termination satisfactorily. 2. Contractor shall furnish for review documentary evidence/experience repts of the jointers to be deployed at site.	
		Legend to be used: Class # : A = Critical, B=Major, C=Minor; SR, TR, Categorization Witnessing & Accepting (As per NTPC QA&I System) Category 'A' FOA Engineer in association with Executing Engineer, Category 'B' Executing Engineer, Category 'C' Executing Engineer SR = Site Register , TR= Test Report, MfrTC = Manufacturer's Test Certificate This document shall be read in conjunction with NTPC Tech. Specifications, BOQ, Drawings		For NTPC USE		REVIEWED BY		APPROVED BY		APPROVAL SEAL
Main-supplier/Manufacturer/Supplier KANTHIKIRAN P प्रबंधक / पी डी ए स्टाफ डी Manager / PE & SD बी.पी.एल. हैदराबाद BHEL, HYD32										

		M/s BHEL, PE&SD, RAMACHANDRAPURAM, HYDERABAD		STANDARD FIELD QUALITY PLAN ITEM: POWER AND CONTROL CABLES AND ACCESSORY UPTO 33KV SUB-SYSTEM			PROJECT: 5*50MW SPV AT MANDSAUR, P4 BLOCK CONTRACT NO.: RE-CS-5714-004-9(R)-SC-NDA-0016 DATED 31-03-2016 MAIN-SUPPLIER: BHEL, PE&SD, HYDERABAD		
Sl. No	Activity and operation	Characteristics / Instruments	Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3	4	5	6	7	8	9	10
RECEIPT AND STORAGE									
1.1	Receiving inspection a) Completeness of documents b) Cables are received as per MDCC/CHP c) Straight through joints & termination kits	-----	C	V	100%	Delivery Challan	MDCC/CHP/Packing list of drums.		
1.2	Visual Examination a) Damage to drums b) Thefts	-----	C	V	100%	Drums are not damaged	Drums are not damaged		
1.3	Proper Storage	Check for proper storage. Storage level	C	V	100%	IS 1255 Clause 7.0	Cables drums are placed on raised platform, Hard & well drained surface with flange horizontal		Damage / theft to be reported to NTPC.
1.4	Transportation to erection site	-----	C	V	100%	Mechmised system	Mechmised system. Ensure safety of drums and personnels.		
2.0	ERECTION								
2.01	For HT cable-Size of cable/route length	V	B	V	100%	Apprvd. Cable Schedule	Apprvd. Cable Schedule		Cable length is to be planned in such a way so that minimum straight through joints are made.
2.02	For LT cable-Size of cable/route length	V	C	V	100%	Apprvd. Cable Schedule	Apprvd. Cable Schedule		Cable length is to be planned in such a way so that minimum straight through joints are made.
2.03	Marking identification on cable drums	-----	C	V	100%	IS-1554-1, IS-7098-1&2	Should match with packing list		
2.04	Removal of wooden planks from cable drums	-----	C	Mech	100%	Use proper tool	Cables are not damaged		
2.05	Cable drums are kept elevated from with the help of cable drums jacks	Cable drums jack	C	Mech	100%	IS 1255 Clause 8.0	Cable drums are not touched to ground		
2.06	Cable length unwinding/pulling tension	Mech	C	Mech	100%	IS 1255 Clause 5.0	IS 1255 Clause 5.0		Cable should not damaged.
2.07	1. Ground rollers shall be used at every 2 meter interval 2. Cables shall not be pulled from end without having proper pulling arrangement	Ground rollers	C	Mech	100%	IS 1255, CL-10 & NTPC tech. spec	IS 1255 /Cables are not dragged on hard ground		
2.08	In each cable run some extra length shall be kept to enable one LT/two HT straight through joints to be made	-----	C	V	100%	NTPC Tech Specs.	NTPC Tech Specs.		
2.09	Single core cable/Multicore cable	-----	C	V	100%	NTPC apprvd. Layout drgs./Cable schedules/NTPC Tech. Spec. Refer cable installation	Single core cable in TREFOIL formation shall be laid with a distance of four times the diameter of cable between Trefoil centre lines and clamped at every two meter. All multi core cable shall be laid in touching formation.		
Legend to be used: Class #: A = Critical, B=Major, C=Minor; SR, TR, Categorization Witnessing & Accepting (As per NTPC QA&I System), Category 'A' FQA Engineer in association with Executing Engineer, Category 'B' Executing Engineer, Category 'C' Executing Engineer, SR = Site Register, TR= Test Report, MirTC = Manufacturer's Test Certificate This document shall be read in conjunction with NTPC Tech. Specifications, BOQ, Drawings			For NTPC USE			REVIEWED BY		APPROVED BY	
Main-supplier/Manufacturer/Job-supplier Signature  कति किरण की प्रबंधक / जोड़ व रख की			Manager / PE & SD  प्रबंधक / जोड़ व रख की			APPROVAL SEAL			

श्री. एच. ई. एल. हैरबाबाद BHEL, HVD-32

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	 M/s BHEL, PE&SD RAMACHANDRAPURAM, HYDERABAD	STANDARD FIELD QUALITY PLAN ITEM: POWER AND CONTROL CABLES AND ACCESSARY UPTO 33KV SUB-SYSTEM	PROJECT: 550MW SPV AT MANDSAUR, P4 BLOCK CONTRACT NO.: RE-CS-5714-004-9(R)-SC-NOA-0016 DATED 31-03-20163 MAIN-SUPPLIER: BHEL, PE&SD, HYDERABAD						
Sl. No	Activity and operation	Characteristics / instruments	Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1								9	10
2.19	HT straight through joints and termination	V	B	V	100%	NTPC apprvd. Layout drgs./Cable schedules /IS 1255 /NTPC Tech specs./Termination manufacturer recommendation	NTPC apprvd. Layout drgs./Cable schedules /IS 1255 /NTPC Tech. Spec.Refer cable installation/		1. Cable jointer shall be qualified to carry out cable jointing/termination satisfactorily. 2. Contractor shall furnish for review documentary evidence/experience repts of the jointers to be deployed at site.
2.20	G.I conduit earthing	Mech	C	V	100%	IS3043-1966/NTPC Specs.	IS3043-1966/NTPC Specs.		
2.21	Sealing of end of conduits after cable traying	mech	C	V	100%	NTPC Tech Specs.	End of conduits /pipes shall be sealed with glass wool/cement mortar/putty		
2.22	Cleaning of cable trench & cover the trench with covers	Mech	C	V	100%	NTPC Tech Specs.	Replace RCC /Steel trench covers after installatio works.		
2.23	Laying of Sand Bricks/Slabs for buried cables	Mech	C	V	100%	NTPC apprvd. Layout drgs./cable schedules /IS 1255 /NTPC Tech specs.	NTPC apprvd. Layout drgs./cable schedules /IS 1255 /NTPC Tech specs.		1. Power cable should not be laid above Telecommunication cable 2 Cable Protective cover may be marked by "POWER CABLE"
3.1	ERECTION								
3.2	For LT cables								
3.3	IR test	Megger	B	Measure	100%	IS 1255	IS 1255	Check list	
3.4	DC HV Test	HV tester	B	Measure	100%	IS 1255	IS 1255	Check list	
3.5	For HT cable								
3.6	IR before and after laying	Megger	A	Measure	100%	IS 1255	IS 1255	Check list	
3.7	DC HV test on each core	Megger	A	Measure	100%	IS 1255	IS 1255	Check list	
LEGEND USED FOR STORAGE LEVEL									
STORAGE LEVEL "A" Outside with no protective cover/Open space/yard on raised surface ,property stacked and free from water logging and loading(undue weight)									
STORAGE LEVEL "B" Outside with protective cover/Open space/yard on raised surface ,properly stacked and free from water logging and loading(undue weight,covered with PVC Tarpaulin)									
STORAGE LEVEL "C" Indoor shelf items(store in pucca shed,store)									
STORAGE LEVEL "D" Indoor clean condition(stored in pucca shed,store.The store area shall be dry,free from dust and there shall not be acid in the vicinity).									
STORAGE LEVEL "E" Indoor temperature and humidity controlled-Air conditioned(stored in pucca shed,in store with controlled atmosphere).									
Legend to be used: Class # : A = Critical, B=Major, C=Minor, SR, TR, Category 'A' FQA Engineer in association with Executing Engineer, Category 'B' Executing Engineer, Category 'C' Executing Engineer, SR = Site Register , TR= Test Report, MfrTC = Manufacturer's Test Certificate									
Main-supplier/Manufacturer/Sub-supplier कान्ति सिंघान्ण पी KANTHI KIRAN P Manager / PE & SD श्री. ए.ए.ई.ए. हैर्याबाद BHEL, HYD-32									
This document shall be read in conjunction with NTPC Tech. Specifications. BOQ, Drawings									
REVIEWED BY APPROVED BY APPROVAL SEAL									

THIS FQP SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATIONS/APPROVED DRAWINGS AND RELEVANT STANDARDS