

DAMODAR VALLEY CORPORATION
QUALITY CONTROL & INSPECTION
DVC TOWERS, VIP ROAD
KOLKATA – 700054



QUALITY ASSURANCE CHAPTER
FOR
PROCUREMENT OF 500 MVA & 200 MVA ICT

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<p>I.00.00</p> <p>I.01.01</p>	<p>QUALITY ASSURANCE PROGRAMME</p> <p>To ensure that the equipment and services under the scope of this Contract, whether manufactured or performed within the Contractor's Works or at his Sub-Contractor's premises or at the Employer's site or at any other place of Work as applicable, are in accordance with the specifications, the Contractor shall ensure suitable quality assurance programme to control such activities at all points necessary. A quality assurance programme of the Contractor shall be in line with ISO requirements & shall generally cover the following:</p> <ul style="list-style-type: none"> a) The organisation structure for the management and implementation of the proposed quality assurance programme. b) System for Document and Data Control. c) Qualification and Experience data of Bidder's key personnel. d) The procedure for purchases of materials, parts, components, and selection of sub-Contractor's services including vendor analysis, source inspection, incoming raw material inspection, verification of material purchases etc. e) System for shop manufacturing and site erection controls including process controls, fabrication, and assembly control. f) System for Control of non-conforming products including deviation dispositioning, if any and system for corrective and preventive actions based on the feedback received from the Customers and internally documented system for Customer complaints. g) Inspection and test procedure both for manufacture and field activities. h) System for Control of calibration of testing and measuring equipment and the indication of calibration status on the instruments. i) System for indication and appraisal of inspection status. j) System of Internal Quality Audits, Management review and initiation of corrective and Preventive actions based on the above. k) System for authorising release of manufactured product to the Employer. l) System for maintenance of records. m) System for handling, storage, and delivery. n) A quality plan detailing the specific quality control measures and procedure adopted for controlling the quality characteristics relevant to each item of equipment furnished and /or service rendered. o) System for various field activities i.e., unloading, receipt at site, proper storage, erection, testing and commissioning of various equipment and maintenance of records. In this regard, the Employer has already prepared Standard Field Quality Plan for transmission line/ substation equipments as applicable, Civil/ erection Works which is required to be followed for associated works. <p>The Employer or his duly authorised representative reserves the right to carry out quality audit and quality surveillance of the system and procedure of the Contractor/ his vendor's quality management and control activities.</p> <p>QUALITY ASSURANCE DOCUMENTS</p> <p>The Contractor shall ensure availability of the following Quality Assurance Documents:</p> <ul style="list-style-type: none"> a) Welding Procedure Specification (WPS) supported with Procedure Qualification Record (PQR) of the same suitable for the job. b) Welder and welding operator qualification certificates. c) All Non-Destructive Examination procedures, stress relief and weld repair procedure used during fabrication, and reports including radiography interpretation reports. d) Welder's identification list, welding operator's qualification procedure and welding identification symbols. e) Raw Material test reports on components as specified by the specification and in the quality plan. f) The Manufacturing Quality Plan (MQP) indicates Customer Hold Points (CHPs) at various stages of manufacturing and methods used to verify that the inspection and testing points in the quality plan was performed satisfactorily.
<p>2.00.00</p> <p>2.01.00</p>	<p>QUALITY ASSURANCE DOCUMENTS</p> <p>The Contractor shall ensure availability of the following Quality Assurance Documents:</p> <ul style="list-style-type: none"> a) Welding Procedure Specification (WPS) supported with Procedure Qualification Record (PQR) of the same suitable for the job. b) Welder and welding operator qualification certificates. c) All Non-Destructive Examination procedures, stress relief and weld repair procedure used during fabrication, and reports including radiography interpretation reports. d) Welder's identification list, welding operator's qualification procedure and welding identification symbols. e) Raw Material test reports on components as specified by the specification and in the quality plan. f) The Manufacturing Quality Plan (MQP) indicates Customer Hold Points (CHPs) at various stages of manufacturing and methods used to verify that the inspection and testing points in the quality plan was performed satisfactorily.

	<p>g) Factory test results for testing required as per applicable quality plan/technical specifications/GTP/Drawings etc.</p> <p>h) Stress relief time temperature charts/oil impregnation time temperature charts, wherever applicable.</p>
2.02.00	EMPLOYER'S SUPERVISION
2.02.01	<p>To eliminate delays and avoid disputes and litigation to the Contract, all matters and questions shall be resolved in accordance with the provisions of this document.</p> <p>Quality Coordination Meeting on mutually agreed date will be arranged within one month from LOA or signing of contract agreement whichever is earlier.</p> <p>The manufacturing of the product shall be carried out in accordance with the specifications. The scope of the duties of the Employer, pursuant to the contract, will include but not be limited to the following:</p> <ol style="list-style-type: none"> Interpretation of all the terms and conditions of these Documents and Specifications. Review and interpretation of all the Contractor's drawings, engineering data etc. Witness or authorize his representative to witness tests at the manufacturer's works or at site, or at any place where work is performed under the contract. Inspect, accept, or reject any equipment, material, and work under the Contract, in accordance with the Specifications. Issue certificate of acceptance and/or progressive payment and final payment certificate. Review and suggest modification and improvement in completion schedules from time to time, and Supervise the Quality Assurance Programme implementation at all stages of the work.
2.03.00	PROPOSED VENDOR LIST
2.03.01	<p>A List of DVC's known vendors is listed under Proposed Vendor List.</p> <p>The EPC may harness the possibility to tie up with this approved vendor for procurement of the controlled items. The EPC may however, propose additional vendor request fulfilling DVC's tender specifications requirement. In that case, the assessment report of proposed sub vendor by Contractor shall be along with the enclosures as per DVC's Vendor approval Format for Document Review (DR) category made available to the successful bidder during kick-off meeting. The contractor shall propose any new sub-vendor sufficiently in advance so as not to impede the supply and erection schedule of the project. The tentative tenure to apply of sub-vendor approval shall be mentioned during kick-off meeting. The proposal shall be reviewed, and approval will be accorded based on the verification of the document submitted and/or after the physical assessment of the works, as the case may be. As an exceptional case, if proposal for sub-vendor is submitted at a later stage, it shall come with proper justification and shall be considered for approval process, only if found relevant, at discretion of DVC. In all cases, it is the responsibility of the Contractor that Project activities do not suffer on account of delay in approval/non-approval of a new sub-vendor. The procedural time for vendor approval of new sub-vendor proposed by the contractor, shall be deemed to be covered within the original time schedule of the project and no relief for the delay occurring behind sub- vendor approval shall be granted to the contractor, neither attributed to the Employer in any way.</p> <p>For non-controlled items, the EPC contractor shall be at the liberty to carry out procurement from EPC's own approved sources, fulfilling the tender specification requirements. However, it shall be obligatory on part of the EPC for complying BIS QCO, DPIIT registration & Make in India orders, Cyber security orders as issued from Gol time to time and other standing and subsequent orders, OM, Corrigendum, Clarifications etc of MoP, Gol.</p>
2.04.00	INSPECTION CATEGORISATION PLAN (ICP):
	The responsibility and the basis of inspection for various items & equipment is placed under Inspection Categorization Plan (ICP).
2.04.01	Unless any deviation is quoted during bidding stage and accepted from DVC, this Inspection

	Categorisation Plan (ICP) shall stand as effective, and the contractor shall not be required to submit (ICP) for its approval Post award.
2.04.02	If Post award modification in categorisation of any item is sought by the contractor, same to be furnished at DVC with proper justification. However, DVC reserves the right to accept the modification or continue with the existing categorisation at discretion.
2.04.03	DVC reserves the right to change the ICP categorisation for any existing item Post award. DVC also may change the categorisation for new approved vendors under existing items at discretion.
2.04.04	DVC reserves the right to include or exclude any item from the ICP list Post award. The categorisation of the new item included in the ICP shall be at full discretion of DVC and shall be binding upon the contractor.
2.04.05	The procedural time for any ICP modification needed/ proposed from contractor shall be deemed to be covered within the original time schedule of the project and no relief for the delay occurring behind the approval process shall be granted to the contractor, neither attributed to the Employer in any way.
2.04.06	During detail engineering / Finalisation of detailed BBU/BOM if any item found not mentioned in the approved list, has to be included and categorised subsequently.
2.05.00	MANUFACTURING QUALITY PLAN (MQP)
2.05.01	Manufacturing Quality Assurance Plan (MQAP) with Customer Hold Points (CHP) for purchaser inspection- The MQAP and Customer hold points shall be discussed between the purchaser and the successful bidder before the MQAP is finalized. The MQAP shall include all the quality checks as stipulated in the specification. Manufacturing can be started after the approval of MQAP. Contractor shall ensure that order for items where DVC approved Manufacturing Quality Plan (MQP) is envisaged, must be placed upon the vendors only upon approval of the MQP of the sub-vendor at DVC. A Copy of MQP format is placed at Annexure-I .
2.05.02	For vendors, where already valid DVC approved reference MQP is available, it shall not be required for fresh submission of MQP for DVC approval. The Principal Contractor shall mention the Package/Project name and PO/ Work Order Number and sign stamp the already approved reference MQP and submit the same at DVC as acknowledgement of the same for the subject project.
2.05.03	Items not covered under MQP/Inspection Test Plan (ITP)/Factory Acceptance Test (FAT) shall be offered for inspection as per DVC LOA/ technical Specifications/ DVC approved data sheets/ DVC approved drawings and relevant Indian/ International standards.
2.06.00	INSPECTION, TESTING & INSPECTION CERTIFICATE Inspection Levels: For implementation of projects in a time bound manner and to avoid any delay in deputation of DVC or its authorized representative, involvement of DVC for inspection of various items / equipment will be based on the level below:
2.06.01	Category-I: For these items, the Manufacturing Quality Plan (MQP) shall be approved by DVC and final acceptance shall be on basis of physical inspection jointly witnessed by DVC, contractor's representative and manufacturer. If valid approved reference MQP of DVC is already available with the manufacturer/ sub-vendor, the contractor shall mention the name of Package/Project and PO/Work Order Number & sign stamp the same and submit a copy at DVC as recognition of the reference MQP for subject project. Contractor to raise inspection calls for both, stage (if applicable as per approved MQP) & final inspections. DVC will carry out the inspection for both stage (if applicable) & final inspection as per

	applicable standards/ specification/MQP. On successful completion of stage inspection, Customer Hold Point (CHP) release and on successful completion of Final inspection Material Dispatch Clearance Certificate (MDCC) shall be issued by DVC.
2.06.02	<p>Category-II: For these items, the Manufacturing Quality Plan shall be approved by DVC. However, no physical inspection (neither stage as applicable nor final) shall be carried out by DVC. The final acceptance of DVC shall be on the basis of review of document of Inspection Report carried out by the Contractor's representative as per the approved MQP.</p> <p>If valid approved reference MQP of DVC is already available with the manufacturer/ sub-vendor, the contractor shall mention the name of Package/Project and PO/Work Order Number & sign stamp the same and submit a copy at DVC as recognition of the reference MQP for the subject project. Contractor to raise all inspection calls and carry out the inspection on behalf of DVC on the proposed date of inspection as per applicable standards/ specification/ MQP. However, in case DVC wishes to associate itself during inspection, the same would be intimated to Contractor and CHP release/MDCC will be issued by DVC. Else, Contractor would submit their test reports/ certificates to DVC. CHP release/ MDCC will be issued by DVC based on review of test reports/certificates.</p>
2.06.03	<p>Category-III: For these items, the Contractor approves the MQP wherever applicable in consultation with the DVC. The final acceptance by DVC shall be Certificate of Conformance (CoC) and Inspection Test Reports carried out by the contractor. Contractor to raise all inspection calls and review the report of tests carried out by the manufacturer, on his own, as per applicable standards/ DVC specification/Inspection Test Plan and submit at DVC. The CHP release/MDCC will be issued by DVC based on review of test reports/ certificates of manufacturers/ CoC.</p>
2.06.04	Contractor shall ensure that to implement the above inspection levels, particularly for the quality control and inspection at sub-vendor's works, they would depute sufficient qualified & experienced manpower in their Quality Control and Inspection department. Further, to assure quality of construction, Contractor shall have a separate work force having appropriate qualification & experience and deploy suitable tools and plant for maintaining quality requirement during construction in line with applicable Field Quality Plan (FQP).
2.06.05	The Employer or his duly authorised representative and/or outside inspection agency acting on behalf of the Employer shall have at all reasonable times to access to the Contractor's premises or Works and shall have the power at all reasonable times to ensure that proper Quality Management practices/ norms are adhered to, inspect and examine the materials & workmanship of the Works, to carry out Quality/ Surveillance Audit during manufacture or erection and if part of the Works is being manufactured or assembled at other premises or works. The Contractor shall obtain for the Employer and for his duly authorised representative permission to inspect as if the works were manufactured or assembled on the Contractor's own premises or works. The item/ equipment, if found unsatisfactory with respect to workmanship or material is liable to be rejected. The observations for improvements during product/ process inspection by DVC shall be recorded in Quality Improvement Register (available & maintained at works) for review & timely compliance of observations.
2.06.06	Contractor shall submit inspection call well ahead the proposed date of inspection. It shall be ensured that the proposed material for inspection is in ready condition in quantity as well as quality and is well sorted and tagged for easy display during inspection. The proposed materials must be kept in segregation to materials for other utilities at separate designated place within manufacturer's premise. The Inspection call must be accompanied with complete set of documents as envisaged for successful carrying out the inspection as per the approved MQP.
2.06.07	The Employer reserves the right to witness any or all type, acceptance and routine tests specified in the MQP. The Contractor shall give the Employer/Inspector Fifteen-Days (15) days written notice of any material being ready for testing for each stage of testing as identified in the approved quality plan as customer hold point (CHP) for indigenous inspections along with all raw material MTCs, BOMs, approved Datasheet, approved drawings & BOI TCs as per approved MQAP. All inspection calls for overseas material shall be given at least forty-five (45) days in advance. Such tests shall be to the Contractor's account except for the expenses of the Inspection Engineer. The Employer/

	<p>inspector, unless witnessing of the tests is waived by Employer, will attend such tests within Fifteen (15) days (Domestic) of the date of which the equipment is notified as being ready for test/ inspection, failing which the Contractor may proceed with the test which shall be deemed to have been made in the Inspector's presence and he shall forthwith forward to the Inspector three copies of tests, duly certified. Contractor shall ensure, before giving notice for type test, that all drawings, Datasheet and quality plans have been got approved. The equipment shall be dispatched to site only after approval of Routine and Acceptance test results and Issuance of Dispatch Clearance in writing by the Employer. CHP release / Material Dispatch Clearance Certificate (MDCC) shall be issued by the Employer after inspection of the equipment or review of test reports as applicable. Employer may waive off the presence of Employer's inspecting engineer. In that case test will be carried out as per approved MQP and test certificate/Reports will be furnished by the supplier for approval. CHP release/MDCC will be issued only after review and approval of the test reports.</p>
2.06.07	Contractor shall minimize the number of inspection calls by offering optimum quantities in each inspection call at the respective manufacturer's works.
2.06.08	Contractor shall inspect the material themselves and only after they are fully convinced about the Quality, they shall offer the material for DVC inspection and shall also ensure that relevant portion of LOA/NOA, approved drawing and data sheets along with applicable Quality Plans are available at the works of Contractor or their Sub-vendor before the material is offered for inspection.
2.06.09	For averting any delay in issuance of MDCC, the contractor must submit the MTC, RTC, BOM, Approved Drawings and/or Data Sheet & all other requisite documents as needed for preparation of MDCC at least three (03) Days prior to Inspection Date for Cat-I Items or along with MDCC request for Cat-II & Cat-III items.
2.06.10	Contractor shall ensure that material which has been cleared for dispatch after inspection will be dispatched within 30 days in case of domestic supplies and within 90 days in case of over-seas supplies from the date of issuance of MDCC. Material which has not been dispatched within stipulated time as above shall be reoffered for DVC inspection or specific approval of DVC QC&I shall be obtained for delayed dispatch.
2.06.11	DVC shall give notice in writing to the Contractor, of any objection either to conformance to any drawings or to any equipment and workmanship which in his opinion is not in accordance with the Contract. The Contractor shall give due consideration to such objections and shall either make the modifications that may be necessary to meet the said objections or shall confirm in writing to the Employer giving reasons therein, that no modifications are necessary to comply with the Contract.
2.06.12	<p>All Test Reports and documents to be submitted in English language during final inspection of equipment by DVC or as and when required for submission.</p> <p>However, if any original document from any manufacturer is available in other language only, the same shall be accompanied with its true copy of notarized English translation.</p>
2.06.13	<p>When the factory tests have been completed at the Contractor's or Sub- Contractor's works, DVC shall issue a certificate/MDCC to this effect within five (05) days after completion of tests & submission of all documents by Contractor/ manufacturer. But, if the tests are not witnessed by DVC, the certificate/ MDCC shall be issued within five (05) days of receipt of the Contractor's Test certificate & all relevant documents as per MQP, by DVC. Contractor shall, on completion of all tests, submit test reports within Ten (10) days at DVC.</p> <p>Failure of DVC to issue such a certificate/ MDCC shall not prevent the Contractor from proceeding with the Works. The completion of these tests or the issue of the certificate shall not bind the DVC to accept the equipment should it, on further tests after erection, be found not to comply with the Contract.</p>
2.06.14	In all cases, where the Contract provides for tests whether at the premises or works of the Contractor or of any Sub-Contractor, the Contractor, except where otherwise specified, shall provide free of charge such items as labour, materials, electricity, fuel, water, stores, apparatus and

	instruments as may be reasonably demanded by the Employer/ Inspector or his authorised representative to carry out effectively such tests of the equipment in accordance with the Contract and shall give facilities to the Employer/ Inspection Engineer or to his authorised representative to accomplish testing.
2.06.15	The inspection and acceptance by Employer and issue of Inspection Certificate thereon shall in no way limit the liabilities and responsibilities of the Contractor in respect of the agreed quality assurance programme forming a part of the Contract, or if such equipment is found to be defective at a later stage.
2.06.16	The Employer will have the right of having at his own expenses any other test(s) of reasonable nature carried out at Contractor's premises or at site or in any other place in addition of aforesaid type and routine tests, to satisfy that the material complies with the specification.
2.06.17	The Employer reserves the right for getting any additional field tests conducted on the completely assembled equipment at site to satisfy that material complies with specifications.
2.06.18	Re-work/ Re-engineering, if any, on any item/ equipment shall be carried out only after mutual discussions and in accordance with mutually agreed procedure. Contractor shall submit Joint Inspection Report of equipments under Re-Work/ Re-Engineering along with procedure for the same to DVC for approval, before taking up the Re-Work/ Re-Engineering, failing which DVC reserves the right to reject the equipment.
2.06.19	All major testing related to Civil Construction testing requirement may be carried out at DVC's Central Testing Division on chargeable basis. In the case of DVC's Central Testing Division being pre-occupied and non- availability of Test slot (non-availability to be obtained from CRO, CTD, DVC, Maithon in writing), Testing maybe carried out at NABL/ NPL accredited third party Test Laboratory/ Govt. Lab/Institution with due approval from DVC. In such case the availability of Test report must be sent directly from the Testing Laboratory/Institute directly to DVC over email, and hard copies same couriered/mailed directly to DVC's concerned division.
2.06.20	Contractor may establish a field test Laboratory to execute Civil Construction testing requirements at site with the condition that all testing equipment shall be calibrated from DVC recommended NABL/NPL accredited Testing laboratories preferably in presence of DVC, with calibration certificates kept available at site and all testing personnel employed in the Field-Testing Laboratories to be qualified and experienced Engineers. In such cases, all major testing to be witnessed by DVC.
2.06.21	The contractor shall ensure that all possible steps are taken to avoid damages to the equipment during transport, storage and erection.
2.06.22	The Employer reserves the right to increase or decrease their involvement in inspections at Contractor's Works or at his Sub-Contractor's premises or at the Employer's site or at any other place of Work based on performance of Contractor/ Subcontractor.
2.06.23	Unless specified otherwise, inspection shall be made at the place of manufacture prior to dispatch and shall be concluded so as not to interfere unnecessarily with the operation of the work.
2.06.24	Should any item being supplied be found not to comply with the supplied design, it shall be liable to rejection. No item once rejected shall be resubmitted for inspection, except in cases where the Employer or his authorised representative considers that the defects can be rectified. All rejected material shall be disposed of/ destroyed under intimation to Employer QC&I representative as per laid down procedures.
2.06.25	The specified grade and quality of material from the approved source shall be used by the Contractor. To ascertain the quality of material used, the inspector may at his discretion get the material tested at an approved laboratory.

2.07.00	<p>TESTS</p> <p>The type, acceptance and routine tests and tests during manufacture shall be carried-out on the material and shall mean as follows:</p>
2.07.01	<p>Type Tests shall mean those tests which are to be carried out to prove the process of manufacture and general Design conformity of the material to the required Specification. These tests shall be carried out on samples prior to commencement of commercial production against the order. Unless no major change has been introduced in the basic design/ technology/material/ mechanical construction/ functionalities of the equipment/ performance characteristic/ manufacturing, the accepted Type Test Report shall be valid item wise as per latest notification of Central Electricity Authority (CEA), Govt. of India.</p>
2.07.02	<p>Acceptance Tests shall mean those tests which are to be carried out on samples taken from each lot offered for pre-dispatch inspection, for the purposes of acceptance of that Lot.</p>
2.07.03	<p>Routine Tests shall mean those tests which are to be carried out on the material to check requirements which are likely to vary during production.</p>
2.07.04	<p>Stage Inspection shall mean those tests, which are being carried out to release Customer Hold Point of Process/Items which have an irreversible effect on the end product.</p>
2.07.05	<p>The norms and procedure of sampling for these tests will be as per the Quality Assurance Programme to be mutually agreed to by the Contractor and the Employer.</p>
2.07.06	<p>In case of any failure or defect/ deficiency observed in material supplied, Employer reserves the right to carry out any tests on the material supplied to site, if required to prove conformity of material to the specification for which testing charges shall be borne by contractor/ manufacturer.</p>
2.08.00	<p>TRANSMISSION OF QA DOCUMENTATION</p> <p>On release of QA Documentation by Engineer/Inspector, one set of quality document shall be forwarded to Corporate Quality Assurance Department and other set to respective Project Site of Employer.</p> <p>Material Dispatch Clearance Certificate (MDCC) will be issued by DVC, after inspection (as per approved Inspection Categorization Plan) and receipt of all necessary approved engineering documents, all the relevant TCs along with the request letter for issuance of MDCC from the main Contractor.</p>
2.09.00	<p>PLANNING OF INSPECTION</p> <p>The word 'Inspector' shall mean the Engineer and/or his authorised representative and/or an outside inspection agency acting on behalf of the Employer to inspect and examine the materials and workmanship of the works during its manufacture or erection.</p> <p>The Engineer or his duly authorised representative and/or an outside inspection agency acting on behalf of the Employer shall have access at all reasonable times to inspect and examine the materials and workmanship of the works during its manufacture or erection and if part of the works is being manufactured or assembled on other premises or works, the Contractor shall obtain for the Engineer and for his duly authorised representative permission to inspect as if the works were manufactured or assembled on the Contractor's own premises or works.</p> <p>During raising Inspection Call, Contractor has to submit the approved engineering documents, approved MQP and other necessary documentation as per the approved documents/ NIT, failing to which the Inspection Call will not be accepted.</p>

2.10.00	<p>To facilitate advance planning of inspection in addition to giving inspection notice the Contractor shall furnish quarterly inspection programme indicating schedule dates of inspection at Customer Hold Point and final inspection stages. Updated quarterly inspection plans will be made for each three consecutive months and shall be furnished before beginning of each calendar month.</p> <p>All inspection, measuring and test equipment used by contractor shall be calibrated periodically depending on its use and criticality of the test/measurement to be done. The Contractor shall maintain all the relevant records of periodic calibration and instrument identification and shall produce the same for inspection by DVC. Wherever asked specifically, the contractor shall re-calibrate the measuring/test equipment in the presence of Engineer / Inspector.</p> <p>Associated document for Quality Assurance Programme</p> <p>Manufacturing Quality Plan Format enclosed at Annexure-I.</p> <p>Field Quality Plan Format enclosed at Annexure-II.</p> <p>Inspection Call Format enclosed at Annexure-III.</p>
2.11.00	<p>GENERAL REQUIREMENTS</p> <p>The equipment and work performed shall be subject to shop and site test as per Owner's approved quality assurance plan.</p> <p>(a) SHOP TESTS</p> <p>Shop tests shall include all tests to be carried out at Contractor's works, at works of his sub-contractor and at works where raw material supplied from manufacture of equipment is manufactured. Testing requirements of major equipment over and above the respective code/standard requirements are given elsewhere in this specification.</p> <p>(b) SITE TESTS</p> <p>The Contractor shall prepare and submit detailed field quality plans in the format prescribed by owner setting out the quality practice and procedures to be adopted by him for assuring quality for each equipment of material at this specification from the receipt of material at site, during storage erection, pre-commissioning to final commissioning of the system. These procedures shall necessarily include all checks/tests conducted at site for preservation, assembly, alignment, positioning of the equipment, foundation preparation, welding/bolting, non-destructive examination, hydraulic test, running test, performance test etc. The Contractor shall also furnish detailed quality procedure proposed by him for storage, preservation, painting, hydraulic test, air/gas tightness test etc. as applicable to the Employer. The same shall be discussed and finalised with the employer during detailed engineering stage.</p>

Annexure - I

MANUFACTURING QUALITY PLAN FORMAT


(LOGO of Manufacturer)		Manufacturers Details (Name, Works Address etc.)	Customer DAMODAR VALLEY CORPORATIO N	Principal Contractor	COMPONENTS:		MQP No.		Package Name:				
					ICP:		Rev. No.		PO Ref. No.-				
							Date: -		Page-			Remarks	
Sl. No.	Components / Operations & Description of Test	Type of check	Quantum of Check/ Sampling with basis	Reference document for Testing	Acceptance Norms	Format of Record	Applicable Codes						Remarks
							1	2	3	4	5	6	
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
A. Section: RAW MATERIAL INSPECTION													
B. Section: IN PROCESS INSPECTION													
C. Section: FINAL TESTING													
D. Section: TYPE TEST													
E. Section: PACKING & DISPATCH													

MANUFACTURER	Code 1: Inspection location A. at Equipment Manufacturer's works, B. at Sub-Vendor's works, C. at Authorized Distributor's place, D. at Independent Lab, E. at EPC contractor's location and F. Not specific	Code 2: Testing agency J. The Equipment Manufacturer, K. The Component Manufacturer, L. The Third Party and M. The EPC	Code 3: Witnessing agency P. Component Manufacturer itself, Q. Component Manufacturer and Equipment Manufacturer, R. Component Manufacturer, Equipment Manufacturer and EPC, S. Equipment Manufacturer itself, T. Equipment Manufacturer and EPC, U. Equipment Manufacturer, Contractor & DVC and V. Third Party itself	Code 4: Review of test reports/certificates W. By Equipment Manufacturer, X. By EPC during product/process inspection, Y. By DVC during product/process inspection and Z. By EPC and/or DVC during product/process inspection	Code 5: Whether sub- vendor approval is envisaged E. Envisaged N. Not Envisaged	REVIEWED BY
MAIN-SUPPLIER					Code 6: Whether 'test records required to be submitted' along with inspection call Y. Yes N. No	APPROVED BY
SIGNATURE						CUSTOMER SIGNATURE

*** Annexure - II**

MFGR.'s LOGO	MANUFACTURER'S NAME AND ADDRESS	FIELD QUALITY PLAN		PROJECT : EPC CONTRACTOR : OWNER : DAMODAR VALLEY CORPORATION
		PACKAGE : EQUIPMENT	QP No: Rev. No: Date:	


SL. NO	ACTIVITY AND OPERATION	CHARACTERISTICS	CLASS OF CHECK #	TYPE OF CHECK	INSTRUMENT	QUANTUM OF CHECK	REFERENCE DOCUMENT / ACCEPTANCE NORMS	FORMAT OF RECORD
1	Receipt							
2	Storage							
4	Erection							
5	Commissioning							

MAIN SUPPLIER	Legend Used :-					
	Class of check	Witnessing & Accepting Authority	Surveillance By DVC			
	A	FQA Engineer in association with Executing Engineer & Contractor	Head (FQA)			
	B	Executing Engineer & Contractor	FQA Engineer			
SIGNATURE	C	Contractor's Quality Engineer and DVC Executing Engineer	Another Executing Engineer authorised by Head (Executing Department) & Head FQA	FOR DVC USE	APPROVED BY	APPROVAL SEAL

* This is an indicative format. EPC Contractor has to submit detail plan according to tender specification.

Annexure-III

INSPECTION CALL FORMAT

Logo Of Supplier: Sub- Supplier /Manufacturer (If possible)	Supplier: Address:	(On Whom DVC Placed LOI/Order)	<u>INSPECTION CALL FOR DVC INSPECTION</u> (FOR SUBMISSION BY SUPPLIER/ SUBSUPPLIER)		TO THE CHIEF GENERAL MANAGER & HEAD, QC&I DAMODAR VALLEY CORPORATION, 10TH FLOOR, DVC TOWERS, VIP ROAD, KOLKATA 700054
			<u>SUB-SUPPLIER</u> Applicable) (If		
Project Name:			M/s:		
Package Name:			Address		
Equipment Name/Model No:			Contact Person: -		Ph:(O): Fax:-
DVC contract no/ PO no:			Mobile:		e-mail:
Supplier contract no/ PO no:					
Proposed date of inspection:					
No. of days required:			MANUFACTURER		
Weekly off day (OF MANUFACTURER)			M/s		
QP Approval Status:			Address:		
Engineering Docs Approval Status:			Contact Person: -		Ph:(O): Fax:-
Item 'Lot'/'Set' defined? Yes/No			Mobile:		e-mail:
Place & Address of Inspection:					

SI NO	BBU NO	ITEM DESCRIPTION/TESTS	QUANTITY				Insp Cat(*)	Reference Document	Remarks/
			As In BBU	Already Supplied	Offered	Unit			Undertaking
								QP No: Drg./Data Sheet Nos: Any other Docs.:	1. Material internally inspected, in line with DVC QP and found satisfactory. 2. All Reference Documents including latest revisions of DVC approved QP /Drawing BBU in original are available and shall be made available during inspection. 3. All stage inspection requirements if applicable have been cleared and relevant CHP clearance reports are available. Valid calibration certificate for all measuring & testing instruments are available. 4. (Applicable for bought out items) Inspection by Main supplier is completed and material cleared. OR Joint inspection along with Main supplier proposed. 5. Type test Approval from DVC Engg.: Obtained / Pending / Not applicable. 6. Material shall not be Dispatched without Dispatch Clearance from DVC. SIGNATURE- DATE - NAME - DESIGNATION – ORGANIZATION -
INSP. CAT (*): ENTER AS PER THE INSPECTION CATEGORISATION DONE FOR THE RESPECTIVE PACKAGE.									

POWER TRANSFORMER QA DASHBOARD

Items/Components Sub Systems	Attributes / Characteristics														
	Visual & Dimensional Checks	Mechanical properties	Electrical strength	Thermal properties	Chemical Composition	Compatibility with oil	NDT (DPT / RT / UT)	Functional check	Ageing Test.	Voltage Ratio, Vector Group & Polarity, Magnetic Balance Test	Make / Type / Rating / Model / TC / General Physical Inspection.	Isolation test on core/clamp/tank	WPS & PQR	Routine Test as per relevant standard / DVC Specs	Vacuum & Pressure Test
Tank, H.V. & L.V. Cable Box / Flange throat	Y	Y					Y				Y		Y		
Conservator / Radiator / Cooler / Pipes	Y	Y					Y				Y				
Copper Conductor (IS:191)	Y	Y	Y		Y										
Insulating Material	Y	Y	Y	Y	Y	Y									
CRGO Lamination & Built Core	Y	Y	Y		Y	Y					Y				
Porcelain Bushing / Insulator (IS:2544 / 5621)	Y	Y												Y	
RIP - OIP Bushing (IS 12676, IEC 60137)	Y	Y	Y								Y			Y	
Gasket (IS 2712)	Y	Y			Y	Y			Y						
Air Cell	Y														Y
Transformer Oil									Y					Y	
On Load / Off-Circuit Tap Changer (IEC :214)	Y	Y	Y											Y	Y
Core Coil Assembly & Pre-tanking	Y									Y		Y			
Marshalling Box	Y							Y						Y	
WTI, OTI, MOG, Bucholz Relay, PRD, Thermistor, Breather, Terminal Connector, Bushing CT, Fan & Pumps with Drives, Valves								Y			Y				
Testing & Maintenance equipment											Y				
Welding (ASME Sect-IX)							Y						Y		

Attributes / Characteristics								
Items/Components Sub Systems	Oil Leakage Test	Jacking test followed by DP Test on load bearing Member	DGA of Oil for main tank and OLTC Chamber	Measurement of capacitance and tan delta	Di-Electric tests	Routine Test as per relevant standard / DVC Specs	Nitrogen / Dry Air Dew Point Measurement before final packing on transformer at receipt at site.	Paint Shade Thickness and Adhesion & finish.
Complete Transformer (IS:2026 / IEC: 60076)	Y	Y	Y	Y	Y	Y	Y	Y

Note:

- 1. This is an indicative list of tests / checks. The manufacturer is to furnish a detailed quality plan indicating the Practice and procedure along with relevant supporting documents during QP finalization for all the items.**
2. All major Bought Out Items will be subject to DVC approval.
3. Read Mechanical strength as mechanical endurance for OLTC/OCTC
4. Y-Test applicable

INDICATIVE FIELD QUALITY PLAN ELECTRICAL EQUIPMENT

	SUPPLIER'S NAME AND ADDRESS;	INDICATIVE FIELD QUALITY PLAN		PROJECT/PKG : CLIENT :DVC MAIN-SUPPLIER :
		ITEM : ELECTRICAL	FQP NO.: REV. NO.:0 DATE: PAGE: Page 1 of 4	

SL. NO	ACTIVITY AND OPERATION	CHARACTERISTICS	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.	D*	10.
	CURRENT/POTENTIAL TRANSFORMER/CVT/POWER TRANSFORMER									
1	Transportation & Receipt									
1.1		Proper transportation as per OEM Guide line	B	Physical	100%	OEM Guide Line	OEM Guide Line			
1.2		Check physical receipt of all cases, bundles and loose materials	B	Physical	100%	Packing List	Packing List	LOGBOOK		
1.3		Verify physical receipt in full quantity as per packing list	B	Physical	100%	Packing List	Packing List			
1.4		Check for all physical receipt of hardware & accessories	B	Physical	100%	Packing List	Packing List			
1.5		Check for physical condition of porcelain for cracks, scratches, chipping off, colour,Oil leakage	B	Visual	100%	Manufacturers manual/Drawing	Manufacturers manual			
1.6		Check for any possible damage of gauges, glass, cracks on welded flanges	B	Visual	100%	Manufacturers manual/Drawing	Manufacturers manual/Drawing			

	LEGEND: LEGEND TO BE USED: CLASS # : A = CRITICAL, B=MAJOR, C=MINOR; *A* SHALL BE WITNESSED BY CLIENT & MAIN SUPPLIER *B* SHALL BE WITNESSED BY MAIN SUPPLIER AND SURVILIANCE BY CLIENT. AND *C* SHALL BE WITNESSED BY MAIN SUPPLIER & ERECTION SUPPLIER.D : Records identified with Tick (✓) shall be essentially included by Main Supplier/DVC in QA Documentation			
MAIN-SUPPLIER		REVIEWED BY	APPROVED BY	APPROVAL SEAL

	SUPPLIER'S NAME AND ADDRESS;	INDICATIVE FIELD QUALITY PLAN		PROJECT/PKG : CLIENT :DVC MAIN-SUPPLIER :
		ITEM : ELECTRICAL	FQP NO.: REV. NO.:0 DATE: PAGE: Page 2 of 4	

	ACTIVITY AND OPERATION	CHARACTERISTICS	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.	D*	10.
2	Storage							LOGBOOK		
2.1		Ensure proper identification of materials and stored in vertical position.	B	Visual	100%	Packing List	Packing List			
2.2		Ensure that the heavy materials are not stacked one above the other	B	Visual	100%	Stock Register	Stock Register			
2.3		Ensure that the current carrying parts are protected from physical damage & no direct contact with soil/water	B	Visual	100%	Stock Register	Stock Register			
3	Pre-Erection							INSPECTION RECORD		
3.1		Check for correctness of foundation as per drawing	B	Physical	100%	Approved GA Drawing	Approved GA Drawing			
3.2		Ensure that the foundations are leveled	B	Physical	100%	-do-	-do-			
4	Erection							INSPECTION RECORD		
4.1		Ensure that there is no damage	B	Visual	100%	Approved GA Drawing	Approved GA Drawing			

MAIN-SUPPLIER	LEGEND: LEGEND TO BE USED: CLASS # : A = CRITICAL, B=MAJOR, C=MINOR; 'A' SHALL BE WITNESSED BY CLIENT & MAIN SUPPLIER 'B' SHALL BE WITNESSED BY MAIN SUPPLIER AND SURVILIANCE BY CLIENT. AND 'C' SHALL BE WITNESSED BY MAIN SUPPLIER & ERECTION SUPPLIER.D : Records identified with Tick (✓) shall be essentially included by Main Supplier/DVC in QA Documentation			
		REVIEWED BY	APPROVED BY	APPROVAL SEAL

		SUPPLIER'S NAME AND ADDRESS;	INDICATIVE FIELD QUALITY PLAN				PROJECT/PKG : CLIENT :DVC MAIN-SUPPLIER :			
			ITEM : ELECTRICAL	FQP NO.: REV. NO.:0 DATE: PAGE: Page 3 of 4						
SL. NO	ACTIVITY AND OPERATION	CHARACTERISTICS	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.	D*	10.
4.2		Check that all the accessories are mounted as per drawing	B	Visual	100%	Approved GA Drawing	Approved GA Drawing			
4.3		Check for proper earthing of the equipment	B	Physical	100%	Approved GA Drawing	Approved GA Drawing			
4.4		Check the clearances between live parts to earth	B	Physical	100%	Approved GA Drawing	Approved GA Drawing			
5	Pre-commissioning							INSPECTION RECORD		
5.1		Check for IR values of the equipments between phases and Phase to Ground	A	Electrical	100%	GA Drawing /IS 2026/IS 11171	GA Drawing /O & M Practise			

MAIN-SUPPLIER	LEGEND: LEGEND TO BE USED: CLASS # : A = CRITICAL, B=MAJOR, C=MINOR; 'A' SHALL BE WITNESSED BY CLIENT & MAIN SUPPLIER 'B' SHALL BE WITNESSED BY MAIN SUPPLIER AND SURVILIANCE BY CLIENT. AND 'C' SHALL BE WITNESSED BY MAIN SUPPLIER & ERECTION SUPPLIER.D : Records identified with Tick (✓) shall be essentially included by Main Supplier/DVC in QA Documentation			
		REVIEWED BY	APPROVED BY	APPROVAL SEAL

	SUPPLIER'S NAME AND ADDRESS;	INDICATIVE FIELD QUALITY PLAN			PROJECT/PKG :				
		ITEM : ELECTRICAL	FQP NO.:	REV. NO.:0	CLIENT	:DVC	MAIN-SUPPLIER :		
			DATE:	PAGE: Page 4 of 4					

SL. NO	ACTIVITY AND OPERATION	CHARACTERISTICS	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.	D*	10.
5.2		BDV test of transformer oil & DGA (if required)	A	Electrical	100%	Approved GA Drawing	Approved GA Drawing			
5.3		IR,Polarity & Ratio Test	A	Electrical/ Mechanical	100%	Approved GA Drawing	Approved GA Drawing			
5.4		Check Tan-delta test of CT for 132Kv and above	A	Electrical	100%	Approved GA Drawing	Approved GA Drawing			
5.5		Check for Winding Resistance	A	Electrical	100%	Approved GA Drawing	Approved GA Drawing			
5.6		Checking of oil level and if required additional oil, ensure filling after filtration	A	Electrical	100%	Approved GA Drawing	Approved GA Drawing			
5.7		Perform functional check for appropriate bimetalic on current-carrying parts	A	Electrical/ Mechanical	100%	Approved GA Drawing	Approved GA Drawing			

SL. NO	ACTIVITY AND OPERATION	CHARACTERISTICS	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.	D*	10.
6	Commissioning Checks						INSPECTION RECORD			
6.1		Ensure that if any loose parts in and around to be removed	A	Visual	100%	Approved GA Drawing	Approved GA Drawing			
6.2		Ensure that the bushings are clean	A	Visual	100%	Approved GA Drawing	Approved GA Drawing			
6.3		Ensure that the capacitance point of bushing is earthed	A	Physical	100%	Approved GA Drawing	Approved GA Drawing			
6.4		Energize the Transformer with rated voltage and check for abnormalities	A	Electrical	100%	Approved GA Drawing	Approved GA Drawing			

MAIN-SUPPLIER	LEGEND: LEGEND TO BE USED: CLASS # : A = CRITICAL, B=MAJOR, C=MINOR; ‘A’ SHALL BE WITNESSED BY CLIENT & MAIN SUPPLIER ‘B’ SHALL BE WITNESSED BY MAIN SUPPLIER AND SURVILIANCE BY CLIENT. AND ‘C’ SHALL BE WITNESSED BY MAIN SUPPLIER & ERECTION SUPPLIER.D : Records identified with Tick (√) shall be essentially included by Main Supplier/DVC in QA Documentation			
		REVIEWED BY	APPROVED BY	APPROVAL SEAL

PREFERRED VENDOR LIST

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
1	INSULATING OIL	I	APAR INDUSTRIES	RABALE/ SILVASA	
			APAR LIMITED	MUMBAI	
			ELF AUTOFINA	FRANCE	
			KANDEN ENGG. CORP. LTD.	JAPAN	
			M/S SPECIAL OIL REF. (APAR)	MUMBAI	
			MADRAS PETROCHEM	CHENNAI	
			NYNAS NAPTHENICS AB	SWEDEN	
			POWER OIL PETROLEUM PRODUCTS	SILVASSA	
			RAJ LUBRICANT	CHENNAI	
			RAJ PETRO SPECIALITIES	CHENNAI	
			SAVITA CHEMICALS	MUMBAI	
			SAVITA OIL TECHNOLOGIES	MUMBAI	
			SURYODAY BLENDING PRIVATE LIMITED	MUMBAI	
2	CRGO STEEL	III	A K STEEL	USA	
			ACESITA	BRAZIL	
			AST	ITALY	
			BRITISH STEEL	UK	
			COGENT	UK	
			JFE STEEL CORP.	JAPAN	
			MITSHUBISHI CORP	JAPAN	
			NIPPON STEEL & SUMITOMO METAL CORP,	JAPAN	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			NOVOLIPETSK STEEL (NLMK),	RUSSIA	
			ORB ELECTRICALS STEELS	UK	
			POSCO	KOREA	
			PREUSSAG HANDEL	GERMANY	
			STALPRODUKT S.A.,	POLAND	
			TATA STEEL UK LTD.	UK	
			THYSSENKRUP ELECTRICAL STEELO U.G.O S.A.S ISBERGUES,,	FRANCE	
			THYSSENKRUPP ELECTRICAL STEEL INDIA PVT. LTD (TKES),	NASIK	
			TKES	GERMANY	
			VGO SA	FRANCE	
			VIZ STEEL	RUSSIA	
3	STEEL FABRICATED PARTS (TANK,TANK COVER, CONSERVATOR,TURRET , ACCESSORIES & PIPEWORK)	III	ALLAHABAD ENTERPRISES PVT. LTD	ALLAHABAD	Upto 400 KV Class
			BHARAT HEAVY ELECTRICALS LTD	BHOPAL	
			BHARAT HEAVY ELECTRICALS LTD	JHANSI	
			BRINZIK POWERTECH LTD.	VADODARA	
			CGL ELECTRIC SYSTEM (SZOLONOK UNIT)		UP TO 420 KV CLASS
			DUNHILL PRODUCTS	BHOPAL	
			ELECTRO AUTO INDUSTRIES	BHOPAL	
			ELECTRO MECHNICALS PVT. LTD.	BHOPAL	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			EM ELECTRO MECHANICALS PRIVATE LIMITED	BHOPAL	
			EMCO	UMALA,JALGAON	
			FAB-TECH ENGINEERS	THANE	
			FRESCO RADIATORS PVT. LTD,	THANE	
			GWALIOR TANK & VESSELS	MALANPUR	
			JAY TANK & VESSELS	THANE	
			JEWEL ENGINEERING PVT. LTD	THANE	
			JYOTI FABRICATORS	ALLAHABAD	Upto 265 MVA, 400KV
			KAPS INDUSTRIES	VADODARA	UPTO 50 MVA Only
			KECL	JAPAN	
			KRYFS POWER COMPONENTS LTD,	SILVASA	
			MANUFACTURER ITSELF		
			MECH & FAB INDUSTRIES	BHOPAL	
			MECHMEN	BHOPAL	
			MPP TECHNOLOGIES PVT.LTD.	BANGALORE	
			MPP TECHNOLOGIES PVT.LTD.	NEELMANGALA	UPTO 260 MVA,400KV Class
			NEW BHARAT ENGINEERING WORKS,	BHOPAL	
			PRECISION ENGINEERING	MUMBAI	UP TO 420 KV CLASS

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			PRO-TECH ENGINEERS & FAB. PVT LTD,	NAVI MUMBAI	UP TO 420 KV CLASS. (PAINTING FROM ABJ SERVICES, THANE)
			QUICK HI-TECH ENGG INDIA PVT. LTD,	VADODARA	
			SATYAM INDUSTRIES	BHOPAL	
			SAVAS ENGINEERING CO. PVT. LTD,	AHMEDABAD	UP TO 420 KV CLASS
			SHAKTI INSULATED WIRES PVT. LTD.	PUNE	UP TO 765 KV CLASS
			SKYJET ENGINEERING	MEHSANA	
			SIGMA HEAVY ENGINEERING INDUSTRIES PVT. LTD.	BHOPAL	
			SIMCO	BANGALORE	
			SUMGO ENGINEERING INDUSTRIES LTD	THANE	
			TELK	ANGAMALLY	
			TOSHIBA T&DS	HYDERABAD	
			TRANSWELD MECHANICAL ENGG. WORKS LTD.	AHMEDABAD	UP TO 420 KV CLASS
4	CONTINUOUSLY TRANSPOSED CONDUCTOR (CTC)	III	APAR INDUSTRIES LTD. (CONDUCTOR DIVISION)	SILVASA	
			ASTA EISEN	AUSTRIA	
			ASTA INDIA	VADODARA	
			CHANDRA PROTECO LTD.	DAMAN	
			DE-ANGELI, PRODOTTI SRL,	ITALY	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			Invex SPA (Essex)	ITALY	
			KSH INTERNATIONAL PVT. LTD.	TALOJA	
			LACROIX KRESS GMBH	GERMANY	
			PRECISION WIRES INDIA LIMITED	DAMAN	
			RATIONAL ENGINEERS LTD,	PALGHAR	
			SAMDONG	KOREA	
			SHREE CABLES & CONDUCTORS	BHOPAL	
			SMITH DRAD	NETHERLAND	
			TOSHIBA TRANSMISSION AND DISTRIBUTION SYSTEM (INDIA) PVT. LTD,	RUDRARAM	
			Unimac Ltd	JAPAN	
5	PAPER INSULATED COPPER CONDUCTOR (PICC)	III	APAR INDUSTRIES LTD. (CONDUCTOR DIVISION)	SILVASA	
			AMBA CONDUCTOR	DAMAN	
			ASTA EISEN	AUSTRIA	
			ASTA INDIA	VADODARA	
			BCPL CONDUCTORS PVT. LTD.	MANDIDEEP	
			BHANDARY POWER LINE	MANIPAL	
			CHANDRA METALS LTD.	ALLAHABAD	
			DAYALOK TRANSFOERMERS PVT LTD,	ALLAHABAD	
			DELTA TRANS CONDUCTOR	NAVI MUMBAI	
			ELITE CONDUCTORS	AHMEDABAD	
			ELECTORMECH ENTERPRISES	REWA	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			GIC INSUFLEX CONDUCTORS PVT. LTD.	VASAI	
			KSH INTERNATIONAL PVT. LTD.	TALOJA	
			MP CUPRO METALS PVT. LTD.	BHOPAL	
			PRECISION WIRES INDIA LIMITED	DAMAN	
			RATIONAL ENGINEERS LIMITED,	THANE	
			RIMA TRANSFORMERS AND CONDUCTOR		
			SAMDONG	KOREA	
			SHAKTI INSULATED WIRES PVT LTD,	ANKALESHWAR	
			SHREE CABLES & CONDUCTORS	BHOPAL	
			SIGNET CONDUCTORS PVT. LTD.	REWA	
			SMITH DRAD	NETHERLAND	
			TOSHIBA TRANSMISSION AND DISTRIBUTION SYSTEM (INDIA) PVT. LTD,	RUDRARAM	
			UNIMAC LTD.	JAPAN	
			VIDYA WIRES PVT. LTD,	GUJRAT	
6	MOULDED INSULATION COMPONENTS	III	GOVIK ELECTRICALS	MUMBAI	
			PUCARO FIGHOLM INSULATION KIT CENTRE	VADODARA	
			ENPAY	VADODARA	
			RAMAN BOARDS	VADODARA/ MYSORE	
7	PRE-COMPRESSED PRESS BOARD	III	ABB POWER TECH AB	SWEDEN	
			ABB POWER PRODUCTS & SYSTEMS INDIA LTD.	MYSURU	
			ENPAY	TURKEY	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			FIGEHOLMS	SWEDEN	
			H WEIDMANN	SWITZERLAND	
			KREMPEL GMBH	GERMANY	
			MITSUBISHI PAPER MILLS	JAPAN	
			OJI F-TEX CO LTD.	JAPAN	
			PUCARO ELEKTRO-ISOLIERSTOFFE GMBH	GERMANY	
			RAMAN BOARD	MYSORE	
			SENAPATHY WHITELEY	BANGALORE	
			UMANG BOARDS LTD.	JAIPUR	
8	RADIATORS	III	BHARAT HEAVY ELECTRICALS LTD		Upto 400kV CLASS
			CTR MANUFACTURING INDUSTRIES PVT. LTD.	PUNE	Upto 400kV CLASS
			FRESCO RADIATORS PVT. LTD,	#REF!	Upto 400kV CLASS
			GURURAJ RADIATORS PVT LTD,	PRAYAGRAJ	Upto 400kV CLASS
			HI-TECH RADIATOR PVT LTD.	MUMBAI	Upto 400kV CLASS
			MENK	GERMANY	Upto 400kV CLASS
			PE ENGRS	HYDERABAD	
			TARANG ENGINEERING PVT LTD,	NAGPUR	Upto 400kV CLASS
			THERMAL TRANSFER		Upto 400kV CLASS
			TOSHIBA T&DS	HYDERABAD	
			TRIVENI ELECTROPLAST PVT LTD.	PRAYAGRAJ	Upto 400kV CLASS
			TRANSPARES LTD.	AHMEDABAD	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			TTP TECHNOLOGIES PVT LTD	BANGALORE	Upto 400kV CLASS
			WON KANG IND. CO. LTD.		Upto 400kV CLASS
9	BUCHHOLZ RELAY	III	A.J. SERVICES (PRAYOG)	MUMBAI	
			ASPE	ITALY	
			ATVUS INDUSTRIES		
			CEDESPE		Upto 400kV CLASS
			EMB CONTROL AB	GERMANY	Upto 400kV CLASS
			ETI CEDASPE MR		Upto 400kV CLASS
			INSTRUMENT & CONTROL	VADODARA	
			P&B WEIR ELECTRIC	UK	
			PRESS N FORGE	MUMBAI	
			QUALITROL COMPANY LLC,		
			SUKRUT ELECTRIC CO. PVT. LTD.	PUNE	Upto 400kV CLASS
			TRANSFORMER OEM APPROVED SOURCES		
			VIAT INSTRUMENTS PVT. LTD.	KOLKATA / SANAND	Upto 400kV CLASS
10	MAGNETIC OIL LEVEL GAUGE (MOLG)	III	ATVUS INDUSTRIES		
			COMEM SDB		Upto 400kV CLASS
			MESSKO		Upto 400kV CLASS
			PRESS N FORGE		Upto 400kV CLASS
			QUALITROL COMPANY LLC,		Upto 400kV CLASS
			SUKRUT ELECTRIC CO. PVT. LTD.		Upto 400kV CLASS

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			TAIJIN INDUSTRIES		Upto 400kV CLASS
			VIAT INSTRUMENTS PVT. LTD.		Upto 400kV CLASS
			YOGYA ENTERPRISES		
11	TANK STEEL (MS STEEL)	III	ESSAR	INDIA	
			ISSCO	INDIA	
			JINDAL	INDIA	
			METINVEST	UKRAIN	
			RINL	INDIA	
			SAIL	INDIA	
			TISCO	INDIA	
12	OTI/ WTI/ RTD	III	MESSKO	GERMANY	
			PERFECT CONTROL,	CHENNAI	
			PRECIMEASURE CONTROLS PVT LTD,	BANGALORE	
			QUALITROL AKM,	SWEDEN	
13	OIL FLOW INDICATOR	III	SUKRUT ELECTRIC CO. LTD,	CHAKAN	Upto 400kV CLASS
			TAIJIN INDUSTRIES	SOUTH KOREA	Upto 400kV CLASS
			VIAT INSTRUMENTS PVT. LTD.	AHMEDABAD	Upto 400kV CLASS
14	FIBRE OPTICAL TEMPERATURE MONITORING SYSTEM	III	FISO TECHNOLOGY INC.,	CANADA	
			LUMASENSE	CANADA	
			NEOPTIX (QUALITROL COMPANY, LLC)	USA	
			OPSENS INO	CANADA	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			RUGGED MONITORING QUEBEC INC,	CANADA	
15	ONLINE DGA SYSTEM	III	A-EBERLE (MAKE: EMH ENERGIE)	GERMANY	
			CIC	VADODARA	
			GE	UK	
			GRID SOLUTION LTD (FORMERLY KELMAN) (MODEL: MINITRANS)	UK	
			MORGAN SCHAFFER (MODEL: CALISTO)	CANADA	
			QUALITROL COMPANY LLC,	USA	
			SERVERON CORPORATION	USA	
			SIEMENS		
16	MOISTURE MONITORING SYSTEM	III	KELMAN	UK	MODEL: MINITRANS
			MESSTECHNIK GMBH, MARKETED BY A-EBERLE,	GERMANY	MODEL: HYDROCAL-1003
			MORGAN SHAFFER	CANADA	MODEL: CALISTO
			SERVERON CORPORATION,	USA	MODEL: TM1
17	OLTC	I	ABB AB COMPONENTS	SWEDEN	Upto 400kV CLASS
			BHARAT HEAVY ELECTRICALS LTD	BHOPAL	Upto 400kV CLASS
			CTR MANUFACTURING INDUSTRIES PVT LTD.	NASHIK	Upto 400kV CLASS
			EASUN MR TAP CHANGERS (P) LTD.	CHENNAI	Upto 400kV CLASS
			MR	GERMANY	Upto 400kV CLASS
18		III	ALWAYE LOAD SELECTOR	BANGALORE	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
	OFF CIRCUIT TAP SWITCH		BHARAT HEAVY ELECTRICALS LTD	BHOPAL/ JHANSI	
			PARAGON ASSOCIATES	THANE	
19	CONSERVATOR OIL PRESERVATION SYSTEM (AIR CELL)	III	FUJIKURA	JAPAN	Upto 400kV CLASS
			NU CORK PRODUCTS PVT LTD,	BHIWADI	Upto 400kV CLASS
			PRONAL	PORTUGAL	Upto 400kV CLASS
			SUKRUT ELECTRIC CO. PVT. LTD.	PUNE	Upto 400kV CLASS
			UNIRUB TECHNO INDIA PVT LTD,	PUNE	Upto 400kV CLASS
			ZENITH INDUSTRIAL RUBBER PRODUCTS PVT. LTD.	THANE	Upto 400kV CLASS
20	PRV/ PRD/ SUDDEN PRESSURE RELAY	III	ATVUS INDUSTRIES	KOLKATA	
			EASUN MR	CHENNAI	
			MESSKO	GERMANY	Upto 400kV CLASS
			QUALITROL COMPANY LLC,	UNITED STATES	Upto 400kV CLASS
			SUKRUT UDYOG	PUNE	Upto 400kV CLASS
			VIAT INSTRUMENTS PVT. LTD.	AHMEDABAD	Upto 400kV CLASS
21	OIL SURGE RELAY	III	ATVUS INDUSTRIES	KOLKATA	
			EASUN MR	CHENNAI	
			PRESS N FORGE	MUMBAI	
			QUALITROL COMPANY LLC,	UNITED STATES	
			SUKRUT ELECTRIC CO. PVT. LTD.	PUNE	
			VIAT INSTRUMENTS PVT. LTD.	AHMEDABAD	
22	PRESSURE GAUGE	III	BELLS CONTROL	KOLKATA	Upto 400kV CLASS

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			H GURU	KOLKATA	Upto 400kV CLASS
			MANOMETER INDIA LIMITED	THANE	Upto 400kV CLASS
			NSRT	KOLKATA	Upto 400kV CLASS
23	SILICA GEL BREATHER	III	COMEM SDB	ITALY	Upto 400kV CLASS
			MESSKO MTRAB 2.5	GERMANY	
			QUALITROL COMPANY LLC,	UNITED STATES	
			TAIJIN INDUSTRIES	SOUTH KOREA	Upto 400kV CLASS
			YOGYA ENTERPRISES	JHANSI	Upto 400kV CLASS
24	SMART BREATHER (REGENERATIVE)	III	COMEM	ITALY	Upto 400kV CLASS
			QUALITROL		
			MESSKO		
			EASUN MR TAP CHANGER (P) LTD,	CHENNAI	Upto 400kV CLASS
25	CREPE INSULATING PAPER	III	CINDUS CORPORATION	USA	
			TOMOEGAWA CO. LTD	JAPAN	
			WIEDMAN ELECTRICAL	SWITZERLAND	
26	RESIN COATED CLASS TAPE	III	INDUSTRIAL TAPES & FABRICS PVT LTD,	JAMSHEDPUR	
			ISO VOLTA-AG	AUSTRIA	
			NASHIK INSULATION PVT LTD,	NASHIK	
			SWECO	KOREA	
27		III	DEUTSCHE-HOLZVERDELUNG (DEHONITE),	GERMANY	
			PERMALI WALLACE,	BHOPAL	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
	UNIMPREGNATED DENSIFIED LAMINATED WOOD		ROECHLING ENGINEERING PLASTICS	ITALY	
			SURENDRA COMPOSITE PVT. LTD,	MANDIDEEP	
			WEIDMAN	SWITZERLAND	
28	GASKET & O-RING	III	BANDO CHEMICALS CO. LTD.	SOUTH KOREA	
			BHARAT CORRUB INDUSTRIES LLP	GUJRAT	
			BOMBAY OIL SEAL MFG CO	MUMBAI	
			CORTICA MANUFACTURING INDIA PVT. LTD.	CHENNAI	
			INDIAN CORK INDUSTRIES	HARYANA	
			MA-GUMI KFT,	KIRALY HUNGARY	
			NU CORK PRODUCTS PVT LTD,	BHIWADI	
			PACKING & JOINTING GASKET PVT. LTD.	CHENNAI	
			SCORPION INDUSTRIAL POLYMERS PVT. LTD,	CHENNAI	
			TALBROS ENGINEERING,	HARYANA	
29	NITRILE RUBBER CORD/ GASKET	III	BANDO CHEMICALS CO. LTD.	SOUTH KOREA	
			BOMBAY OIL SEAL MFG CO	MUMBAI	
			BOMBAY OIL SEALS COMPANY	VASAI, MUMBAI	
			MA-GUMI KFT,	KIRALY HUNGARY	
			NU CORK PRODUCTS PVT LTD,	BHIWADI	
			SCORPION INDUSTRIAL POLYMERS PVT. LTD,	CHENNAI	
30	CRCA SHEET	III	BHUSAN STEEL	GAZIABAD	
			BHUSHAN POWER & STEEL LTD,	SAMBALPUR	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			ESSER STEEL LTD.	GUJRAT	
			ISPAT	DOLVI	
			JSW STEEL LTD.	BELLARY	
			SAIL	INDIA	
			TISCO	JAMSHEDPUR	
31	CARBON STEEL PIPES (ERW/ SEAMLESS)	III	ADVANCE STEEL TUBES LTD , GHAZIABAD	GHAZIABAD	NON-GALVANIZED STEEL TUBULAR POLES;
			APL APOLLO TUBES LTD.	BULANDSHEHAR	ERW PIPES OF 300 NB CONFORMING TO IS 1161 AND IS 3589;
			ASIAN MILLS PVT LTD	GANDHINAGAR	VALID UP TO 508NB AS PER IS 1161,1239,2589. BRAND NAME EMBOSSING AS ASIAN/NARMADA.
			AST PIPES PVT LTD	GHAZIABAD	MS ERW PIPES AS PER IS 1239 UPTO 150 NB, IS 1161 UPTO 300NBX6.3 MM THICK AND IS 3589 UPTO 300 NBX7.1 MM THICK

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			DADU PIPES PVT LTD	BULANDSHEHAR	ERW PIPES UPTO 300 NB.
			GAURANG PRODUCTS PVT. LTD.	GAZIABAD	Galvanized Steel Coil (GP) conforming to IS 277 and ERW Pipes up to 150 Nb conforming to IS 1239 & up to 400 Nb conforming to IS 3589,
			GOODLUCK INDIA LTD	BULANDSHEHAR	ERW PIPES AS PER IS 1239/3589 UPTO SIZE NB 250 MM
			J D INDUSTRIES (INDIA) LTD	ALWAR	
			JINDAL INDUSTRIES PVT. LTD.	HISSAR	ERW Pipes (Black/Galvanized) up to 300 Nb (as per IS 1161, IS 4923 and IS 3589) and up to 150 Nb conforming to IS 1239;

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			JINDAL PIPES LIMITED	GHAZIABAD	A) ERW PIPES CONFORMING TO IS 1161 FOR SIZE UP TO 350 NB. B) ERW PIPES CONFORMING TO IS 1239 FOR SIZE UP TO 150 NB. C) ERW PIPES CONFORMING TO IS 3589 FOR SIZE UP TO 350 NB.
			NEZONE PIPES & STRUCTURES	RI-BHOI, MEGHALAYA	ERW Pipes (Black only) up to 200 Nb and up to 540 Mpa UTS
			SHRI BAJRANG POWER & ISPAT LTD.	RAIPUR	a) ERW Pipes conforming to IS 1161 for size up to 300 Nb. b) ERW Pipes conforming to IS 1239 for size up to 150 Nb.
			SIDDARTH TUBES LIMITED	RAJGARH	ERW PIPES AS PER IS 1239/1161

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
					UPTO SIZE NB 200 MM
			SURYA GLOBAL STEEL TUBES LTD	KACHCHA	ERW PIPE BLACK UPTO 200MM NB AS PER IS1161,UPTO 150 MM NB AS PER IS 1239, UPTO 350 MM NB AS PER IS 3589.
			SURYA ROSHNI LIMITED	JHANJHAR	A) ERW PIPES CONFORMING TO IS 1161 FOR SIZE UP TO 400 NB. B) ERW PIPES CONFORMING TO IS 1239 FOR SIZE UP TO 150 NB. C) ERW PIPES CONFORMING TO IS 3589 FOR SIZE UP TO 400 NB.
			TATA STEEL	JAMSHEDPUR	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			UTKARSH INDIA LTD	HOWRAH	VALID FOR SUPPLY OF ERW PIPES AS PER IS 1161, 1239 AND 3589 UP TO 400 MM DIA
			VISHAL PIPES LTD.	BULANDSHEHAR	50NB TO 2000NB AS PER IS 1161 AND 15NB TO 150 NB AS PER IS 1239.
			WELSPUN CORPORATION LTD	KUTCH	ERW PIPE OF SIZE UPTO 350 NB AS PER IS1161 (YST 210 & 240).
32	GATE & GLOBE VALVE	III	APEX PIPING SYSTEM PVT. LTD.	JALANDHAR	
			ATVUS INDUSTRIES	KOLKATA	
			AUDCO ITALIANA	MUMBAI	
			CRESCENT VALVES INTERNATIONAL PVT. LTD.	AHMEDABAD	
			DELTA ENGINEERS	VADODARA	
			EAPSEN JOSEPH & CO.	COIMBATORE	
			FS ENGINEERS	AHMEDABAD	
			GG VALVES PVT. LTD.	UDAIPUR	
			LEADER VALVES LTD.	JALANDHAR	
			MULTIMODE EQUIPMENTS PVT. LTD.	VADODARA	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			MVV-ISG	HUNGARY	
33	BUTTERFLY VALVE	III	APEX PIPING SYSTEM PVT. LTD.	JALANDHAR	
			EAPSEN JOSEPH & CO.	COIMBATORE	
			ETI CEDASPE MR	ITALY	
			LEVCON VALVES (P) LTD.	KOLKATA	
			MAIER	GERMANY	
			PRECISION INDUSTRIES	AHMEDABAD	
			TAIJIN INDUSTRIES	SOUTH KOREA	
			VIAT INSTRUMENTS PVT. LTD.	AHMEDABAD	
34	MARSHALLING BOX/ COOLER CONTROL CABINET/ RTCC PANEL	III	ASHOKA ELECTRONIC	BHOPAL	
			BHARAT HEAVY ELECTRICALS LTD	BHOPAL	
			ENER PANELS PVT LTD.	VADODARA	
			ENTERPRISING ENGINEERS,	BHOPAL	
			HYOSUNG		
			JASPER ENGINEERS PVT. LTD.	NOIDA	
			KOD-KFT	HUNGARY	
			PYROTECH ELECTRONICS PVT LTD.	UDAIPUR	
			RITTAL	BANGALORE	
			SAVARNA SWITCHGEAR	BANGALORE	
			SUNTECH ENGINEERS	VADODARA	
			UNITED INDUSTRIES COMPONENTS CO. PVT. LTD.	NAVI MUMBAI	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
35	DIGITAL RTCC (AVR)	I	ABB		
			CTR	PUNE	
			E-BERLE	GERMANY	
			MR	GERMANY	
			PRADEEP SALES & SERVICES PVT LTD,	MUMBAI	
			REINHAUSEN	DUBAI	TAPCON
36	BUSHING CT	III	AGARWAL INDUSTRIES,	BHOPAL	Upto 400kV CLASS
			A.U ELECTRO MACHINES	PRAYAGRAJ	
			BHARAT HEAVY ELECTRICALS LTD	BHOPAL	
			BHARTI ELECTRICAL	LUDHIANA	
			ELEQ BV	GERMANY	
			ENPAY TRANSFORMERS COMPONENTS INDIA PVT LTD,	VADODARA	Upto 400kV CLASS
			ENPAY	TURKEY	Upto 400kV CLASS
			EPRO	GERMANY	Upto 400kV CLASS
			MAHENDRA ELECTRICALS	MUMBAI	Upto 400kV CLASS
			NARAYAN POWERTECH	VADODARA	Upto 400kV CLASS
			PRAYOG ELECTRICALS	PUNE	
			PRAGATI ELECTRICALS PVT. LTD.	THANE	Upto 400kV CLASS
			SAMDONG CO. LTD.	SOUTH KOREA	Upto 400kV CLASS
			SINE WAVE (REWA) ELECTRONICS PVT. LTD.	REWA	Upto 400kV CLASS

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			TELK	ANGAMALLY	
			TRANSFORMERS & RECTIFIERS INDIA LTD (SWITCHGEAR DIV.)	AHMEDABAD	Upto 400kV CLASS
37	ROLLER ASSEMBLY	III	ALERT ENGINEERING ENTERPRISES,	BHOPAL	Upto 400kV CLASS
			ASHISH ENGINEERING	VADODARA	Upto 400kV CLASS
			BHARAT HEAVY ELECTRICALS LTD	VARANASI	Upto 400kV CLASS
			CHAMPION ENGG. INDUSTRIES	BHOPAL	Upto 400kV CLASS
			FARMER ENGINEERS	BHOPAL	Upto 400kV CLASS
			NEW BHARAT ENGINEERING WORKS	BHOPAL	Upto 400kV CLASS
			NOBEL ENGINEERING	MUMBAI	Upto 400kV CLASS
			SCHORMANN GMBH	GERMANY	Upto 400kV CLASS
			SEOJIN M.C.H	SOUTH KOREA	Upto 400kV CLASS
			SIGMA HEAVY ENGINEERING INDUSTRIES	BHOPAL	Upto 400kV CLASS
38	GAS COLLECTING DEVICE	III	ETI CEDASPE MR	ITALY	Upto 400kV CLASS
			SUKRUT ELECTRIC CO. PVT. LTD.	PUNE	Upto 400kV CLASS
			VIAT INSTRUMENTS PVT. LTD.	AHMEDABAD	Upto 400kV CLASS
			YOGYA ENTERPRISES	JHANSI	Upto 400kV CLASS
39	PIPES FOR TANK / RADIATORS	III	AJANTHA PIPES	MADURAI	
			JINDAL	HAPUR	
			JYOTI METAL CORPORATION	VADODARA	
			MAHARASTRA SEAMLESS LIMITED	MUMBAI	
			SURYA ROSHNI	BHUJ/ HINDUPUR	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			TUBE INDIA	MUMBAI	
40	OIL PUMP	III	ABB LTD.	SWEDEN	Upto 400kV CLASS
			FLOW OIL PUMPS PVT LTD (FLOWWELL)	BANGALORE	Upto 400kV CLASS
			GEA	GERMANY	Upto 400kV CLASS
			NXL FLOW INSTRUMENTS	BANGALURU	Upto 400kV CLASS
41	OIL SAMPLING BOTTLE	III	ATUL ENTERPRISES LTD,	MUMBAI	
			MAHABALI INDUSTRIES	VADODARA	
			MONARCH ELECTRONICS	NEW DELHI	
			SCIENO TECH INDUSTRIES,	DELHI	
			TOP SYRINGE MFG CO PVT LTD	THANE	
42	N2 INJECTION FIRE PROTECTION SYSTEM	I	CTR MANUFACTURING INDUSTRIES PVT. LTD.	PUNE	Upto 400kV
			EASUN-MR TAP CHANGERS (P) LTD.	PONDICHERRY	Upto 400kV
			TECTONICUS SERVICES (INDIA) PVT. LTD.	NASIK	
			VENDERE SALES SERVICES (INDIA) PVT LTD.	AURANGABAD	Upto 400kV
43	OIP/ CONDENSER BUSHING	III	ABB AB	SWEDEN	Upto 400kV CLASS
			ABB LIMITED	VADODARA	Upto 400kV CLASS
			ABB POWER TECH PRODUCTS	SWEDEN	Upto 400kV CLASS
			ABB SWITZERLAND LTD. MICAFIL BUSHING	SWITZERLAND	Upto 400kV CLASS
			ALSTOM-PASSONI VILLA	ITALY	Upto 400kV CLASS
			BHARAT HEAVY ELECTRICALS LTD	BHOPAL	Upto 400kV CLASS
			CROMPTON GREAVES LTD.	NASHIK	Upto 400kV CLASS

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			CROMPTON GREAVES LTD.	AURANGABAD	Upto 245kV CLASS (EXCLUDING GT)
			GE GRID SOLUTIONS UNIT RPV (PASSONI VILLA),	ITALY	Upto 400kV CLASS
			GE T&D INDIA LTD.	HOSUR	Upto 400kV CLASS
			MASSA LCC	RUSSIA	Upto 400kV CLASS
			TELK	ANGAMALY	Upto 400kV CLASS
			TRENCH	FRANCE	Upto 400kV CLASS
			YASH HIGHVOLTAGE LTD,	VADODARA	Upto 400kV CLASS
44	RIP BUSHING	III	ABB AB	SWEDEN	Upto 400kV CLASS
			ABB SWITZERLAND LTD. MICAFIL BUSHING	SWITZERLAND	Upto 400kV CLASS
			GE GRID SOLUTIONS UNIT RPV (PASSONI VILLA),	ITALY	Upto 400kV CLASS
			HSP	GERMANY	Upto 400kV CLASS
			IZOLYTOR	RUSSIA	Upto 400kV CLASS
			MASA LLC,	RUSSIA	Upto 400kV CLASS
			MASSA IZOLYTOR MEHRU PVT LTD (MIM),	BHIWADI	Upto 400kV CLASS
			MGC MOSER-GLASER AG,	SWITZERLAND	Upto 400kV CLASS
			YASH HIGHVOLTAGE LTD,	VADODARA	Upto 400kV CLASS
45	PORCELAIN BUSHING	III	BARODA BUSHING & INSULATORS,	VADODARA	
			BHEL	BANGALORE	UPTO 400KV
			BIKANER PORCELAIN PVT. LTD.	BIKANER	
			CJI PORCELAIN PVT LTD	KHUJA	UPTO 765KV
			GENESIS ENTERPRISES,	KHURJA	UPTO 765KV

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			JAIPUR GLASS POTTERIES,	JAIPUR	UPTO 400KV
			JAYSHREE INSULATOR	HALOL	
			LUSTER CERAMICS PVT. LTD.	VADODARA	
			SAMRAKSHANA ELECTRICALS	HYDERABAD	
			WS INDUSTRIES	CHENNAI	UPTO 33KV
46	PUSH BUTTONS	III	ABB	SWEDEN/ CHINA	
			BCH	HARYANA	
			BINAY	KOLKATA	
			CONCORD	INDIA	
			DAV INDUSTRIES	MUMBAI	
			ESBEE (L&T)	INDIA	
			ESSEN DIENKI	CHANDIGARH	
			GE	BANGALORE	
			JVS ELECTRONICS	BANGALURU	
			KAYCEE	MUMBAI	
			SAHYADRI ELECTRO CONTROL PVT. LTD. (SECO)	BANGALURU	
			SCHNEIDER	NOIDA/ CHENNAI	
			SIEMENS	INDIA	
			TEKNIC	MUMBAI	
			VAISHNO	NOIDA, UP	
			VENSON ELECTRIC PVT. LTD.	BANGALORE	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
47	LED INDICATING LAMP	III	ABB LTD	SWEDEN/ CHINA / INDIA	
			BCH	HARYANA	
			BINAY OPTO	KOLKATA	
			DAV INDUSTRIES	MUMBAI	
			GE	BANGALORE	
			JVS ELECTRONICS	BANGALURU	
			L&T	MUMBAI	
			SCHNEIDER	NOIDA/ CHENNAI	
			SIEMENS	MUMBAI	
			TEKNIC	MUMBAI	
			VAISHNO	NOIDA	
48	TERMINAL BLOCK	III	AREVA T&D INDIA LTD.	CHENNAI	
			CONNECTWELL	THANE	
			DOWELLS	MUMBAI	
			ELMEX CONTROLS PVT. LTD.	VADODARA	
			ESSEN	CHANDIGARH	
			GE	INDIA	
			HIVELM INDUSTRIES	CHENNAI	
			INDUSTRIAL CONTROL	DELHI	
			PHOENIX	MUMBAI	
			TECHNOPLAST	ANAND	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			WAGO INDIA PVT. LTD.	VADODARA	
			WEIDE MULLER	GERMANY	
49	LUGS	III	3D	MIMBAI	
			ADDITIONALLY ANY MAKE WITH VDE OR CE OR UL OR CSA MARKING OR BIS APPROVED WITH VALID CML NUMBER IS ACCEPTABLE		
			BRASS COPPER & ALLOY (I) LTD (HEX BRAND)	VALSAD	Approved for Lugs for LT Panels
			CHETNA ENGG. CO.	NASHIK	
			COMET	MUMBAI	
			DOWELLS	HALOL	
			JAICO ELECTRIC WORKS	MUMBAI	
			JAIN ELECTRONICS	MUMBAI	
			KSE ELECTRICALS	HOWRAH	
			SCHNEIDER (I) LIMITED	DELHI	
			SI METAL WORKS	MUMBAI	
50	CABLE GLAND	III	ANY MAKE WITH VDE OR CE OR UL OR CSA MARKING OR BIS APPROVED WITH VALID CML NUMBER IS ACCEPTABLE		
			ARUP ENGG	KOLKATA	
			BRACO ELECTRICALS (INDIA) PVT. LTD.	THANE	
			CENTRAL HARDWARE	VADODARA	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			COMET BRASS PRODUCT (COMET BRAND)	MUMBAI	
			COMET INDUSTRIES (BRAND COSMOS)	GOREGAON	
			DOWELLS CABLE ACCESSORIES PVT. LTD.	PANCHMAHAL	
			HEX CABLE ACCESSORIES PVT. LTD.	JAMNAGAR	
			QUALITY PRECISION	KOLKATA	
			STANDARD METAL INDUSTRIES	MUMBAI	Upto 400 KV
			SUNIL & COMPANY	KOLKATA	
51	INSULATORS	III	BHARAT HEAVY ELECTRICALS LTD	BANGALORE	Upto 400kV CLASS
			CJI	KHURJA	Upto 400kV CLASS
			GENESIS ENTERPRISES	KHURJA	Upto 400kV CLASS
			IEC	BHOPAL	Upto 400kV CLASS
			JAIPUR GLASS & POTTERIES	JAIPUR	Upto 400kV CLASS
			JS INDUSTRIES	HALOL	Upto 400kV CLASS
			MIL	ABU ROAD	Upto 400kV CLASS
			PPC INSULATORS	SWEDEN	Upto 400kV CLASS
			WS INDUSTRIES LTD.	CHENNAI	Upto 400kV CLASS
52	CONTACTOR	III	ABB		
			BCH		
			C&S ELECTRIC LTD	NOIDA/ HARIDWAR	
			CG POWER AND INDUSTRIAL SOLUTIONS LIMITED	MUMBAI	
			GE		

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			HAVELLS		
			LAURITZ KNUDSEN (L&T SWITCHGEAR)		
			MITSHUBISHI		
			SCHNEIDER ELECTRIC	NOIDA/ CHENNAI	
			SIEMENS		
			SPRECHER & SCHUH (S&S)	GAZIABAD	
53	COPPER ROD	III	BIRLA COPPER (HINDALCO INDUSTRIES)	BHARUCH	
			HINDUSTAN COPPER (I) LTD.	GHATSILA	
			STERLITE INDUSTRIES (I) LTD. (VEDANTA)	BHARUCH/ SILVASA	
54	COOLING FAN & MOTOR ASSEMBLY	III	AIROCHEM ENGINEERING COMPANY	KOLHAPUR	up to 765 KV Class
			MARATHON LTD	KOLKATA	up to 765 KV Class
			MASCHINENFABRIK SCHORMANN GMBH,	GERMANY	up to 765 KV Class
55	Cu Flats	III	Hindalco Industries Ltd.	Renukoot	
			India Insulator	Miraj	
			Indian Al. Company Ltd.	Alupuram, Kerla	
			Jindal Aluminium Ltd.	Bangalore	
			Jyoti Copper Craft	DEWAS	
			Kanak Pipe Industries	Mumbai	
			Mehta Tubes Pvt Ltd	Mumbai	
56	Cu Strips / Flexibles	III	Morakhia Metals	Ahmedabad	
			NALCO	Angul	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			Rachna Metals Industries	Delhi	
			Rasshm Enterprises	Bhopal	
			Shree Cables and Cond.	Bhopal	
57	1.1KV LT POWER CABLE (TYPE: XLPE INSULATED, PVC SHEATHED INCLUDING FRLS)	For Quantity >10 km per size/type : CAT-I, Quantity >2.5 km <=10km per size/type : CAT-II & For Quantity < 2.5 KM: CAT III	ADVANCE CABLE	BANGALURU	
			ALPHA COMMUNICATIONS LTD.	GAZIABAD	
			APAR INDUSTRIES LTD.	UMBERGAON	
			ASHOKA INDUSTRIES	JAIPUR	
			CHANDESH CABLES LTD. (BRAND: AVOCAB)	GANDHINAGAR	
			CMI	BADDI	
			CORDS CABLES	BHIWADI	
			DELTON CABLE LTD.	FARIDABAD	
			DYNAMIC CABLES	JAIPUR	
			DYNAMIC CABLES LTD. (UNIT-IV)	SIKAR	
			FINOLEX	PUNE	
			GEMSCAB INDUSTRIES	BHIWADI	
			GUPTA POWER CABLES	KHURDA	
			HAVELLS INDIA LTD.	ALWAR	
			HINDUSTAN VIDYUT PRODUCTS	FARIDABAD	
			INCAB	PUNE	
			KEC INTERNATIONAL	SILVASA	
			KEI INDUSTRIES	BHIWADI	

PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS

Column 1	Column2	Column3	Column4	Column5	Column6
Sl. No.	Equipment Description	Item Category	Vendors Name	Location	Remarks
			KRISHNA ELECTRICAL INDUSTRIES LTD.	GWALIOR	
			NEC WIRES AND CABLES PVT. LTD.	NOIDA	
			PARAMOUNT CABLE	KHUSHKHERA	
			POLYCAB WIRE PVT. LTD.	DAMAN	
			PRIME CABLE INDUSTRIES	NEW DELHI	
			RADIANT CABLES	HYDERABAD	
			RAVI INDUSTRIES	SONEPAT	
			RAVI INDUSTRIES	SONEPAT	
			RAVIN CABLES	PUNE	
			SBEE CABLES	BANGALURU	
			SPECIAL CABLES	RUDRAPUR	
			SRI RAM CABLES	BHIWADI	
			SUYOG CABLES	VADODARA	
			THERMO CABLES	HYDERABAD	
			TIRUPATI PLASTOMATICS	JAIPUR	
			TORRENT CABLE LTD.	NADIAD	
			ULTRACAB (INDIA) LTD.	RAJKOT	
			UNIVERSAL CABLE LTD.	SATNA	
			V MARC INDIA LTD.	HARIDWAR	
			VIKAS CABLE COMPANY	NEW DELHI	
			ZEMIUM CABLES LTD.	VALSAD	

Disclaimer for Preferred Vendor List/ Makes

- A) Reasonable efforts have been made to collate the sub-vendors proposed by the various Main Contractors/ Consultants from time to time against different Projects/Packages and accepted by DVC for various items/ systems. However, in case of error/omission, if any, and represented by the successful bidder this will be addressed during the execution of the contract based on the material evidence available from the DVC / Main Contractor.
- B) The approved/Proposed sub-vendor list drawn is not based on DVC driven enlistment process but based on the sub- vendors proposed by various Main Contractors/ Consultants. As such, it is possible that some of the Suppliers/Manufacturers who may be involved in similar work/ process may not be appearing in the list as such sub-vendors may not have been proposed by Main Contractors/ / Consultants against DVC Contracts.
- C) In case the successful bidder chooses to propose additional sub-vendors with relevant experience after the award of the contract such sub-vendors will be considered in terms of Relevant Clause of GCC/ NIT, provided the proposals are received sufficiently in time: 90 days prior to ordering date of a Bought-Out Items/Start of Manufacturing so as not to impede the progress of the contract.
- D) Sub-vendors have been grouped under different categories of items. It is possible that an item characterized by certain specific features such as range and type required as per Main Contractor's design requirements may not be in the range of the listed sub-vendor's manufacturing process/capability. As such the main contractor to ascertain the vendor's capability to meet his specific requirements before considering a sub-vendor.
- E) It is to be noted by the bidders that any shortfall in contract performance attributable to the sub-vendor listed will not absolve the contractor from his contractual obligations in any manner.
- F) The approval was granted based on the evaluation of relevant capabilities and facilities possessed by the sub-vendor at the time of evaluation. Also, some of the sub-vendors may not be active. As such, the successful bidder is to carry out his own due diligence before considering the listed sub-vendor for subletting; the current status of the sub-vendor, the continued availability of productive resources including Human Resources.
- G) The list of sub-vendors is periodically revised to include new sub-vendors. Such a revision may also see the deletion of certain sub-vendors who may have been disqualified on grounds of inadequate performance or banned in line with DVC's banning policy. The then current list will be shared with the successful bidder immediately on award.
- H) **Brand Name**
Whenever a material or article is specified or described by the name of a particular brand, manufacturer or vendor, the specific item mentioned shall be understood to be indicative of the function and quality desired, and not restrictive; other manufacturer's products may be considered provided sufficient information is furnished to enable the Employer to determine that the products proposed are equivalent to those named.
- I) For all items of DVC Packages/ Projects, the Bidder has to comply with the standing and subsequent Orders, OMs, Corrigendum, Clarifications etc.* of MoP, GOI regarding selection of vendors/contractors, testing and other conditions detailed in the order (s).
*like restrictions on procurement from a bidder of a country which shares a land border with India, DPIIT Registration, testing of imported items in India, Atmanirbhar Bharat' and 'Make in India' through phased Indigenization in Power Sector", Procurement only from the local suppliers for the items etc. If any sub-vendor (s), appearing in the sub-vendor list which is not complying with the above, will be considered as 'Not Approved/ Not Accepted' by DVC.
- J) The items not covered in list shall be mutually discussed and agreed for items categorisation and vendor control during detailed engineering of specific project.
- K) Each sub-vendor is approved with certain approval condition. Main contractor to ensure/verify approval conditions of DVC while considering the sub-vendor.

SUB-VENDOR APPROVAL GUIDELINE

For the approval of new vendor following documents are needed to submit:

Project Name	
Package Name	
EPC Contractor	
Name of proposed Vendor/ Sub supplier	
Brief specification of the items for which approval is requested	
Existing approved vendor for the items:	
Reason for consideration & Contract provision for vendor approval:	
Registered Office Address:	
Works Address:	
Contact Person Name	
Phone No.	
Email id.	
Proposed sub supplier/ vendor's total organizational strength (Engineering, Manufacturing, Quality, Commercial, service after sales & others)	
Nature of Company	
EPC Contractor's evaluation report	
Details of manufacturing license for the product for which approval is asked for. Indicate approval/ certification by any National/ International standards/ agencies if applicable.	
Details of foreign collaborations (if any)	
Proveness Criteria/ Sub-QR compliant documents as per the NIT requirement	

Record of past supply by the sub-supplier/vendor for the same type of materials for which approval is asked to any Govt./Govt. Under takings/PSUs/ Reputed Private Company within last Seven years.	
a) Copy of Purchase Order issued from Govt./Govt. Undertakings/PSUs/ Reputed Private Co.	
b) Copy of performance certificate issued by any Govt./Govt. Undertakings/ PSUs/ Reputed Private Co.	
c) Other documents like approved Engineering Documents, approved MQP, MDCC, Inspection Reports etc. as required for justification towards sub-vendor approval.	
Type test report for the same type of materials for which approval is asked for from any Govt. Govt. approved Laboratory/ other reputed. last five years (or as per the NIT Requirements) – if required.	
Financial capability: (i) Net Worth (ii) Annual Turnover & Profit for last three years (iii) Limit of credit facility available from bank with documentary evidence	
Whether the sub-supplier/vendor has the following in-house facility (Enclose Documentary evidence) or otherwise (Detail to be provided):	
a) Design	
b) Research &Development	
c) Manufacturing/Production	
d) Quality Control/Inspection	
e) Testing Lab/Testing facilities	
f) If in-house testing / quality control facilities are not available, indicate source of testing / quality control with relevant details.	
g) Compliance of Statuary / regulatory / pollution norms wherever applicable with documentary evidence.	
Other documents (GST/PAN etc.)	