

NTPC LIMITED
(A Government of India Enterprise)



BIDDING DOCUMENTS
FOR

**Development of a Flood Forecasting
System & its Integration with existing
Automatic Flood Warning System for
TVHEP (4x130MW)**

SECTION - I, II, III, IV, V & VII

BIDDING DOCUMENT NO.: 9900325428

(This document is meant for the exclusive purpose of bidding against this Bid Document No. / Specification and shall not be transferred, reproduced or otherwise used for purposes other than that for which it is specifically issued).

BIDDING DOCUMENTS

BIDDING DOCUMENT NO.: 9900325428

CONTENTS

Section I	:	Invitation for Bids (IFB)
Section II	:	Instructions to Bidders (ITB)
Section III	:	Bid Data Sheets (BDS)
Section IV	:	General Conditions of Contract (GCC)
Section V	:	Special Conditions of Contract (SCC)
Section VI	:	Technical Specification & Tender Drawings (TS)
Section VII	:	Forms and Procedures (FP)
		(i) Bid Form (Techno-Commercial Bid & Price Bid) along with Attachments [enclosed as Section-VII, Book 1 of 2]
		(ii) Forms and Procedures [enclosed as Section-VII, Book 2 of 2]

Acronyms

BDS	Bid Data Sheet
CIF	Cost, Insurance and Freight
CIP	Carriage and Insurance paid to (place)
CPM	Critical Path Method
EDI	Electronic Data Interchange
EXW	Ex factory, ex works or ex warehouse.
FCA	Free Carrier
FOB	Free on Board
FOR	Free on Rail / Road
FP	Forms & Procedures
GCC	General Conditions of Contract
ICC	International Chamber of Commerce
IFB	Invitation for Bids
ITB	Instructions to Bidders
SCC	Special Conditions of Contract
TS	Technical Specifications and Drawings
UNCITRAL	United Nations Commission on International Trade Law
INCOTERMS	International Commercial Terms

Note: The terms ExW, CIF, etc. shall be governed by the rules prescribed in the current edition of INCOTERMS, published by the international chambers of commerce, Paris, France.

SECTION - I

INVITATION FOR BIDS (IFB)

CORPORATE CONTRACTS, NOIDA

INVITATION FOR BIDS (IFB)

FOR

**Development of a Flood Forecasting System & its Integration with
existing Automatic Flood Warning System for TVHEP (4x130MW)**

(Domestic Competitive Bidding)

- A.** NTPC Limited invites **on-line bids on Single Stage Two Envelope Basis (i.e., Envelope-I: Techno-Commercial Bid and Envelope-II: Price Bid)** from eligible Bidders for aforesaid package, as per the scope of work briefly mentioned hereinafter.
- B. BRIEF SCOPE OF WORK**
- Development of a Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP (4x130MW)**
- Detailed scope of work has been specified in the bidding documents.**
- C.** NTPC intends to finance the aforesaid Package through **a mix of debt and equity.**
- D.** Detailed specification, scope of work and terms & conditions are given in the Bidding Documents, which are available at the NTPC e-procurement portal of NIC at **<https://eprocurmentpc.nic.in/>**. The Bidding Schedule for the Tender is as under:

Bidding Document No	9900325428
Location of work/Plant	Tapovan Vishnugad Hydro Power Project, Chamoli District, Uttarakhand - 246443
Form of Contract/Tender Category	WORKS CONTRACT
Cost of Bidding Document/Tender Fees	Not Applicable
Documents Download Date and Time	As per GePNIC portal
Last date for receipt of queries from bidders(if any)	As per GePNIC portal
Pre Bid Conference Date	Not Applicable
Bid (both Techno-Commercial and Price) submission end date & time	As per GePNIC portal
Date & Time for opening of Envelope-I (Techno-Commercial bid)	As per GePNIC portal
Date & Time for opening of Envelope-II (Price bid)	Shall be intimated after opening of Techno- Commercial Bid.

Note: Bidders are advised to visit the GePNIC (e-tender) portal of NTPC for updated bidding schedule of the Tender, if any.

It is to be noted that “No Queries from Bidders, whatsoever, shall be entertained by the Employer beyond the last date of receipt of Queries as specified at GePNIC portal of NTPC.

- E.** All bids must be accompanied by Bid Security for an amount of **INR 5,00,000/- (Indian Rupees Five Lakhs only)** in the form as stipulated in the Bidding Documents.

ANY BID NOT ACCOMPANIED BY AN ACCEPTABLE BID SECURITY IN A SEPARATE SEALED ENVELOPE SHALL BE REJECTED BY THE EMPLOYER AS BEING NON-RESPONSIVE. IN CASE, THE BID SECURITY IS SUBMITTED AS E-BG/ THROUGH ELECTRONIC FUND TRANSFER (EFT), BIDDER TO SUBMIT THE COPY OF E-BG/PROOF OF E-PAYMENT OF BID SECURITY EITHER IN SEPARATE SEALED ENVELOPE OR IN THE E-TENDERING PORTAL.

EMD is not exempted in this tender being a works contract. Bidders are advised NOT to upload MSE/Udyam/other document for availing exemption. Bids without adequate Bid Security, as per tender provisions, shall be outrightly rejected.

- F.** A complete set of Bidding Documents may be downloaded by any interested Bidder from the e-Tender Portal as per specified schedule. The tender is invited under e-tendering process. The bidders can enroll themselves on the website <https://eprocurentpc.nic.in/>. The use of Digital Signature Certificate (DSC) Class-3 key is mandatory for e-tendering activities. Accordingly, bidders should have Digital Signature Certificate (DSC) key of Class 3 to participate in e-tendering. Bidders, if required, can obtain DSC Class-3 key from agencies authorized by Govt. of India. The e-Tender Portal also has the user manuals with detailed guidelines on enrolment and participation in the bidding process.

No hard copy of Bidding Documents shall be issued. Bids shall be submitted only at the e-Tender Portal i.e. <https://eprocurentpc.nic.in/>

- G. Qualifying Requirements for Bidders (QR):**

Qualifying Requirement (QR) for subject package is attached as **Appendix-I**.

- H. Only 'Class-I local suppliers'/'Class-I & Class-II local suppliers'** are eligible to participate in this tender, as defined in the bidding documents/ Public Procurement (Preference to Make in India), Order 2017 and its subsequent amendments/ revisions issued by DPIIT. The bidders may apprise themselves of the relevant provisions of bidding documents in this regard before submission of their bids.

Minimum Local Content for Class -I local supplier = 50%

Minimum Local Content Class -II local supplier = 20%.

- I.** Any 'Bidder from a country which shares a land border with India', as specified in the Bidding Documents, will be eligible to bid in this tender only if bidder is registered with the Competent Authority as mentioned in the Bidding Documents.

Any bidder from India having specified Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India, will be eligible to bid only if the bidder is registered with the Competent Authority as mentioned in the Bidding Documents.

However, the said requirement of registration will not apply to bidders from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects.

- J.** Transfer of Bidding Documents by one intending Bidder to another is not permissible.
- K.** Downloading/Issuance of Bidding Documents and /or submission of Bid shall not construe that such Bidder is considered to be qualified.
- L.** NTPC reserves the right to reject any or all bids or cancel/ withdraw the Invitation for Bids under subject IFB without assigning any reason whatsoever and in such case no bidder / intending bidder shall have any claim arising out of such action.

M. Address for Communication/Correspondence:

AGM CS
Project CC&M
5th Floor, NTPC Intelligent Office Building,
SRHQ, Kavadiguda Road,
Hyderabad,
Telangana – 500020
Tel.No. 040-27683456/ 0120-4946535
E-mail: pattelavimla@ntpc.co.in / shrishksingh@ntpc.co.in
Websites: <https://eprocurementpc.nic.in/> www.ntpc.co.in / www.ntpc.co.in

N. Registered Office

NTPC Limited
NTPC Bhawan, SCOPE Complex,
7, Institutional Area, Lodi Road,
New Delhi – 110003
Corporate Identification Number: L40101DL1975GOI007966,
Website: www.ntpc.co.in

Qualifying Requirements
for
**“Installation and commissioning of Flood Forecasting System & its
Integration with existing Automatic Flood Warning System”**

1.1 Technical Criteria:

1.1.1 Bidder should be a registered Indian Company and should have designed, supplied, installed and commissioned Flood Warning System/Flood Forecasting system/Early Flood Warning System in any Hydro Electric Project comprising of automatic weather station/river water level /river flow measurement, Command and Control System/SCADA and communication either via VSAT or point to point wireless communication system either in India or Abroad, which should have been in successful operation in at least one project for a period of not less than one (1) year, prior to the date of opening of Techno-Commercial bid.

OR

1.1.2 In case any bidder who is a registered Indian Company & meets the requirements partially as stipulated at Clause no: 1.1.1 above, can also qualify in association/collaboration with any other company who should have designed, supplied, installed and commissioned Flood Warning System/Flood Forecasting system/Early Flood Warning System comprising of automatic weather station/river water level /river flow measurement, Command and Control System and communication either via VSAT or point to point wireless communication system either in India or Abroad, which should have been in successful operation in at least one project for a period of not less than one (1) year, prior to the date of opening of Techno-Commercial bid. In such case, Bidder and the associate/collaborator shall furnish, along with the bid, an undertaking jointly executed by him and the associate/collaborator for the successful performance of the contract jointly and severally as per the format enclosed in the bidding documents. This Deed of Joint Undertaking (DJU) shall be submitted along with the bid, failing which the bidder shall be disqualified and his bid shall be rejected. Further, in case of award, the associate will be required to furnish an On-demand bank guarantee of value for 3% (three percent) of total Contract Price in addition to contract performance security to be provided by the bidder as per Employer's format.

Notes on Technical Criteria

- a) Command and control System mean Command and Control Centre/ Master Control Centre/Central Control Room which includes integration, monitoring & control of subsystems as indicated in above routes over an Information and Communication Technology (ICT) platform.
- b) Point to Point Wireless Communication means RF based communication or GSM / GPRS or Private LTE or Lora WAN.

1.2 Financial Criteria:

1.2.1 The Average Annual Turnover of the Bidder should not be less than **Rupees 3.12 Cr (Rupees Three Crores Twelve Lakh Only)** during the preceding three (3) completed financial years as on the date of Techno-Commercial bid opening.

In case a Bidder does not satisfy the average annual turnover criteria, stipulated above on its own, its Holding Company would be required to meet the stipulated turnover requirements as above, provided that the Net Worth of such Holding Company as on the last day of the preceding financial year is at least equal to or more than the paid-up share capital of the Holding Company. In such an event, the

Bidder would be required to furnish along with its Techno-Commercial bid, a Letter of Undertaking from the Holding Company, supported by the Holding Company's Board Resolution, as per the format enclosed in the bid documents, pledging unconditional and irrevocable financial support for the execution of the Contract by the Bidder in case of award.

1.2.2 In case the bidder is not able to furnish its audited financial statements on standalone entity basis, the unaudited unconsolidated financial statements of the bidder can be considered acceptable provided the bidder further furnishes the following documents for substantiation of its qualification.

- Copies of the unaudited unconsolidated financial statements of the bidder along with copies of the Audited consolidated financial statements of its Holding Company.
- A Certificate from the CEO/CFO of the Holding Company, as per the format enclosed in the bidding documents, stating that the unaudited unconsolidated financial statements form part of the Consolidated Annual Report of the company.

1.2.3 In cases where audited results for the last preceding financial year as on the date of Techno-Commercial bid opening are not available, the financial results certified by a practicing Chartered Accountant shall be considered acceptable. In case, Bidder is not able to submit the Certificate from practicing Chartered Accountant certifying its financial parameters, the audited results of three consecutive financial years preceding the last financial year shall be considered for evaluating the financial parameters. Further, a Certificate would be required from the CEO/CFO as per the format enclosed in the bidding documents stating that the financial results of the Company are under audit as on the date of Techno-Commercial bid opening and the Certificate from the practicing Chartered Accountant certifying the financial parameters is not available.

Notes for 1.2:

1. Other income shall not be considered for arriving at annual turnover.
2. "Holding Company" and "Subsidiary Company" shall have the meaning ascribed to them as per Companies Act of India, in vogue.

NTPC LIMITED
(A Government of India Enterprise)



SECTION – II
INSTRUCTIONS TO BIDDERS

Table of Clauses – Instructions to Bidders

S. No.	Description

A. Introduction

1.	Source of Funds
2.	Eligible Plant, Equipment and Services
3.	Cost of Bidding

B. The Bidding Documents

4.	Content of Bidding Documents
5.	Clarification on Bidding Documents
6.	Amendment to Bidding Documents

C. Preparation of Bids

7.	Language of Bid
8.	Documents Comprising the Bid
9.	Bid Form and Price Schedules
10.	Bid Prices
11.	Bid Currencies
12.	Bid Security
13.	Period of Validity of Bids (Techno-Commercial Bid and Price Bid)
14.	Format and Signing of Bid

D. Submission of Bids

15.	Submission of Bids
16.	Deadline for Submission of Bids
17.	Not used
18.	Modification and Withdrawal of Bids

E. Bid Opening and Evaluation

19.	Opening of Bids
20.	Clarification on Bids
21.	Preliminary Examination of Envelope-I (Techno-Commercial) Bids
22.	Qualification

- 23. Evaluation of Envelope-I (Techno-Commercial) Bids
- 24. DELETED
- 25. DELETED
- 26. Preliminary Examination of Envelope-II (Price) Bid
- 27. Evaluation of Envelope-II (Price) Bid
- 28. Purchase Preference
- 29. Contacting the Employer

F. Award of Contract

- 30. Award Criteria
- 31. Employer's Right to accept any Bid and to reject any or all Bids
- 32. Notification of Award/Purchase Orders
- 33. Signing the Contract Agreement
- 34. Performance Security
- 34.7 Annulment of Award

G. Other Instructions

- 35. Ineligibility for participation in re-tender/future tenders
- 36. Time Schedule (programme of performance)
- 37. Corrupt or Fraudulent Practices
- 38. Fraud Prevention Policy
- 39. **DELETED**
- 40. Pre- bid Conference
- 41. Integrity Pact
- 42. Independent External Monitors (IEMs)
- 43. Deleted
- 44. Policy for Debarment from Business Dealings
- 45. Royalty
- 46. "Restrictions on procurement from a Bidder of a country which shares a land border with India"
- 47. ABAC (Anti-Bribery and Anti-Corruption) Policy
- 48. Conflict of Interest
- 49. Declaration regarding Insolvency, Bankruptcy and Liquidation

	INSTRUCTIONS TO BIDDERS	
	A. Introduction	
1.0	Source of Funds	
1.1	NTPC Limited (hereinafter called 'NTPC' or 'Employer'), intends to finance the package named in the Bid Data Sheet (BDS), through a mix of debt and equity.	
2.0	Eligible Plant, Equipment and Services	
2.1	For the purposes of these bidding documents, the word "facilities" means the plant and equipment to be supplied and installed, together with the services to be carried out by the contractor under the contract. The words "plant and equipment", "installation services" etc., shall be construed in accordance with the respective definitions given to them in the General Conditions of Contract.	
2.2	Bidding is open to bidders from within the Employer's country, subject to fulfilment of conditions specified in ITB Clause “Restrictions on procurement from a Bidder of a country which shares a land border with India” .	
2.3	For purposes of this clause, “origin” means the place where the plant and equipment or component parts thereof are mined, grown, or produced. Plant and equipment are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognised product results that is substantially different in basic characteristics or in purpose or utility from its components.	
2.4	The origin of the plant, equipment, and services is distinct from the nationality of the Bidder.	
3.0	Cost of Bidding	
	The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Employer will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process	
	B. The Bidding Documents	
4.0	Content of Bidding Documents	
4.1	The facilities required, bidding procedures, contract terms and technical requirements are prescribed in the bidding documents. The bidding documents include the following sections:	
	Section I – Invitation for Bids (IFB)	
	Section II – Instructions to Bidders (ITB)	
	Section III – Bid Data Sheet (BDS)	
	Section IV – General Conditions of Contract (GCC)	
	Section V – Special Conditions of Contract (SCC)	
	Section VI– Technical Specifications (TS)	
SITC OF PERIPHERAL SECURITY SURVEILLANCE SYSTEM AT NTPC LARA STPP BIDDING DOCUMENT NO.: 9900319728		SECTION – II (ITB) Page 1 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)	
4.2 4.3 5.0 5.1 5.2 5.3	Section VII – Forms and Procedures (FP) <u>Section-VII-Book 1 of 2</u> 1 Bid Form along with Attachments (Techno-Commercial Bid & Price Bid) <u>Section-VII-Book 2 of 2</u> Standard Forms & Procedures The Bidder is expected to examine all instructions, forms, terms, conditions, specifications and other information in the bidding documents. Failure to furnish all information required as per the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in rejection of its bid. Mode of Tendering The Bid is invited under e-tendering process. The bidding documents shall be published on the NTPC e-procurement portal of NIC at address https://eprocurementpc.nic.in/ (e-Tender Portal). The bidders can enroll themselves on the portal using the "Online Bidder Enrollment" tab. The use of Digital Signature Certificate (DSC) key is mandatory for e-tendering activities. Accordingly, bidders should have Digital Signature Certificate (DSC) key of Class 3 to participate in e-tendering. Bidders, if required, can obtain digital signature certificate (DSC) Key of Class 3 from agencies authorized by Govt. of India. The said portal also has the user manuals with detailed guidelines on enrollment and participation in the bidding process. Clarification on Bidding Documents A prospective Bidder requiring any clarification to the bidding documents may notify the Employer through 'Seek Clarifications' tab under e-Tender portal or through e-mail at the address indicated in Bid Data Sheet (BDS). The Employer will respond to any request for clarification or modification of the bidding documents that it receives no later than the last date of receipt of queries as specified in Invitation for Bids (IFB). The Employer will post the Clarifications at e-Tender Portal and Bidders can view these clarifications once they are posted at the portal. Bidders are also advised to regularly check at e-Tender Portal regarding posting of clarification, if any. Further, no queries from Bidders shall be entertained after last date of receipt of Queries as specified in IFB. Accordingly, any query (i.e.,) received from Bidders after the cut-off date shall not be considered and bidders to submit the bid based on the bidding documents (and amendments/ Errata/ Clarifications etc. thereof) issued. The Bidder is advised to visit and examine the site where the work is to be executed and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for execution of the facilities. The costs of visiting the site shall be borne by the bidder fully. The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such inspection, but only upon the express condition that the Bidder, its personnel and agents will release and indemnify the	
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB)	Page 2 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
6.0 6.1 6.2 6.3 7.0 8.0	Employer and its personnel and agents from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of the inspection. Amendment to Bidding Documents At any time prior to the deadline for submission of Bids, the Employer may, for any reason, whether at its own initiative, or in response to a clarification requested by a prospective Bidder, amend the bidding documents. The amendments will be posted at e-Tender portal for viewing by the Bidder. The amendments will be binding on Bidders and it will be assumed that the information contained therein will have been taken into account by the Bidder in its bid. Bidders are also advised to regularly check e-Tender portal regarding posting of Amendment, if any. In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bid, the Employer may, at its discretion, extend the deadline for the submission of bids. C. Preparation of Bids Language of Bid The bid prepared by the Bidder and all correspondence and documents related to the bid exchanged between the Bidder and the Employer shall be written in English language, provided that any printed literature furnished by the Bidder may be written in another language, as long as such literature is accompanied by a translation of its pertinent passages in English language in which case, for purposes of interpretation of the bid, the translation shall govern. The English Translation of the documents shall be carried out by professional translators and the translator shall certify that he is proficient in both languages in order to translate the document and that the translation is complete and accurate. Further, translation shall be authenticated by the Indian Consulate located in the Country where the documents have been issued or the Embassy of that Country in India. Documents Comprising the Bid Single Stage Two Envelope Bidding procedure shall be followed as under: Envelope-I: Techno-Commercial Bid Envelope-II: Price Bid The bidder has to submit Techno-Commercial Bid (Envelope-I) and Price Bid (Envelope-II) through e-Tender portal (electronic mode) only. In addition, the documents mentioned in clause no. 8.1.1 have also to be submitted in Original in physical mode before the last date & time of submission of bid. To submit their bid through electronic mode, bidder has to use their digital signature certificate keys. The bidders are requested to download the entire bidding documents from e-Tender portal, within the date and time as specified in the Invitation for Bids (IFB), after online registration in the above website. The cost of bid documents (or tender Fee) as specified in Invitation for Bids (IFB) is to be paid online through payment gateway in the e-Tender Portal or through NEFT/RTGS to
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 3 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
8.1	NTPC's Bank Account, as per details mentioned at ITB 8.1.1 (a1) before the due date and time of bid submission. Bidder may refer 'Bidder Manual' at the e-Tender Portal for instructions on online payment. Envelope-I: Techno-Commercial Bid The Techno-Commercial Bid shall comprise of the following:		
8.1.1	Documents to be submitted in physical form in separate sealed envelope (s) duly marked in accordance with ITB clause 15. In addition, the scanned copy of these physical forms are to be uploaded by Bidder in Fee Cover/Envelope on the e-tender portal. (a) Attachment 1: Bid Security Bid security shall be furnished in accordance with ITB Clause 12.0. (a1) Attachment 1A: Tender Fee ~~Tender Fee details shall be furnished in accordance with provisions of Bid Documents at ITB 8.0 and value as mentioned at IFB.~~ ~~(i) Bidders who are unable to submit online Cost of Bidding documents through GePNIC portal may opt for Online Transfer of Cost of Bidding documents through NEFT/RTGS to NTPC's Bank whose details are as under:~~ ~~a. TENDER FEE TO BE PAID AT:~~ ~~NAME: NTPC Limited~~ ~~State Bank of India CAG II Branch~~ ~~5th Floor Redfort Capital, Parsvnath Towers,~~ ~~Bhai Veer Singh Marg, Gole Market, New Delhi- 110001~~ ~~es.cagdel@sbi.co.in~~ ~~CURRENT ACCOUNT NO.: NTPCPY050003551001~~ ~~IFSC: SBIN0017313~~ ~~(ii) While carrying out online transfer, Bidders shall ensure to enter "Tender Fee-Tender No. Vendor Name" in the Text / Remarks / Reason field. Bidder shall intimate the details of same through email to concerned C&M executive and also upload the details in the "Fee/SCANNED COPY OF EMD" folder in GePNIC in the following format:~~ Declaration for Tender Fee Deposit ~~Tender No.:~~ ~~Vendor Name:~~ ~~UTR Reference:~~ ~~Amount:~~ ~~Date of Transfer:~~ ~~Transferor Bank:~~ ~~(Signature of Vendor with Seal)~~ (b) Attachment 2: Power of Attorney A power of attorney, duly notarized by a Notary Public, indicating that the person signing the bid has the authority to sign the bid and that the bid is binding upon the Bidder during the full period of its validity in accordance with ITB Clause 13.		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 4 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
	Power of attorney(s), duly notarized by Notary Public, indicating that the person(s) signing the documents on behalf of Associate(s)/ collaborator(s)/ executants(s) of JV Agreement (if permissible in Section-III, Bid Data Sheet) have the authority to sign the same and the said documents are binding upon them during the full period of their validity. (The Authority of the person issuing the Power of Attorney shall also be submitted). Further, Bidder to note that bid can be submitted/digitally signed by only one person. The Power of Attorney must be in the name of person digitally signing the bids. For bids submitted by a Consortium consisting of a minimum of two (2) and a maximum of three (3) corporate entities, as permitted by the Qualifying Requirements, the Bidder shall form a Consortium, which is an unincorporated grouping, comprising the specified number of corporate entities shall comply with the following requirements : i) Authorized Representative and Signatory shall be from the Company of Consortium Leader. Bidder shall furnish the original Power of Attorney(ies) in favor of Authorized Representative and Signatory, signed by legally authorized signatories of all the Consortium Members backed by a copy of Board Resolutions /other relevant documents, affixed with common seal of company, to demonstrate the authority of the persons issuing the Power of Attorney. ii) The Power of Attorney by each Partner of Consortium in favour of their respective signatory shall be submitted. iii) The bid shall be signed so as to be legally binding on all the Partners. iv) One of the Partners shall be designated as Leader, the authorisation for which shall be evidenced by submitting the bid along with a Power of Attorney signed by legally authorized signatories of all the consortium Partners. v) All partners of the Consortium shall be liable jointly and severally for the execution of the Contract in accordance with the contract terms and should have adequate experience as per Qualification Requirement stipulated in bidding documents before forming the Consortium in the required field. vi) Original agreement entered into by the consortium partners as per the format provided in the Bidding Documents shall be submitted with the bid. vii) A firm can be a partner in only one consortium; bids submitted by Consortiums including the same firm as partner will be rejected. The Leader shall be authorised to receive instructions for and on behalf of any and all Partners of the consortium and the entire execution of the Contract, shall be done exclusively with the Leader. NTPC may release payment to the Leader and/or to any of the consortium Partner (s) duly authorised by the Leader. However, the above is without any additional liability of whatsoever nature to NTPC, in case of award of contract to a consortium (c) Consortium Agreement : Form 13A		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 5 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
8.1.2	(e) ~~Letter of Support (13B, 13C, 13D) (As applicable) as per relevant annexure format~~ (d) Appendix–A, B & C to Attachment (3A-1 to 3A-4): As per item no. 4.2.1, 4.2.2 & 4.2.3 of BDS for Bidder. (e) Appendix–A, B & C to Attachment (3A-5 to 3A-7): As per item no. 4.3.1, 4.3.2 & 4.3.3 of BDS for Bidder/Collaborator / Associate/Consortium Partner (if applicable). (f) Attachment-3C: The certificate/ relevant document from Bidder as well as each executants of Letter of Undertakings confirming that they do not anticipate any change in ownership during the proposed period of execution of work (if such a change is anticipated, the scope and effect thereof shall be defined). (g) Attachment-3L: Declaration regarding insolvency, bankruptcy and Liquidation In addition, the scanned copy of above-mentioned physical forms shall be uploaded by Bidder in “Fee Cover” or Techno-commercial Envelope on the e-tender portal. Documents to be submitted online through e tender mode: The Bid Form as per Section-VII, Part 1 of 2, duly completed together with the following Attachments shall be uploaded on the e-tender portal in Pre-Qual/Technical Cover/Envelope a) Attachment 3: Bidder's Qualifications In the absence of pre-qualification, documentary evidence that the Bidder is eligible to bid and is qualified to perform the contract, if its bid is accepted, shall be furnished in Attachment-3 to Bid. The documentary evidence of the Bidder's qualifications to perform the contract, if its bid is accepted, shall establish to the Employer's satisfaction that the Bidder has the financial, technical, production, procurement, shipping, installation and other capacities and capabilities necessary to perform the contract and meets the experience and other criteria outlined below : The Bidder shall provide satisfactory evidence that he and/or, where applicable, his collaborator/ Promoters to Joint Venture (JV) Company/ Promoters to Subsidiary Company/ (i) is a manufacturer/supplier, from an eligible source country, who regularly manufactures equipments of the type specified and/or undertakes the type of work specified and has adequate technical knowledge and relevant experience. (ii) does not anticipate a change in ownership during the proposed period of execution of work (If such a change is anticipated, a scope and effect thereof shall be defined).
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 6 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
	should the circumstances warrant such assessment in the overall interest of the Employer. The physical assessment by the Employer shall include but not be limited to the assessment of the office/facilities/banker's/reference works/ similar project being executed by Bidder. A negative determination of such assessment of capacity and capabilities may result in the rejection of the Bid. The above right to undertake the physical assessment shall be applicable for the Qualifying Requirements stipulated in both Section - ITB and in Section - BDS. In case Bidder is permitted in the Bid Data Sheets to offer to supply and/or install plant and equipment under the contract that the Bidder did not manufacture or otherwise produce and/or install, the Bidder shall (i) have the financial and other capabilities necessary to perform the contract; (ii) have been duly authorised by the manufacturer or producer of the related plant and equipment or component to supply and/or install that item in the Employer's country; (iii) be responsible for ensuring that the manufacturer or producer of the related item meets the minimum criteria listed for that item. Bids submitted by a Bidder in association with an Associate, if so permitted as per Qualification requirements, shall additionally comply with the following requirements: (a) The bid shall include the information listed in BDS Item No. 4.0. (b) Original Letter of Support as applicable as per form no.13, Section-VII, Part 2 of 2 entered into by the bidder with the Collaborator / Associate shall be submitted along with the Techno-Commercial bid. In case Bidder is permitted in the Bid Data Sheets to offer to supply and/or install plant and equipment under the contract that the Bidder did not manufacture or otherwise produce and/or install, the Bidder shall (i) have the financial and other capabilities necessary to perform the contract; (ii) have been duly authorised by the manufacturer or producer of the related plant and equipment or component to supply and/or install that item in the Employer's country; (iii) be responsible for ensuring that the manufacturer or producer of the related item meets the minimum criteria listed for that item. (a1) Attachment-3C: The certificate/ relevant document from Bidder as well as each executants of Letter of Undertakings confirming that they do not anticipate any change in ownership during the proposed period of execution of work (if such a change is anticipated, the scope and effect thereof shall be defined). (a2) Appendix-A to Attachment-3A (if Applicable) Appendix-A to Attachment-3A duly filled in as per the Employer's format. (a3) Appendix-B to Attachment-3A: Undertaking from Statutory Auditor		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 8 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)	
	Appendix-B to Attachment-3A duly filled in as per the Employer's format. (a4) Appendix-C to Attachment-3A: Undertaking from TPIA Appendix-C to Attachment-3A duly filled in as per the Employer's format. (a5) Appendix-D to Attachment-3A: Site Visit Certificate Appendix-D to Attachment-3A duly filled in as per the Employer's format. b) Attachment 4: Eligibility and Conformity of the Facilities Documentary evidence established in accordance with ITB Clause 2 that the facilities offered by the Bidder in its bid or in any alternative bid (if permitted) are eligible and conform to the bidding documents. The documentary evidence of the eligibility of the facilities shall consist of a statement on the country of origin of the plant and equipment offered, which shall be confirmed by a certificate of origin issued at the time of shipment. The documentary evidence of the conformity of the facilities to the bidding documents may be in the form of literature, drawings and data, and shall include: (i) a detailed description of the essential technical and performance characteristics of the facilities; (ii) a list giving full particulars, including available sources, of all spare parts, special tools, etc., necessary for the proper and continuing functioning of the facilities following completion of facilities in accordance with provisions of contract; and (iii) a commentary on the Employer's Technical Specifications and adequate evidence demonstrating the substantial responsiveness of the facilities to those specifications. Bidder shall note that standards for workmanship, materials and equipment designated by Employers in the bidding documents are intended to be descriptive (establishing standards of quality and performance) only and not restrictive. The bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Employer's satisfaction that the substitutions are substantially equivalent or superior to the standards designated in the Technical Specifications. Attachment 4A: Special Tools and Tackles The bidder shall provide the details regarding Special Maintenance Tools and Tackles. The cost of these Tools and Tackles shall be included in the lumpsum Bid Price quoted in Envelope-II(Price) Bid. c) Attachment 5: Subcontractors Proposed by the Bidder The Bidder shall include in its bid details of all major items of supply or services that it proposes to purchase or sublet and shall give details of the name and	
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB)	Page 9 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
	nationality of the proposed Subcontractor, including vendor, for each of those items. Bidders are free to list more than one Subcontractor/Vendor against each item of the facilities. Quoted rates and prices will be deemed to apply to whichever Subcontractor/Vendor is appointed, and no adjustment of the rates and prices will be permitted. The Bidder shall be responsible for ensuring that any plant, equipment or services to be provided by the Sub-Contractor/Vendor comply with the requirements of ITB sub-clause 8.1.2 (a). Employer reserves the right to delete any proposed Subcontractor/Vendor from the list prior to award of contract. After discussion between Employer and the Contractor, relevant appendix to Contract Agreement (List of Sub-Contractors) shall be completed, listing the approved Sub Contractor(s)/Vendor(s) for each item. Bidder may refer Section-VI (Technical Specifications) of bidding documents, while filling the details in respect of Sub-Contractors/ Sub-Vendors/ Sub-Suppliers. d) Attachment-6: DELETED e) Attachment 7: Details of Local Agent If a foreign bidder has engaged an Indian agent, it will be required to give the following details in its bid as per the format enclosed in the Bidding Documents. (a) The name and address of the local agent; (b) What Service the agent renders. f) Attachment 8A: Declaration on Demonstration Parameter The declaration on demonstration parameters as per the Employer's format. g) Attachment 8B: Functional Guarantees The declaration on the guaranteed values of parameters as per Employer's format h) Attachment 9: Erection Tools and Plant and Safety Equipments & Safety Personal Protective Equipments List of Erection Tools and Plant and Safety Equipments & Safety Personal Protective Equipments which the bidder proposes to bring to site in case the contract is awarded to him. i) Attachment 9A : Commissioning /Start-up Spares List of Commissioning / Start-up Spares which the bidder proposes to bring to site in case the Contract is awarded to him. j) Attachment 10 : Technical Data Sheets Technical Data Sheets duly filled in as per the Employer's format, enclosed with the bidding documents. k) Attachment 11 : Bought Out Items Details of bought out items to be directly despatched by sub-vendor(s) to site without any price component.
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 10 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
8.1.3	l) Attachment 12 : Quality Assurance Programme Details regarding the overall quality management & procedures which the bidder proposes to follow during various phases of execution of the contract. (g) Attachment 13 : Additional Information Additional Information which the bidder wishes to provide in his bid. m) Attachment 14: Detailed work schedule (L2 Schedule) A detailed work schedule (L2 Schedule) for the Project for which Bidder has submitted its Envelope-I (Techno-commercial) bid, in line with major project milestones specified in Sec-III (BDS) and as per requirements of ITB Clause 36. n) Attachment 15: Not applicable o) Attachment 16 : Details of Equipment and Mandatory Spares including Type Test Charges to be imported from Associate / Collaborator from Abroad by Manufacturer or Bidder. Details of Equipment (including type test) and Mandatory Spares to be imported from Associate/Collaborator by the Manufacturer or the bidder, as per Employer's format enclosed (without indicating any price). p) Attachment 17: Integrity Pact The "Integrity Pact" shall be furnished duly signed in accordance with the provision of Integrity Pact specified in ITB Clause 41.0. q) Attachment 18: Details of Foreign Principals of Indian Bidders The Bidder shall furnish information with regards to disclosure of the details of its foreign principals or associates (if applicable). r) Attachment 19: Check list General Technical Evaluation (GTE) Conditions: Bidders shall be required to accept the following mandatory General Technical Evaluation (GTE) condition of the Tender at e-Tender Portal prior to the submission of Bid: "Do you certify full compliance to all provisions of Bid documents" By accepting above GTE, Bidder shall certify their compliance to all provisions of Bidding Documents including but not limited to the following important provisions: (a) Full compliance on Qualifying Requirements. (b) Fraud Prevention Policy of NTPC. (c) Policy for Debarment from Business Dealings of NTPC. (d) ITB Clause Restrictions on procurement from a Bidder of a country which shares a land border with India" (e) All provisions of the Integrity Pact (if applicable)		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 11 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
8.2 8.2.1	(f) Anti-Bribery and Anti-Corruption (ABAC) Policy of NTPC (g) ITB Clause "Conflict of Interest" (h) Declaration regarding insolvency, bankruptcy and Liquidation Acceptance of above GTE shall be considered as Bidder's confirmation that any deviation to any provision of the Bidding Documents found anywhere in their Bid Proposal, implicit or explicit, shall stand unconditionally withdrawn, without any cost implication whatsoever to the Employer, failing which the bid shall be rejected and bid security shall be forfeited. Note: Techno-Commercial Bid should not contain any price content entry. In case, the Techno-Commercial Bid is found to contain any price content, such bid shall be liable for rejection. Envelope-II: Price Bid The Price Bids submitted by the Bidder shall comprise of the following: The following Attachments to Price Envelope as per Section-VII, part 1 of 2, duly completed together with Bill of Quantity (BOQ)/Price Schedules shall be uploaded at e-Tender Portal in 'Finance' cover/Envelope. : (Bidders may note that Attachments to Price Envelope together with BOQ/Price Schedules <u>should NOT be</u> uploaded in Pre-Qual/Technical Cover/Envelope at the e-Tender Portal.) (a) Attachment 1(P): Declaration regarding Import Content in Ex-works price Bidder may note that CIF value of import content in the Ex-works (India) price quoted in Schedule-2 of the bid, if any, shall be necessarily declared by the bidders in Attachment-1P. Bidder may further note that the relevant certificate for claiming the concessional custom duty benefits, if any shall be issued on the aforesaid declaration basis only. In case no such import content is envisaged in the bid or the CIF value of import content to be declared is zero, the bidder shall indicate "NIL" against the CIF value of import content. In cases where no value is indicated by the bidder against the CIF value of import content in Attachment-1P or statement/ any declaration like 'later', 'to be furnished later', 'NA' etc. are indicated by the bidder, in such cases the CIF value of import content in the bid shall be considered as "NIL" for the purpose of issuance of relevant certificate for claiming the concessional custom duty benefits, if any. No further claim in this regard shall be entertained by the Employer. ~~(b) Attachment 1A(P): CIF Value of Construction Equipment to be imported by the Bidder/Assignee~~ ~~Details of Construction Equipment to be imported by the Manufacturer or the bidder/ Assignee, as per the Employer's format.~~ ~~(c) Attachment 2(P): Details of Equipment and Mandatory Spares to be imported from Associate/Collaborator~~
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 12 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
	~~Details of Equipment (including type test) and Mandatory Spares to be imported from Associate/Collaborator by the Manufacturer or the bidder, as per the Employer's format.~~ ~~(d) Attachment 3(P): Deleted~~ ~~(e) Attachment 4(P): Local Representation~~ Not Applicable ~~(f) Attachment 5(P): Price Adjustment Data~~ ~~Details regarding Price Adjustment as per the Employer's format.~~ ~~(g) Attachment 6(P): Check List of documents to be submitted for Envelope-II (Price) Bid~~ 8.3 Price envelope should not contain any matter in respect of Technical and / or Commercial aspects other than the details specifically sought in the Price envelope. If the Technical/commercial matters indicated in Price envelope are found to be in contradiction with the details furnished in Techno-Commercial envelope, the details furnished in Techno- Commercial envelope shall prevail. 8.4 The Envelope-I (Techno-Commercial Bid) & Envelope-II (Price) Bid submitted by the Bidder should be without any deviations and strictly in conformity with the provisions of all bidding documents and amendments/ addenda/ corrigenda/errata/clarifications to the Bidding Documents issued by Employer prior to deadline for submission of bids. A conditional Price Bid shall run the risk of rejection. 9.0 Price envelope including Price Schedules The Bidder shall the Attachments to Price envelope and the appropriate BOQ (excel sheet) along with Price Schedules (if provided) furnished in the bidding documents as indicated therein, following the requirements of ITB Clauses 10 and 11. 10.0 Bid Prices 10.1 Unless otherwise specified in the Technical Specifications, for each of the project, Bidders shall quote for the entire facilities on a "single responsibility" basis such that the total bid price covers all the Contractor's obligations mentioned in or to be reasonably inferred from the bidding documents in respect of the design, manufacture, including procurement and subcontracting (if any), delivery, construction, installation, commissioning, civil & steel structural works (as applicable), Completion of the facilities and conductance of Guarantee tests for the facilities including supply of mandatory spares (if any). This includes all requirements under the Contractor's responsibilities for testing, pre-commissioning and commissioning of the facilities, conducting Guarantee tests and, where so required by the bidding documents, the acquisition of all permits, approvals and licenses, etc.; the operation, maintenance and training services and such other items and services as may be specified in the bidding documents, all in accordance with the requirements of the General Conditions of Contract and Technical Specifications. 10.2 Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the bidding documents. Bidder to note that discount, if any, is to be accounted in Price BOQ itself. The discount specified elsewhere shall not be given effect to.
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 13 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
10.3	Bidders shall give a breakdown of the prices in the manner and detail called for in the Bill of Quantity (BOQ) (excel format) Further, Bidder are also required to furnish the detailed break up of their BOQ price in the Price Schedules (if provided along with Bidding documents) in the following manner: Schedule No. 1 Deleted Schedule No. 2 Plant and Equipment including Type Tests charges and Mandatory Spares to be supplied from within the Employer's Country Schedule No. 3 Local Transportation including Inland transit insurance and other local costs incidental to delivery of Plant & Equipment and Mandatory Spares Schedule No. 4 Installation Services including Erection and Civil/Structural Works (as applicable), Insurance covers other than inland transit insurance, Safety Aspects/Compliance to Safety Rules and other services as specified in the bidding documents. Schedule No. 5 NOT USED Schedule No. 6 Recommended Spare Parts Schedule No. 7 Goods and Services Tax (GST), applicable on Schedules 2, 3 & 4, not included in bid price Schedule No. 8A Deleted Schedule No. 8B Break up of Type Tests charges quoted in Schedule 2 Schedule No. 9 Schedule of Takeout Price NOT USED Schedule No. 10 Schedule of Unit Rates NOT USED Schedule No. 11 Schedule of Alternatives NOT USED Bidders shall note that the plant and equipment included and priced against the items indicated in BOQ in respect of Schedule No. 2 above shall exclude all materials used in civil, building and other construction works, if any. All such materials shall be included and priced in BOQ against the items indicated therein in respect of Schedule No. 4.
10.4	In the BOQ/Price Schedules for the project, Bidders shall give the required details and a breakdown of their price Bid as follows: (a) Deleted (b) Plant and Equipment (including Type Test Charges) and Mandatory Spares to be supplied from within the Employer's country (Schedule No. 2) shall be quoted on EXW (Ex-Factory, Ex-Works, Ex-Warehouse or Off the Shelf, as applicable) basis
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 14 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
	and shall be inclusive of all costs as well as duties and taxes paid or payable on components and raw materials incorporated or to be incorporated in the facilities. Further, the prices for Mandatory Spares shall be quoted in compliance with the requirements as per the list of Mandatory Spares specified in the Technical Specifications and the Price Schedule-2 of the Bidding documents. (c) Local Transportation, Inland Transit Insurance and other local costs incidental to delivery of the Plant and Equipment including Mandatory Spares shall be quoted in Schedule-3. (d) Installation Services including Erection and Civil & Allied Works (as applicable) shall be quoted separately (Schedule No. 4) and shall include rates or prices for all labour, contractor's equipment, temporary works, materials, consumables and all matters and things of whatsoever nature, charges for insurance covers other than inland transit Insurance, charges for Safety Aspects/Compliance to Safety Rules including operations and maintenance services (if applicable), the provision of operations and maintenance manuals, training of employer's personnel, etc., and other services, as identified in the Bidding Documents, as necessary for the proper execution of the Installation Services. (i) Bidders are advised to price their bids in such a manner that Installation Price Component of the bid price (excluding Civil/Structural works price) should not be less than 15% and should not be more than 20% of the cumulative total of Ex-works Price of Main Equipment indicated in Schedule No.2. In case the Installation Price is below the minimum percentage specified above, the amount by which it is lower shall be retained proportionately from the Ex-Works component of Contract price while releasing payments due on receipt of equipment, and no interest shall be payable on the retained amount. The aforesaid retained amount shall be paid on pro-rata basis upon completion of installation of the respective equipment and its certification by the Project Manager. In case the Installation Price is above the maximum percentage specified above, the amount by which it is higher shall be retained while releasing progressive payments due on installation of equipment, and no interest shall be payable on the retained amount. The aforesaid retained amount shall be paid along with payment due on completion of Trial Operation / Completion of Facilities. (ii) Bidders are advised to price their bids in such a manner that the Civil Works Price Component of the bid price (including Site Fabricated Structural works price) should not be less than 45% and should not be more than 55% of the cumulative total of Ex-works Price of Main Equipment indicated in Schedule No.2. In case the Civil Works Price (including Site Fabricated Structural works price) is below the minimum percentage specified above, the amount by which it is lower shall be retained proportionately from the Ex-Works component of Contract price while releasing payments due on dispatch of equipment, and no interest shall be payable on the retained amount. The aforesaid retained amount shall be paid on pro-rata basis upon completion
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 15 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)	
	of Civil Works including Structural works (if any) corresponding to the respective equipment and its certification by the Project Manager. In case the Civil Works Price (including Site Fabricated Structural Works Price) is above the maximum percentage specified above, the amount by which it is higher shall be retained while releasing progressive payments due on completion of civil works (including Site Fabricated Structural works), and no interest shall be payable on the retained amount. The aforesaid retained amount shall be paid along with payment due on completion of Trial Operation / Completion of Facilities. (iii) Bidders are advised to price their bids in such a manner that the component for 'Amount linked to Safety Aspects/ compliance to Safety Rules' should not be less than 2% of the cumulative total of Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works. In case 'Amount linked to Safety Aspects/ compliance to Safety Rules' is less than aforesaid minimum percentage specified of the cumulative total of Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works, the amount by which it is lower shall be retained proportionately from the other components of Schedule 4 of the Contract price while releasing payments of each RA bill. No interest shall be payable on the amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount. The amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount shall be payable in part or full based on safety compliance duly certified by Project Manager and Safety in charge on quarterly basis.	
	(e)	Recommended Spare parts shall be quoted separately in Schedule 6 on EXW basis in accordance with subparagraph (a) or (b) above. Local Transportation Charges including Inland Transit Insurance etc., for recommended spares shall also be quoted in Schedule 6 and shall not be included in Schedule No. 3 by the bidder.
	(f)	The prices quoted in Schedule Nos. 2, 3 & 4 shall be inclusive of all Taxes, Duties, Levies & charges, except Goods and Services Tax (GST), payable in the Employer's country as of seven (7) days prior to the deadline for submission of bids. Further, all Taxes, Duties, Levies & Charges on the Materials incorporated in Erection and Civil & Allied Works (as applicable) shall also be included in the prices quoted in Schedule No. 4 & no Separate payment on this account, whatsoever, shall be made by Employer. Goods and Services Tax (GST) applicable on goods and services specified in Schedule Nos. 2, 3 & 4 shall not be included in respective schedules, but shall be quoted separately in Schedule No. 7. The Goods & Services Tax (GST) quoted by the bidder in Schedule No. 7 shall be as applicable in the Employer's country as on seven (7) days prior to the deadline for submission of Bids.
		Due Input Tax credits under GST as per the relevant Govt. Policy, wherever applicable, shall be taken into account by the Bidder while quoting his price.
10.5	The terms EXW, FOB, CIF, etc., shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce, 33-43 avenue du Président Wilson 75116, Paris, France.	
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB) Page 16 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
12.1	The Bidder shall furnish, as part of its Bid, a Bid Security in a separate sealed envelope in the amount and currency as stipulated in the Bid Data Sheet (BDS). In case bid security amount is deposited as EFT, Proof of e-payment of Bid Security, shall be submitted in the e-tendering portal or in a separate sealed envelope.
12.2	The Bid Security shall, at the Bidder's option, be in the form of e-BG, Electronic Fund Transfer (EFT)/ irrevocable Letter of Credit or a bank guarantee from any of the banks specified in the Bid Data Sheets or an Insurance Surety Bond from an Insurer as per guidelines issued by Insurance Regulatory and Development Authority of India (IRDAI). For the Bid Security amount up to Rs. 1,00,000/- (Rupees One Lacs only), the Bidders must submit the Bid Security amount through Electronic Fund Transfer (EFT) only. Upon successful e-payment of the Bid Security on the NTPC e-tender portal, an e-receipt shall be generated by the system, a copy of which is to be submitted by the bidder as a part of its bid, in the e-tendering portal or in a separate sealed envelope, as a proof of e-payment of Bid Security. The format of the Bank Guarantee/ Insurance Surety Bond shall be in accordance with the form of bank guarantee/ Insurance Surety Bond towards bid security included in the Bidding Documents. The Bank Guarantee/ Insurance Surety Bond shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). Bid Security shall remain valid for a period of forty-five (45) days beyond the original Bid validity period and beyond any extension of bid validity subsequently requested under relevant clause of ITB.
12.3	Wherever Bids under Joint Venture/ Consortium route are permitted as per the Qualifying Requirements in the Bidding Documents, the Bid Security by the Joint Venture / Consortium must be on behalf of all the partners of the Joint Venture/ Consortium partner.
12.4	Any bid not accompanied by an acceptable bid security in a separate sealed envelope shall be rejected by the employer as being non-responsive. In case, the bid security is submitted as e-BG/EFT, bidder to submit the copy of e-BG/proof of e-payment of bid security either in separate sealed envelope or in the e-tendering portal.
12.5	Not used.
12.6	Subject to clause 12.8 below, the Bid Security of the Bidder whose Techno-Commercial Bid has not been found acceptable, shall be returned along with letter communicating rejection of Techno-Commercial Bid. The Bid Security of the bidders who are unsuccessful after opening of Price Bids shall be returned expeditiously after placement of award on successful bidder.
12.7	The Bid Security of the successful Bidder to whom the contract is awarded will be returned when the said Bidder has signed the Contract Agreement and has furnished the required Performance Securities pursuant to relevant clauses of ITB.
12.8	The Bid Security may be forfeited:
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 18 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
12.9	(a) if the Bidder withdraws or varies its Bid during the period of Bid Validity; (b) If the Bidder does not accept the correction of its Bid Price pursuant to ITB Sub-Clause 26.2; (c) If the Bidder refuses to withdraw, without any cost to the Employer, any deviation, variation, additional condition or any other mention anywhere in the bid, contrary to the provisions of bidding documents; (d) In the case of a successful Bidder, if the Bidder fails within the specified time limit to furnish the required Contract Performance Guarantee/Security Deposit in accordance with relevant clause of ITB. (e) If the bidder/his representatives commits any fraud while competing for this contract pursuant to Fraud Prevention Policy of NTPC. (f) In case the Bidder/Contractor is disqualified from bidding process in terms of Section 3 and 4 of Integrity Pact. (g) Any suppression of material fact or false declaration regarding Insolvency, bankruptcy and Liquidation proceeding against Bidder, Associate, Collaborator or Technology Provider		
	CONFIRMATION OF PHYSICAL BGS THROUGH STRUCTURED FINANCIAL MESSAGING SYSTEM (SFMS)/ SWIFT (Not applicable for e-BGs through NESL platform) While issuing the physical BGs, the Bidder's Bank shall also send electronic message through secure SFMS (in case of BGs issued from within India) or SWIFT (in case of BGs issued from outside India) to Employer's Beneficiary Bank whose details are provided herein below: (i) Bank Name: ICICI Bank Limited (ii) Branch: CONNAUGHT PLACE BRANCH (iii) Bank Address: 9A, PHELPS BUILDING, INNER CIRCLE, NEW DELHI-110001 (iv) IFSC Code: ICIC0000007 BG issuing/amending bank must send the BG advice in the form of message format via SFMS (Structured Financial Messaging System) as provided by RBI. The format of the message for confirmation of the BG shall be as below: BG advising message: IFN 760COV/ IFN 767COV via SFMS Field Number: Particulars (to be mentioned in Row 1) 7037: NTPCBG (unique identifier)		
12.10	In case of Bidders opting for physical Bank Guarantee as Bid Security but unable to submit the Original Bank Guarantee at the tender opening location, before the deadline for submission of bids, following shall also be considered acceptable, subject to para 12.11 below: (i) The issuing bank shall intimate through their own official e-mail id to concerned C&M department with a copy to Bidder regarding issuance / extension of Bank Guarantee (BG) along with following documents, before the deadline of submission of bids: -		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 19 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
12.10.1	a) The scanned copy of the BG. b) SFMS / SWIFT message acknowledgement copy sent to Employer / Employer's banker stating the date of sending. c) An undertaking from the issuing Bank strictly as per format enclosed at Annexure-III to BDS. SFMS / SWIFT message must be sent to the Employer/Employer's bank, details of which are mentioned in Bidding documents. (ii) Bidders shall also be required to upload the scanned copy of the BG on e-Tender Portal in Fee Cover. Wherever the submission of Bid Security has been prescribed in the Bidding Documents, the Bid must be accompanied by the Bid Security in a separate envelope. The envelope must be clearly marked on top to evidence the presence of bid security and suitable marking instructions to this effect may be included in the bidding documents. In case the Bid Security is deposited by the Bidder/ vendor at the tendering portal through e-payment, as applicable, bidder to submit the proof of e- payment of bid security either in separate envelope or in the e-tendering portal.		
12.11	The bidder shall be required to submit all the documents in the manner as specified at para 12.11 above, to reach Employer before the deadline for submission of bids, failing which its bid shall be rejected as being non- responsive. In such a case, Bidder shall also be required to submit the Original BG in physical form to reach Employer at the address mentioned in Bidding Documents, not later than 10 days from the date of submission of Techno-Commercial bids or before the Price Bid opening, whichever is earlier, failing which its bid shall be rejected and not considered for further evaluation.		
13.0	Period of Validity of Bids		
13.1	The Bid (comprising Techno-Commercial and Price envelope) shall remain valid for a period of One hundred Twenty (120) days from the deadline set for submission of Bid. The bid valid for a shorter period shall be rejected by Employer as being non responsive.		
13.2	~~The bidder is required to keep the prices of recommended spares covered under Price Schedule No. 6 valid for a period of six (6) months after Notification of Award/Purchase Order for main equipment and mandatory spares. b~~		
13.3	In exceptional circumstances, Employer may solicit the Bidder's consent to an extension of the bid validity period. The request and responses thereto shall be made in writing by post, or e-mail. If a Bidder accepts to extend the period of bid validity, the validity of bid security shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 20 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)	
14.0	Format and Signing of Bid The bid including all documents uploaded at the e-Tender portal shall be digitally certified using Class-III signature by a duly authorised representative of the Bidder to bind him to the contract. The authorization shall be indicated by written power of attorney as per ITB Clause 8.1.1 (b) and shall be submitted in physical form in a separate sealed envelope prior to the deadline for submission of bids.	
15.0	D. Submission of Bids Submission of bids The Bid [comprising the bid form (envelope-1 (techno-commercial) & envelope-2 (price)) as per Section-VII, Part 1 of 2 and Part 2 of 2, together with its Attachments (Techno-commercial and price) and BOQ/Price Schedules] shall be submitted simultaneously at the e-tender portal through e-tender mode in the manner specified elsewhere in bidding document. No Manual/ Physical Copy of the Bid shall be acceptable, except the documents specified to be submitted in physical form as per ITB Clause 8.1.1. Bidder shall upload the completed Bid Form, Attachments pertaining to Techno-commercial envelope along with all annexures under 'Technical Cover' at the e-Tender Portal. The Attachments to Price envelope, duly completed together with BOQ (excel format) shall be uploaded in 'Finance cover' at the e-Tender Portal. Further, the detailed break-up of BOQ price in the Price Schedules (if provided along with Bidding documents) shall also be furnished in 'Finance cover'. Bidders may note that Attachments to Price Envelope together with BOQ (excel sheet)/Price Schedule <u>should not be</u> uploaded in the 'Technical cover' at the e-Tender Portal. Bidder to further ensure that documents uploaded online are being downloaded properly. Employer shall not be responsible for corrupt files, if any, uploaded online by bidder. Further file related to particular Attachment/Schedule including their annexures/ appendices, if any, shall be given name of that Attachment/Schedule only.	
15.1	Sealing and Marking of Physical Documents	
15.1.1	Documents to be submitted in physical form (as brought out at ITB clause 8.1.1) shall be sealed and marked in the following manner: (i) The bid security furnished in accordance with ITB Clause 12 shall be sealed in a separate envelope duly marking the envelope as "ATTACHMENT-1: BID SECURITY". (ii) All other Original documents required to be submitted in physical form in line with ITB Clause 8.1.1 shall be sealed in a separate envelope duly marking the envelope as "Techno-Commercial Bid – Physical Documents" The envelopes shall then be sealed in an outer envelope.	
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)
Page 21 of 40		

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
15.1.2	The inner and outer envelopes shall: (a) be addressed to the Employer at the address given in the Bid Data Sheet (BDS), and (b) bear the Package name indicated in the Bid Data Sheet (BDS), the Invitation for Bids number indicated in the Bid Data Sheet (BDS), and the statement "DO NOT OPEN BEFORE [date]," to be completed with the time and date specified in the Bid Data Sheet (BDS), pursuant to ITB clause 16 i.e. 'Deadline for Submission of Bids'.
15.1.3	The inner envelopes shall also indicate the name and address of the Bidder.
15.1.4	If the outer envelope is not sealed and marked in the manner specified above, the Employer will assume no responsibility for its misplacement.
16.0	Deadline for Submission of Bids
16.1	Bids (both Techno-Commercial and Price) must be submitted online at e-tender portal not later than the time and date stated in the e-Tender Portal.
16.2	The physical documents in line with ITB Clause 8.1.1 shall be submitted before stipulated bid submission time at the address specified in BDS and Employer shall not be liable for loss/non-receipt/late receipt of above documents in postal transit.
16.3	The Employer may, at its discretion, extend this deadline for submission of bids by amending the bidding documents in accordance with ITB Sub-Clause 6.0 i.e. 'Amendment to Bidding Documents', in which case all rights and obligations of Employer and Bidders will thereafter be subject to the deadline as extended.
17.0	Not used
18.0	Modification and Withdrawal of Bids
18.1	The bidder may withdraw or modify its bid after the bid submission as per provision available in the e-tender portal. However, no bid can be withdrawn or modified subsequent to the deadline prescribed for submission of bids. Bidder may modify and re-submit its bid prior to the deadline prescribed for submission of bids. However, if the bidder once withdraws its bids, it cannot be submitted again.
18.2	No bid may be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period specified in ITB Clause 13. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid security, pursuant to ITB Sub-Clause 12.8(a).
	E. Bid Opening and Evaluation
19.0	Opening of Bids
19.1	<u>Envelope-I (Techno-Commercial) Bid Opening</u>
19.1.1	The Employer will first open Techno-Commercial Bid online in the presence of bidders' representatives who choose to attend the opening at the time, on the date and at the place specified in the Bid Data Sheet (BDS). In the event of the specified date for the opening of
BIDDING DOCUMENT NO.: 9900325428 SECTION – II (ITB) Page 22 of 40	

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
	bids being declared a holiday for Employer, the bids will be opened at the appointed time on the next working day. All important information and other such details as Employer, at its discretion, may consider appropriate, will be announced at the opening.
19.1.2	In case requisite Bid Security pursuant to ITB Clause 12, Tender Fee as per clause 8.0, and/or Integrity Pact (IP) as per provision of Integrity Pact specified in ITB Clause 41.0 are not submitted before the stipulated bid submission closing date and time then Bid shall be rejected by the Employer as being non-responsive and shall not be opened.
19.2	<u>Envelope-II (Price) Bid Opening</u>
19.2.1	After the evaluation process of Techno-Commercial bid is completed, Employer will inform the eligible Bidders in writing regarding date, time and venue set for the opening of Price Bid. Bidders, whose Techno-Commercial Bid is not substantially responsive or does not meet the Qualification Requirements set forth in the bidding documents or who are debarred under Employer's Policy for Debarment from Business Dealings relating to some other tender/contract, shall also be informed in writing that their bid has been rejected and their bid security shall be returned, in accordance with ITB clause 12.6.
19.2.2	Price bids of those Bidders, who have been considered qualified and whose Techno-Commercial Bid found to be responsive, will be opened online in presence of the Bidder's authorised representatives who choose to attend. The Employer will open Price Bids at the time, on the date and at the place specified by the Employer. In the event of the specified date for the opening of bids being declared a holiday for the Employer, the bids will be opened at the appointed time on the next working day. All important information and other such details as the Employer, at its discretion, may consider appropriate, will be announced at the opening.
19.2.3	The participating bidders will be able to view the bid prices of all the bidders after online opening of Price Bids by Employer.
19.2.4	Reverse Auction Not Applicable
20.0	Clarification on Bids During bid evaluation, the Employer may, at its discretion, ask the Bidder for a clarification of its bid including documentary evidence pertaining to the reference plants declared in the bid for the purpose of meeting Qualifying Requirement specified in Bid Data Sheet. The request for clarification and the response shall be in writing, and no change in the price or substance of the bid including substitution of reference plants in the bid by new/additional plant for conforming to Qualifying Requirement shall be sought, offered or permitted.
21.0	PRELIMINARY EXAMINATION OF ENVELOPE-I (TECHNO-COMMERCIAL) BID
21.1	Employer will examine the bids to determine whether they are complete, whether required securities have been furnished, whether the documents have been properly signed and whether the bids are generally in order.
21.2	Prior to the detailed evaluation, EMPLOYER will initially determine whether each Techno-Commercial bid is of acceptable quality, is generally complete and is substantially
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 23 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
21.3	responsive to the bidding documents. For purposes of this determination, a substantially responsive bid is one that conforms to all the terms, conditions and specifications of the bidding documents without material deviations, objections, conditionalities or reservations. A material deviation, objection, conditionality or reservation is one (i) that affects in any substantial way the scope, quality or performance of the contract; (ii) that limits in any substantial way, inconsistent with the bidding documents, the Employer's rights or the successful Bidder's obligations under the contract; or (iii) whose rectification would unfairly affect the competitive position of other Bidders who are presenting substantially responsive bids. No deviation, whatsoever, is permitted by Employer to any provisions of Bidding Documents. The Bidders are advised that while making their Bid proposals and quoting prices, all conditions may appropriately be taken into consideration. Bidders shall certify their compliance to the complete Bidding Documents by accepting the following General Technical Evaluation (GTE) of the Tender at e-Tender portal: “Do you certify full compliance to all provisions of Bid documents?” Acceptance of above condition shall be considered as Bidder's confirmation that any deviation to any Provisions of the bidding documents found anywhere in their Bid Proposal, implicit or explicit, shall stand unconditionally withdrawn, without any cost implication whatsoever to the Employer, failing which the bid shall be rejected and bid security shall be forfeited. 21.3.1 The Employer may waive any minor informality, nonconformity or irregularity in a bid that does not constitute a material deviation. 21.4 The Employer's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence. If a bid is not substantially responsive, it will be rejected by Employer, and may not subsequently be made responsive by the Bidder by correction of the nonconformity. 22.0 QUALIFICATION 22.1 Bidders shall certify their compliance on "Qualifying Requirements" of Employer by accepting the following General Technical Evaluation (GTE) of the Tender at e-Tender portal: “Do you certify full compliance to all provisions of Bid documents?” Acceptance of above GTE shall be considered as bidder's confirmation to the following conditions: (a) The number of reference Plants/Orders quoted by Bidder in Attachment- 3A of the bid, for establishing compliance to the specified Qualifying Requirement (QR), are in accordance with the provision specified in Bid Data Sheet. (b) The reference Plants/ Orders/ declared, shall only be considered for evaluation/ establishing compliance to Qualifying Requirement (QR). Any reference Plants/Orders declared more than as specified in Bid Data Sheets shall not be considered for evaluation/establishing compliance to Qualifying Requirements.		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 24 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
22.2 22.3 22.4 23.0 23.1	(c) No change or substitution in respect of reference Plants/Orders for meeting the specified Qualifying Requirement (QR) shall be offered by the bidder. Bidders are required to furnish the details of the past experiences based on which selection is to be made as per format enclosed in the bidding documents for the same and enclose relevant documents like copies of authentic work order, completion certificate, agreements etc. supporting the details/data provided in the format. No claims without supporting documents shall be accepted in this regard. However, if any of the reference work pertains to the Contract(s)/Works executed by Bidder for EMPLOYER in the past then in respect of such Contract(s)/ Works Bidder shall not be required to enclose Client Certificate (s) along with its bid. The Employer will ascertain to its satisfaction whether bidders determined as having submitted responsive Techno-Commercial bids are qualified to satisfactorily perform the contract in terms of the qualifying requirements stipulated in the Bid Data Sheet (BDS). The determination will take into account the Bidder's financial, technical and production capabilities and past performance. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Sub-Clause 8.1.2 (a), as well as such other information as the Employer deems necessary and appropriate. Notwithstanding anything stated anywhere else in the bidding documents, Employer reserves the right to seek in writing information relating to qualifying requirements in addition to details contained in the bid. The bidder shall furnish required information promptly to the Employer. A negative determination will result in rejection of the Bidder's Techno- Commercial Bid in which event Employer will not open the Price Bid of the concerned bidder and his bid security shall be returned in accordance with ITB clause 12.6. The capabilities of the vendors and subcontractors, proposed in relevant attachment, will also be evaluated for acceptability. Should a vendor or sub-contractor be determined to be unacceptable, the bid will not be rejected, but the Bidder will be required to substitute an acceptable vendor or sub-contractor without any change in the bid price quoted in Price Proposal, prior to award. EVALUATION OF ENVELOPE-I (TECHNO-COMMERCIAL) BIDS The Employer will carry out a detailed evaluation of the Techno-Commercial bids in order to determine whether the technical aspects are in accordance with the requirements set forth in the bidding documents. In order to reach such a determination, the Employer will examine and compare the technical aspects of the bids on the basis of the information supplied by the bidders, taking into account the following factors: (a) overall completeness and compliance with the Technical Specifications and Drawings; suitability of the facilities offered in relation to the environmental and climatic conditions prevailing at the site; and quality, function and operation of any process control concept included in the bid. The bid that does not meet minimum acceptable standards of completeness, consistency and detail will be rejected for non-responsiveness. (b) achievement of specified performance criteria by the facilities.		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 25 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)	
	(c) type, quantity and long-term availability of mandatory and recommended spare parts and maintenance services. (d) any other relevant factors, if any, listed in the Bid Data Sheets, or that the Employer deems necessary or prudent to take into consideration. (e) ~~Functional Guarantees~~ ~~Bidders shall submit declaration regarding functional guarantees (in relevant attachments) of the proposed facilities in response to the Technical Specifications. In case a minimum (or a maximum, as the case may be) level of functional guarantee is specified in the Technical Specifications for the bids to be considered responsive, bids offering plant and equipment with such functional guarantees less (or more) than the minimum (or maximum) specified may be rejected.~~ (f) Compliance with the time schedule as specified in the bidding documents. (g) ~~Demonstration Parameters~~ ~~Bidders shall state the demonstration parameters for the proposed facilities in response to the Technical Specifications. In case a minimum (or a maximum, as the case may be) level of parameters is specified in the Technical Specifications for the bids to be considered responsive, bids offering plant and equipment with such functional guarantees less (or more) than the minimum (or maximum) specified may be rejected.~~ Bidder may note that deviations, variations and additional conditions etc. found anywhere in the bid, shall not be given effect to in evaluation and it will be assumed that the Bidder complies with all the conditions of Bidding Documents. In case the Bidder refuses to withdraw deviations, implicit or explicit, found anywhere in the bid, without any financial implication whatsoever to the Employer, the bid shall be rejected and bid security shall be forfeited. 24.0 DELETED 25.0 DELETED 26.0 PRELIMINARY EXAMINATION OF ENVELOPE-II (PRICE) BID 26.1 After opening of Price bids, The Employer will examine the Price bids to determine whether they are complete, whether any computational errors have been made, and whether the bids are generally in order. 26.2 Arithmetical Correction ~~The Bidder shall complete the Attachments to Price envelope and the appropriate BOQ (excel sheet) along with Price Schedules furnished in the bidding documents as indicated therein, following the requirements of ITB Clauses 10 and 11. The quoted prices as per the BOQ sheet (excel sheet) shall be used for the purpose of evaluation & award. However, if there is discrepancy between the BOQ (Excel sheet) and 'Price break up in Price Schedule', the Price quoted in BOQ (excel sheet) shall prevail. The detailed price break-up of the BOQ in price schedule shall be corrected, if required, by the bidder to match the prices as per the BOQ sheet.~~ ~~If the Bidder does not accept such correction of errors, its bid will be rejected, and the bid~~	
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB)	Page 26 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
	~~security will be forfeited in accordance with ITB Sub-Clause 12.8.~~
26.3	Conversion to Single Currency To facilitate evaluation and comparison, the Employer will convert all bid prices, expressed in the amounts in various currencies in which the bid price is payable, to a single currency. The currency selected for converting bid prices to a common base for the purpose of evaluation, along with the type of transaction, source and date of the exchange rate to be used, is specified in the Bid Data Sheets.
27.0	EVALUATION OF ENVELOPE II (PRICE) BID
27.1	~~The comparison shall be of the EXW Price of Plant and Equipment including Type Test Charges and Mandatory Spares offered from within the Employer's country, such price to include all costs as well as duties and taxes paid or payable on components and raw materials incorporated or to be incorporated in the Plant and Equipment including Mandatory Spares, plus the cost of Local Transportation, Insurance Covers, all Installation Services and civil/ structural works required under the Contract, plus the Goods and Services Tax (GST) specified by the Bidder in its Bid (applicable on goods and services quoted in Schedules 2, 3 & 4).~~
	~~The Employer's comparison will also include the costs resulting from application of the evaluation procedures described in ITB Sub Clauses 25.3. However, the Price of recommended spare parts quoted in Price Schedule No. 6 shall not be considered for evaluation of Bids.~~
27.2	~~The Employer's evaluation of a bid will take into account the following:~~ ~~(i) The bid prices indicated in Price Schedules Nos. 2 through 4;~~ ~~(ii) Price Schedule No. 7~~ ~~(iii) The corrections pursuant to ITB sub-clause 26.2;~~ ~~(iv) Not used~~ ~~(v) Purchase preference pursuant to ITB Clause 28~~
27.3	~~Pursuant to ITB Sub-Clause 25.2, for the purposes of evaluation, the adjustment (if any) specified in the Bid Data Sheets (BDS) will be added to the bid price for each drop (or excess) in the responsive functional guarantees offered by the Bidder, below (or above) either a norm of 100 or the value committed in the responsive bid with the most performing functional guarantees, as specified in the Bid Data Sheets (BDS).~~ ~~The adjustment factors shall be converted to such currencies as specified in Bid Data Sheets (BDS).~~
27.3.1	~~Specific Additional Criteria: The relevant evaluation method, if any, shall be detailed in the Bid Data Sheets (BDS).~~
27.4	~~Any adjustments in price that result from the procedures indicated in ITB Sub-Clause 27.3 shall be added, for purposes of comparative evaluation only, to arrive at an "Evaluated Bid Price." Bid prices quoted by Bidders shall remain unaltered.~~
27.5	~~An illustrative method of evaluation as brought out above is explained below:~~ (INR) 1. Quoted Bid Price without taxes & duties
BIDDING DOCUMENT NO.: 9900325428 SECTION – II (ITB) Page 27 of 40	

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)																										
	<table><tr><td></td><td>~~(after considering arithmetical corrections)~~</td><td></td></tr><tr><td>(i)</td><td>Ex-works price including type test charges for equipment and mandatory spares (Schedule-2)</td><td>N1</td></tr><tr><td>(ii)</td><td>Price for inland transportation including inland transit insurance for equipment and mandatory spares (Schedule-3)</td><td>N2</td></tr><tr><td>(iii)</td><td>Price for Installation Services/ Civil Works/ Others (Schedule-4)</td><td>N3</td></tr><tr><td>(iv)</td><td>Total Price</td><td>N (N1+N2+N3)</td></tr><tr><td>~~-2-~~</td><td>~~Taxes & Duties (not included in 1 above)~~</td><td></td></tr><tr><td>~~-(i)~~</td><td>~~GST (on Schedule 2, 3 & 4) as quoted in Schedule-7~~</td><td>~~P~~</td></tr><tr><td>~~-3-~~</td><td>Evaluated Bid Price</td><td>FEP (N+P)</td></tr></table>				~~(after considering arithmetical corrections)~~		(i)	Ex-works price including type test charges for equipment and mandatory spares (Schedule-2)	N1	(ii)	Price for inland transportation including inland transit insurance for equipment and mandatory spares (Schedule-3)	N2	(iii)	Price for Installation Services/ Civil Works/ Others (Schedule-4)	N3	(iv)	Total Price	N (N1+N2+N3)	~~-2-~~	~~Taxes & Duties (not included in 1 above)~~		~~-(i)~~	~~GST (on Schedule 2, 3 & 4) as quoted in Schedule-7~~	~~P~~	~~-3-~~	Evaluated Bid Price	FEP (N+P)
	~~(after considering arithmetical corrections)~~																										
(i)	Ex-works price including type test charges for equipment and mandatory spares (Schedule-2)	N1																									
(ii)	Price for inland transportation including inland transit insurance for equipment and mandatory spares (Schedule-3)	N2																									
(iii)	Price for Installation Services/ Civil Works/ Others (Schedule-4)	N3																									
(iv)	Total Price	N (N1+N2+N3)																									
~~-2-~~	~~Taxes & Duties (not included in 1 above)~~																										
~~-(i)~~	~~GST (on Schedule 2, 3 & 4) as quoted in Schedule-7~~	~~P~~																									
~~-3-~~	Evaluated Bid Price	FEP (N+P)																									
28.0	~~Note: Aforesaid method of evaluation shall be equally applicable for all bidders.~~ PREFERENCE TO MAKE IN INDIA AND GRANTING OF PURCHASE PREFERENCE TO LOCAL SUPPLIERS Purchase preference shall be applicable as specified in Annexure-II to Section-III (Bid Data Sheet) of Bidding Documents.																										
29.0	Contacting the Employer																										
29.1	Subject to ITB Clause 20, no Bidder shall contact Employer on any matter relating to its bid, from the time of the opening of bids to the time the contract is awarded.																										
29.2	Any effort by a Bidder to influence Employer in bid evaluation, bid comparison or contract award decisions may result in rejection of the Bidder's bid.																										
	F. Award of Contract																										
30.0	Award Criteria																										
30.1	Subject to ITB Clause 31 (Employer's Right to Accept any Bid and to Reject any or all bids) and Employer's Policy for Debarment from Business Dealings, the Employer will award the Contract to the successful Bidder [whose Techno-Commercial bid has been determined to be substantially responsive and the bidder is determined to be qualified to perform the Contract satisfactorily and whose Price Bid is determined to be the lowest evaluated bid after the Reverse Auction Process (if applicable)] , as per methodology indicated in Annexure-II to BDS																										
	No contract shall be awarded to a bidder against whom a Debarment Order has been issued as per Employer's Debarment Policy.																										
30.2	The Bidder will be required to comply with all requirements of the Bidding Documents and subsequent amendments thereof, without any extra cost to the Employer, failing which his bid security will be forfeited.																										
30.3	~~Employer reserves the right to vary the quantity of any of the Spares and/or delete any item of Spares altogether at the time of Award of Contract. Further, NTPC may place the award for any mandatory spares with NOA/POs and/or within three years from the date of NOA/POs as per mutually agreed despatch schedule and as per the price quoted by the bidder in their bid in accordance with the relevant clauses.~~																										
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 28 of 40																								

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
30.4	The mode of contracting with the successful bidder will be as per stipulation outlined in GCC Clause 3.6 and briefly indicated below: the award shall be made as follows: ~~First Contract: For Ex Works (India) Supply of all Plant and Equipment (including Type Test Charges) and Mandatory Spares to be supplied from within the Employer's country.~~ ~~Second Contract: For providing all services excluding Civil Works i.e inland transportation for delivery at site, inland transit insurance, unloading, storage, handling at site, installation, insurance covers other than inland transit insurance, testing, commissioning and conducting Guarantee tests in respect of all the equipment's supplied under the 'First Contract' and all other services as specified in the Contract Documents.~~ ~~Third Contract: For Civil Works as specified in the Contract Documents.~~ ~~All the above Contracts will contain a cross fall breach clause specifying that breach of one Contract will constitute breach of the other Contracts which will confer a right on the Employer to terminate the other Contracts also at the risk and the cost of the Contractor.~~
31.0	Employer's Right to Accept Any Bid and to Reject Any or All Bids Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for Employer's action.
32.0	Notification of Award/Purchase Order
32.1	Prior to the expiration of the period of bid validity, the Employer will notify the successful Bidder in writing by registered letter or by email, that its bid has been. The notification of award/Purchase Order will constitute the formation of the contract. Upon the successful Bidder's furnishing of the performance securities of all the contracts, pursuant to ITB clause 34, EMPLOYER will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Sub-Clause 12.5.
33.0	Signing the Contract Agreement On receipt of Employer's notification that its bid has been accepted, bidder shall prepare and finalize the Contract Documents for signing of the formal Contract Agreement and shall enter into the Contract Agreement with the Employer, as per Proforma enclosed with the Bidding Documents, on non-judicial stamp paper of appropriate value within 28 days from the date of the Notification of Award/Purchase Order .
34.0	Performance Security
34.1	Within twenty-eight (28) days after receipt of the Notification of Award/Purchase Order, the successful Bidder shall furnish performance securities for ten (10%) of Contract Price for all the contracts and in the form provided in the section "Forms and Procedures" of the bidding documents.
BIDDING DOCUMENT NO.: 9900325428	
SECTION – II (ITB)	
Page 29 of 40	

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)	
34.2	In case Deed(s) of Joint Undertaking by the Contractor along with his associate(s)/collaborator(s)/Promoter(s) form part of the Contract, then, unconditional Bank Guarantee(s) from such associate(s) / collaborator(s)/ Promoter(s) towards faithful performance of the Deed(s) of Joint Undertaking for amount(s) specified in the Bid Data Sheets shall be furnished within twenty eight (28) days after Notification of Award/Purchase Order. These Bank Guarantees shall be furnished in the form provided in the section "Forms and Procedures" of the bidding documents and shall be valid till such period as specified in the corresponding format for Deed of Joint Undertaking.	
34.4	The Bank Guarantees submitted towards Performance Security shall be essentially from any of the Banks listed in Annexure-I to SCC. The Bank Guarantee submitted from within India towards Performance Security shall be issued on Non-Judicial Stamp Paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG is submitted or is to be acted upon or the rate prevailing in the State where the BG is executed whichever is higher. In case of guarantees issued by branches outside India for foreign banks, the bank guarantees shall be routed through the correspondent Bank in India for due verification of signatures of the executant and lodgement of claim. The BG issued by a Bank outside India also needs to bear Stamp Duty of appropriate value applicable to the place in NTPC where BG is to be submitted, the BG will be adjudicated from Collector of Stamps, within 3 months of arrival of BG in India and the expenses incurred in this regard shall be recovered from the Contractor.	
34.5	While issuing the physical BG, the Bidder's Bank shall also send electronic message to Employer's Beneficiary Bank whose details are provided in Bid Data Sheets (BDS) through secure SFMS (in case of BGs issued from within India) or SWIFT (in case of BGs issued from outside India). Performance Security/Security Deposit amount up to Rs. 1,00,000/- (Rupees One Lac only), must be submitted through Electronic Fund Transfer (EFT) only. In such cases the provisions pertaining to submission of e-BG/Bank Guarantee (BG)/ Insurance Surety Bond towards performance security will not be applicable. However, depositing of Performance Security/Security Deposit by deducting requisite percentage of amount from RA bills, if specified in the bidding documents, will be applicable. In addition, in case a contractor/its assignee/collaborator/associate/JV Partner (if applicable), chooses to submit BG against performance securities, such BG will be mandatorily submitted in the form of e-BG, and no physical BG will be accepted. However, in case a party is not able to submit the e-BG due to some practical difficulties or constraints, physical BG can also be accepted.	
34.6	Annulment of award Failure of the successful Bidder to comply with the requirements of ITB Clause 33 or Clause 34.0 shall constitute sufficient grounds for the annulment of the award and forfeiture of his bid security. G. Other Instructions	
35.0	Ineligibility for participation in re-tender/ future tenders	
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)
		Page 30 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
	<		

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
	i) “Corrupt practice” means the offering, giving, receiving or soliciting money or of anything of value to influence the action of a public official in the procurement process or in contract execution or outcome of the bidding process; ii) “Fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition; iii) “Anti-competitive practice”: any collusion, bid rigging or anti-competitive arrangement, or any other practice coming under the purview of The Competition Act, 2002, between two or more bidders, with or without the knowledge of the Employer, that may impair the transparency, fairness and the progress of the procurement process or to establish bid prices at artificial, non-competitive levels; iv) “Coercive practice”: harming or threatening to harm, persons or their property to influence their participation in the procurement process or affect the award or execution of a contract; v) “Obstructive practice”: materially impede the Employer’s investigation into allegations of one or more of the above mentioned prohibited practices either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements to investigators and/ or by threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or by impeding the Employer’s rights of audit or access to information. (b) will reject a proposal for award if it determines that the Bidder recommended for award has engaged in aforesaid practices in competing for the contract in question; (c) will declare a firm ineligible, for a period of time as specified in the policy for Debarment from Business Dealings, to be awarded a contract if it at any time determines that the firm has engaged in aforesaid practices in competing for or in executing a contract of the Employer. 37.2 Furthermore, Bidders shall be aware of the provision stated in GCC Sub-Clause 42.2. 38.0 Fraud Prevention Policy The Bidder along with its associate/collaborators/sub-contractors/sub-vendors/consultants/service providers shall strictly adhere to the Fraud Prevention Policy of Employer displayed on its tender website https://ntpc.tender.ntpc.co.in/ and shall immediately apprise Employer about any fraud or suspected fraud as soon as it comes to their notice. If in terms of above policy it is established that the bidder/his representatives have committed any fraud while competing for this contract then the bid security of the bidder shall be forfeited. Bidders shall certify their compliance on “Fraud Prevention Policy” of Employer by accepting the following GTE at the e-Tender Portal:
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 32 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)	
	“Do you certify full compliance to all provisions of Bid documents?” Acceptance of General Technical Evaluation (GTE) of the Tender at e-Tender Portal shall be considered as bidder's confirmation that they have read the contents of the Fraud Prevention Policy as displayed on tender website at https://ntpctender.ntpc.co.in/ under section 'policy docs' and undertake that they along with their associate/collaborator/ subcontractors / sub vendors / consultants / service providers shall strictly abide by the provisions of the Fraud Prevention Policy. 39.0 Deleted 40.0 Pre-Bid Conference The Bidder or his authorised representative (s) is invited to attend the pre-bid conference which will take place as per details stipulated in Bid Data Sheets. Bidders are advised to visit and examine the site prior to the pre-bid conference, regardless of their visit to site earlier. The purpose of the conference will be to clarify any issue regarding the Bidding Documents subsequent to Site visit by Bidder. The Bidder is requested to submit questions in writing at the e-Tender Portal or by email before and/or after the pre-bid conference to reach the Employer at the address indicated in BDS, not later than the date as specified at the e-Tender Portal. Employer's responses to the queries raised by the bidders shall be in the form of Clarification to the bidding documents, which will be uploaded / posted on the e-tender portal. Any queries submitted by Bidder after the specified last date shall not be responded to by Employer and the Bidder will be required to submit their bid based on the Bidding documents read in conjunction with Amendments/Clarifications/Errata thereof. Any modifications of the Bidding Documents which may become necessary as a result of the pre-bid conference shall be made by the Employer exclusively through an amendment to the bidding documents. Non-attendance at the pre-bid conference will not be a case for disqualification of a bidder. However, Bidder is expected to visit and examine the site to acquaint itself with the ground situations and attend the pre-bid conference subsequently. 41.0 Integrity Pact Bidders are required to unconditionally accept all the conditions of the "Integrity Pact (IP)" as per Attachment-17 to the Bidding Documents which has been pre-signed by the Employer. Bidders shall certify their compliance on "Integrity Pact" by accepting the following General Technical Evaluation (GTE) of the Tender at e-Tender Portal: “Do you certify full compliance to all provisions of Bid documents?” On Bidder's acceptance to the above GTE condition, Bidder confirms to have read, understood and unconditionally accept & commit to all the contents, terms, conditions and undertakings mentioned in the Integrity Pact which has been pre-signed by the Employer and enclosed with the Bidding Documents. Where the Joint Venture(s) / Consortium are	
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB)	Page 33 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)											
42.0	permitted to participate in the bid pursuant to ITB Clause 8.1.2(a), acceptance of above GTE by bidder shall mean that all the JV Partner(s)/ Consortium members have read, understood and unconditionally accept & commit to all the contents, terms, conditions and undertakings mentioned in the Integrity Pact which has been pre-signed by the Employer and enclosed with the Bidding Documents. On Acceptance of the above GTE, Integrity Pact shall be considered signed by the Bidder / JV Partner(s)/ Consortium members and the same shall come into force from the date of submission of bid. It may also be noted that subsequent to Employer’s evaluation of Bids, resulting into award of Contract to a particular Bidder, the Integrity Pact so submitted shall form an integral part of the Contract.											
	Independent External Monitors (IEMs) In respect of this package, the Independent External Monitors (IEMs) would be monitoring the bidding process and execution of contract to oversee implementation and effectiveness of the Integrity Pact Program. The Independent External Monitor(s) (IEMs) as mentioned at NTPC tender website (https://ntpctender.ntpc.co.in/) under Integrity Pact tab have been appointed by NTPC, in terms of Integrity Pact (IP) which forms parts of the NTPC Tenders/Contracts. This panel is authorized to examine /consider all references made to it under this tender. The bidder(s), in case of any dispute(s) / complaint(s) pertaining to this package may raise the issue either with the designated 'Nodal Officer' in NTPC or directly with the IEMs at following Address: “The IEMs' Secretariat, Contracts Services, 6th Floor, EOC, NTPC Limited, A-8A, Sector-24, Noida-201301 (UP).” The Independent External Monitors (IEMs) have the right to access without restriction to all Project documentations of the Employer including that provided by the Contractor. The Contractor will also grant the IEMs, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his Project Documentations. The same is applicable to Subcontractors. The IEMs are under contractual obligation to treat the information and documents of the Bidder / Contractor / Sub-Contractors/ JV partners/Consortium member with confidentiality. The Nodal Officer for necessary coordination with Independent External Monitors shall be as under: <table><tr><td>(i)</td><td>Concerned Group Head in : CC&M</td><td>if the issue pertains to awarding of Contract by CC&M</td></tr><tr><td>(ii)</td><td>Concerned Group Head of : C&M under respective CPG of USSC</td><td>if the issue pertains to awarding of Contract by USSC</td></tr><tr><td>(iii)</td><td>Concerned Head of : Department</td><td>if the issue pertains to other departments</td></tr></table>			(i)	Concerned Group Head in : CC&M	if the issue pertains to awarding of Contract by CC&M	(ii)	Concerned Group Head of : C&M under respective CPG of USSC	if the issue pertains to awarding of Contract by USSC	(iii)	Concerned Head of : Department	if the issue pertains to other departments
	(i)	Concerned Group Head in : CC&M	if the issue pertains to awarding of Contract by CC&M									
(ii)	Concerned Group Head of : C&M under respective CPG of USSC	if the issue pertains to awarding of Contract by USSC										
(iii)	Concerned Head of : Department	if the issue pertains to other departments										
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 34 of 40									

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
43.0 44.0 45.0	(iv) Head of Project/ Station : if the issue pertains to post-award execution or award of Contract by Project/ Station Deleted Policy for Debarment from Business Dealings The Employer has in place a Policy for Debarment from Business dealings displayed on the website www.ntpc.co.in / www.ntpctender.ntpc.co.in. The version of Policy presently applicable is mentioned in BDS. Bidder/Contractor may be debarred from Business dealings on account of any of the grounds and following the procedures as detailed in the said Policy for Debarment from Business Dealings. Bidders shall certify their compliance on "Policy for Debarment from Business Dealings" of Employer by accepting the following General Technical Evaluation (GTE) of the Tender at e-Tender Portal https://eprocurmentpc.nic.in/: “Do you certify full compliance to all provisions of Bid documents?” Acceptance of above GTE shall be considered as bidder's confirmation to the following conditions: (1) Bidder have read the contents of Debarment Policy (applicable version mentioned in BDS) displayed on the website www.ntpc.co.in / www.ntpctender.ntpc.co.in and agreed to abide by this policy. a) Bidder is not Banned/Blacklisted by Ministry of Power or Deptt. of Expenditure, Ministry of Finance as on date of submission of bid. b) Bidder have not employed any public servant dismissed/removed or person convicted for an offence involving corruption or abetment of such offences. c) Bidder's Director(s)/ Owner(s)/ Proprietor/ Partner(s) have not been convicted by any court of law for offences involving corrupt and fraudulent practices including moral turpitude in relation to business dealings with Government of India or NTPC or NTPC's group companies during the last five years. (2) Bidder further confirms as under: that if at any point subsequent to award of Contract, the declarations given above are found to be incorrect, NTPC Limited/ Employer shall have the full right to terminate the Contract and take any action as per applicable laws for breach of contract including forfeiture of Bid Security/Performance Bank Guarantee. Royalty The Bid Price shall be inclusive of any Royalties and/or Seigniorage Fee and/or Cess and/or other charges payable on the quarried or mined metal, minerals, or minor minerals, as the case may be, at the rate(s) prevailing as on seven (7) days prior to the date of Techno-commercial bid opening.
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 35 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
46.0 46.1 46.2 46.3 46.4	“Restrictions on procurement from a Bidder of a country which shares a land border with India” Any Bidder (including its Collaborator/Associate/DJU Partner/JV partner/Consortium Member/Assignee, wherever applicable) from a country which shares a land border with India will be eligible to bid in this tender only if bidder is registered with the Competent Authority as mentioned in Special Conditions of Contract (SCC). Any bidder having specified Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India, will be eligible to bid only if the bidder is registered with the competent authority as mentioned in Special Conditions of Contract (SCC). (Definition/Requirement of ToT shall be as specified in DOE OM Ref. No. F.7/10/2021-PPD(1) dated 23.02.2023, enclosed with SCC) Such registration should be valid for the entire period of bid validity or any extension thereof. However, in case the validity period of registration is less than bid validity period, the Bidder shall be required to submit the extension of the validity period of registration before the opening of price bids, failing which the bid shall be rejected. Further the successful bidder shall not be allowed to sub-contract services/works to any “Sub-contractor” from a country which shares a land border with India unless such Sub-contractor is registered with the competent Authority as mentioned in SCC. However, the said requirement of registration will not apply to bidders/sub-contractors from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. Bidders may apprise themselves of the updated lists of such countries available in the website of the Ministry of External Affairs. “Bidder” (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process. “Sub-contractor” (including the term ‘Sub-vendor’/Sub-supplier’ in certain contexts) means any person or firm or company, every artificial juridical person not falling in any of the descriptions of Sub-contractors stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process. “Bidders from a country which shares a land border with India” / “Sub-contractor from a country which shares a land border with India” / “Entity from a country which shares a land border with India” mentioned in para 46.1 mentioned above means; - An entity incorporated, established or registered in such a country; or - A subsidiary of an entity incorporated, established or registered in such a country; or - An entity substantially controlled through entities incorporated, established or registered in such a country; or - An entity whose beneficial owner is situated in such a country; or - An Indian (or other) agent of such an entity; or - A natural person who is a citizen of such a country; or
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB) Page 36 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)
46.5	g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above. The beneficial owner for the purpose of clause “46.4” above will be as under; a) In case of company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means. Explanation- i. “Controlling ownership interest” means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company; ii. “Control” shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholdings or management rights or shareholders agreements or voting agreements; b) In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership; c) In case of an unincorporated associations or body of individuals, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals; d) Where no natural person is identified under (a) or (b) or (c) above, the beneficial owner is the relevant natural person who holds the position of senior managing officials; e) In case of a trust, the identifications of beneficial owner(s) shall include identification of the author of trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
46.6	An Agent for the purpose of clause “46.4” is a person employed to do any act for another, or to represent another in dealings with third person. [Note: i. A person who procures and supplies finished goods from an entity from a country which shares a land border with India will, regardless of the nature of his legal or commercial relationship with the producer of the goods, be deemed to be an Agent. ii. However, a bidder who only procures raw material, components etc. from an entity from a country which shares a land border with India and then manufactures or converts them into other goods will not be treated as an Agent.]
46.7	Bidders shall certify their compliance to ITB Clause “Restrictions on procurement from a Bidder of a country which shares a land border with India” by accepting the following General Technical Evaluation (GTE) of the Tender at e-Tender Portal: “Do you certify full compliance to all provisions of Bid documents?”
BIDDING DOCUMENT NO.: 9900325428	SECTION – II (ITB)
	Page 37 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
47.0	Acceptance of above attribute shall be considered as Bidder's confirmation that Bidder has read and understood the ITB Clause regarding "Restrictions on procurement from a Bidder of a country which shares a land border with India" and its bid is in compliance to this clause. In case it is established that Bidder has provided any false information in pursuance of the aforesaid ITB Clause, while competing for this contract, then its bid shall be rejected and bid security shall be forfeited. In case of a successful bidder, if it is established that the Bidder has not complied with terms of aforesaid ITB Clause, during execution of contract, this would be considered as fraudulent practices as mentioned in 5.1 (j) of "Policy for Debarment from Business Dealings" and shall be dealt accordingly.		
	ABAC (Anti-Bribery and Anti-Corruption) Policy The Bidder and its employees along with its Associate/ Collaborator/ Sub-Contractors / Sub-Vendors / Consultants / Service Providers and all other persons associated with business of Employer shall strictly adhere to Anti-Bribery and Anti-Corruption (ABAC) Policy of Employer displayed on tender website https://ntpctender.ntpc.co.in/. Bidders shall certify their compliance on "Anti-Bribery and Anti-Corruption (ABAC) Policy" of Employer by accepting the following GTE at the e-Tender Portal: "Do you certify full compliance to all provisions of Bid documents?" Acceptance of General Technical Evaluation (GTE) of the Tender at e-Tender Portal shall be considered as bidder's confirmation that they and their employees along with their associate / collaborator/ subcontractors / sub vendors / consultants / service providers shall strictly abide by "Anti-Bribery and Anti-Corruption (ABAC) Policy" of Employer as displayed on tender website at https://ntpctender.ntpc.co.in/ under section 'policy docs' and undertake that they represent and confirm that they are aware of, understand, and will comply with all applicable laws and regulations relating to anti- corruption and anti-bribery and the ABAC Policy of Employer.		
	48.0	CONFLICT OF INTEREST	
48.1	A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Employer's interests. A bidder may be considered to have a conflict of interest with one or more parties in the bidding process, if: a) they directly or indirectly control, are controlled by or are under common control of another entity; or b) they have the same legal representative/agent for purposes of their bids; or c) they have relationship with each other, directly or through common third party(ies), that puts them in a position to have access to information about or influence on the bid of another Bidder; or d) Bidder and/or any of its allied entity(ies), which directly or indirectly control(s) or is(are) controlled by or is(are) under common control of another entity, has(ve) participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the tender; or e) Bidder participates in more than one bid in this bidding process.		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 38 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
48.2	For the purposes of this clause the term 'control' shall have the following meaning: "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions exercisable by a person or persons acting individually or in concert, directly or indirectly, including by virtue of their shareholding or management rights or shareholders' agreements or voting agreements or in any other manner. Note: If two or more CPSEs/State PSEs participate in a tender, they will not be deemed to fall under the 'Conflict of Interest' provisions solely because they are under common control of Government of India / State Government. Bidders shall certify their compliance to ITB Clause "Conflict of Interest" by accepting the following General Technical Evaluation (GTE) of the Tender at eTender Portal: "Do you certify full compliance to all provisions of Bidding Document?" Acceptance of above GTE shall be considered as Bidder's confirmation that Bidder has read and understood the ITB Clause regarding "Conflict of Interest" and its bid is in compliance to this clause. In case it is established that Bidder has provided any false information in pursuance of the aforesaid ITB Clause, while competing for this contract, then its bid shall be rejected and bid security shall be forfeited. In case of a successful bidder, if it is established that the Bidder has not complied with terms of aforesaid ITB Clause, during execution of contract, this would be considered as fraudulent practices as mentioned in para 5.1 (j) of "Policy for Debarment from Business Dealings" and shall be dealt accordingly.		
49.0	Declaration regarding Insolvency, Bankruptcy and Liquidation The Bidder shall not be eligible for bidding, if the Bidder has become the subject of proceedings under any bankruptcy or insolvency laws either by way of voluntary insolvency initiation or upon a judicial order being passed to that effect, thereby admitting the Bidder to Corporate Insolvency Resolution Process (CIRP) or Liquidation proceedings under Insolvency and Bankruptcy Code, 2016 or has a receiver appointed over its properties under any law for the time being in force in accordance with the guidelines of the Reserve Bank of India issued under the Banking Regulation Act, 1949. The aforesaid ineligibility provision owing to the pendency of CIRP, Liquidation, appointed receiver shall also be applicable to any Associate, Collaborator, Technology Provider or Bidder's Parent/Holding/Subsidiary company from whom the Bidder has taken, or intends to take, technical and/or financial support for qualification in the bid. In case of a Foreign Company who is participating either as a Bidder or an Associate, Collaborator, Technology Provider which is undergoing insolvency, bankruptcy or liquidation proceedings, as per the extant laws of the respective jurisdiction, shall also not be eligible for bidding or associating or collaborating or providing Technology or partnership with the Bidder.		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 39 of 40

Clause No.	INSTRUCTIONS TO BIDDERS (ITB)		
	If, at the time of bid submission, any Bidder or its Associate, Collaborator, Technology Provider or Bidder's Parent/Holding/Subsidiary Company, from whom the Bidder has taken, or intends to take technical and/or financial support for qualification in the bid, was not undergoing CIRP, Liquidation, Bankruptcy or similar proceedings but subsequently during the period of evaluation of bids, including but not limited to technical, commercial and financial evaluation, or any time before the work is awarded, any such application is admitted by the Adjudicating Authority under the IBC, 2016 or any similar proceedings have started by any Judicial / Quasi-Judicial Body, the Bidder shall, with immediate effect, be considered as ineligible and his bid shall be rejected forthwith. An undertaking as per enclosed Proforma (Attachment-3L of Techno-commercial bid form, Section-VII) to the effect that the Bidder or its Associate, Collaborator, Technology Provider or Bidder's Parent/Holding/Subsidiary Company, from whom the Bidder has taken, or intends to take, technical and/or financial support for qualification in the bid, is not undergoing any Insolvency, Liquidation or Bankruptcy proceedings, shall be submitted by the Bidder along with its Techno-Commercial bid on the letter head of the Bidder duly signed by the authorized representative of the Bidder. Further, any Foreign Company which is acting as an Associate, Collaborator or Technology Provider, shall also submit an undertaking along with the Techno-Commercial bid of the Bidder that they are not undergoing insolvency, bankruptcy or liquidation as per the relevant laws of their respective jurisdiction. Further, the Bidder, from the submission of bid until the award of work, shall immediately inform the Employer of any proceedings / admission / orders passed for admitting the Bidder or any of its Associate, Collaborator or Technology Provider or Bidder's Parent/Holding/Subsidiary Company (from whom the Bidder has taken or intends to take technical and/ or financial support for qualification of bid) to CIRP by the Adjudicating Authority under IBC, 2016 or any similar proceedings under other applicable laws (in cases where IBC, 2016 is not applicable). Any suppression of such material facts or false declaration shall immediately render the Bidder liable for rejection of his bid, forfeiture of bid security/EMD and banning of business dealing as per terms and conditions of the Policy & Procedure for Debarment from Business Dealings. In case of non-submission of the Attachment / Declaration with authorized seal and signature, the bid shall not be entertained.		
BIDDING DOCUMENT NO.: 9900325428		SECTION – II (ITB)	Page 40 of 40

SECTION – III

BID DATA SHEET (BDS)

BDS Item No.	ITB Clause Ref., if any	DATA
SECTION - III BID DATA SHEET (BDS) The following bid specific data for the Plant & Equipment to be procured, shall amend and/or supplement the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in the ITB.		
1.0	ITB 1.1 and 2.2	A. INTRODUCTION Bidders are required to go through the Guidelines provided at following E-Tender Portal: https://eprocurementpc.nic.in/nicgep/app Name of the Package: Refer NIT/IFB Name and Address of Employer: Refer NIT/IFB
1.1		Name of the Project (where works to be executed):Refer NIT/ IFB
2.0	ITB 5.1	B. THE BIDDING DOCUMENTS Address of the Employer for Communication/Correspondence: Refer NIT/ IFB
3.0	ITB 8.1.1	C. PREPARATION OF BIDS EXCEPT FOR BID SECURITY IN THE FORM OF BANK GUARANTEE, FOR THE OTHER DOCUMENTS WHEREVER IT IS WRITTEN AS PHYSICAL / OFFLINE SUBMISSION OF DOCUMENT IT IS TO BE READ AS ONLINE SUBMISSION / UPLOAD OF THE DOCUMENT IN THE PRESCRIBED TENDER ID/ NIT NO.
4.0	ITB 8.1.2 (a)	Qualifying Requirements for Bidders : Applicable as Appendix-I to IFB
4.1		Bids not meeting the requirements as stated above shall be rejected. Wherever the bidder is seeking qualification on the strength of his Associate(s)/Collaborator(s), then in addition to filling his own details as per Attachment-3 of Section-VII, Part-1, bidder shall ensure that details as per Attachments 3(B) to 3(H) and 3(J) of Section-VII, Part 1 is filled-in for such Associate(s)/Collaborator(s) separately along with supporting documents to enable Employer to carry out
BIDDING DOCUMENT NO.: 9900325428		SECTION-III (BDS)
		PAGE 1 OF 12

BDS Item No.	ITB Clause Ref., if any	DATA
4.2.1		Capability and Capacity assessment (including Financial Capability) as stated in ITB Clause 8.1.2(a), if required by the Employer. The reference plants whose details have been declared as per the specified format in the relevant attachment [i.e. Attachment No.-3A] shall only be considered to ascertain the bidder's compliance to the specified Qualifying Requirement (QR). Bidders wishing to provide additional reference plants are required to declare the same in similar format which shall be additionally attached. However, bidders are not permitted to quote more than three times of the reference works/plants wherever specified in the Qualifying Requirements for this purpose. Bidders are required to furnish the details of past experience based on which selection is to be made as per format enclosed in the bidding documents and enclose relevant documents like copies of authentic work order, completion certificate, agreements etc. supporting the details/data provided in the format. No claims without supporting documents shall be accepted in this regard. However, if any of the reference work pertains to the Contract(s)/Works executed by Bidder for NTPC in the past then in respect of such Contract(s)/Works Bidder shall not be required to enclose Client Certificate(s) along with its bid. The Employer at its discretion may seek any clarification and/or documentary evidence only for the reference plants as mentioned above. However, no change or substitution of the reference plants as new/additional plant for conforming to the specified Qualifying Requirement shall be sought, offered or permitted.
4.2.2		~~After issuance of IFB/ NIT, Employer shall issue a communication separately to prospective bidders, who have been considered qualified meeting similar Technical QR in another tender in the past, stating that while submitting their bid, they are not required to submit the details/ documents pertaining to reference plants/ works/ past experiences in support of meeting Technical QR to the extent mentioned in the communication.~~ ~~In case the bidder who has been issued such communication from the Employer, intends to seek qualification under the same clause/ route (along with the same Associate/ Collaborator/ JV partner/ Consortium partner, if applicable) as mentioned in such communication, then such bidder shall not be required to submit details/ documents pertaining to reference plants / works / past~~

BDS Item No.	ITB Clause Ref., if any	DATA
4.2.3		~~experiences in support of meeting Technical QR while submitting their bid.~~ ~~Such bidder shall be required to declare in Appendix A to Attachment-3A (Attachment seeking Bidder's Technical Qualification Detail) that they have received communication from the Employer and are not required to submit details/ documents pertaining to reference plants/ works/ past experiences for meeting Technical QR.~~ ~~However, the bidder shall be required to submit any other details pertaining to Technical QR such as applicable Deed of Joint Undertakings/ Joint Venture Agreements/ Technology Transfer Agreements etc. (as applicable).~~ ~~In case such bidder, who has been issued above communication from Employer, wishes to seek qualification under a different clause/ route of QR and/ or with the support of a different Associate/ Collaborator/ JV partner/ consortium partner, then the bidder shall be required to Furnish the requisite details pertaining to reference plants/ works along With supporting documents as sought in the bidding documents. In such a case, communication issued by the Employer as mentioned above shall not be considered applicable. (as applicable).~~
4.2.4		All other bidders, who are required to submit the details of the past experiences, shall submit all the documents, in support of Technical Qualification Requirements (such as copy of Purchase Orders/ Work Orders/ Contract Agreements, Client Certificates etc.), duly certified and verified for authenticity from Independent Statutory Auditor of their Company or specified Third-Party Inspection Agency (TPIA). Further, wherever information can be drawn from books of accounts, records and other relevant documents, Bidders can also submit a certificate issued by their Independent Statutory Auditor certifying the data required for meeting the Technical Qualification Requirements. Such bidder shall be required to submit duly certified and verified documents from their Statutory Auditors or specified TPIA in support of meeting Technical QR along with a certificate regarding verification of authenticity of documents as per the format placed at Appendix-B to Attachment-3A (Undertaking from Statutory Auditor) and/ or Appendix-C to Attachment-3A (Undertaking from TPIA) of Book 1 of 2, Sec-VII. All the documents submitted by the bidder in support of meeting Technical QR shall be digitally signed by the Statutory Auditor and/ or specified TPIA.

BDS Item No.	ITB Clause Ref., if any	DATA
4.2.5		In case documents are certified & verified for authenticity through TPIA, the verification and certification of authenticity of documents is acceptable from any of the TPIAs as mentioned at NTPC tender website (https://ntpctender.ntpc.co.in/) under “Policy for Document Authentication Process in Tenders of NTPC Ltd” tab. However, Bidders must verify the accreditation validity of the designated TPIA before proceeding to engage them for document certification. The following website may be referred for contact details and accreditation validity of above mentioned TPIAs: https://nabcb.qci.org.in/inspection-body/ Any document pertaining to reference works/ plants in support of Technical QR, which is not certified by specified TPIA or Statutory Auditor of the bidder, as per the format enclosed with the bidding documents, shall not be considered verified/ certified for the purpose of evaluation, and the bid shall be liable for rejection.
4.2.6		The Bidder shall be responsible to get their documents/ credentials in support of Qualifying Requirements verified & certified by their Statutory Auditor(s) and/ or specified TPIAs. All the costs pertaining to third party verification and certification (including those by statutory auditors) shall be borne by the Bidder. Employer shall have no liability (financial or otherwise) towards the same and shall not be liable for any claim/ dispute between the bidder and TPIA and/ or Statutory Auditor.
4.2.6		The Employer also reserves the right to assess the capacity and capability of the bidder/ collaborator to satisfactorily execute the contract. Such assessment shall include but not limited to the evaluation of adequacy of facilities services, resources, design/engineering capacity & financial capability.
4.3	ITB 8.1.2(a)	Whether Joint Ventures are permitted : No Whether Associate/Collaborator permitted : Yes
4.4	ITB 8.1.2(g)	Attachment 8B: Functional Guarantees : Not Applicable / As per Technical Specifications.
4.5	ITB 8.1.2(p)	Attachment 17: Integrity Pact - Not applicable

BDS Item No.	ITB Clause Ref., if any	DATA
4.6	ITB 8.1.2(f)	Attachment 8A: Declaration on Demonstration Parameter: Not applicable
4.7	ITB 8.1.2(h)	Attachment 9: Erection Tools and Plant and Safety Equipments & Safety Personal Protective Equipment
5.0	ITB 10.3 & 10.4	Replace ITB Clause 10.3 & 10.4 as below: Schedule of Quantities/ Bill of Quantities shall be submitted as per the BOQ.XLS FILE- To be uploaded on-line in Finance Cover/Envelope). ~~2. In the Schedule of Items / Bill of Quantities (BOQ1 as indicated in BOQ.XLS file), the unit rates and total value have been provided by NTPC for all Items. The bidders have to quote 'Premium (%)' or 'Discount (%) in percentage (%age) and applicable % GST Rate over the total value on the price specified in the Schedule of Quantities (BOQ1).~~ ~~The 'Premium (%)' or 'Discount (%)' and %GST rate quoted by the bidders, shall only be considered, for the purpose of evaluation. If no value is mentioned in premium/discount cell, it will be considered that bidder is willing to quote its offer without any premium or discount over the rates mentioned in the bid and the same shall be applicable for that particular scheduled item.~~ ~~/~~ In the Schedule of Items / Bill of Quantities (BOQ as indicated in BOQ.XLS file), the bidders have to quote Item rate and % GST Rate. The item rate and %GST rate quoted by the bidders shall only be considered for the purpose of evaluation. 3. The GST Rate (applicable on the items of Works described in Schedule of Quantity) specified by the Bidder in BOQ.xls file of its Bid will be added to each Bidder's bid price to arrive Cost to Employer or an "Evaluated Bid Price". The rates/amount quoted in the Schedule of Quantities shall be inclusive of all other taxes, duties, levies, fees, royalty(if Applicable), etc. <i>The Bids shall be evaluated on Overall basis.</i> 4. Amount linked to Safety Aspects/ compliance to Safety Rules: Minimum Percentage:2% Bidders are advised to price their bids in such a manner that the component for 'Amount linked to Safety Aspects/ compliance to Safety Rules' should not be less than 2% of the cumulative total of Service Portion of the Contract, i.e. Civil + Installation/ Erection +

BDS Item No.	ITB Clause Ref., if any	DATA
5.1	ITB 10.7	Structural Works. Price variation is not applicable
6.0	ITB 12.1 & 12.2	(a) Amount of Bid Security: Refer NIT/ IFB NOTE: a.) BG/ISB submission/Online payment vide GePNIC portal is only acceptable against EMD /Bid security. b.) The Bank Guarantee for Bid Security shall be from a Bank as listed in Annexure-I to Bid Data Sheet of bidding documents. c.) For the Bid Security amount up to Rs. 1,00,000/- (Rupees One Lacs only), the Bidders must submit the Bid Security amount through Electronic Fund Transfer (EFT) only. D. SUBMISSION OF BIDS
7.0	ITB 15.1, 15.1.2 & 16.2	EMD/Bid Security to be furnished in physical form shall be addressed and submitted to address of the Employer for Communication/Correspondence as mentioned in NIT/IFB
8.0	ITB 16.1	Deadline for Bid Submission- as indicated at e-Tender Portal . E. BID OPENING AND EVALUATION
9.0	ITB 19.1	Location of Bid Opening Contract Services NTPC Limited Fifth Floor, Engineering Office Complex, Secunderabad - 500020 Date and Time for Techno-Commercial Bid Opening: Please refer e-Tender Portal. Date and Time of Opening of Price Bid: Shall be intimated separately by the Employer.
10.0	ITB 19.2.4	Whether Reverse Auction applicable : No
11.0	ITB 26.3	Currency chosen for : Indian Rupees purpose of evaluation

BDS Item No.	ITB Clause Ref., if any	DATA
13.0	ITB Clause 27 27.1 27.2.1 27.2.2 27.2.3 27.2.4	Replace ITB Clause 27 as below NIL After the evaluation process of Techno-Commercial bid is completed, Employer will inform in writing the eligible Bidders regarding date, time and venue set for the opening of Price Bid. Bidders, whose Techno-Commercial Bid is not substantially responsive or does not meet the Qualification Requirements set forth in the bidding documents, shall also be informed in writing and their bid will stand rejected and price bid shall not be opened. Price Proposals of those Bidders, whose Techno-Commercial Proposal found to be substantially responsive, will be opened in presence of the Bidder's authorised representatives (not exceeding two per Bidder) who choose to attend. All important information and any such other detail, as may be considered appropriate by the Employer will be read out during the bid opening. The Employer will determine whether the Price Proposals are complete, (i.e. whether they have taken into account cost of all services/items of the corresponding Techno-Commercial proposals, if not, the Employer will add cost of the same to the initial price) and correct any computational errors. Arithmetical errors in the Price Proposals will be rectified on the following basis: If on check there are found to be differences between the rates/prices given by the Bidder in words and figures or in the amount worked out by him in each section of the Schedule of Quantities and in the Grand Total of all the sections of Schedule of Quantities, the same shall be adjusted in accordance with the following rules: a) In the event of a discrepancy between description in words and figures in respect of item rates quoted by a Bidder, the description in words shall prevail. (b) In the event of an error occurring in the amount column of Schedule of Quantities as a result of wrong extension of the quantity and the unit rate, the unit rate shall be regarded as firm and extension shall be amended on the basis of the unit rate. (c) All errors in totalling in the amount column and in carrying forward totals shall be corrected.

BDS Item No.	ITB Clause Ref., if any	DATA
		(d) The totals of various sections of Schedule of Quantities amended shall be carried over to the General Summary and the bid sum amended accordingly. The bid sum so altered shall, for the purpose of bid, be substituted for the sum originally bid and considered for evaluation and comparison of the bids and also for acceptance of the bid, instead of the original sum quoted by the Bidder.
	27.3	The evaluation shall be based on the evaluated cost of fulfilling the contract in compliance with all commercial, contractual and technical obligations under this Bidding Document. The Employer's evaluation of a bid will also take into account the GST specified by the Bidder in its Bid (applicable on the items of Works described in Schedule of Quantity), which will be added to each Bidder's bid price to arrive at an "Evaluated Bid Price".
14.0	ITB 34.1	Within twenty-eight (28) days after receipt of the Purchase Order/ Notification of Award, the successful Bidder shall furnish performance securities for Ten percent (10%) of Contract Price for all the contracts and in the form provided in the section "Forms and Procedures" of the bidding documents.
15.0	General	For Time to "Complete the facilities/Completion period" from the date of Purchase Order /Notification of Award: Refer SCC/
16.0	ITB 40.0	Address for pre-bid conference: Not Applicable ~~NTPC EOC Building~~ ~~Plot No A8A~~ ~~Sector 24 Noida, Uttar Pradesh~~ The pre-bid conference shall be held at Employer's address mentioned above on the date(s) specified in e Tender Portal.
17.0	ITB 41.0	Integrity Pact: NOT APPLICABLE
18.0	ITB 42.0	Independent External Monitors (IEM)s: NOT APPLICABLE
19.0	General	The instruments such as Letter of Undertakings, ~~Deeds of Joint Undertaking~~ etc. which are presently specified to be furnished on non-judicial stamp paper of appropriate/requisite value, shall be stamped as per Indian Stamp Act
20.0	ITB clause 44.0	The version of Policy for Debarment from Business dealings presently followed by NTPC is Rev.04
21.0		Splitting of contract: NOT APPLICABLE

BDS Item No.	ITB Clause Ref., if any	DATA
22.0		MSE Benefits: NOT APPLICABLE Evaluation: LUMPSUM <u>ANNEXURES ENCLOSED WITH BDS</u> Annexure-I : List of banks for Bank guarantee NTPC letter dated 03.09.2014 to SBI Annexure-II: Preference to Make in India and granting of purchase preference to local suppliers. Annexure-III: Format of Undertaking (To be sent by Issuing Bank through official email-ID) Annexure-IV: Not Used

**LIST OF BANKS ACCEPTABLE FOR SUBMISSION
OF BANK GUARANTEE FOR BID SECURITY**

A SCHEDULED PUBLIC SECTOR BANKS

- 1 Bank of Baroda
- 2 Bank of India
- 3 Bank of Maharashtra
- 4 Canara Bank
- 5 Central Bank of India
- 6 Indian Overseas Bank
- 7 Indian Bank
- 8 Punjab National Bank
- 9 Punjab & Sind Bank
- 10 State Bank of India
- 11 UCO Bank
- 12 Union Bank of India

B SCHEDULED PRIVATE BANKS (INDIAN BANKS)

- 1 Axis Bank Limited
- 2 Bandhan Bank Limited
- 3 CSB Bank Limited
- 4 City Union Bank Limited
- 5 DCB Bank Limited
- 6 Dhanlaxmi Bank Limited
- 7 Federal Bank Limited
- 8 HDFC Bank Limited
- 9 ICICI Bank Limited
- 10 IndusInd Bank Limited
- 11 IDFC FIRST Bank Limited
- 12 Jammu & Kashmir Bank Limited
- 13 Karnataka Bank Limited
- 14 Karur Vysya Bank Limited
- 15 Kotak Mahindra Bank Limited
- 16 Nainital Bank Limited
- 17 RBL Bank Limited
- 18 South Indian Bank Limited
- 19 Tamilnad Mercantile Bank Limited
- 20 Yes Bank Limited
- 21 IDBI Bank Limited

C SCHEDULED FOREIGN BANKS

- 1 AB Bank PLC
- 2 American Express Banking Corporation
- 3 Australia & Newzealand Banking Group Limited
- 4 Barclays Bank Plc
- 5 Bank of America
- 6 Bank of Bahrain & Kuwait B.S.C.

- 7 Bank of Ceylon
- 8 Bank of China Limited
- 9 Bank of Nova Scotia
- 10 BNP Paribas
- 11 Citi Bank NA
- 12 Cooperatieve Rabobank U.A./ Coöperatieve Centrale Raiffeisen-Boerenleenbank B.A.
- 13 Crédit Agricole Corporate and Investment Bank
- 14 CTBC Bank Co Ltd
- 15 DBS Bank India Limited (Subsidiary of DBS Bank Ltd.)
- 16 Deutsche Bank A.G.
- 17 Doha Bank Q.P.S.C
- 18 Emirates NBD Bank P.J.S.C.
- 19 First Abu Dhabi Bank PJSC
- 20 FirstRand Bank Ltd
- 21 Hong Kong and Shanghai Banking Corporation Limited
- 22 Industrial & Commercial Bank of China
- 23 Industrial Bank of Korea
- 24 J.P. Morgan Chase Bank N.A.
- 25 JSC VTB Bank
- 26 KEB Hana Bank
- 27 Kookmin Bank
- 28 Mashreqbank P.S.C.
- 29 Mizuho Bank Ltd
- 30 MUFG Bank, Ltd
- 31 NatWest Markets Plc
- 32 NongHyup Bank
- 33 PT Bank Maybank Indonesia TBK
- 34 Qatar National Bank (Q.P.S.C.)
- 35 Sberbank
- 36 SBM Bank (India) Limited (Subsidiary of SBM Group)
- 37 Shinhan Bank
- 38 Societe Generale
- 39 Sonali Bank PLC
- 40 Standard Chartered Bank
- 41 Sumitomo Mitsui Banking Corporation
- 42 United Overseas Bank Ltd
- 43 UBS AG
- 44 Woori Bank

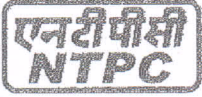
D SMALL FINANCE BANKS

- 1 AU Small Finance Bank Limited
- 2 Capital Small Finance Bank Limited
- 3 Equitas Small Finance Bank Limited
- 4 ESAF Small Finance Bank Limited
- 5 Suryoday Small Finance Bank Limited
- 6 Ujjivan Small Finance Bank Limited
- 7 Utkarsh Small Finance Bank Limited
- 8 North East Small Finance Bank Limited
- 9 Jana Small finance Bank Limited
- 10 Shivalik Small Finance Bank Limited

11 Unity Small Finance Bank Limited

Note - Any Addition/ Deletion/ Modification in Bank list shall be as per changes in Second Schedule List by RBI from time to time.

*** Bidder to take note of NTPC letter ref. NTPC/FC/CS/BG/01 dated 03.09.2014 and SBI letter ref. CAG-I/AMT-1/2014-15/370 dated 04.09.2014 attached herewith this Annexure-I to BDS.**



एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)

NTPC Limited
(A Govt. of India Enterprise)

केन्द्रीय कार्यालय/Corporate Centre

Date : 03rd September 2014

Ref. No.: NTPC/FC/CS/BG/01

Deputy General Manager,
State Bank of India,
CAG Branch,
12 th floor, Jawahar Vyapar Bhavan, 1, Tolstoy Marg,
New Delhi 110 001

Kind Atten: Sh. Sandeep Mishra

Sub: Format of the Bank Guarantee (BG) issued by State Bank of India – reg.

Dear Sir,

NTPC Limited is India's largest Power Company and a 'Maharatna PSU' with a significant presence in the entire value chain of power generation business. The procurement process of NTPC requires its participating Bidders to submit Bank Guarantees (BGs) as Bid security/other securities in a fixed format provided by NTPC.

It has been observed recently that BGs issued by various branches of State Bank of India are inserting the following additional clause.

QUOTE

Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this guarantee shall not be assignable or transferable by the beneficiary. Notice or invocation by any person such as assignee, transferee of agent of beneficiary shall not be entertained by the bank. Any invocation of guarantee can be made only by the beneficiary directly.

UNQUOTE

The inclusion of the aforesaid clause in the BGs restricts the rights of NTPC under the BG and it may not be possible for NTPC to accept the aforesaid clause in the BGs submitted to us by our Bidders. It may also be mentioned that incorporation of the above additional clause in the BG results in the BG being returned by NTPC and consequently rejection of the bids of parties that have submitted such BGs.

In view of the above, it is requested that please take up at appropriate levels so that suitable instructions are issued to all your branches not to incorporate any such additional clause and henceforth BGs may be issued strictly as per NTPC format only.

Kindly acknowledge the receipt of this letter

Yours faithfully,

(K.P.Gupta)
General Manager (Finance)

Copy for Kind information: ED(CC&M) for kind info of u.s.

एन टी पी सी भवन स्कोप कॉम्प्लेक्स, 7, इंस्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली-110003 टेल/Tel.: 24360100, फैक्स/Fax: 011-24361018
NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003, वेबसाइट/Website: www.ntpc.co.in



भारतीय स्टेट बैंक
State Bank of India

कॉरपोरेट लेखा समूह शाखा, जवाहर व्यापार भवन,
11-12 वां तल, 1, टॉलस्टोय मार्ग, नई दिल्ली-110 001

Corporate Accounts Group Branch, Jawahar Vyapar Bhawan,
11th & 12th Floor, 1, Tolstoy Marg, New Delhi-110 001

Tel. : 23374525, 23374505, 23374541 (AMT-1), 23353022 (DGM & COO), 23701043, 23359506 (A & A), 23352995 (CS), 23352968 (IB)
Fax : 23353101 (Sectt.), 23352793 (CS), 23353029 (IB)

Shri K.P. Gupta,
General Manager (Finance),
NTPC Limited
Scope Complex, 7, Institutional Area,
Lodhi Road,
New Delhi: 110 003.

CAG-I/AMT-1/2014-15/370

04.09.2014

Dear Sir,

Format of the Bank Guarantee (BG) issued by State Bank of India

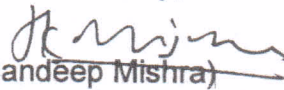
We refer to your letter dated 3rd September 2014 wherein you have requested for excluding bidders/vendors of NTPC from insertion of additional Clause restraining assignment/transferability of BG.

Looking at our relationship with NTPC, as a very special case, we have since obtained waiver from our Authorities for excluding NTPC from insertion of the referred clause for BGs issued in your favour.

We are taking steps to issue suitable instructions to our offices for exclusion of this clause for BGs issued in favour of NTPC. In case any bidder or vendor submits to you a Bank Guarantee issued by any of our Branches containing the additional clause as mentioned above, request you to please bring it to our notice and advise us so that we can take-up with the concerned Branch for excluding it.

This is for your information and necessary action please.

Yours faithfully,


(Sandeep Mishra)

Deputy General Manager &
Relationship Manager, AMT-1

Sub: Preference to Make In India and Eligibility for Participation/ granting of Purchase Preference to Class-I local suppliers- regarding

It is the policy of the Government of India to encourage 'Make in India' and promote manufacturing and production of Goods and Services in India with a view to enhancing income and employment. In this regard, the following guidelines, concerning the procedure to be adopted for granting Eligibility for Participation/purchase preference to local suppliers, are hereby issued:

1.0 Definitions:

- a) **'Local content'** means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the goods, services or works procured (excluding net domestic indirect taxes) minus the value of imported content in the goods, services or works (including all customs duties) as a proportion of the total value, in percent.
- b) **'Class-I local supplier'** means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed.
'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class-II local supplier' but less than that prescribed for 'Class-I local supplier'.
'Non-Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than that prescribed for 'Class-II local supplier'.
- c) **'L1'** means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.
- d) **'Margin of purchase preference'** means the maximum extent to which the evaluated bid price of a 'Class-I local supplier' may be above the L1 for the purpose of purchase preference.
- e) **Fraud Prevention Policy** – shall mean the policy related to prevention of fraud displayed on NTPC tender website <http://www.ntpctender.ntpc.co.in/>
- f) **Policy & Procedure for Debarment from Business Dealings** – shall mean the policy related to Debarment from Business Dealings forming part of Bidding Document.

1.1 Minimum Local Content

- 1.1.1 The local content requirement to categorize a Bidder/Supplier as 'Class-I local supplier' is minimum 50%. For 'Class-II local supplier', the 'local content' requirement is minimum 20%.

2.0 Eligibility for Participation:

Only Class-I and Class-II Local Suppliers are eligible to Bid. Bids received (if any) from Non-Local Supplier shall be out rightly rejected.

3.0 Purchase Preference:

3.1 Margin of Purchase Preference

The margin of purchase preference shall be 20%.

3.2 Purchase preference shall be given to 'Class-I local suppliers' as specified hereunder:

- (i) In all procurements where MSE benefits are not applicable and **which are not divisible in nature and the same has been specified in bidding documents**, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:
 - Among all qualified bids and substantially responsive bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract will be awarded to L1.
 - If L1 is not 'Class-I local supplier', the lowest evaluated bidder among the 'Class-I local supplier', will be invited to match the lowest evaluated bid (L1) price subject to Class-I local supplier's evaluated price falling within the margin of purchase preference, and the contract shall be awarded to such 'Class-I local supplier' subject to matching the lowest evaluated bid (L1) price.
 - In case such lowest eligible 'Class-I local supplier' fails to match the lowest evaluated bid (L1) price, the 'Class-I local supplier' with the next higher evaluated bid within the margin of purchase preference shall be invited to match the lowest evaluated bid (L1) price and so on and contract shall be awarded accordingly. In case none of the 'Class-I local supplier' within the margin of purchase preference matches the lowest evaluated bid (L1) price, the contract may be awarded to the L1 bidder.
- (ii) "Class-II local supplier" will not get purchase preference in any procurement, undertaken by NTPC.
- (iii) For the purpose of matching of lowest evaluated bid (L1) price, the Class-I local supplier would have to necessarily reduce all components of the quoted price on pro-rata basis. The reduction should not apply on the evaluation loading on account of functional guarantees and other loadings (if any, which are not dependent on quoted price). Further, the Contract shall be awarded on such revised/ reduced quoted price. The summation of the revised / reduced quoted price and the evaluation loading on account of functional guarantees and other loadings (if any) shall be equal to the lowest evaluated bid (L1) price.

4.0 Deleted

5.0 Verification of Local Content:

- 5.1 The 'Class-I local supplier'/ 'Class-II local supplier' shall be required to provide, in the Bid Form/relevant Attachment of Techno- Commercial Bid, self-certification / declaration that the Item offered meets the local content requirement for 'Class-I local supplier'/ 'Class-II local supplier' and shall give details of the location(s) at which the local value addition is made.

- 5.2 In case the total bid price of the supplier / bidder is in excess of INR 10 crore, the 'Class-I local supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content during execution prior to submission of last bill for payment.

In case aforesaid Certificate furnished by Contractor/Vendor is not in line with the declaration in respect of Local content in their bid, same shall be treated as false declaration.

- 5.3 Deleted

- 5.4 False declarations will be dealt in line with the Fraud Prevention Policy and Policy & Procedure for Debarment from Business Dealings of NTPC.

- 5.5 In case of false declaration / violation of the provision of PPP-MII Order, if a bidder has been debarred / banned by NTPC, then the fact and duration of debarment should be promptly brought to the notice of the Member-Convenor of the Standing Committee (as per para 16 of PPP-MII Order) and the Department of Expenditure through Ministry of Power, GOI.

- 5.6 A supplier who has been debarred / banned by any other procuring entity for violation of 'Public Procurement (Preference to Make In India), Order 2017' (PPP-MII Order) dated 15.06.2017 and its subsequent revisions / amendments issued by Department of Industrial Policy and Promotion (DIPP) shall not be eligible for evaluation/preference, as applicable[@], under the aforesaid procedures for duration of the debarment. The 'Class-I local supplier' shall be required to furnish a confirmation in this regard in the Bid Form/relevant Attachment of Techno-Commercial Bid.

[@] In case of debarment by NTPC- Such Supplier shall not be eligible for evaluation, in case of debarment by any other entity except NTPC Such Supplier shall not be eligible for preference.

6.0 Local Sourcing

- 6.1 The Bidder/its Sub-vendors must be Class-I local supplier for Item(s) mentioned at clause no. 18 of GTR in Technical Specifications, as applicable, in case such item(s) are Self Manufactured/Bought-out.
- 6.2 The Bidder / Contractor is requested to encourage and promote domestic manufacturing and production of goods and services by sourcing goods and services applicable under the contract / package from domestic suppliers / service providers. In this regard, Bidder shall also follow guidelines / advisory issued by Government of India from time to time, to the extent applicable to them, regarding promotion of local sourcing of goods including Bought out Items and services.

**Format of Undertaking
(To be sent by Issuing Bank through official email-ID)**

From: xxxbank@xx.in

To: xxx@ntpc.co.in

We have issued BG No. dated for an amount of Rs. on behalf of [Name of Bidder] towards Bid Security / EMD for Tender No. in favour of [Name of Employer].

Please find enclosed the soft copy of the Bank Guarantee and SFMS acknowledgement. This SFMS is sent on (date).

Any demand / claim made by the 'Employer' shall be conclusive and binding on us irrespective of any dispute or difference raised by the Bidder till the validity period mentioned in the Bank Guarantee.

However, in absence of the physical copy of aforementioned BG with the Employer, we undertake that Employer's demand / claim will be binding and conclusive on us without the physical copy of aforementioned BG till ten (10) days from the due date of submission of Techno-Commercial bids.

We undertake not to cancel the aforementioned BG No. without written consent / instruction from NTPC.

(Name of Bank Official)

Authority No.

NTPC LIMITED
(A Government of India Enterprise)



SECTION – IV
GENERAL CONDITIONS OF CONTRACT
(GCC)

Table of Contents

Sl. No. Description

A. Contract and Interpretation

1. Definitions
2. Contract Documents
3. Interpretation
4. Notices
5. Governing Law
6. Settlement of Disputes

B. Subject Matter of Contract

7. Scope of Facilities
8. Time for Commencement and Completion
9. Contractor's Responsibilities
10. Employer's Responsibilities

C. Payment

11. Contract Price
12. Terms of Payment
13. Securities
14. Taxes and Duties

D. Intellectual Property

15. Copyright
16. Confidential Information

E. Work Execution

17. Representatives
18. Work Program
19. Subcontracting
20. Design and Engineering
21. Procurement
22. Installation & Civil works
23. Test and Inspection
24. Completion of the Facilities
25. Commissioning, Guarantee Tests and Operational Acceptance

F. Guarantees and Liabilities

26. Completion Time Guarantee
27. Defect Liability
28. Functional Guarantees
29. Patent Indemnity
30. Limitation of Liability

G. Risk Distribution

- 31. Transfer of Ownership
- 32. Care of Facilities
- 33. Loss of or Damage to Property; Accident or Injury to Workers;
Indemnification
- 34. Insurance
- 35. Unforeseen Conditions
- 36. Change in Laws and Regulations
- 37. Force Majeure
- 38. War Risks

H. Change in Contract Elements

- 39. Change in the Facilities
- 40. Extension of Time for Completion
- 41. Suspension
- 42. Termination
- 43. Assignment

I. Other Conditions

- 44. Contractor Performance Feedback and Evaluation System
- 45. Fraud Prevention Policy
- 46. Debarment
- 47. Integrity Pact
- 48. Independent External Monitors
- 49. Contractor's Labor Information Management System
- 50. No Claim for interest or damage
- 51. Human Resources
- 52. Materials obtained from Excavation
- 53. Treasure, Trove, Fossils, etc
- 54. Protection of Trees
- 55. Security Watch and Lighting
- 56. Prevention of Pollution
- 57. Explosives
- 58. Royalty
- 59. Procedure for Contract Closing
- 60. Anti-Bribery and Anti-Corruption (ABAC) Policy

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)	
A. Contract and Interpretation			
1.	Definitions		
	1.1	The following words and expressions shall have the meanings hereby assigned to them: “Contract” means the Contract Agreement entered into between the Employer and the Contractor, together with the Contract Documents referred to therein; they shall constitute the Contract, and the term “the Contract” shall in all such documents be construed accordingly. “Contract Documents” means the documents listed in Article 1.1 (Contract Documents) of the Form of Contract Agreement (including any amendments thereto). “GCC” means the General Conditions of Contract hereof. “SCC” means the Special Conditions of Contract. “Day” means calendar day of the Gregorian Calendar. “Month” means calendar month of the Gregorian Calendar. “Employer” means the person named as such in the SCC and includes the legal successors or permitted assigns of the Employer. “Project Manager” means the person appointed by the Employer in the manner provided in GCC Sub-Clause 17.1 (Project Manager) hereof and named as such in the SCC to perform the duties delegated by the Employer. “Contractor” means the person(s) whose bid to perform the Contract has been accepted by the Employer and is named as such in the Contract Agreement, and includes the legal successors or permitted assigns of the Contractor. “Contractor’s Representative” means any person nominated by the Contractor and approved by the Employer in the manner provided in GCC Sub-Clause 17.2 (Contractor’s Representative and Construction Manager) hereof to perform the duties delegated by the Contractor. “Subcontractor/ Subvendor” means any person to whom execution of any part of the Facilities, including preparation of any design or supply of any Plant and Equipment, is sub-contracted directly or indirectly by the Contractor, and includes its legal successors or permitted assigns. “Contract Price” means the sum specified in Article 2.1 (Contract Price) of the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract. “Facilities” means the Plant and Equipment to be supplied and installed, as well as all the Installation Services and Civil Works to be carried out by the Contractor under the Contract. “Plant and Equipment” means permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided and incorporated in the Facilities by the Contractor under the Contract (including the spare parts to be supplied by the Contractor under GCC Sub-Clause 7.3 hereof), but does not include Contractor’s Equipment. “Installation Services” means all those services ancillary to the supply of the Plant and Equipment for the Facilities, to be provided by the Contractor under the Contract; e.g., transportation and provision of marine or other similar insurance, inspection, expediting, Site preparation works (including the provision and use of Contractor’s Equipment and the supply of all construction materials required), installation, testing, pre-commissioning, commissioning, operations & maintenance and all such services, acts, deeds and things required for achieving Completion of Facilities, the provision of operations and maintenance manuals, training of Employer’s Personnel etc.	
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)	PAGE 1 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	“Contractor’s Equipment” means all plant, facilities, equipment, machinery, tools, apparatus, appliances or things of every kind required in or for installation, completion and maintenance of Facilities that are to be provided by the Contractor, but does not include Plant and Equipment, or other things intended to form or forming part of the Facilities. “Site” means the land and other places upon which the Facilities are to be installed, and such other land or places as may be specified in the Contract as forming part of the Site. “Effective Date” means the date from which the Time for Completion shall be determined as stated in Article 3 (Effective Date for Determining Time for Completion) of the Form of Contract Agreement. “Time for Completion” means the time within which Completion of the Facilities as a whole (or of a part of the Facilities where a separate Time for Completion of such part has been prescribed) is to be attained in accordance with the stipulations in the SCC and the relevant provisions of the Contract. “Completion” means that the Facilities (or a specific part thereof where specific parts are specified in the SCC) have been completed operationally and structurally and put in a tight and clean condition, and that all work in respect of Pre-commissioning of the Facilities, or such specific part thereof has been completed; and Commissioning has been attained as per Technical Specifications. “Pre-commissioning” means the testing, checking and other requirements specified in the Technical Specifications that are to be carried out by the Contractor in preparation for Commissioning as provided in GCC Clause 24 (Completion) hereof. “Commissioning” means trial/initial operation of the Facilities or any part thereof by the Contractor, which operation is to be carried out by the Contractor as provided in GCC Sub-Clause 25.1 (Commissioning) hereof, for the purpose of carrying out Guarantee Test(s). “Guarantee Test(s)” means the test(s) specified in the Technical Specifications to be carried out to ascertain whether the Facilities or a specified part thereof is able to attain the Functional Guarantees specified in the Technical Specifications in accordance with the provisions of GCC Sub-Clause 25.2 (Guarantee Test) hereof. “Operational Acceptance” means the acceptance by the Employer of the Facilities (or any part of the Facilities where the Contract provides for acceptance of the Facilities in parts), which certifies the Contractor’s fulfilment of the Contract in respect of Functional Guarantees of the Facilities (or the relevant part thereof) in accordance with the provisions of GCC Clause 28 (Functional Guarantees) hereof and shall include deemed acceptance in accordance with GCC Clause 25 (Commissioning and Operational Acceptance) hereof. “Defect Liability Period” means the period of validity of the warranties given by the Contractor commencing at Completion of the Facilities or a part thereof, during which the Contractor is responsible for defects with respect to the Facilities (or the relevant part thereof) as provided in GCC Clause 27 (Defect Liability) hereof. “Goods and Services Tax” or “GST” means taxes levied under the Central Goods and Services Tax Act, Integrated Goods and Services Tax Act, Goods and Services Tax (Compensation to States) Act, and various State/Union Territory Goods and Services Tax Laws and applicable cesses, if any under the laws in force (hereinafter referred to as relevant GST Laws). Trial Operation - As defined in Technical Specification/Grid Code Commercial Operation Declaration - As defined in Technical Specification/Grid Code

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
	1.2	“Sub-contractor from a country which shares a land border with India” means; a) An entity incorporated, established or registered in such a country; or b) A subsidiary of an entity incorporated, established or registered in such a country; or c) An entity substantially controlled through entities incorporated, established or registered in such a country; or d) An entity whose beneficial owner is situated in such a country; or e) An Indian (or other) agent of such an entity; or f) A natural person who is a citizen of such a country; or g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above. The beneficial owner for the purpose of clause “1.2” above will be as under;
	1.2.1	a) In case of company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means. Explanation i. “Controlling ownership interest” means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company; ii. “Control” shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholdings or management rights or shareholders agreements or voting agreements; b) In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership; c) In case of an unincorporated associations or body of individuals, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals; d) Where no natural person is identified under (a) or (b) or (c) above, the beneficial owner is the relevant natural person who holds the position of senior managing officials; e) In case of a trust, the identifications of beneficial owner(s) shall include identification of the author of trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
	1.2.2	An Agent for the purpose of clause “1.2” is a person employed to do any act for another, or to represent another in dealings with third person: [Note: i. A person who procures and supplies finished goods from an entity from a country which shares a land border with India will, regardless of the nature of his legal or commercial relationship with the producer of the goods, be deemed to be an Agent. ii. However, a person who only procures raw material, components etc. from an entity from a country which shares a land border with India and then manufactures or converts them into other goods will not be treated as an Agent.]
2.	Contract Documents	
	2.1	Subject to Article 1.2 (Order of Precedence) of the Contract Agreement, all documents forming part of the Contract (and all parts thereof) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole.
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 3 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
	2.2	The Contract will be signed in three originals and the Contractor shall be provided with one signed original and the rest will be retained by the Employer.
	2.3	The Contractor shall provide free of cost to the Employer all the engineering data, drawing and descriptive materials submitted with the bid, in at least three (3) copies to form a part of the Contract immediately after Notification of Award.
	2.4	Subsequent to signing of the Contract, the Contractor at his own cost shall provide the Employer electronic version of the signed Contract Agreement on CD-ROM/ USB drive within thirty (30) days of its signing.
3.	Interpretation	
	3.1	Language
	3.1.1	Unless the Contractor is a national of the Employer's country and the Employer and the Contractor agree to use the local language, all Contract Documents, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be written in English, and the Contract shall be construed and interpreted in accordance with that language.
	3.1.2	If any of the Contract Documents, correspondence or communications are prepared in any language other than the governing language under GCC Sub-Clause 3.1.1 above, the English translation of such documents, correspondence or communications shall prevail in matters of interpretation.
	3.1.3	The English Translation of the documents shall be carried out by professional translators and the translator shall certify that he is proficient in both languages in order to translate the document and that the translation is complete and accurate. Further, translation shall be authenticated by the Indian Consulate located in the Country where the documents have been issued or the Embassy of that Country in India.
	3.2	Singular and Plural The singular shall include the plural and the plural the singular, except where the context otherwise requires.
	3.3	Headings The headings and marginal notes in the General Conditions of Contract are included for ease of reference, and shall neither constitute a part of the Contract nor affect its interpretation.
	3.4	Persons Words importing persons or parties shall include firms, corporations and government entities.
	3.5	Incoterms Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by Incoterms. Incoterms means international rules for interpreting trade terms published by the International Chamber of Commerce (latest edition), 38 Cours Albert 1er, 75008 Paris, France.
	3.6	Construction of the Contract

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
3.6.1	~~The Contracts to be entered into between the Employer and the successful bidder shall be as under:~~ ~~– First Contract: For Ex-Works (India) Supply of all Plant and Equipment (including Type Test Charges) and Mandatory Spares to be supplied from within the Employer's country.~~ ~~– Second Contract: For providing all services excluding Civil Works i.e, inland transportation for delivery at site, inland transit insurance, unloading, storage, handling at site, installation, insurance covers other than inland transit insurance, testing, commissioning and conducting Guarantee tests in respect of all the equipment's supplied under the 'First Contract', and all other services as specified in the Contract Documents.~~ ~~– Third Contract: For Civil Works as specified in the Contract Documents.~~
3.6.2	The award of separate Contracts shall not in any way dilute the responsibility of the Contractor for the successful completion of the Facilities as per Contract Documents and a breach in one Contract shall automatically be construed as a breach of the other Contract(s) which will confer a right on the Employer to terminate the other Contract(s) also at the risk and the cost of the Contractor.
3.7	Entire Agreement Subject to GCC Sub-Clause 16.4 hereof, the Contract constitutes the entire agreement between the Employer and Contractor with respect to the subject matter of Contract and supersedes all communications, negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract.
3.8	Amendment No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly states that it is an amendment to the Contract, and is signed by a duly authorized representative of each party hereto.
3.9	Independent Contractor The Contractor shall be an independent contractor performing the Contract. The Contract does not create any agency, partnership, joint venture or other joint relationship between the parties hereto. Subject to the provisions of the Contract, the Contractor shall be solely responsible for the manner in which the Contract is performed. All employees, representatives or Subcontractors engaged by the Contractor in connection with the performance of the Contract shall be under the complete control of the Contractor and shall not be deemed to be employees of the Employer, and nothing contained in the Contract or in any subcontract awarded by the Contractor shall be construed to create any contractual relationship between any such employees, representatives or Subcontractors and the Employer.
3.10	Joint Venture or Consortium If the Contractor is a joint venture or consortium of two or more firms, all such firms shall be jointly and severally bound to the Employer for the fulfilment of the provisions of the Contract and shall designate one of such firms to act as a leader with authority to bind the joint venture or consortium. The composition or the constitution of the joint venture or consortium shall not be altered without the prior consent of the Employer.
3.11	Non-Waiver 3.11.1 Subject to GCC Sub-Clause 3.11.2 below, no relaxation, forbearance, delay or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect or restrict the rights of that party under the Contract, nor shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		3.11.2 Any waiver of a party's rights, powers or remedies under the Contract must be in writing, must be express and dated and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.
	3.12	Severability If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.
	3.13	Country of Origin "Origin" means the place where the materials, equipment and other supplies for the Facilities are mined, grown, produced or manufactured, and from which the services are provided.
4.	Notices	
	4.1	Unless otherwise stated in the Contract, all notices to be given under the Contract shall be in writing, and shall be sent by personal delivery, airmail post, special courier, or e-mail to the address of the relevant party set out in the Contract Coordination Procedure to be finalised pursuant to GCC Sub-Clause 17.2.3.1, with the following provisions. 4.1.1 Any notice sent by airmail post or special courier shall be deemed (in the absence of evidence of earlier receipt) to have been delivered ten (10) days after despatch. In proving the fact of despatch, it shall be sufficient to show that the envelope containing such notice was properly addressed, stamped and conveyed to the postal authorities or courier service for transmission by airmail or special courier. 4.1.2 Any notice delivered personally or sent by e-mail shall be deemed to have been delivered on date of its despatch. 4.1.3 Either party may change its postal or e-mail address or addressee for receipt of such notices by ten (10) days' notice to the other party in writing.
	4.2	Notices shall be deemed to include any approvals, consents, instructions, orders and certificates to be given under the Contract.
5.	Governing Laws	
	5.1	The Contract shall be governed by and interpreted in accordance with laws in force in India. The Courts of Delhi shall have exclusive jurisdiction in all matters arising under the Contract.
6.	Settlement of Disputes	
	6.1	Mutual Consultation <i>If any dispute of any kind whatsoever shall arise between the Employer and the Contractor in connection with or arising out of the Contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, or the execution of the Facilities, whether during the progress of the Facilities or after their completion and whether before or after the termination, abandonment or breach of the Contract, the parties shall seek to resolve any such dispute or difference by mutual consultation.</i> <i>On reference of such a dispute by either party, the Employer shall invite the Contractor for mutual consultation, within seven (07) working days of such reference.</i> <i>Without admitting the Employer's liability, the Employer may obtain, within 30 days of such reference of the dispute, further details from the Contractor and examine it relating to the dispute. Such examination (if any) by the Employer shall not be construed as or imply acceptance of the claim or liability or accuracy or completeness of the details set forth in such request or reference. The Employer may hold discussions with Contractor with an effort to resolve the dispute.</i>
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 6 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
		<i>If the parties fail to resolve such a dispute or difference by mutual consultation within a period of forty-five (45) days from the date of receipt of reference of such dispute or within such extended period as the parties shall agree in writing, then the dispute may be settled through Independent Engineer (if applicable) and/ or Mediation through Independent External Monitors (if applicable) and/or through Conciliation and/or Arbitration (if applicable) / other remedies available under the applicable laws.</i> <i>Notwithstanding anything contained in any other law for the time being in force, the parties shall keep confidential all matters relating to the Mutual consultation proceedings. Confidentiality shall extend also to any agreement reached during Mutual consultation, except where its disclosure is necessary for purposes of implementation and enforcement.</i> <i>The parties shall not rely on or treat as evidence in Independent Engineer/ Mediation/ Conciliation/ and in any way Arbitral or Judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Mutual consultation proceedings-</i> <i>a) views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;</i> <i>b) admissions made by the other party in the course of the mutual consultation proceedings;</i> <i>c) the fact that the other party had indicated his willingness to accept a proposal for mutual settlement.</i>
	6.2	~~Resolution of Dispute through Independent Engineer (IE) (Applicable only for corporate packages of Hydro Projects and EPC/Main Plant/SG/STG/BoP Packages of thermal projects)~~ <i>If the parties fail to resolve the dispute or difference by mutual consultation within the period specified at Cl. 6.1 above, the dispute shall be referred to Independent Engineer (IE), as follows:</i> <i>I. Appointment, Selection and Removal of IEs/Experts:</i> <i>i) The Employer and Contractor shall jointly select only one Member for the Contract from the panel of Experts (for contracts of Hydro Projects), as enclosed in Special Conditions of Contract, as amended from time to time by Ministry of Power. For contracts of Thermal Projects, the Employer and Contractor shall jointly select only one Member for the Contract from the panel of Experts, to be notified by Ministry of Power, and communicated to Contractor by Employer.</i> <i>For the joint selection process, after the award of the contract, the Contractor shall shortlist at least 3 Experts from the 'Panel of Experts as Independent Engineer' and send to EMPLOYER who shall appoint one of them as 'Independent Engineer' for the Contract.</i> <i>The Expert would be designated as 'Independent Engineer' (IE) for the contract. Appointment of IE/ Expert shall be finalized within twenty-eight (28) days from award of Contract.</i> <i>ii) The initial term of appointment of IE would be for a period of five (5) years or contract period whichever is lesser and may be further renewed on a year-on year basis as may be mutually agreed between the Employer and the Contractor subject to the consent of IE and final approval by the Ministry of Power.</i> <i>iii) It will be mandatory for the IE to visit the site once in every two months to be constantly aware of the ongoing project activities and to have a fair idea of any situation that may lead to disagreement between the parties. Further, additional visits may also be undertaken as and when called upon to address issues of disagreements.</i> <i>iv) Employer or Contractor will not be able to change the IE in any case. In case of adverse finding about IE such as not performing duties or complaints of integrity, that Expert would be dropped by the Ministry from the panel itself and a new Expert would be selected by the Employer and Contractor jointly from the panel for performing the duties of IE.</i>
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC) PAGE 7 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	II. Standard Operating Procedure (SOPs) for Independent Engineer (IE) i) IE shall act as per the Standard Operating Procedures (SOPs) attached at Annexure-C. ii) Resolution by IE shall commence when the claimant Party submits detailed information as per Standard Format (for Disagreement Case filing attached as Annexure-D) to IE for intervention along with the necessary documentary evidences. Demand for IE intervention will not be admissible without initial documentary evidence. iii) Necessary information sought by IE during the course of investigation shall be provided in a time bound manner by both the Parties and non-compliance of the same shall lead to imposition of penalties, as specified in Special Conditions of Contract (SCC). iv) IE will examine the issue(s) raised by the Parties concerned as mentioned at point number (ii) above by conducting inspections involving field measurements as may be required to further investigate and to also conduct hearing/mediation with both the parties. v) Based on the preliminary hearing of the parties, IE shall prescribe resolution timeline depending upon the number and nature of disagreements subject to a maximum duration of thirty (30) days or within extended timeline under extraordinary circumstances and for reasons to be recorded in writing. vi) There shall not be any conflict of interest and it shall be ensured that IE should not have been engaged for providing any other services to any of the parties i.e. either Employer or Contractor in the last three years. An Undertaking in this regard shall be furnished by the Contractor for the purpose of avoiding any conflict of interest, at the time of bidding and finalization of IE/ Expert. vii) In the event of non-performance of obligations/services by the IEs at any time during the duration of its contract, the Employer and the Contractor, on mutually agreed basis, shall have the right and discretion to terminate IEs contract by giving a termination notice of thirty (30) days to IEs. viii) The role of 'Independent Engineer' under the Contract is an impartial and fair exercise, where the 'Independent Engineer' has to act as a neutral third-party facilitator. The decision of Independent Engineer shall not be binding on the parties unless the parties sign the written settlement agreement and the same is authenticated by IE. Such Settlement agreement would then be binding on the parties and both parties shall implement the same forthwith. III. Terms and Conditions for Payments to 'Independent Engineer' - i) Retainership Fee: A retainer fee, as specified in Special Conditions of Contract (SCC), for 'Independent Engineer for a specific project shall be considered as payment in full for: a. being available on a notice of 2 weeks for all site visits and hearings, b. becoming and remaining conversant with all the project developments and maintaining relevant files; c. compensating all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and The retainer fee of Experts, shall be increased annually by 10%. IE shall be eligible for maximum two retainer ship fee i.e. he can be engaged in maximum two CPSEs (CPSE shall include its JV/subsidiaries also). Further, IE can be engaged in maximum 02 contracts /packages in each CPSE. The duration of retainership shall be for such duration as may be mutually decided by the Employer and Contractor but shall not, in any case, extend beyond 3 months after the completion of works as per the contract. The retainership fee shall be shared by the Employer and the Contractor equally but shall initially be paid to the IE by the Employer.
BIDDING DOCUMENT NO.: 9900325428	SECTION – IV (GCC) PAGE 8 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	ii) <i>Site Visit Fee: A daily visiting fee, as specified in Special Conditions of Contract (SCC), to either project site or project office, anywhere in India, limited to a maximum of 10 days in a month for Expert, shall be paid for hearing, preparing reports etc. initially by the Employer. The daily visiting fee of Expert shall be increased on yearly basis @10%.</i> iii) <i>Reimbursement of travel, boarding/lodging expenses incurred by Independent Engineer: The travel, boarding/lodging expenses of the 'Independent Engineer', as per entitlement of Executive Director of Employer, would be made initially by the Employer. If any expert of 'Independent Engineer' does not receive payment of the amount due within 30 days after submitting claim, the expert shall be free to suspend his/her services without notice until the payment is received.</i> iv) <i>Meeting Expenses: All the payments for holding the meeting would be initially borne by the Employer and shall be shared equally by the Employer and Contractor.</i> v) <i>Sharing of Expenses on Independent Engineer: All the payments for holding the meeting, site visits, reimbursement of travel, boarding/lodging expenses and monthly compensation of Independent Engineer' shall be shared equally by both the parties i.e. Employer and Contractor.</i> vi) <i>The Employer shall maintain an account of all the expenses incurred by it on 'Independent Engineer'.</i> <i>Notwithstanding anything contained in any other law for the time being in force, the Independent Engineer and the parties shall keep confidential all matters relating to the Independent Engineer proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement.</i> <i>The parties shall not rely on or introduce as evidence in Mediation/ Conciliation/ Arbitral or Judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Independent Engineer proceedings, —</i> a) <i>views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;</i> b) <i>admissions made by the other party in the course of the Independent Engineer proceedings;</i> c) <i>proposals made by the Independent Engineer; and</i> d) <i>the fact that the other party had indicated his willingness to accept a proposal for settlement made by the Independent Engineer.</i>
6.3	<i>*Mediation through Independent External Monitors (IEMs) (Applicable only for tenders having Integrity Pact provisions)</i> <i>If the parties fail to resolve a dispute or difference by mutual consultation and through Independent Engineer (if applicable) within a period specified at Cl. 6.1 and 6.2 above, the dispute, if the parties agree, may be referred to the Panel of IEMs for Mediation.</i> <i>The Mediation proceedings shall be completed in a time bound manner, in not more than 45 days from the date of reference to IEMs for Mediation.</i> <i>The IEMs may conduct the Mediation proceedings in the manner, they consider appropriate. In case of 3-member Panel of IEMs, 2 members will constitute a valid quorum and the meeting can take place to proceed in the matter after seeking consent from the member who is not available. However, IEMs recommendations will be signed by all the members.</i> <i>The fees for such meetings shall be as specified in the SCC. The travel and stay arrangement for such meetings shall be equal to that of Independent Board Member of Employer's Organization. However, not more than five meetings shall be held for a particular dispute resolution. The fees/ expenses on dispute resolution shall be equally shared by both the parties.</i>

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<i>If decision of IEMs is acceptable to both the parties, a Settlement Agreement will be signed to the extent agreed by the parties within 15 days of acceptance by the parties and same shall be authenticated by all the IEMs.</i> <i>Notwithstanding anything contained in any other law for the time being in force, the Mediator and the parties shall keep confidential all matters relating to the Mediation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement.</i> <i>The parties shall not rely on or introduce as evidence in Conciliation or Arbitral or Judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Mediation proceedings, —</i> <i>views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;</i> <i>admissions made by the other party in the course of the Mediation proceedings;</i> <i>proposals made by the Mediator; and</i> <i>the fact that the other party had indicated his willingness to accept a proposal for settlement made by the Mediator.</i>
6.4	Resolution of Dispute through Conciliation <i>If the parties fail to resolve such a dispute or difference by mutual consultation and through Independent Engineer (if applicable) and/or through Mediation (if applicable) within a period as specified at Cl. 6.1, 6.2 and 6.3 above, the dispute if the parties agree, may be referred to Conciliation.</i> (i) <i>For cases where the disputed amount (Claim/ Counter claim, whichever is higher) is upto Rs. 25 Cr. (excluding interest), the matter for conciliation shall be referred to Expert Settlement Council (ESC), constituted by Employer</i> (ii) <i>For cases where the disputed amount (Claim/ Counter claim, whichever is higher) is above Rs. 25 Cr. (excluding interest), the matter for conciliation shall be referred to Conciliation Committee of Independent Experts (CCIE), constituted by Ministry of Power (MoP).</i> <i>If the claim/Counter-claim is in foreign currency, the SBI Bills Selling Exchange rate prevailing on the date of claim shall be used for the purpose of converting the claim in Indian Rupee.</i> <i>The Conciliation process shall be conducted as per Part III of the Arbitration and Conciliation Act, 1996.</i> 6.4.1. Resolution of Dispute through Expert Settlement Council (ESC), constituted by EMPLOYER {For cases with Disputed amount (Claim/ Counter claim, whichever is higher) upto Rs. 25 Crore excl. interest} <i>If the parties fail to resolve such a dispute or difference by mutual consultation and through Independent Engineer (if applicable) and/or through Mediation (if applicable) within a period specified at Cl. 6.1, 6.2 and 6.3 above, the dispute, if the parties agree, may be referred to Conciliation through Expert Settlement Council (ESC), in cases where the Disputed amount (Claim/ Counter claim, whichever is higher) is upto Rs.25 crore (excl. interest).</i> 6.4.1.1. Invitation for Conciliation through ESC: 6.4.1.1.1 <i>A party shall notify the other party in writing about such a dispute it wishes to refer for Conciliation through ESC within a period of 15 days from the date of failure to resolve the dispute through Mutual Consultation and Independent Engineer (if applicable) and/or through Mediation (if applicable) within a period as specified at Cl. 6.1, 6.2 and 6.3 above. Such Invitation for Conciliation shall contain sufficient information as to the</i>

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)																
		dispute to enable the other party to be fully informed as to the nature of the dispute, amount of the monetary claim, if any, and apparent cause of action. 6.4.1.1.2 Upon acceptance of the invitation to conciliate, the other party shall submit its counter claim, if any, within a period of 15 days from the date of the invitation to conciliate. If the other party rejects the invitation or Disputed amount (Claim/ Counter claim, whichever is higher) exceeds Rs 25 crore (excl. Interest), there will be no Conciliation proceedings through ESC. There shall be no Conciliation where disputed amount (Claim/ Counter claim, whichever is higher excl. interest) is only up to Rs 5 lakhs. 6.4.1.1.3 If the party initiating Conciliation does not receive a reply within fifteen (15) days from the date on which it sends the invitation, or within such other period of time as specified in the invitation, it shall treat this as a rejection of the invitation to conciliate from the other party. 6.4.1.2. Conciliation through ESC: 6.4.1.2.1. Where Invitation for Conciliation has been furnished under GCC sub clause 6.4.1.1, the parties shall attempt to settle such dispute through Expert Settlement Council (ESC) which shall be constituted by CMD/Chairman of Employer. 6.4.1.2.2. ESC will be formed from experts comprising three members from the panel of Conciliators maintained by EMPLOYER. However, there will be single member ESC for disputes involving disputed amount (Claim/ Counter claim, whichever is higher excl. interest) is up to Rs. 1 crore. CMD/ Chairman of Employer shall have the authority to reconstitute the ESC to fill any vacancy. 6.4.1.2.3. The ESC shall be amongst Civil Servants of Govt. of India retired from the level of Joint Secretary and above, Retired Judges, Officers retired from the level of Executive Director and above of any Maharatna /Navratna company in India, other than NTPC Ltd, Retired Independent Directors who have served on the Board of any Maharatna / Navratna company in India, other than NTPC Ltd. 6.4.1.3. Proceedings before ESC: 6.4.1.3.1. The claimant shall submit its Statement of Claims (SOC) along with relevant documents to ESC members, and to the party(s) indicated in the appointment letter within 15 days of appointment of ESC. The respondent shall file its reply/Statement of Defence (SOD) and counter claim (if any) within 15 days of the receipt of the Statement of claims. Each party shall send a copy of such Statement along with relevant documents to the other party. Parties may file their rejoinder/additional documents, if any in support of their Claim/Counterclaim within next 7 days. No documents shall be allowed thereafter, except with the permission of ESC. 6.4.1.3.2. The parties shall file their claim and counterclaim in the following format a. Chronology of the dispute b. Brief of the contract c. Brief history of the dispute d. Issues <table><tr><th>Sl. No.</th><th>Description of Claims/ Counter claims</th><th>Amount (in foreign currency/INR)</th><th>Relevant Contract Clause</th></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table> e. Details of Claim(s)/Counter Claim(s)	Sl. No.	Description of Claims/ Counter claims	Amount (in foreign currency/INR)	Relevant Contract Clause												
Sl. No.	Description of Claims/ Counter claims	Amount (in foreign currency/INR)	Relevant Contract Clause															
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)																
		PAGE 11 OF 73																

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)															
		<i>f. Basis/Ground of claim(s)/counter claim(s) (along with relevant clause of contract</i> <i>Note: Statement of claims shall be restricted to maximum limit of 20 pages.</i> 6.4.1.3.3. <i>In case of 3 members ESC, 2 members will constitute a valid quorum and the meeting can take place to proceed in the matter after seeking consent from the member who is not available. However, ESC recommendations will be signed by all the members.</i> <i>If required, meetings can be conducted through video conferencing/other digital means subject to the agreement between the parties and the ESC.</i> 6.4.1.3.4. <i>The parties shall be represented by their in house employees. No party shall be allowed to bring any advocate or outside consultant/advisor/agent to contest on their behalf. Ex-officers of Employer's Organization who have handled the subject matter in any capacity shall not be allowed to attend and present the case before ESC on behalf of contractor. However, ex-employees of parties may represent their respective organizations. Parties shall not claim any interest on claims/counter-claims from the date of notice invoking Conciliation till execution of settlement agreement, if so arrived. In case, parties are unable to reach a settlement, no interest shall be claimed by either party for the period from the date of notice invoking Conciliation till the date of ESC recommendations and 30 days thereafter in any further proceeding.</i> 6.4.1.3.5. <i>ESC will conclude its proceedings in maximum 5 meetings and give its recommendations within 90 days from the date of reference to ESC. ESC will give its recommendations to both the parties recommending possible terms of settlement. CMD/ Chairman of Employer may extend the time/number of meetings, in exceptional cases, if ESC requests for the same with sufficient reasons and as agreed by the parties.</i> 6.4.1.3.6. <i>Depending upon the location of ESC members and the parties, the venue of the ESC meeting shall be either Delhi/Mumbai/Kolkata/Chennai or any other city whichever is most economical from the point of view of travel and stay etc. All the expenditure incurred in ESC proceedings shall be shared by the parties in equal proportion.</i> 6.4.1.4. Fees & Facilities to the Members of the ESC <i>The cost of Conciliation proceedings including but not limited to fees for Conciliator, Airfare, Local transport, Accommodation, cost towards conference facility etc shall be as provided herein below:</i> <table><tr><th>Sl. No.</th><th>Fees/ Facility</th><th>Entitlement</th></tr><tr><td>1</td><td>Fees</td><td>Lumpsum fee of Rs. 2,50,000 per conciliator irrespective of the no. of meetings. *</td></tr><tr><td>2</td><td>Secretarial expenses</td><td>Rs. 10,000 lump sum (to 1 member only).</td></tr><tr><td>3</td><td>Transportation in the city of the meeting</td><td>Car as per entitlement or Rs. 2,000 per day</td></tr><tr><td>4</td><td>Venue for meeting</td><td>Employer's conference rooms</td></tr></table> <i>Facilities to be provided to the out-stationed member</i>	Sl. No.	Fees/ Facility	Entitlement	1	Fees	Lumpsum fee of Rs. 2,50,000 per conciliator irrespective of the no. of meetings. *	2	Secretarial expenses	Rs. 10,000 lump sum (to 1 member only).	3	Transportation in the city of the meeting	Car as per entitlement or Rs. 2,000 per day	4	Venue for meeting	Employer's conference rooms
Sl. No.	Fees/ Facility	Entitlement															
1	Fees	Lumpsum fee of Rs. 2,50,000 per conciliator irrespective of the no. of meetings. *															
2	Secretarial expenses	Rs. 10,000 lump sum (to 1 member only).															
3	Transportation in the city of the meeting	Car as per entitlement or Rs. 2,000 per day															
4	Venue for meeting	Employer's conference rooms															

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)		
		5	Travel from the city of residence to the city of meeting	As per entitlement of Independent Directors. Executive class air tickets / first class AC train tickets/ Luxury car/ reimbursement of actual fare. However, entitlement of air travel by Business class shall be subject to austerity measures, if any, ordered by Govt of India.
		6	Transport to and fro airport/ railway station in the city of residence	Car as per entitlement or Rs. 3,000
		7	Stay for out stationed members	As per entitlement of Independent Directors.
		8	Transport in the city of meeting	Car as per entitlement or Rs. 2000 per day
		<i>* Due to unavoidable circumstances, if there is requirement of more than 5 meeting to conclude the Conciliation proceedings, the same may be done at the discretion of ESC within the capping of fee of Rs 2.5 Lakhs per conciliator. However, logistic arrangements, including travel, etc. may be provided as per the extant Policy for such additional sittings.</i> <i>Aforesaid fees is subject to revision by Employer from time to time and subject to government guidelines on austerity measures, if any. All the expenditure incurred in the ESC proceedings shall be shared by the parties in equal proportions. The Parties shall maintain the account of expenditure and present to the other for the purpose of sharing on conclusion of the ESC proceedings.</i> 6.4.1.5. <i>If recommendations/ report of ESC is acceptable to both the parties, a Settlement Agreement under Section 73 of the Arbitration and Conciliation Act, 1996 will be signed to the extent agreed by the parties within 15 days of acceptance by the parties and same shall be authenticated by all the ESC members.</i> <i>Parties are free to terminate Conciliation proceedings at any stage as provided under the Arbitration and Conciliation Act 1996.</i> 6.4.1.6. <i>Notwithstanding anything contained in any other law for the time being in force, the Conciliator and the parties shall keep confidential all matters relating to the Conciliation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement.</i> <i>The parties shall not rely on or introduce as evidence in Arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Conciliation proceedings,—</i> <i>a) views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;</i> <i>b) admissions made by the other party in the course of the Conciliation proceedings;</i> <i>c) proposals made by the Conciliator; and</i> <i>d) the fact that the other party had indicated his willingness to accept a proposal for settlement made by the Conciliator.</i> 6.4.2. <i>Resolution of Dispute through Conciliation Committee of Independent Experts (CCIE), constituted by Ministry of Power (MoP) {For cases with Disputed amount (Claim/ Counter claim whichever is higher) above Rs. 25 Crore excl. interest}</i>		
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)		PAGE 13 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<i>If the parties fail to resolve such a dispute or difference by mutual consultation and through Independent Engineer (if applicable) and/or through Mediation (if applicable) within a period specified at Cl. 6.1, 6.2, 6.3 above, the dispute, if the parties agree, may be referred to Conciliation Committee of Independent Experts (CCIE), in cases where the Disputed amount (Claim/ Counter claim whichever is higher) is above Rs. 25 crore excl. interest.</i> 6.4.2.1. Invitation for Conciliation through CCIE: 6.4.2.1.1. <i>A party shall notify the other party in writing about such a dispute it wishes to refer for CCIE within a period of 15 days from the date of failure to resolve the dispute through Mutual Consultation and Independent Engineer (if applicable) and/or through Mediation (if applicable) within a period as specified at Cl. 6.1, 6.2 and 6.3 above. Such Invitation for Conciliation shall contain sufficient information as to the dispute to enable the other party to be fully informed as to the nature of the dispute, amount of the monetary claim, if any, and apparent cause of action.</i> 6.4.2.1.2. <i>If the party initiating Conciliation does not receive a reply within fifteen (15) days from the date on which it sends the invitation, or within such other period of time as specified in the invitation, it shall treat this as a rejection of the invitation to conciliate from the other party.</i> 6.4.2.2. Conciliation Committee of Independent Experts: <i>Where Invitation for Conciliation has been consented to under GCC sub clause 6.4.2.1, the same shall be referred to the Conciliation Committee of Independent Experts (CCIE) within 30 days.</i> <i>Conciliation Committees of Independent Experts (CCIE) have been constituted and notified by MoP for settlement of disputes arising in the Contract. There are three CCIEs, as specified in Special Conditions of Contract.</i> <i>The Contractor may select three CCIEs, in priority order, from the list of CCIEs enclosed with the Special Conditions of Contract, for finalization by Central Electricity Authority (CEA).</i> <i>There shall not be any conflict of interest for the members of the CCIE due to their past assignments. Individuals CCIE members shall submit an undertaking in this regard to the Employer, prior to appointment. It shall be ensured that they have not been engaged for providing any services to any of the parties i.e. either Employer or the Contractor in the last five years. An Undertaking in this regard, shall also be furnished by the Contractor for the purpose of avoiding any conflict of interest.</i> 6.4.2.3. Proceedings before CCIE: 6.4.2.3.1. <i>The procedure of CCIE shall not be treated as alternate arbitration proceedings where both parties come with Statement of claims/defence, arguments/counter arguments, rejoinders, written submissions etc., aided by their respective lawyers.</i> 6.4.2.3.2. <i>The parties shall be brief and to the point before the Committee with regard to their respective stance and view the exercise in the spirit of conciliation/settlement.</i> 6.4.2.3.3. <i>The possibility of non-availability of any one of the members of CCIE in any proceedings cannot be ruled out. As such, the Committee comprising the other two members shall be competent to proceed in the matter. The proceedings of the Committee shall not be vitiated if one of the three members of CCIE is not present in the deliberations of the Committee. When the parties sign the settlement agreement, at least two members of CCIE shall authenticate the same. Such conciliation proceedings shall be considered valid and the settlement agreement will be binding on the parties.</i> 6.4.2.3.4. <i>The parties shall be represented by their in house employees. No party shall be allowed to bring any advocate or outside consultant/advisor/agent to contest on their behalf. Ex-officers of Employer's Organization who have handled the subject matter in any capacity shall not be allowed to attend and present the case before CCIE on behalf of contractor. However, ex-employees of parties may represent their respective organizations.</i>
BIDDING DOCUMENT NO.: 9900325428	SECTION – IV (GCC) PAGE 14 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		6.4.2.3.5. <i>The Conciliation proceedings shall be completed in each case through 5 sittings in a period of not more than three months from the date the reference made to the CCIE. In exceptional cases, if any dispute so merits, the time period may be extended at the discretion of Conciliation Committee (with reasons to be recorded in writing), for a further period of three months.</i> 6.4.2.3.6. <i>The CCIE shall hold day to day sitting at a suitable place (preferably the headquarter of the Employer or New Delhi) and may hold as many sittings every month as it deems appropriate keeping in view the volume of work.</i> 6.4.2.4. Fees & Facilities to the Members of the CCIE <i>Each member of CCIE would be paid a sum of Rs. 50,000/- as sitting fee per sitting. In addition, Rs. 5,000/- per sitting will be paid for local transport charges for each day of proceeding.</i> <i>In case, a particular dispute requires more than 5 sittings, the same may be held at the discretion of the CCIE but with a cap on payment of fee for 5 sittings only. The local transport charges shall, however, be paid as provided for each day of sitting beyond the 5 sittings.</i> <i>All expenditure incurred on the conciliation proceedings including payment of fees to the Conciliators, office space, logistic, secretarial assistance and other incidental expenses etc. shall be borne by the Employer initially. Thereafter it shall be shared equally by both parties on completion of the conciliation process.</i> 6.4.2.5. The Parties shall maintain the account of expenditure and present to the other for the purpose of sharing on conclusion of the CCIE proceedings. <i>The Conciliation process shall be conducted under Part III of the Arbitration and Conciliation Act, 1996.</i> <i>In case of failure of the conciliation process at the level of the Conciliation Committee, the parties may withdraw from conciliation process and take recourse to remedies as may be available to them under the applicable laws other than Arbitration.</i> <i>In the event of the conciliation proceedings being successful, the parties to the dispute would sign the written settlement agreement and the conciliators would authenticate the same. Such settlement agreement would then be binding on the parties in terms of Section 73 of the Arbitration and Conciliation Act, 1996.</i> <i>After successful conclusion of proceedings, the Parties to the conciliation process, have to undertake and complete all necessary actions for implementation of the terms of settlement within a period of 30 days from execution of settlement agreement, unless a different timeline not exceeding 60 days is agreed upon in settlement agreement. All pending claims of parties, in connection with the dispute, before any other legal forum are to be withdrawn within the said 30 days in pursuance of the settlement agreement.</i> 6.4.2.6. Notwithstanding anything contained in any other law for the time being in force, the Conciliator and the parties shall keep confidential all matters relating to the Conciliation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement. <i>The parties shall not rely on or introduce as evidence in Arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Conciliation proceedings, —</i> a) <i>views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;</i> b) <i>admissions made by the other party in the course of the Conciliation proceedings;</i>
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 15 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
		c) proposals made by the Conciliator; and d) the fact that the other party had indicated his willingness to accept a proposal for settlement made by the Conciliator.
	6.5	Arbitration 6.5.1 <i>*If the process of mutual consultation and IE (if applicable) and/or Mediation (if applicable) and/or ESC fails to arrive at a settlement between the parties, Employer or the Contractor may, within Thirty (30) days of such failure, give notice to the other party, of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. The mechanism of settling the disputes through arbitration shall be applicable only in cases where the disputed amount (i.e. Claim/ Counter claim, whichever is higher, excluding interest) is less than Rs. 10 crores.</i> <i>If the claim/ counter claim is in foreign currency, the SBI Bills Selling Exchange rate prevailing on the date of claim shall be used for the purpose of converting the claim in Indian Rupee</i> <i>In case the disputed amount (Claim/ Counter claim, whichever is higher, excl. interest) is Rs. 10 Crores or above, the parties shall be within their rights to take recourse to remedies as may be available to them under the applicable laws other than Arbitration after prior intimation to the other party. There shall be no arbitration where the disputed amount (Claim/ counter claim, whichever is higher) is only up to Rs. 5 lakhs.</i> <i>The parties at the time of invocation of arbitration shall submit all the details of the claims and the counter-claims including the Heads/Sub-heads of the Claims/Counter-Claims and the documents relied upon by the parties for their respective claims and counter-claims. The parties shall not file any documents/details of the claims and counter-claims thereafter.</i> <i>The claims and the counter claims raised by the parties at the time of invocation of the arbitration shall be final and binding on the parties and no further change shall be allowed in the same at any stage during arbitration under any circumstances whatsoever.</i> <i>In case, multiple arbitrations are invoked (whether sub-judice or arbitral award passed) by any party under this contract, then the cumulative disputed amount (i.e. Claim/ Counter claim, whichever is higher, excluding interest) in all such arbitrations shall be taken into account while arriving at the total disputed amount for the subject contract. Disputes having cumulative value less than Rs 10 crores shall be resolved through arbitration. In case the disputed amount (Claim/Counter claim, whichever is higher, excluding interest) is Rs 10 crores and above, the parties shall be within their rights to take recourse to remedies as may be available to them under the applicable laws other than Arbitration after prior intimation to the other party.</i> 6.5.2 <i>Any dispute in respect of which a notice of intention to commence arbitration has been given, in accordance with GCC Sub Clause 6.5.1, shall be finally settled by arbitration.</i> 6.5.3 <i>It is agreed between the parties that the Arbitration proceedings shall be conducted as per the provisions of Fast Track Procedure as provided under The Arbitration and Conciliation Act, 1996, as amended from time to time.</i> <i>Any dispute or difference raised by a party to arbitration shall be adjudicated by an arbitral tribunal consisting of three arbitrators, in the following manner:</i> a) <i>A party willing to commence arbitration proceeding shall invoke Arbitration Clause by giving notice to the other party.</i> b) <i>The EMPLOYER and the Contractor shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator within 30 days, who shall act as presiding</i>
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC) PAGE 16 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	arbitrator of the arbitral tribunal. If the two arbitrators do not succeed in appointing a third arbitrator within 30 days of the latter of the two arbitrators has been appointed, the third arbitrator shall be appointed by the High Court of Delhi. c) If one party fails to appoint its arbitrator within 30 days after the other party has named its arbitrator, the party which has named its arbitrator may approach the High Court of Delhi to appoint the second arbitrator. d) If any member of the arbitral tribunal dies, resigns, becomes incapacitated or withdraws for any reason from the proceedings or his mandate is terminated by the Court, a substitute shall be appointed in the same manner as the arbitrator whose mandate has terminated as above. After substitution of new member, the arbitration tribunal shall proceed with reference from the stage where the mandate of the arbitrator has been terminated. e) Arbitrator tribunal shall be paid fees as per the Fee Schedule (presently Fourth Schedule) provided in 'The Arbitration and Conciliation Act, 1996' as amended from time to time. If the claim/ counter claim is in foreign currency, the SBI Bills Selling Exchange rate prevailing on the date of claim shall be used for the purpose of converting the claim in Indian Rupee which may be used for determining the arbitration fee. f) If after commencement of the Arbitration proceedings, the parties agree to settle the dispute mutually or refer the dispute to mediation or Conciliation, the arbitral tribunal shall put the proceedings in abeyance until such period as requested by the parties. Where the proceedings are put in abeyance or terminated on account of mutual settlement of dispute by the parties, the fees payable to the arbitrator shall be determined as under: (i) 40% of the fees if the Pleadings are complete. (ii) 60% of the fees if the Hearing has commenced. (iii) 80% of the fees if the Hearing is concluded but the Award is yet to be passed. g) Each party shall pay its share of arbitrator's fees in stages as under or as per the directions of Arbitrator: (i) 40 % of the fees on Completion of Pleadings. (ii) 40% of the fees on Conclusion of the Final Hearing. (iii) 20% at the time when arbitrator notifies the date of final award. h) The Claimant shall be responsible for making all necessary arrangements for the travel/ stay of the Arbitrator including venue of arbitration, hearings. The parties shall share the expenses for the same equally. i) The Arbitration shall be held at Delhi only. j) The arbitral tribunal shall give reasoned and speaking award in prompt manner and it shall be final and binding on the parties. k) Subject to the aforesaid conditions, provisions of the Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment thereof as amended from time to time, shall apply to the arbitration proceedings under this clause. 6.5.4 In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract (s) between Central Public Sector Enterprises (CPSEs)/ Port Trusts inter se and also between CPSEs and Government Departments/ Organizations (excluding disputes relating to Railways, Income Tax, Customs & Excise Departments), such disputes or difference shall be taken up by either party for resolution through Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD) as mentioned in DPE Office Memorandum No. 05/0003/2019-FTS-10937 dated 14.12.2022 issued by Department of

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		<i>Public Enterprises, Government of India and its further clarifications, modifications and amendments, issued from time to time.</i> <i>The limit on disputed amount as mentioned at clause 6.5.1 above shall not be applicable and matter may be referred to AMRCD irrespective of the amount involved in dispute, if the dispute could not be resolved through Mutual Consultation and IE (if applicable) as brought out at GCC Sub Clause 6.1 and 6.2 above.</i>
	6.6	<i>Notwithstanding any reference to the Independent Engineer or Mediation or Conciliation or Arbitration herein,</i> <i>a. the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree.</i> <i>b. the Employer shall pay the Contractor any monies due to the Contractor.</i> <i>Settlement of Dispute clause cannot be invoked by the Contractor, if the Contract has been mutually closed or 'No Demand Certificate' has been furnished by the Contractor or any Settlement Agreement has been signed between the Employer and the Contractor.</i>
		B. Subject Matter of Contract
7.		Scope Of Facilities
	7.1	Unless otherwise expressly limited in the Technical Specifications, the Contractor's obligations cover the provision of all Plant and Equipment including structural steel and the performance of all Installation Services and civil works, allied works etc. required for the design, the manufacture (including procurement, quality assurance, construction, installation, associated civil works, Pre-commissioning and delivery) of the Plant and Equipment and the installation, completion, commissioning and performance testing of the Facilities in accordance with the plans, procedures, specifications, drawings, codes and any other documents as specified in the Technical Specifications. Such specifications include, but are not limited to, the provision of supervision and engineering services; the supply of labour, materials, equipment, spare parts (as specified in GCC Sub-Clause 7.3 below) and accessories; Contractor's Equipment; construction utilities and supplies; temporary materials, structures and facilities; transportation (including, without limitation, unloading and hauling to, from and at the Site); and storage, except for those supplies, works and services that will be provided or performed by the Employer, as set forth in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement.
	7.2	The Contractor shall, unless specifically excluded in the Contract, perform all such work and/or supply all such items and materials not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Completion of the Facilities as if such work and/or items and materials were expressly mentioned in the Contract.
6.3	~~7.3~~	~~In addition to the supply of Mandatory Spare Parts included in the Contract, the Contractor agrees to supply spare parts required for the operation and maintenance of the Facilities. However, the identity, specifications and quantities of such spare parts and the terms and conditions relating to the supply thereof are to be agreed between the Employer and the Contractor, and the price of such spare parts shall be that given in Price Schedule No. 6, which shall be added to the Contract Price. The price of such spare parts shall include the purchase price therefor and other costs and expenses (including the Contractor's fees) relating to the supply of spare parts. Prices of recommended spares covered under price Schedule No. 6 shall be kept valid for a period of six (6) months after placement of Notification of Award for Main Equipment and Mandatory Spares.~~ ~~7.3.1 The Contractor agrees that the spare parts recommended by him for 3 years operation and quoted in Schedule No. 6 shall be supplied by him at the same terms and conditions as are otherwise applicable to this Contract. Further, the Contractor also agrees to supply spare~~

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		~~parts required for the operation and maintenance of the Facilities as per provision of subsequent paragraphs of this Sub-Clause.~~ ~~7.3.1.1 All the spares for the equipment under the Contract will strictly conform to the Specification and other relevant documents and will be identical to the corresponding main equipment/ components supplied under the Contract and shall be fully interchangeable.~~ ~~7.3.1.2 The mandatory spares covered under the Contract shall be produced in phased manner and the delivery would be completed by the respective dates as per the mutually agreed despatch schedule. In case of Recommended Spares the above will be applicable provided the order for the Recommended Spares have been placed with the Contractor prior to commencement of manufacture of the main equipment.~~ ~~7.3.1.3 The Contractor will provide the Employer with the manufacturing drawings, catalogues, assembly drawings and any other document required by the Employer so as to enable the Employer to identify the recommended spares. Such details will be furnished to the Employer as soon as they are prepared but in any case not later than six months prior to commencement of manufacture of the corresponding main equipment.~~ ~~7.3.1.4 To enable the Employer to finalise the requirement of recommended spares which are ordered subsequent to placement of order for main equipment/plant, in addition to necessary technical details, catalogue and such other information brought out herein above, the Contractor will also provide a justification in support of reasonableness of the quoted prices of spares which will, inter alia, include documentary evidence that the prices quoted by the Contractor to the Employer are not higher than those charged by him from other customers in the same period.~~ ~~7.3.1.5 In addition to the spares recommended by the Contractor, if the Employer further identifies certain items of spares, the Contractor will submit the prices and delivery quotation for such spares within thirty (30) days of receipt of such request with a validity period of six (6) months for consideration by the Employer and placement of order for additional spares if the Employer so desires.~~ ~~7.3.1.6 The quality plan and the inspection requirement finalised for the main equipment will also be applicable to the corresponding spares.~~ ~~7.3.1.7 The Contractor will provide the Employer with all the addresses and particulars of his sub-suppliers while placing the order on vendors for items/components/equipment covered under the Contract and will further ensure with his vendors that the Employer, if so desires, will have the right to place order for spares directly on them on mutually agreed terms based on offers of such vendors.~~ ~~7.3.1.8 The Contractor shall guarantee the long term availability of spares to the Employer for the full life of the equipment covered under the Contract. The Contractor shall guarantee that before going out of production of spare parts of the equipment covered under the Contract, he shall give the Employer at least 2 years advance notice so that the latter may order his bulk requirement of spares, if it so desires. The same provision will also be applicable to Sub-contractors. Further, in case of discontinuance of manufacture of any spares by the Contractor and/or his Sub-contractor, Contractor will provide the Employer, two years in advance, with full manufacturing drawings, material specification and technical information including information on alternative equivalent makes required by the Employer for the purpose of manufacture/procurement of such items.~~ ~~7.3.1.9 The prices of all future requirements of item of spares beyond 3 years operational requirement will be derived from the corresponding ex-works price at which the order for such spares have been placed by Employer as a part of mandatory spares or recommended spares, or from the rates of mandatory spares or recommended spares as quoted by/negotiated with the Contractor. Ex works order price of future spares shall be computed in accordance with the price adjustment provisions covered under the main Contract and there will be no ceiling on the amount of variation in the prices. The above option for procuring future recommended spares by the Employer shall remain valid for the period of 5 years from the date of Commissioning of the equipment.~~
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 19 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	~~7.3.1.10 The Contractor will indicate in advance the delivery period of the items of spares, which the Employer may procure in accordance with above sub clause. In case of emergency requirements of spares, the Contractor would make every effort to expedite the manufacture and delivery of such spares on the basis of mutually agreed time schedule.~~ ~~7.3.1.11 In case the Contractor fails to supply the mandatory, recommended spares or long term spares in the terms stipulated above, the Employer shall be entitled to purchase the same from the alternate sources at the risk and the cost of the Contractor and recover from the Contractor, the excess amount paid by the Employer over the rates worked on the above basis. In the event of such risk purchase by the Employer, the purchases will be as per the Works and Procurement Policy of the Employer prevalent at the time of such purchases and the Employer at his option may include a representative from the Contractor in finalising the purchases.~~ ~~7.3.1.12 It is expressly understood that the final settlement between the parties in terms of relevant clauses of the Contract Documents shall not relieve the Contractor of any of his obligations under the provision of long term availability of spares and such provisions shall continue to be enforced till the expiry of 5 years period reckoned from the scheduled date of Commissioning of the Plant and Equipment unless otherwise discharged expressly in writing by the Employer. Further, the provisions pertaining to long term availability of spares shall be extended beyond 5 years applicability period mentioned hereinabove if so desired by the Employer and at the mutually acceptable escalation formula.~~ ~~7.3.1.13 The Contractor shall warrant that all spares supplied will be new and in accordance with the Contract Documents and will be free from defects in design, material and workmanship and shall further guarantee as under:~~ ~~(i) For 3 years operational spares (both mandatory and recommended)~~ ~~a) For any item of spares ordered or to be ordered by the Employer for 3 years operational requirement of the plant which are manufactured as a continuous operation together with the corresponding main equipment/component, the Defect Liability Period will be twelve (12) months from the scheduled date of commercial operation of main equipment/plant under the Contract or 2 months from the date of Completion of Facilities whichever is earlier. 'Commercial Operation' shall mean the conditions of operation in which the complete equipment covered under the Contract is officially declared by the Employer to be available for continuous operation at different loads up to and including rated capacity. Such declaration by the Employer, however, shall not relieve or prejudice the Contractor any of his obligations under the Contract. In case of any failure in the original component/ equipment due to faulty designs, materials and workmanship, the corresponding spare parts, if any, supplied will be replaced without any extra cost to the Employer unless a joint examination and analysis by the Employer and the Contractor of such spare parts prove that the defect found in the original part that failed, can safely be assumed not to be present in spare parts. Such replaced spare parts will have the same Defect Liability as applicable to the replacement made for the defective original part/component provided that such replacement for the original equipment and the spare replaced are again manufactured together. The discarded spare parts will become the property of the Contractor as soon as they have been replaced by the Contractor.~~ ~~b) For the item of spares ordered or to be ordered by the Employer for 3 years operational requirement of the plant, which with the written approval of the Employer, are not manufactured as a continuous operation will be warranted for 7000 hrs of trouble free operation if used within a period of eighteen (18) months reckoned from the date of delivery at site. However, if such spare parts are put to use after eighteen (18) months of the delivery at Site then the guarantee of such spares will stand valid till the expiry of thirty six (36) months from the scheduled date of Commissioning of equipment/plant covered under the contract~~

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		~~or 7000 hrs of trouble free operation after such spares are put in service, whichever is earlier.~~ (ii) ~~For long term requirement~~ ~~For item of spares that may be ordered by the Employer to cover requirements beyond 3 years of Initial Operation of the plant, the warranty will be till the expiry of 7000 hrs of trouble free operation if used within a period of eighteen (18) months from the date of delivery at site. For item of spares that may be used after eighteen (18) months from the date of delivery at site, the warranty period will be 12 months from the date they are put to use or 7000 hrs of trouble free operation, whichever is earlier. In any case the defect liability of spares will expire at the end of forty eight (48) months from the date of their receipt at site.~~ (iii) ~~The Defect Liability of spares covered in para (i) & (ii) above, that are not used within 18 months from the respective date of the delivery at Site will, however, be subject to condition that all such spares being stored/ maintained/ preserved in accordance with Contractor's standard recommended practice, if any, and the same has been furnished to the Employer.~~
8.	Time for Commencement and Completion	
	8.1	The Contractor shall commence work on the Facilities from the date of Notification of Award and without prejudice to GCC Sub-Clause 26.2 hereof, the Contractor shall thereafter proceed with the Facilities in accordance with the time schedule specified in Appendix 4 (Time Schedule) to the Contract Agreement.
	8.2	The Contractor shall attain Completion of the Facilities (or of a part where a separate time for Completion of such part is specified in the Contract) within the time stated in the SCC or within such extended time to which the Contractor shall be entitled under GCC Clause 40 (Extension of Time for Completion) hereof.
9.	Contractor's Responsibilities	
	9.1	The Contractor shall design, manufacture (including associated purchases and/or subcontracting), install and complete the Facilities with due care and diligence in accordance with the Contract.
	9.2	The Contractor confirms that it has entered into this Contract on the basis of a proper examination of the data relating to the Facilities provided by the Employer, and on the basis of information that the Contractor could have obtained from a visual inspection of the Site (if access thereto was available) and of other data readily available to it relating to the Facilities as at the date fifteen (15) days prior to deadline set for price bid submission. The Contractor acknowledges that any failure to acquaint itself with all such data and information shall not relieve its responsibility for properly estimating the difficulty or cost of successfully performing the Facilities.
	9.3	The Contractor shall acquire in its name all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located that are necessary for the performance of the Contract, including, without limitation, visas for the Contractor's and Subcontractor's personnel and entry permits for all imported Contractor's Equipment. The Contractor shall acquire all other permits, approvals and/or licenses that are not the responsibility of the Employer under GCC Sub-Clause 10.3 hereof and that are necessary for the performance of the Contract.
	9.4	The Contractor shall comply with all laws in force in the country where the Facilities are installed and where the Installation Services are carried out. The laws will include all national, provincial, municipal or other laws that affect the performance of the Contract and bind upon the Contractor. The Contractor shall indemnify and hold harmless the Employer from and against any and all liabilities, damages, claims, fines, penalties and expenses of whatever nature arising or resulting from the violation of such

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		laws by the Contractor or its personnel, including the Subcontractors and their personnel, but without prejudice to GCC Sub-Clause 10.1 hereof.
	9.5	Any Plant, Material and Services that will be incorporated in or be required for the Facilities and other supplies shall have their origin as specified under GCC Clause 3.13 (Country of Origin).
10.	Employer's Responsibilities	
	10.1	The Employer shall ensure the accuracy of all information and/or data to be supplied by the Employer as described in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract, except when otherwise expressly stated in the Contract.
	10.2	The Employer shall be responsible for acquiring and providing legal and physical possession of the Site and access thereto, and for providing possession of and access to all other areas reasonably required for the proper execution of the Contract, including all requisite rights of way, as specified in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement. The Employer shall give full possession of, and accord all rights of access thereto on or before the date(s) specified in Appendix 6. The Employer reserves the right to hand over the Site in parts progressively to the Contractor. The Contractor will be required to take possession of the Site without any undue delay and do work on the released fronts in parts without any reservation whatsoever.
	10.3	The Employer shall acquire and pay for all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located which such authorities or undertakings require the Employer to obtain them in the Employer's name, are necessary for the execution of the Contract (they include those required for the performance by both the Contractor and the Employer of their respective obligations under the Contract), including those specified in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement.
	10.4	If requested by the Contractor, the Employer shall use its best endeavours to assist the Contractor in obtaining in a timely and expeditious manner all permits, approvals and/or licenses necessary for the execution of the Contract from all local, state or national government authorities or public service undertakings that such authorities or undertakings require the Contractor or Subcontractors or the personnel of the Contractor or Subcontractors, as the case may be, to obtain.
	10.5	Unless otherwise specified in the Contract or agreed upon by the Employer and the Contractor, the Employer shall provide sufficient, properly qualified operating and maintenance personnel; shall supply and make available all raw materials, utilities, lubricants, chemicals, catalysts, other materials and facilities ; and shall perform all work and services of whatsoever nature, to enable the Contractor to properly carry out Pre-commissioning, Commissioning and Guarantee Tests, all in accordance with the provisions of Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement at or before the time specified in the program furnished by the Contractor under GCC Sub-Clause 18.2 (Program of Performance) hereof and in the manner thereupon specified or as otherwise agreed upon by the Employer and the Contractor.
	10.6	The Employer shall be responsible for the continued operation of the Facilities after Completion, in accordance with GCC Sub-Clause 24.8, and shall be responsible for facilitating the Guarantee Test(s) for the Facilities, in accordance with GCC Sub-Clause 25.2.
	10.7	All costs and expenses involved in the performance of the obligations under this GCC Clause 10 shall be the responsibility of the Employer, save those to be incurred by the Contractor with respect to the performance of Guarantee Tests, in accordance with GCC Sub-Clause 25.2.
C. Payment		
11.	Contract Price	

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
	11.1	The Contract Price shall be as specified in Article 2 (Contract Price and Terms of Payment) of the Form of Contract Agreement.
	11.2	The Contract Price shall be adjusted in accordance with provisions of Appendix-2 (Price Adjustment) to the Contract Agreement.
	11.3	Subject to GCC Sub-Clauses 9.2, 10.1 and 35 (Unforeseen Conditions) hereof, the Contractor shall be deemed to have satisfied itself as to the correctness and sufficiency of the Contract Price, which shall, except as otherwise provided for in the Contract, cover all its obligations under the Contract.
12.	Terms of Payment	
	12.1	The Contract Price shall be paid as specified in Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement. The procedures to be followed in making application for and processing payments shall be those outlined in the same Appendix 1.
	12.2	No payment made by the Employer herein shall be deemed to constitute acceptance by the Employer of the Facilities or any part(s) thereof.
	12.3	The currency or currencies in which payments are made to the Contractor under this Contract shall be specified in Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, subject to the general principle that payments will be made in the currency or currencies in which the Contract Price has been stated in the Contractor's bid.
	12.4	~~For payments related to Erection / Civil / Site Fabricated Structural works:~~ ~~A single designated ESCROW account shall be opened by the Contractor in any Scheduled Bank of India under intimation to Employer. All payments related to Erection / Civil / Site Fabricated Structural works by the Employer due under the contract to the Contractor shall be released into above mentioned ESCROW account set up as per the Tri-Partite Escrow Agreement between Employer, Contractor and Escrow Bank. The payment shall be disbursed in accordance with the mechanism set out in the Contract and Escrow Agreement. The purpose of the Escrow Account would be to ensure that payments received under the contract are solely used for implementation of the Contract. Under Tripartite Escrow Agreement, the Escrow Bank will agree to ensure that amounts received in the ESCROW Account are utilized for making payments only to suppliers of goods and services, statutory authorities, establishment expenses etc. as may be required in the performance of the contract.~~ ~~All expenses/charges for opening /operation (including Annual Fee) of the Escrow Account shall be paid by the Contractor.~~ ~~The draft agreement is annexed as Annexure-III to Appendix-1 to Form of Contract Agreement, Section-VII, Book 2 of 2 (Part-1), which shall be followed for executing Escrow Account Agreement.~~ ~~The Detailed Operative Procedure and Terms and Conditions of Escrow Account (Schedule III of draft agreement) shall be finalized between the Employer, Contractor and the Escrow Bank within 15 days of the placement of award.~~
13.	Securities	
	13.1	Issuance of Securities The Contractor shall provide the securities specified below in favour of the Employer at the times, and in the amount, manner and form specified below.
	13.2	Advance Payment Security ~~13.2.1 The Contractor shall, within twenty eight (28) days of the Notification of Award of Contract, provide a security in an amount equal to the advance payment for supply of Plant & Equipment and 110% of the advance amount for Installation Services and Civil & Allied Works calculated in accordance with Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, and in the currency or currencies of the Contract, with an initial validity of up to ninety (90) days beyond the schedule date of Completion of the last facility covered under the package in accordance with GCC Clause 24. However, in case of delay in~~
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 23 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	~~completion of the facilities under the package, the validity of this security shall be extended by the period of such delay. The advance payment security shall also cover the amount of GST as applicable on the advance payment to be paid to the contractor.~~ ~~13.2.2 The security shall be in the form of an unconditional bank guarantee as per the proforma provided in Section VII (Forms and Procedures) Form of Advance Payment Security. The Advance payment Security shall be reduced pro-rata every three (3) months after First Running Account Bill/Stage Payment under the Contract based on the value of the respective equipment/facilities received and applicable GST. The cumulative amount of reduction at any point of time shall not exceed ninety (90%) of the advance and the amount of GST paid on the advance amount corresponding to cumulative value of the respective equipment/Facilities supplied and received as per certificate issued by the Project Manager. The balance shall be released upon release of respective milestone linked payments as identified in Appendix 1 of form of Contract Agreement. In case milestone payment is not envisaged in the package, the balance shall be released after Completion of those Facilities on certification by the Project Manager. It should be clearly understood that reduction in the value of security for advance shall not in any way dilute the Contractor's responsibility and liabilities under the Contract including in respect of the Facilities for which the reduction in the value of security is allowed.~~
13.3	Performance Security 13.3.1 The Contractor shall, within twenty-eight (28) days of the Notification of Award, provide securities for the due performance of the Contract for Ten Percent (10%) of Contract Price of all the Contracts, with an initial validity up to ninety (90) days beyond the end of scheduled Defect Liability Period of the last equipment covered under the Contract, which-ever is later. However, in case of delay in completion of the defect liability period, the validity of all the contract performance securities shall be extended by the period of such delay. 13.3.2 The performance security shall be denominated in the currency of the Contract and shall be in the form of unconditional bank guarantee provided in Section-VII (Forms and Procedures)-Form of Performance Security of the bidding documents. 13.3.3 Unless otherwise stipulated in SCC, the security shall be reduced pro rata to the Contract Price of a part of the Facilities for which a separate time for Completion is provided, twenty one (21) months after Completion of the Facilities or where relevant part thereof, or fifteen (15) months after Operational Acceptance of the Facilities (or the relevant part thereof), whichever occurs first; provided, however, that if the Defects Liability Period has been extended on any part of the Facilities pursuant to GCC Sub-Clause 27.8 hereof, the Contractor shall issue an additional security in an amount proportionate to the Contract Price of that part. The security shall be returned to the Contractor immediately after its expiration, provided, however, that if the Contractor, pursuant to GCC Sub-Clause 27.10, is liable for an extended warranty obligation, the performance security shall be extended for the period and up to the amount agreed upon or as specified in the SCC. 13.3.4 Whenever adjustments under Clause 39 [Change in the Facilities] result in an accumulative increase or decrease of the Contract Price by more than fifteen percent (15%) of the Contract Price stated in the Contract Agreement: (a) in the case of such an increase, at the Project Manager's request, the Contractor shall promptly increase the amount of the Performance Security in that currency by a percentage equal to the accumulative increase; or (b) in the case of such a decrease, subject to the Project Manager's prior consent the Contractor may decrease the amount of the Performance Security in that currency by a percentage equal to the accumulative decrease.
BIDDING DOCUMENT NO.: 9900325428	SECTION – IV (GCC) PAGE 24 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	13.4 Security for Deed of Joint Undertaking ~~In case Deed(s) of Joint Undertaking by the Contractor along with his Collaborator(s) / Associate(s) form part of the Contract, then, in addition to the Contract performance securities furnished by the Contractor, the Collaborator(s) / Associate(s) shall furnish, within twenty eight (28) days of the Notification of Award, separate unconditional Bank Guarantee(s)/ Insurance Surety Bond (s) towards faithful performance of the Deed(s) of Joint Undertaking for amount(s) specified in relevant Item of Bid Data Sheets and with validity till such period as specified in the corresponding format for Deed of Joint Undertaking. However, in case of delay in completion of defect liability period, the validity of Bank Guarantee(s) / Insurance Surety Bond (s) submitted towards faithful performance of Deed(s) of Joint Undertaking shall be extended by such period of delay.~~ 13.5 The Bank Guarantee(s)/ Insurance Surety Bond (s) shall be denominated in the currency or currencies of Contract and shall be as per the proforma provided in Section-VII (Forms and Procedures) - Form of Bank Guarantee to be furnished by Associate(s) / Collaborator(s). The Bank Guarantees submitted towards Advance Payment Security, Contract Performance Security and Security in compliance to the Deed of Joint Undertaking (if applicable) shall be essentially from any of the Banks listed at Annexure-I to Section-V (Special Conditions of Contract) of the bidding documents. In case of guarantees issued by branches outside India for foreign banks, the bank guarantees shall be routed through the correspondent Bank in India for due verification of signatures of the executant and lodgement of claim. The bank guarantee submitted from within India towards Advance Payment Security, Contract Performance Security and Security for Deed of Joint Undertaking (if applicable) shall be issued on a stamp paper of appropriate value as per stamp act prevailing in the State of the issuing Bank in India or the state of U.P. in India or the State from where the BG shall be operated, whichever is higher. 13.6 Where a BG issued by a Bank outside India also needs to bear Stamp Duty of appropriate value applicable to the place in NTPC / Employer where BG is to be submitted, the BG will be adjudicated from Collector of Stamps, within 3 months of arrival of BG in India and the expenses incurred in this regard shall be borne by the Contractor. 13.7 a) All physical BGs except BG issued by a Bank outside India and all Insurance Surety Bonds except those issued by an Indian Insurance company outside India, shall be received from issuing Bank/Insurance company directly through post/ courier, by Unified Treasury, Dadri at below mentioned address: Unified Treasury (BG Group) Administrative Building, NCPS, Dadri NTPC Limited, PO. Vidyut Nagar Distt: Gautam Budh Nagar, Uttar Pradesh- 201008 The Bank Guarantee/ Insurance Surety Bond shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). A physical BG issued by a Bank outside India and Insurance Surety Bond issued by an Indian Insurance company outside India need to be submitted by the Bidder directly to the employer as defined in BDS. The BG/ Insurance Surety Bond also needs to bear stamp duty of appropriate value as applicable. The BG/ Insurance Surety Bond may be got adjudicated by the employer from Collector of Stamps, within 3 months of arrival of BG/ Insurance Surety Bond in India. Expenses incurred in this regard shall be adjusted from the payment due to the contractor.

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
		b) A soft copy of the physical BG/ Insurance Surety Bond is mandatorily required to be mailed to Unified Treasury Group at ubg@ntpc.co.in by the issuing Bank/ Insurance company. c) Confirmation of physical BGs through Structured Financial Messaging System (SFMS)/SWIFT (Not applicable for E-BGs through NESL platform) While issuing the physical BGs, the Bidder's Bank shall also send electronic message through secure SFMS (in case of BGs issued from within India) or SWIFT (in case of BGs issued from outside India) to Employer's Beneficiary Bank whose details are provided herein below: (i) Bank Name: ICICI Bank Limited (ii) Branch: CONNAUGHT PLACE BRANCH (iii) Bank Address: 9A, PHELPS BUILDING, INNER CIRCLE, NEW DELHI- 110001 (iv) IFSC Code: ICIC0000007 BG issuing/amending bank must send the BG advice in the form of message format via SFMS (Structured Financial Messaging System) as provided by RBI. The format of the message for confirmation of the BG shall be as below: BG advising message: IFN 760COV/ IFN 767COV via SFMS Field Number: Particulars (to be mentioned in Row 1) 7037: NTPCBG (unique identifier) d) All Bank Guarantees/ Insurance Surety Bond should be enforceable for minimum ninety (90 days) after expiry of its validity. e) Minimum extension of any BG/ Insurance Surety Bond should be three months along with 90 days of claim period from the revised date of expiry. f) Performance Security/Security Deposit amount up to Rs. 1,00,000/- (Rupees One Lac only), must be submitted through Electronic Fund Transfer (EFT) only. In such cases the provisions pertaining to submission of Bank Guarantee (BG)/e-BG/Insurance Surety Bond towards performance security will not be applicable. However, depositing of Performance Security/Security Deposit by deducting requisite percentage of amount from RA bills, if specified in the bidding documents, will be applicable. In addition, in case a contractor/its assignee/collaborator/associate/JV Partner (if applicable), chooses to submit BG against performance securities/Advance, such BG will be mandatorily submitted in the form of e-BG, and no physical BG will be accepted. However, in case a party is not able to submit the e-BG due to some practical difficulties or constraints, physical BG can also be accepted.
14.	Taxes and Duties	
	14.1	Except as otherwise specifically provided in the Contract, the Contractor shall bear and pay all taxes, duties, levies and charges assessed on the Contractor, its Sub-contractor or their employees by all municipal, state or national government authorities in connection with the Facilities in and outside of the country where the Site is located.

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
14.2	Notwithstanding GCC Sub-Clauses 14.1 above, the Employer shall bear and pay/reimburse to the Contractor Goods and Services Tax (GST) applicable on: (a) Plant and Equipment (including Type Test Charges) and Mandatory Spares to be supplied from within the Employer's country specified in Price Schedule No. 2 (and also on locally supplied Recommended Spare Parts quoted in Price Schedule No. 6, when awarded) to be incorporated in the Facilities, by the law of country where the site is located, (b) local transportation & insurance, other local costs incidental to delivery of plant & equipment including mandatory spares specified in Price Schedule No. 3 (and also of locally supplied Recommended Spare Parts quoted in Price Schedule No. 6, when awarded) and (c) Installation Services including Erection, Civil & Allied Works and other services specified in Price Schedule No. 4. However, all other taxes, duties & levies as may be applicable on goods and services specified in Price Schedules Nos. 2, 3 & 4 and on the materials used for civil construction works and erection & commissioning shall be to the contractor's account and no separate claim in this regard will be entertained by the Employer. Notwithstanding anything to contrary contained in the Contract, the Contractor's right to payment under the Contract is subject to issuance of valid tax invoice, payment of applicable GST to the credit of appropriate Government and submission of valid particulars of tax invoice under GST returns in accordance with GST Law. The Contractor shall issue tax invoices, file appropriate returns, and deposit the applicable GST to the account of appropriate government within the time limit prescribed under the GST Law. In the event of any default, Contractor shall be liable to pay any penalty/demand raised on the Employer due to default by Contractor, and the same shall be recovered/Contractor shall make good the loss. The Contractor shall be responsible for the issuance of e-way bill and other compliances relating to e-way bill as per GST law. The Employer will deduct GST at source at the applicable rates in case transactions under the contract are liable to GST deduction at source as per the prevailing provisions of GST Law.
14.3	If any tax exemptions, reductions, allowances or privileges are available to the Contractor in the country where the Site is located, the Employer shall use its best endeavours to enable the Contractor to benefit from any such tax savings to the maximum allowable extent.
14.4	For the purpose of the Contract, it is agreed that the Contract Price specified in Article 2 (Contract Price and Terms of Payment) of the Contract Agreement is based on the taxes, duties, levies and charges prevailing on seven (7) days prior to the deadline set for price bid submission in the country where the Site is located (hereinafter called "Tax" in this GCC Sub-Clause 14.4). If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the performance of Contract, which was or will be assessed on the Contractor in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction therefrom, as the case may be, in accordance with GCC Clause 36 (Change in Laws and Regulations) hereof. However, these adjustments shall not be applicable on procurement of raw materials, intermediary components and intermediary services etc. by the Contractor.
14.5	If the Employer orders any spare at a later date as per GCC Cl 7.3, all applicable additional taxes & duties, If any, not included in the original price shall be to the account of Employer.
14.6	The Contractor will be required to submit PAN details to the Project Manager before the submission of the first bill.
BIDDING DOCUMENT NO.: 9900325428	
SECTION – IV (GCC)	
PAGE 27 OF 73	

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
D. Intellectual Property		
15.	Copyright	
	15.1	The copyright in all drawings, documents and other materials containing data and information furnished to the Employer by the Contractor herein shall remain vested in the Contractor or, if they are furnished to the Employer directly or through the Contractor by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party. The Employer shall however be free to reproduce and use all drawings, documents and other material furnished to the Employer for the purpose of the contract, if required, for operation and maintenance and Renovation & Modernization of the Facilities (Throughout actual or intended life of facility whichever is longer) .
16.	Confidential Information	
	16.1	The Employer and the Contractor shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following termination of the Contract. Notwithstanding the above, the Contractor may furnish to its Subcontractor(s) such documents, data and other information it receives from the Employer to the extent required for the Subcontractor(s) to perform its work under the Contract, in which event the Contractor shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Contractor under this GCC Clause 16.
	16.2	The Employer shall not use such documents, data and other information received from the Contractor for any purpose other than the operation and maintenance and Renovation & Modernization and demolishing the work (Throughout actual or intended life of facility whichever is longer). Similarly, the Contractor shall not use such documents, data and other information received from the Employer for any purpose other than the design, procurement of Plant and Equipments, construction or such other work and services as are required for the performance of the Contract.
	16.3	The obligation of a party under GCC Sub-Clauses 16.1 and 16.2 above, however, shall not apply to that information which (a) now or hereafter enters the public domain through no fault of that party (b) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party hereto (c) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality. (d) is required to be disclosed in accordance with a judicial or governmental order or decree.
	16.4	The above provisions of this GCC Clause 16 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Facilities or any part thereof.
	16.5	The provisions of this GCC Clause 16 shall survive termination, for whatever reason, of the Contract.
E. Work Execution		
17.	Representatives	
	17.1	Project Manager If the Project Manager is not named in the Contract, then within fourteen (14) days of the Effective Date, the Employer shall appoint and notify the Contractor in writing of the name of the Project Manager. The Employer may from time to time appoint some other person as the Project Manager in place of the person previously so appointed, and shall give a notice of the name of such other person to the
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 28 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
		Contractor without delay. The Employer shall take reasonable care to see that no such appointment is made at such a time or in such a manner as to impede the progress of work on the Facilities. The Project Manager shall represent and act for the Employer at all times during the currency of the Contract. All notices, instructions, orders, certificates, approvals and all other communications under the Contract shall be given by the Project Manager, except as herein otherwise provided. Omission by the Employer or Project Manager, as the case may be, to respond to any communication including letters of or on behalf of the Contractor to either or both of them shall not be deemed or construed as admission by the Employer or the Project Manager of the contents thereof, except as otherwise provided for in the contract. All notices, instructions, information and other communications given by the Contractor to the Employer under the Contract shall be given to the Project Manager, except as herein otherwise provided.
	17.2	Contractor's Representative & Construction Manager 17.2.1 The Contractor shall appoint the Contractor's Representative within fourteen (14) days of the Effective Date or before start of work whichever is earlier and shall request the Employer in writing to approve the person so appointed. 17.2.1.1 The Contractor's representative shall be a regular Employee/ Partner/ Director only and the Contractor shall be required to submit a Power of Attorney in original in favour of its representative. Notarized photocopy of the Power of Attorney shall be acceptable only if the Power of Attorney has been registered by the Contractor. The Employer may verify the photocopy of the Power of Attorney with the Original and the Contractor shall be required to produce the original Power of Attorney for verification, if required by the Employer. The relation of the Contractor's representative with the contractor such as Partner/ Employee etc. should be clearly brought out in the Power of Attorney. The Contractor would be required to submit a documentary proof of the relation of the Contractor's representative with the contractor in the form of self-attested copy of any of the following documents: i. Previous financial year's Form 16 as available at TRACES site of Income tax department, if the Contractor's representative is an employee of contractor or his Appointment Letter/ Salary Slip/ other documentary evidence (only in case of recent appointment or where Form 16 details are not uploaded at TRACES). Further, the Contractor shall submit the copy of Form 16 as available through TRACES site for every subsequent year also in respect of the Contractor's representative till the period of authorization. ii. Article of Association/ Registered Partnership Deed if the Contractor's representative is a partner or stake holder in Company. In case, the Contractor is not able to submit any of the documentary proofs as mentioned above at para (i) & (ii), he would be required to submit an affidavit stating the relationship between the Contractor's representative and the Contractor. 17.2.1.2 In case, the Contractor's representative is also doing some other Contract(s)/ Work(s) as nominee of the same contractor, the Contractor shall give a declaration citing list of all works where the Contractor's representative is the nominee. 17.2.1.3 If the Employer objects to the appointment giving the reason therefore, then the Contractor shall appoint a replacement within fourteen (14) days of such objection, and the foregoing provisions of this GCC Sub-Clause 17.2.1 shall apply thereto. 17.2.2 The Contractor's Representative shall represent and act for the Contractor at all times during the currency of the Contract and shall give to the Project Manager all the Contractor's notices, instructions, information and all other communications under the Contract. All notices, instructions, information and all other communications given by the Employer or the Project Manager to the Contractor under the Contract shall be given to the Contractor's Representative or, in its absence, its deputy, except as herein otherwise provided. The Contractor shall not revoke the appointment of the Contractor's Representative without the Employer's prior written consent, which shall not be unreasonably withheld. If the Employer
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC) PAGE 29 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		consents thereto, the Contractor shall appoint some other person as the Contractor's Representative, pursuant to the procedure set out in GCC Sub-Clause 17.2.1. 17.2.3 The Contractor's Representative may, subject to the approval of the Employer (which shall not be unreasonably withheld), at any time delegate to any person any of the powers, functions and authorities vested in him or her. Any such delegation may be revoked at any time. Any such delegation or revocation shall be subject to a prior notice signed by the Contractor's Representative, and shall specify the powers, functions and authorities thereby delegated or revoked. No such delegation or revocation shall take effect unless and until a copy thereof has been delivered to the Employer and the Project Manager. Any act or exercise by any person of powers, functions and authorities so delegated to him or her in accordance with this GCC Sub-Clause 17.2.3 shall be deemed to be an act or exercise by the Contractor's Representative. For avoidance of doubt it is expressly agreed that no such delegation etc shall effect or relieve the Contractor in any manner whatsoever of its obligations and liabilities under the Contract. 17.2.3.1 Notwithstanding anything stated in GCC Sub-clause 17.1 and 17.2.1 above, for the purpose of execution of contract, the Employer and the Contractor shall finalise and agree to a Contract Co-ordination Procedure and all the communication under the Contract shall be in accordance with such Contract Co-ordination Procedure. 17.2.4 From the commencement of installation of the Facilities at the Site until Operational Acceptance, the Contractor's Representative shall appoint a suitable person as the construction manager (hereinafter referred to as "the Construction Manager"). The Construction Manager shall supervise all work done at the Site by the Contractor and shall be present at the Site throughout normal working hours except when on leave, sick or absent for reasons connected with the proper performance of the Contract. Whenever the Construction Manager is absent from the Site, a suitable person shall be appointed to act as his or her deputy. 17.2.5 The Employer may by notice to the Contractor object to any representative or person employed by the Contractor in the execution of the Contract who, in the reasonable opinion of the Employer, may behave inappropriately, may be incompetent or negligent, or may commit a serious breach of the Site regulations provided under GCC Sub-Clause 22.3. The Employer shall provide evidence of the same, whereupon the Contractor shall remove such person from the Facilities. 17.2.6 If any representative or person employed by the Contractor is removed in accordance with GCC Sub-Clause 17.2.5, the Contractor shall, where required, promptly appoint a replacement. 17.2.7 In case any of the information/ declaration/ undertaking provided by Contractor/Contractor's representative is found to be false and/ or the Contractor/ Contractor's representative suppresses any relevant information at any stage, the Contractor will be liable for actions in terms of Employer's Debarment policy.
18.	Work Program	
	18.1	Contractor's Organization The Contractor shall supply to the Employer and the Project Manager a chart showing the proposed organization to be established by the Contractor for carrying out work on the Facilities. The chart shall include the identities of the key personnel together with the curricula vitae of such key personnel to be employed within twenty-one (21) days of the Effective Date. The Contractor shall promptly inform the Employer and the Project Manager in writing of any revision or alteration of such an organization chart.
	18.2	Program of Performance ~~Within twenty-eight (28) days after the date of notification of award of Contract, the Contractor shall prepare and submit to the Project Manager a detailed program of performance of the Contract, made in the form of PERT Network and showing the sequence in which it proposes to design, manufacture,~~
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 30 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		~~transport, assemble, install and pre-commission the Facilities, as well as the date by which the Contractor reasonably requires that the Employer shall have fulfilled its obligations under the Contract so as to enable the Contractor to execute the Contract in accordance with the program and to achieve Completion and Acceptance of the Facilities in accordance with the Contract. The program so submitted by the Contractor shall accord with the Time Schedule included in Appendix 4 (Time Schedule) to the Contract Agreement and any other dates and periods specified in the Contract. The Contractor shall update and revise the program as and when appropriate or when required by the Project Manager, but without modification in the Times for Completion given in the SCC and any extension granted in accordance with GCC Clause 40, and shall submit all such revisions to the Project Manager.~~
	18.3	Progress Report The Contractor shall monitor progress of all the activities specified in the program referred to in GCC Sub-Clause 18.2 (Program of Performance) above, and submit a progress report to the Project Manager every month. The progress report shall be in a form acceptable to the Project Manager and shall also indicate: (a) percentage completion achieved compared with the planned percentage completion for each activity; and (b) where any activity is behind the program, giving comments and likely consequences and stating the corrective action being taken.
	18.4	Progress of Performance If at any time the Contractor's actual progress falls behind the program referred to in GCC Sub-Clause 18.2 (Program of Performance), or it becomes apparent that it will so fall behind, the Contractor shall, at the request of the Employer or the Project Manager, prepare and submit to the Project Manager a revised program, taking into account the prevailing circumstances, and shall notify the Project Manager of the steps being taken to expedite progress so as to attain Completion of the Facilities within the Time for Completion under GCC Sub-Clause 8.2 (Time for Commencement and Completion), any extension thereof entitled under GCC Sub-Clause 40.1 (Extension of Time for Completion), or any extended period as may otherwise be agreed upon between the Employer and the Contractor.
	18.5	Work Procedures The Contract shall be executed in accordance with the Contract Documents and the procedures given in the section on Forms and Procedures of the Contract Documents. If agreed between the Employer and the Contractor, the Contractor may execute the Contract in accordance with its own standard project execution plans and procedures to the extent that they do not conflict with the provisions contained in the Contract.
	18.6	Maintenance of Records of Weekly Progress Review Meetings at site The Contractor shall be required to attend all weekly site progress review meetings organized by the 'Project Manager' or his authorized representative. The deliberations in the meetings shall inter alia include the weekly program, progress of work (including details of manpower, tools and plants deployed by the contractor vis-a-vis agreed schedule), inputs to be provided by Employer, delays, if any, and recovery program, specific hindrances to work and work instructions by Employer. Record of Hindrances / events that lead to slow/ stoppage of smooth execution of work shall be maintained in "Hindrance Register". The minutes of the weekly meetings shall be recorded in triplicate in a numbered register available with the 'Project Manager', or his authorized representative. These recordings shall be jointly signed by the Project Manager or his authorized representative and the Contractor and one copy of the signed records shall be handed over to the Contractor.
19.	Subcontracting	
	19.1	Appendix 5 (List of Approved Subcontractors) to the Contract Agreement specifies major items of supply or services and a list of approved Subcontractors against each item, including vendors. Insofar as no Subcontractors are listed against any such item, the Contractor shall prepare a list of Subcontractors for such item for inclusion in such list. The Contractor may from time to time propose any addition to or deletion from any such list. The Contractor shall submit any such list or any modification thereto to the Employer for its approval in sufficient time so as not to impede the progress
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 31 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		of work on the Facilities. Such approval by the Employer for any of the Subcontractors shall not relieve the Contractor from any of its obligations, duties or responsibilities under the Contract.
	19.2	The Contractor shall select and employ its Subcontractors for such major items from those listed in the lists referred to in GCC Sub-Clause 19.1.
	19.3	For items or parts of the Facilities not specified in Appendix 5 (List of Approved Subcontractors) to the Contract Agreement, the Contractor may employ such Subcontractors as it may select, at its discretion.
	19.4	The Contractor shall not be allowed to sub-contract works to any subcontractor/ sub-vendor from a country which shares a land border with India unless such subcontractor is registered with the competent Authority. The Competent Authority for the purpose of registration shall be as mentioned in the relevant Annexure of SCC. However, the said requirement of registration will not apply to subcontractors from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. The Contractor may apprise itself of the updated lists of such countries available in the website of the Ministry of External Affairs. Procurement of raw material, components, etc. for the purposes of performance of the Contractor's obligation under the Contract shall not constitute subcontracting.
	19.5	Sub-contractor/Sub-vendor Management ~~In the event of failure to commence work or achieve the desired work progress as per the Program of Performance because of non-payment to any Sub-contractor/ Sub-vendor by the Contractor, Employer may issue notice as set forth herein in respect thereof to the Contractor. Even after serving two notices with notice period of 14 days & 7 days, if Contractor fails to commence the work /restore the progress of work by making the payment to such Sub-contractor/ Sub-vendor, the Contractor hereby expressly consents to the Employer for making direct payment in the name and on behalf and to the account of the Contractor to such Sub-contractor/ Sub-vendor from the payments due to the Contractor under the Contract or in order to commence / restore the progress of the work. No such payment by the Employer in the name and behalf and to the account of the Contractor shall constitute or be construed as any privity of contract of such Sub-contractor/ Sub-vendor with the Employer and such Sub-contractor/ Sub-vendor shall continue to be Sub-contractor/ Sub-vendor of Contractor and the Contractor shall continue to be responsible and liable to the Employer for all the obligations including but not limited to Performance Guarantees and Warrantees under the Contract and the work of such Sub-contractor/ Sub-vendor.~~
	19.6	For the purpose of Integrity Pact, "Subcontractor" shall mean only the approved Subcontractor by the Employer for specific Work(s) at Site. ~~The Contractor shall not be allowed to sub-contract Work(s) to any subcontractor listed in Appendix 5 (List of Approved Subcontractors) or for which approval by Employer is required, as per GCC sub-clause 19.1, unless such sub-contractor has agreed to abide by and sign the Integrity Pact before start of work by respective sub-contractor.~~ ~~The Contractor shall ensure that all the sub-contractors sign the Integrity pact executed between the Employer & Contractor, before start of work by respective sub-contractor at Site.~~ ~~Further, the Contractor shall submit a copy of the aforesaid Integrity Pact duly signed by the approved sub-contractor, to NTPC Project Manager, prior to commencement of work.~~
20.	Design And Engineering	
	20.1	Specifications and Drawings 20.1.1 The Contractor shall execute the basic and detailed design and the engineering work in compliance with the provisions of the Contract, or where not so specified, in accordance with good engineering practice.
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 32 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		The Contractor shall be responsible for any discrepancies, errors or omissions in the specifications, drawings and other technical documents that it has prepared, whether such specifications, drawings and other documents have been approved by the Project Manager or not, provided that such discrepancies, errors or omissions are not because of inaccurate information furnished in writing to the Contractor by or on behalf of the Employer. 20.1.2 The Contractor shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designated by or on behalf of the Employer, by giving a notice of such disclaimer to the Project Manager.
	20.2	Codes and Standards Wherever references are made in the Contract to codes and standards in accordance with which the Contract shall be executed, the edition or the revised version of such codes and standards current at the date fifteen (15) days prior to deadline set for price bid submission shall apply unless otherwise specified. During Contract execution, any changes in such codes and standards shall be applied after approval by the Employer and shall be treated in accordance with GCC Clause 39 (Changes Originating from Contractor).
	20.3	Approval/Review of Technical Documents by Project Manager 20.3.1 The Contractor shall prepare (or cause its Subcontractors to prepare) and furnish to the Project Manager the documents listed in Appendix 7 (List of Documents for Approval or Review) to the Contract Agreement for its approval or review as specified and as in accordance with the requirements of GCC Sub-Clause 18.2 (Program of Performance). Any part of the Facilities covered by or related to the documents to be approved by the Project Manager shall be executed only after the Project Manager's approval thereof. GCC Sub-Clauses 20.3.2 through 20.3.7 shall apply to those documents requiring the Project Manager's approval, but not to those furnished to the Project Manager for its review only. 20.3.2 Within twenty one (21) days after receipt by the Project Manager of any document requiring the Project Manager's approval in accordance with GCC Sub-Clause 20.3.1, the Project Manager shall either return one copy thereof to the Contractor with its approval endorsed thereon or shall notify the Contractor in writing of its disapproval thereof and the reasons therefor and the modifications that the Project Manager proposes. 20.3.3 The Project Manager shall not disapprove any document, except on the grounds that the document does not comply with some specified provision of the Contract or that it is contrary to good engineering practice. 20.3.4 If the Project Manager disapproves the document, the Contractor shall modify the document and resubmit it for the Project Manager's approval in accordance with GCC Sub-Clause 20.3.2. If the Project Manager approves the document subject to modification(s), the Contractor shall make the required modification(s), and upon resubmission with the required modifications the document shall be deemed to have been approved. The procedure for submission of the documents by the Contractor and their approval by the Project Manager shall be discussed and finalised with the Contractor. 20.3.5 <i>If any dispute or difference occurs between the Employer and the Contractor in connection with or arising out of the disapproval by the Project Manager of any document and/or any modification(s) thereto that cannot be settled between the parties within a reasonable period, then such dispute or difference may be referred to <u>Expert Settlement Council (ESC)</u> for determination in accordance with GCC Sub-Clause <u>6.4.1</u> hereof. If such dispute or difference is referred to <u>ESC</u>, the Project Manager shall give instructions as to whether and if so, how, performance of the Contract is to proceed. The Contractor shall proceed with the Contract in accordance with the Project Manager's instructions, provided that if the <u>ESC</u> upholds the Contractor's view on the dispute and if the Employer has not given notice under GCC Sub-Clause <u>6.5.1</u> hereof, then the Contractor shall be reimbursed by the Employer</i>
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 33 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		<i>for any additional costs incurred by reason of such instructions and shall be relieved of such responsibility or liability in connection with the dispute and the execution of the instructions as the <u>ESC</u> shall decide, and the Time for Completion shall be extended accordingly.</i> 20.3.6 The Project Manager's approval, with or without modification of the document furnished by the Contractor, shall not relieve the Contractor of any responsibility or liability imposed upon it by any provisions of the Contract except to the extent that any subsequent failure results from modifications required by the Project Manager. 20.3.7 The Contractor shall not depart from any approved document unless the Contractor has first submitted to the Project Manager an amended document and obtained the Project Manager's approval thereof, pursuant to the provisions of this GCC Sub-Clause 20.3. If the Project Manager requests any change in any already approved document and/or in any document based thereon, the provisions of GCC Clause 39 (Change in the Facilities) shall apply to such request.
21.	Procurement	
	21.1	Plant and Equipment Subject to GCC Sub-Clause 14.2, the Contractor shall manufacture or procure and transport all the Plant and Equipment in an expeditious and orderly manner to the Site.
	21.2	Employer-Supplied Plant, Equipment, and Materials If Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement provides that the Employer shall furnish any specific items of machinery, equipment or materials to the Contractor, the following provisions shall apply: 21.2.1 The Employer shall, at its own risk and expense, transport each item to the place on or near the Site as agreed upon by the parties and make such item available to the Contractor at the time specified in the program furnished by the Contractor, pursuant to GCC Sub-Clause 18.2 (Program of Performance), unless otherwise mutually agreed. 21.2.2 Upon receipt of such item, the Contractor shall inspect the same visually and notify the Project Manager of any detected shortage, defect or default. The Employer shall immediately remedy any shortage, defect or default, or the Contractor shall, if practicable and possible, at the request of the Employer, remedy such shortage, defect or default at the Employer's cost and expense. After inspection, such item shall fall under the care, custody and control of the Contractor. The provision of this GCC Sub-Clause 21.2.2 shall apply to any item supplied to remedy any such shortage or default or to substitute for any defective item, or shall apply to defective items that have been repaired. 21.2.3 The foregoing responsibilities of the Contractor and its obligations of care, custody and control shall not relieve the Employer of liability for any undetected shortage, defect or default, nor place the Contractor under any liability for any such shortage, defect or default whether under GCC Clause 27 (Defect Liability) or under any other provision of Contract.
	21.3	Transportation 21.3.1 The Contractor shall at its own risk and expense transport all the Plant and Equipment and the Contractor's Equipment to the Site by the mode of transport that the Contractor judges most suitable under all the circumstances. Packing Material The Contractor shall ensure that all the plant and equipment are suitably packed and protected to prevent damage or deterioration during its transportation to site, handling and storage at site till the time of its installation. The ownership of all such packing material (except empty
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 34 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
		shipper's containers on which the customs duty has been paid by the Contractor pursuant to GCC Clause 14.2) shall stand transferred to the Employer upon dispatch of the plant and equipment and endorsement of dispatch documents in favour of the Employer. 21.3.2 Unless otherwise provided in the Contract, the Contractor shall be entitled to select any safe mode of transport operated by any person to carry the Plant and Equipment and the Contractor's Equipment. In case, the Contractor decides to transport the Plant and Equipment and the Contractor's Equipment by road, then such Plant and Equipment and the Contractor's Equipment must necessarily be transported through a registered common carrier as per Carriage by Road Rules 2011 of Central Government of India. 21.3.3 Upon despatch of each shipment of the Plant and Equipment and the Contractor's Equipment, the Contractor shall notify the Employer of the description of the Plant and Equipment and of the Contractor's Equipment, the point and means of dispatch, and the estimated time and point of arrival in the country where the Site is located, if applicable, and at the Site. The Contractor shall furnish the Employer with relevant shipping documents to be agreed upon between the parties. 21.3.4 The Contractor shall be responsible for obtaining, if necessary, approvals from the authorities for transportation of the Plant and Equipment and the Contractor's Equipment to the Site. The Employer shall use its best endeavours in a timely and expeditious manner to assist the Contractor in obtaining such approvals, if requested by the Contractor. The Contractor shall indemnify and hold harmless the Employer from and against any claim for damage to roads, bridges or any other traffic facilities that may be caused by the transport of the Plant and Equipment and the Contractor's Equipment to the Site.
22.	Installation & Civil works	
	22.1	Setting Out/Supervision/Labour 22.1.1 Bench Mark: The Contractor shall be responsible for the true and proper setting-out of the Facilities in relation to bench marks, reference marks and lines provided to it in writing by or on behalf of the Employer. If, at any time during the progress of installation of the Facilities, any error shall appear in the position, level or alignment of the Facilities, the Contractor shall forthwith notify the Project Manager of such error and, at its own expense, immediately rectify such error to the reasonable satisfaction of the Project Manager. If such error is based on incorrect data provided in writing by or on behalf of the Employer, the expense of rectifying the same shall be borne by the Employer. 22.1.2 Contractor's Supervision: The Contractor shall give or provide all necessary superintendence during the installation of the Facilities, and the Construction Manager or its deputy shall be constantly on the Site to provide full-time superintendence of the installation. The Contractor shall provide and employ only technical personnel who are skilled and experienced in their respective callings and supervisory staff who are competent to adequately supervise the work at hand. 22.1.3 Labour: (a) The Contractor shall provide and employ on the Site in the installation of the Facilities such skilled, semi-skilled and unskilled labour as is necessary for the proper and timely execution of the Contract. The Contractor shall preferably engage skilled/ semiskilled/ unskilled workers from amongst the land oustees of the Project. (b) Unless otherwise provided in the Contract, the Contractor shall be responsible for the recruitment, transportation, accommodation and catering of all labour, local or

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
		expatriate, required for the execution of the Contract and for all payments in connection therewith. (c) The Contractor shall be responsible for obtaining all necessary permit(s) and/or visa(s) from the appropriate authorities for the entry of all labour and personnel to be employed on the Site into the country where the Site is located. (d) The Contractor shall at its own expense provide the means of repatriation to all of its and its Subcontractor's personnel employed on the Contract at the Site to their various home countries. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Contractor defaults in providing such means of transportation and temporary maintenance, the Employer may provide the same to such personnel and recover the cost of doing so from the Contractor. (e) The Contractor shall at all times during the progress of the Contract use its best endeavour to prevent any unlawful, riotous or disorderly conduct or behaviour by or amongst its employees and the labour of its Subcontractors. (f) The Contractor shall, in all dealings with its labour and the labour of its Subcontractors currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labour.
	22.2	Contractor's Equipment 22.2.1 All Contractors' Equipment brought by the Contractor onto the Site shall be deemed to be intended to be used exclusively for the execution of the Contract. The Contractor shall not remove the same from the Site without the Project Manager's consent that such Contractor's Equipment is no longer required for the execution of the Contract. 22.2.2 Unless otherwise specified in the Contract, upon Completion of the Facilities, the Contractor shall remove from the Site all Equipment brought by the Contractor onto the Site and any surplus materials remaining thereon. 22.2.3 The Employer will, if requested, use its best endeavour to assist the Contractor in obtaining any local, state or national government permission required by the Contractor for the export of the Contractor's Equipment imported by the Contractor for use in the execution of the Contract that is no longer required for the execution of the Contract.
	22.3	Site Regulations and Safety 22.3.1 The Employer and the Contractor shall establish Site regulations setting out the rules to be observed in the execution of the Contract at the Site and shall comply therewith. The Contractor shall prepare and submit to the Employer, with a copy to the Project Manager, proposed Site regulations for the Employer's approval, which approval shall not be unreasonably withheld. Such Site regulations shall include, but shall not be limited to, rules in respect of security, safety of the Facilities in line with para 22.3.2, gate control, sanitation, medical care, and fire prevention. 22.3.2 The Employer has formulated Safety Rules for Construction & Erection of Power Plants and is enclosed at Annexure-B to GCC. These Safety Rules lay down the safety requirements for safe execution of project activities, responsibilities of the Contractor, and all concerned involved in Construction and Erection. The Contractor, including his sub-contractors, while executing the Works, shall strictly comply with these Safety rules and statutory requirements (including amendments thereof), as applicable, in respect of safety of personnel, equipment and materials at site area under execution of the Contractor.

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	22.3.3 In addition to other clauses specified in 'NTPC Safety Rules for Construction and Erection of Power Plants' [as enclosed with GCC], Contractor shall adhere to the following provisions for payment linked to Safety Compliances as specified in Payment Terms: i) Safety Personnel Contractor shall adhere to the requirements of Clause 2.3 (requirement of Safety personnel) of 'NTPC Safety Rules for Construction and Erection of Power Plants'. ii) Personal Protective Equipment & Safety Equipment Contractor shall adhere to the requirements of Clause 4 (Personal Protective Equipment) of 'NTPC Safety Rules for Construction and Erection of Power Plants' and the provisions of the Bidding Documents with regards to number of Safety Equipment/PPEs to be provided by the Contractor. In case Contractor fails to comply with aforesaid requirement, Project Manager /Safety Officer shall issue a warning letter/Non-compliance Memo to the Contractor regarding the same advising him to take corrective action. Project Manager /NTPC Safety Officer shall maintain written record of all such incidents when Warning letter/Non-compliance Memo is issued to the Contractor for not meeting the requirements of Clause 4.0 (Personal Protective Equipment) and the provisions of the Bidding Documents. iii) Safety Induction and Training Contractor shall adhere to the requirements of imparting Safety training as per Clause 8.0 (Safety Induction and Training) of 'NTPC Safety Rules for Construction and Erection of Power Plants. Contractor shall maintain written record of Safety trainings imparted to its Employees/workmen for purpose of aforesaid payment. These records shall be available for review of Project Manager /NTPC Safety Officer all the time. iv) Medical and First Aid Amenities Contractor shall adhere to the requirements of Clause 13 (Medical and First Aid Amenities) of 'NTPC Safety Rules for Construction and Erection of Power Plants. NTPC Safety Officer/ Project Manager shall maintain written record of incidences when requisite Medical and first aid amenities as per Clause 13 of Safety Rules were not available for purpose of aforesaid payment. v) Compliance to Work Permit System Contractor shall adhere to the requirements of Clause 17 (Work Permit System) of 'NTPC Safety Rules for Construction and Erection of Power Plants'. In case Contractor fails to obtain work permit or fails to comply to any requirements of aforesaid Work permit system, he will be issued a warning letter/Non-compliance Memo by Project Manager /Safety Officer of NTPC regarding the same advising him to take corrective action. NTPC Safety Officer / Project Manager shall maintain written record of all such incidents when Warning letter / Non-compliance Memo is issued to Contractor for not complying with the requirements of Work Permit System as per Clause 17 of Safety Rules for purpose of aforesaid payment.
22.4	Opportunities for Other Contractors
BIDDING DOCUMENT NO.: 9900325428	
SECTION – IV (GCC)	
PAGE 37 OF 73	

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		22.4.1 The Contractor shall, upon written request from the Employer or the Project Manager, give all reasonable opportunities for carrying out the work to any other contractors employed by the Employer on or near the Site. 22.4.2 If the Contractor, upon written request from the Employer or the Project Manager, makes available to other contractors any roads or ways the maintenance for which the Contractor is responsible, permits the use by such other contractors of the Contractor's Equipment, or provides any other service of whatsoever nature for such other contractors, the Employer shall fully compensate the Contractor for any loss or damage caused or occasioned by such other contractors in respect of any such use or service, and shall pay to the Contractor reasonable remuneration for the use of such equipment or the provision of such services. 22.4.3 The Contractor shall also so arrange to perform its work as to minimize, to the extent possible, interference with the work of other contractors. The Project Manager shall determine the resolution of any difference or conflict that may arise between the Contractor and other contractors and the workers of the Employer in regard to their work. 22.4.4 The Contractor shall notify the Project Manager promptly of any defects in the other Contractors' work that come to its notice, and that could affect the Contractor's work. The Project Manager shall determine the corrective measures, if any, required to rectify the situation after inspection of the Facilities. Decisions made by the Project Manager shall be binding on the Contractor.
	22.5	Emergency Work If, by reason of an emergency arising in connection with and during the execution of the Contract, any protective or remedial work is necessary as a matter of urgency to prevent damage to the Facilities, the Contractor shall immediately carry out such work. If the Contractor is unable or unwilling to do such work immediately, the Employer may do or cause such work to be done as the Employer may determine is necessary in order to prevent damage to the Facilities. In such event the Employer shall, as soon as practicable after the occurrence of any such emergency, notify the Contractor in writing of such emergency, the work done and the reasons therefor. If the work done or caused to be done by the Employer is work that the Contractor was liable to do at its own expense under the Contract, the reasonable costs incurred by the Employer in connection therewith shall be paid by the Contractor to the Employer. Otherwise, the cost of such remedial work shall be borne by the Employer.
	22.6	Site Clearance 22.6.1 Site Clearance in Course of Performance: In the course of carrying out the Contract, the Contractor shall keep the Site reasonably free from all unnecessary obstruction, store or remove any surplus materials, clear away any wreckage, rubbish or temporary works from the Site, and remove any Contractor's Equipment no longer required for execution of the Contract. 22.6.2 Clearance of Site after Completion: After Completion of all parts of the Facilities, the Contractor shall clear away and remove all wreckage, rubbish and debris of any kind from the Site, and shall leave the Site and Facilities clean and safe. 22.6.3 Disposal of Scrap The Contractor shall with the agreement of the Employer promptly remove from the site any 'Scrap' generated during performance of any activities at site in pursuance of the Contract. The term 'Scrap' shall refer to scrap/ waste/ remnants arising out of the fabrication of structural steel work and piping work at the project site in the course of execution of the contract and shall also include any wastage of cables during the termination process while installing the cables. The ownership of such Scrap shall vest with the Contractor except in cases where the items have been issued by the Employer from its stores for their installation only without any

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		adjustment to the Contract Price. The removal of scrap shall be subject to the Contractor producing the necessary clearance from the relevant authorities (Custom, GST etc.), if required by the law, in respect of disposal of the scrap. The liability for the payment of the applicable taxes/duties shall be that of the Contractor. The Contractor shall also indemnify to keep the Employer harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal/disposal of scrap. The Indemnity-cum-Undertaking Agreement shall be furnished by Contractor as per proforma enclosed in Section-VII (Forms and Procedure). Further, in case the laws require the Employer to take prior permission of the relevant Authorities before handing over the scrap to the Contractor, the same shall be obtained by the Contractor on behalf of the Employer.
	22.7	Watching and Lighting The Contractor shall provide and maintain at its own expense all lighting, fencing, and watching when and where necessary for the proper execution and the protection of the Facilities, or for the safety of the owners and occupiers of adjacent property and for the safety of the public.
	22.8	Shift Work
	22.8.1	To achieve the required rate of progress in order to complete the Facilities within the Time for Completion, the Contractor may carry on the work, round the clock, in multiple shifts per day, as may be necessary. The Contractor shall however be responsible to comply with all applicable laws in this regard.
	22.8.2	No additional payment will be made on account of round the clock working in multiple shifts.
	22.8.3	Wherever the work is carried out at night adequate lighting of working areas and access routes for pedestrians or vehicles shall be provided by the Contractor at his cost. Sufficient notice should be given by the Contractor to the Employer regarding the details of works in shifts so that necessary supervision could be provided.
	22.9	~~Civil work/structural work/ minor erection work at Risk & Cost of the Contractor~~ ~~Pursuant to GCC clause 18.4 regarding Progress of Performance and GCC clause 18.6 regarding Maintenance of Records of Weekly Progress Review Meetings at site, in the event of failure of Contractor to achieve the desired Work Progress as per the Program of Performance (refer GCC clause 18.2) on account of civil work/structural work/ minor erection work, Employer, without prejudice to any other right under the Contract, has right to get such works done at the risk & cost of the Contractor with prior 14 days' notice to the Contractor and the same shall not relieve or absolve in any manner whatsoever the Contractor from any of its obligations including but not limited to Performance Guarantees and Warranties under the Contract.~~ ~~If Employer gets such works done, the cost of getting such work done by the Employer shall be determined including Employer's pre-determined overhead (as specified in SCC) on the value executed at the risk & cost of the Contractor and shall be recovered from the Contractor.~~
23.	Test And Inspection	
	23.1	The Contractor shall at its own expense carry out at the place of manufacture and/or on the Site all such tests and/or inspections of the Plant and Equipment and any part of the Facilities as are specified in the Contract.
	23.2	The Employer and the Project Manager or their designated representatives shall be entitled to attend the aforesaid test and/or inspection, provided that the Employer shall bear all costs and expenses incurred in connection with such attendance including, but not limited to, all travelling and board and lodging expenses.
	23.3	Whenever the Contractor is ready to carry out any such test and/or inspection, the Contractor shall give a reasonable advance notice of such test and/or inspection and of the place and time thereof to the Project Manager. The Contractor shall obtain from any relevant third party or manufacturer any
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 39 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		necessary permission or consent to enable the Employer and the Project Manager (or their designated representatives) to attend the test and/or inspection.
	23.4	The Contractor shall provide the Project Manager with a certified report of the results of any such test and/or inspection. If the Employer or Project Manager (or their designated representatives) fails to attend the test and/or inspection, or if it is agreed between the parties that such persons shall not do so, then the Contractor may proceed with the test and/or inspection in the absence of such persons, and may provide the Project Manager with a certified report of the results thereof.
	23.5	The Project Manager may require the Contractor to carry out any test and/or inspection not required by the Contract, where the purpose of these tests/ inspection is to verify compliance with the Technical Specifications and are feasible without creating a risk of damage to the Works, provided that the Contractor's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impedes the progress of work on the Facilities and/or the Contractor's performance of its other obligations under the Contract, due allowance will be made in respect of the Time for Completion and the other obligations so affected.
	23.6	If any Plant and Equipment or any part of the Facilities fails to pass any test and/or inspection, the Contractor shall either rectify or replace such Plant and Equipment or part of the Facilities and shall repeat the test and/or inspection upon giving a notice under GCC Sub-Clause 23.3.
	23.7	<i>If any dispute or difference of opinion shall arise between the parties in connection with or arising out of the test and/or inspection of the Plant and Equipment or part of the Facilities that cannot be settled between the parties within a reasonable period of time, it may be referred to the <u>Expert Settlement Council (ESC)</u> for determination in accordance with GCC Sub-Clause <u>6.4.1</u>.</i>
	23.8	The Contractor shall afford the Employer and the Project Manager, at the Employer's expense, access at any reasonable time to any place where the Plant and Equipment are being manufactured or the Facilities are being installed, in order to inspect the progress and the manner of manufacture or installation, provided that the Project Manager shall give the Contractor a reasonable prior notice.
	23.9	The Contractor agrees that neither the execution of a test and/or inspection of Plant and Equipment or any part of the Facilities, nor the attendance by the Employer or the Project Manager, nor the issue of any test certificate pursuant to GCC Sub-Clause 23.4, shall release the Contractor from any other responsibilities under the Contract.
	23.10	No part of the Facilities or foundations shall be covered up on the Site without the Contractor carrying out any test and/or inspection required under the Contract. The Contractor shall give a reasonable notice to the Project Manager whenever any such part of the Facilities or foundations are ready or about to be ready for test and/or inspection; such test and/or inspection and notice thereof shall be subject to the requirements of the Contract.
	23.11	The Contractor shall uncover any part of the Facilities or foundations, or shall make openings in or through the same as the Project Manager may from time to time require at the Site, and shall reinstate and make good such part or parts. If any part of the Facilities or foundations have been covered up at the Site after compliance with the requirement of GCC Sub-Clause 23.10 and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating, and making good the same shall be borne by the Employer, and the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been delayed or impeded in the performance of any of its obligations under the Contract.
24.	Completion of the Facilities	
	24.1	As soon as installation of the Facilities or any part thereof has, in the opinion of the Contractor, been completed as specified in the Technical Specifications, excluding minor items not materially affecting the operation or safety of the Facilities, the Contractor shall so notify the Employer in writing.
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 40 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
	24.2	Within seven (7) days after receipt of the notice from the Contractor under GCC Sub-Clause 24.1, the Employer shall supply the operating and maintenance personnel and the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services as specified in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement, required for Pre-commissioning of the Facilities or any part thereof.
	24.3	As soon as reasonably practicable after the operating and maintenance personnel have been supplied by the Employer and the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters, if so specified in Appendix 6 (Scope of Works and Supply by the Employer)/ Technical Specifications, have been provided by the Employer in accordance with GCC Sub-Clause 24.2, the Contractor shall commence Pre-commissioning of the Facilities or the relevant part thereof in preparation for Commissioning.
	24.4	As soon as all works in respect of Pre-commissioning are completed and, in the opinion of the Contractor, the Facilities or any part thereof is ready for Commissioning, the Contractor shall commence Commissioning as per procedures stipulated in Technical Specifications, and as soon as Commissioning is satisfactorily completed, the Contractor shall so notify the Project Manager in writing.
	24.5	The Project Manager shall, within fourteen (14) days after receipt of the Contractor's notice under GCC Sub-Clause 24.4, either issue a Completion Certificate in the form specified in the Forms and Procedures section in the bidding documents, stating that the Facilities or that part thereof have reached Completion as at the date of the Contractor's notice under GCC Sub-Clause 24.4, or notify the Contractor in writing of any defects and/or deficiencies. If the Project Manager notifies the Contractor of any defects and/or deficiencies, the Contractor shall then correct such defects and/or deficiencies, and shall repeat the procedure described in GCC Sub-Clause 24.4. If the Project Manager is satisfied that the Facilities or that part thereof have reached Completion, the Project Manager shall, within seven (7) days after receipt of the Contractor's repeated notice, issue a Completion Certificate stating that the Facilities or that part thereof have reached Completion as at the date of the Contractor's repeated notice. If the Project Manager is not so satisfied, then it shall notify the Contractor in writing of any defects and/or deficiencies within seven (7) days after receipt of the Contractor's repeated notice, and the above procedure shall be repeated.
	24.6	If the Project Manager fails to issue the Completion Certificate and fails to inform the Contractor of any defects and/or deficiencies within fourteen (14) days after receipt of the Contractor's notice under GCC Sub-Clause 24.4 or within seven (7) days after receipt of the Contractor's repeated notice under GCC Sub-Clause 24.5, or if the Employer makes use of the Facilities or part thereof, then the Facilities or that part thereof shall be deemed to have reached Completion as of the date of the Contractor's notice or repeated notice, or as of the Employer's use of the Facilities, as the case may be.
	24.7	~~As soon as possible after Completion, the Contractor shall complete all outstanding minor items so that the Facilities are fully in accordance with the requirements of the Contract, failing which the Employer will undertake such completion and deduct the costs thereof from any monies owing to the Contractor.~~ ~~In case the minor outstanding items / work (which do not materially affect the operations of the completed facilities) could not be completed even after six months of Completion of facilities of last unit due to reasons not attributable to Contractor, Contractor may request Employer for deletion of such outstanding items/work from Contractor's Scope with suitable rebate for facilitating early closure of the site establishment by the Contractor. Employer shall have absolute discretion to opt for such request of the Contractor. In case Employer opts for deletion, the rebate shall be mutually agreed between the Employer and Contractor. Further, such deletion of such minor outstanding items/work shall not dilute, relieve or absolve in any manner whatsoever the Contractor of any of its obligations including but not limited to Performance Guarantees and Warranties under the contract unless otherwise expressly agreed.~~

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
	24.8	Upon Completion of Facilities, the Employer shall be responsible for the care and custody of the Facilities or the relevant part thereof, together with the risk of loss or damage thereto, and shall thereafter take over the Facilities or the relevant part thereof.
25.		Commissioning, Guarantee Tests and Operational Acceptance
	25.1	Commissioning 25.1.1 Commissioning of the Facilities or any part thereof shall be completed by the Contractor as per procedures detailed in the Technical Specifications. The Employer shall, unless otherwise specified in Appendix 6 (Scope of Works and Supply by the Employer)/ Technical Specifications, supply the operating and maintenance personnel and all raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for Commissioning of the Facilities.
	25.2	Guarantee Test ~~25.2.1 The Guarantee Test (and repeats thereof) shall be conducted by the Contractor as specified in the Technical Specifications or the relevant part thereof to ascertain whether the Facilities or the relevant part can attain the Functional Guarantees specified in the Contract Documents. The Contractor's and Project Manager's advisory personnel shall attend the Guarantee Test. The Employer shall promptly provide the Contractor with such information as the Contractor may reasonably require in relation to the conduct and results of the Guarantee Test (and any repeats thereof).~~ ~~25.2.2 If for reasons attributable to the Employer, the Guarantee Test of the Facilities or the relevant part thereof cannot be successfully completed within the timelines specified in the Technical Specifications, payment of Contractor shall be released as specified in Appendix I (Payment terms).~~ ~~25.2.3 If for reasons attributable to the Employer, the Guarantee Test of the Facilities or the relevant part thereof cannot be successfully completed within the period of twelve months from the timelines specified in the Technical Specifications, balance payment towards Guarantee Test, shall be released to the Contractor against Bank Guarantee as per Appendix I (Payment terms). Such Bank Guarantee shall have initial validity of one (1) year. The Bank Guarantee shall be extended for any subsequent period, if required, such that the same remains valid till the Successful Completion of Guarantee Test.~~
	25.3	Operational Acceptance ~~25.3.1 Subject to GCC Sub-Clause 25.4 (Partial Acceptance) below, Operational Acceptance shall occur in respect of the Facilities or any part thereof when any minor items mentioned in GCC Sub-Clause 24.7 hereof relevant to the Facilities or that part thereof have been completed and~~ ~~(a) the Guarantee Test has been successfully completed and the Functional Guarantees are met; or~~ ~~(b) the Contractor has paid the liquidated damages specified in GCC Sub-Clause 28.3 hereof; and~~ ~~25.3.2 At any time after any of the events set out in GCC Sub-Clause 25.3.1 have occurred, the Contractor may give a notice to the Project Manager requesting the issue of an Operational Acceptance Certificate in the form provided in the Bidding Documents or in another form acceptable to the Employer in respect of the Facilities or the part thereof specified in such notice as at the date of such notice.~~ ~~25.3.3 The Project Manager shall, after consultation with the Employer, and within forty five (45) days after receipt of the Contractor's notice, issue an Operational Acceptance Certificate.~~
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC) PAGE 42 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		~~25.3.4 If within forty five (45) days after receipt of the Contractor's notice, the Project Manager fails to issue the Operational Acceptance Certificate or fails to inform the Contractor in writing of the justifiable reasons why the Project Manager has not issued the Operational Acceptance Certificate, the Facilities or the relevant part thereof shall be deemed to have been accepted as at the date of the Contractor's said notice.~~
	25.4	Partial Acceptance
	25.4.1	If the Contract specifies that Completion and Commissioning shall be carried out in respect of parts of the Facilities, the provisions relating to Completion and Commissioning including the Guarantee Test shall apply to each such part of the Facilities individually, and the Operational Acceptance Certificate shall be issued accordingly for each such part of the Facilities.
	25.4.2	If a part of the Facilities comprises facilities such as buildings, for which no Commissioning or Guarantee Test is required, then the Project Manager shall issue the Operational Acceptance Certificate for such facility when it attains Completion, provided that the Contractor shall thereafter complete any outstanding minor items that are listed in the Operational Acceptance Certificate.
F. Guarantees and Liabilities		
26.	Completion Time Guarantee	
	26.1	The Contractor guarantees that it shall attain Completion of the Facilities (or a part for which a separate time for completion is specified in the SCC) within the Time for Completion specified in the SCC pursuant to GCC Sub-Clause 8.2, or within such extended time to which the Contractor shall be entitled under GCC Clause 40 (Extension of Time for Completion) hereof.
	26.2	If the Contractor fails to attain Completion of the Facilities or any part thereof within the Time for Completion or any extension thereof under GCC Clause 40 (Extension of Time for Completion), the Contractor shall pay to the Employer liquidated damages in the amount computed at the rates specified in the SCC. The aggregate amount of such liquidated damages shall in no event exceed the amount specified as "Maximum" in the SCC. Once the "Maximum" is reached, the Employer may consider termination of the Contract, pursuant to GCC Sub-Clause 42.2.2. Such payment shall completely satisfy the Contractor's obligation to attain Completion of the Facilities or the relevant part thereof within the Time for Completion or any extension thereof under GCC Clause 40 (Extension of Time for Completion). The Contractor shall have no further liability whatsoever to the Employer in respect thereof. However, the payment of liquidated damages shall not in any way relieve the Contractor from any of its obligations to complete the Facilities or from any other obligations and liabilities of the Contractor under the Contract. Save for liquidated damages payable under this GCC Sub-Clause 26.2, the failure by the Contractor to attain any milestone or other act, matter or thing by any date specified in Appendix 4 (Time Schedule) to the Contract Agreement and/or other program of work prepared pursuant to GCC Clause 18 (Program of Performance) shall not render the Contractor liable for any loss or damage thereby suffered by the Employer.
	26.3	No bonus shall be given for earlier completion of the facilities or part thereof.
27.	Defect Liability	
	27.1	The Contractor warrants that the Facilities or any part thereof shall be free from defects in the design, engineering, materials and workmanship of the Plant and Equipment supplied and of the work executed.

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
27.2	The Defect Liability Period shall be eighteen (18) months from the date of Completion of the Facilities (or any part thereof) or twelve (12) months from the date of Operational Acceptance of the Facilities (or any part thereof), whichever first occurs, unless specified otherwise in the SCC. If during the Defect Liability Period any defect should be found in the design, engineering, materials and workmanship of the Plant and Equipment supplied or of the work executed by the Contractor, the Contractor shall promptly, in consultation and agreement with the Employer regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Contractor shall, at its discretion, determine) such defect as well as any damage to the Facilities caused by such defect. The Contractor shall not be responsible for the repair, replacement or making good of any defect or of any damage to the Facilities arising out of or resulting from any of the following causes: (a) improper operation or maintenance of the Facilities by the Employer (b) operation of the Facilities outside specifications provided in the Contract (c) normal wear and tear.
27.3	The Contractor's obligations under this GCC Clause 27 shall not apply to (a) any materials that are supplied by the Employer under GCC Sub-Clause 21.2 (Employer-Supplied Plant, Equipment and Materials), are normally consumed in operation, or have a normal life shorter than the Defect Liability Period stated herein (b) any designs, specifications or other data designed, supplied or specified by or on behalf of the Employer or any matters for which the Contractor has disclaimed responsibility herein (c) any other materials supplied or any other work executed by or on behalf of the Employer, except for the work executed by the Employer under GCC Sub-Clause 27.7.
27.4	The Employer shall give the Contractor a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Employer shall afford all reasonable opportunity for the Contractor to inspect any such defect.
27.5	The Employer shall afford the Contractor all necessary access to the Facilities and the Site to enable the Contractor to perform its obligations under this GCC Clause 27. The Contractor may, with the consent of the Employer, remove from the Site any Plant and Equipment or any part of the Facilities that are defective if the nature of the defect, and/or any damage to the Facilities caused by the defect, is such that repairs cannot be expeditiously carried out at the Site.
27.6	If the repair, replacement or making good is of such a character that it may affect the efficiency of the Facilities or any part thereof, the Employer may give to the Contractor a notice requiring that tests of the defective part of the Facilities shall be made by the Contractor immediately upon completion of such remedial work, whereupon the Contractor shall carry out such tests. If such part fails the tests, the Contractor shall carry out further repair, replacement or making good (as the case may be) until that part of the Facilities passes such tests. The tests in character shall in any case be not less than what has already been agreed by the Employer and the Contractor for the original equipment/part of the Facilities.
27.7	If the Contractor fails to commence the work necessary to remedy such defect or any damage to the Facilities caused by such defect within a reasonable time (which shall in no event be considered to be less than fifteen (15) days), the Employer may, following notice to the Contractor, proceed to do or get, such work done at the risk of the Contractor, and the reasonable costs incurred by the Employer in connection therewith shall be paid to the Employer by the Contractor or may be deducted by the Employer from any monies due to the Contractor or claimed under the Performance Security.

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		If Employer gets such works done, the cost of getting such work done by the Employer shall be determined including Employer's pre-determined overhead (at the rate specified in SCC) on the value executed at the risk & cost of the contractor.
	27.8	If the Facilities or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period of the Facilities or such part, as the case may be, shall be extended by a period equal to the period during which the Facilities or such part cannot be used by the Employer because of any of the aforesaid reasons. Upon correction of the defects in the Facilities or any part thereof by repair/replacement, such repair/replacement shall have the Defect Liability Period extended by a period of twelve (12) month from the time such replacement/repair of the Facilities or any part thereof. However, Defect Liability Period for such repaired /replaced Facilities or any part thereof shall not be extended by more than a period of 36 months from Completion of Facilities and 30 months from Operational acceptance whichever is earlier excluding the period during which such facility could not be used due to the aforesaid defect. Further, in case of repeated defects (three or more times) observed for such repaired / replaced facility during the defect liability period including extended period, the Employer has right to recover the reasonable costs incurred by the Employer to make good of the said facility. If Employer gets such works done, the reasonable cost of getting such work done by the Employer shall be determined including Employer's predetermined overhead (at the rate specified in SCC) on the value executed. 27.8.1 At the end of the Defect Liability Period, the contractor liability ceases except for latent defects. The contractor's liability for latent defects warranty shall be limited to a period of five (5) years from the end of Defect Liability Period. For the purpose of this clause, the latent defects shall be the defects inherently lying within the material or arising out of design deficiency which do not manifest themselves during the Defect Liability Period in this GCC clause 27, but later. In case, there is any dispute between Employer and Contractor regarding latent defects, a third party as mutually agreed upon by the Employer and the Contractor shall be engaged by the Employer for settling the dispute. The third party, so engaged by the Employer, shall be paid fee plus reasonable expenditures incurred in the execution of its duties as mentioned above. These costs shall be initially paid by the Employer. In case of latent defect being proved, such costs shall be recoverable from the Contractor and the Contractor shall bear and reimburse such costs to the Employer. If the dispute regarding latent defects cannot be settled as above, then the dispute shall be settled as per provision of GCC clause 6 (Settlement of Disputes).
	27.9	Except as provided in GCC Clauses 27 and 33 (Loss of or Damage to Property / Accident or Injury to Workers/Indemnification), the Contractor shall be under no liability whatsoever and howsoever arising, and whether under the Contract or at law, in respect of defects in the Facilities or any part thereof, the Plant and Equipment, design or engineering or work executed that appear after Completion of the Facilities or any part thereof, except where such defects are the result of the gross negligence, fraud, criminal or wilful action of the Contractor.
	27.10	In addition, the Contractor shall also provide an extended warranty for any such component of the Facilities and during the period of time as may be specified in the SCC. Such obligation shall be in addition to the defect liability specified under GCC Sub-Clause 27.2.
28.	Functional Guarantees	
	28.1	~~The Contractor guarantees that during the Guarantee Test, the Facilities and all parts thereof shall attain the Functional Guarantees specified in Appendix 8 ("Functional Guarantees") to the Contract Agreement, subject to and upon the conditions therein specified.~~
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 45 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
	28.2	If, for reasons attributable to the Contractor, the guaranteed level of the Functional Guarantees specified in Appendix 8 (Functional Guarantees) to the Contract Agreement are not met either in whole or in part, the Contractor shall, within a mutually agreed time, at its cost and expense make such changes, modifications and/or additions to the Plant or any part thereof as may be necessary to meet such Guarantees. The Contractor shall notify the Employer upon completion of the necessary changes, modifications and/or additions, and shall seek the Employer's consent to repeat the Guarantee Test. If the specified Functional Guarantees are not established even during the repeat of the Guarantee Test, the Employer may at its option, either (a) — Reject the Equipment and recover the payments already made, or (b) — Terminate the Contract pursuant to GCC Sub Clause 42.2.2 and recover the payments already made, or (c) — Accept the equipment after levy of liquidated damages in accordance with the provisions specified in Appendix 8 (Functional Guarantees) to the Contract Agreement.
	28.3	In case the Employer exercises its option to accept the equipment after levy of liquidated damages, the payment of liquidated damages under GCC Sub Clause 28.2, up to the limitation of liability specified in the Technical Specifications/Appendix 8 (Functional Guarantees) to the Contract Agreement, shall completely satisfy the Contractor's guarantees under GCC Sub Clause 28.2, and the Contractor shall have no further liability whatsoever to the Employer in respect thereof. Upon the payment of such liquidated damages by the Contractor, the Project Manager shall issue the Operational Acceptance Certificate for the Facilities or any part thereof in respect of which the liquidated damages have been so paid.
29.	Patent Indemnity	
	29.1	The Contractor shall, without prejudice to the Employer's compliance with GCC Sub-Clause 29.2, indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Employer may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract by reason of: (a) the installation of the Facilities by the Contractor or the use of the Facilities in the country where the Site is located; and (b) the sale of the products produced by the Facilities in any country. Such indemnity shall not cover any use of the Facilities or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, any infringement resulting from the use of the Facilities or any part thereof, or any products produced thereby in association or combination with any other equipment, plant or materials not supplied by the Contractor, pursuant to the Contract Agreement.
	29.2	If any proceedings are brought or any claim is made against the Employer arising out of the matters referred to in GCC Sub-Clause 29.1, the Employer shall promptly give the Contractor a notice thereof, and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim. If the Contractor fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Employer within the twenty-eight (28) day period, the Employer shall make no admission that may be prejudicial to the defence of any such proceedings or claim. The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.
	29.3	The Employer shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from and against any and all suits, actions or administrative proceedings, claims,
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC) PAGE 46 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Contractor may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Employer.
30.	Limitation of Liability	
	30.1	Except in cases of criminal negligence or willful misconduct, (a) neither Party shall be liable to the other Party, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, which may be suffered by the other Party in connection with the Contract, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Employer and (b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to any obligation of the Contractor to indemnify the Employer with respect to patent infringement. (c) the aggregate liability of the Employer to the Contractor except for GCC sub-clause 29.3, whether under the Contract, in tort or otherwise, at any point of time during the execution/performance of the Contract, shall not exceed the 'total Contract Price less payments already released to the Contractor'.
G. Risk Distribution		
31.	Transfer of Ownership	
	31.1	Ownership of the Plant and Equipment Ownership of the Plant and Equipment (including spare parts) quoted in Schedule-2 shall be transferred to the Employer when the Plant and Equipment are loaded on to the mode of transport to be used to convey the Plant and Equipment from the works to the site.
	31.2	Ownership of the Contractor's Equipment used by the Contractor and its Subcontractors in connection with the Contract shall remain with the Contractor or its Subcontractors.
	31.3	Disposal of Surplus Material "Ownership of any Plant and Equipment in excess of the requirements for the Facilities (i.e. surplus material) shall revert to the Contractor upon Completion of the Facilities and Guarantee Test or at such earlier time when the Employer and the Contractor agree that the Plant and Equipment in question are no longer required for the Facilities, provided quantity of any Plant and Equipment specifically stipulated in the Contract shall be the property of the Employer whether or not incorporated in the Facilities. The Contractor shall remove from the site such surplus material brought by him in pursuance of the Contract, subject to the Contractor producing the necessary clearance from the relevant authorities (Customs, GST etc.), if required by law, in respect of re-export or disposal of the surplus material locally. The liability for the payment of the applicable taxes/duties, if any, on the surplus material so re-exported and/or disposed locally shall be that of the Contractor. The Contractor shall also indemnify to keep the Employer harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal/disposal of surplus material. The Indemnity-cum-Undertaking Agreement shall be furnished by contractor as per proforma enclosed in Section-VII (Part 3 of 3 - Forms and Procedures). Further, in case the laws require the Employer to take prior permission of the relevant Authorities before handing over the surplus material to the Contractor, the same shall be obtained by the Contractor on behalf of the Employer.
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 47 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
	31.4	Notwithstanding the transfer of ownership of the Plant and Equipment, the responsibility for care and custody thereof together with the risk of loss or damage thereto shall remain with the Contractor pursuant to GCC Clause 32 (Care of Facilities) hereof until Completion of the Facilities or the part thereof in which such Plant and Equipment are incorporated.
	31.5	In case of two/three contracts entered into between the Employer and the Contractor as per GCC Sub-Clause 3.6 or where the Employer hands over his equipment to the Contractor for executing the Contract, then the Contractor shall at the time of taking delivery of the Equipment through Bill of Lading or other despatch documents furnish Trust Receipt for Plant, Equipment and Materials and also execute an Indemnity-cum-Undertaking Agreement in favour of the Employer in the form acceptable to Employer for keeping the equipment in safe custody and to utilise the same exclusively for the purpose of the said Contract. Proforma for the Trust Receipt and Indemnity-cum-Undertaking Agreement is enclosed under Section-VII (Forms and Procedures). The Employer shall also issue a separate Authorisation Letter to the Contractor to enable him to take physical delivery of plant, equipment and materials from the Employer as per proforma enclosed under Section-VII (Forms and Procedures).
32.	Care of Facilities	
	32.1	The Contractor shall be responsible for the care and custody of the Facilities or any part thereof until the date of Completion of the Facilities pursuant to GCC Clause 24 (Completion of the Facilities) or, where the Contract provides for Completion of the Facilities in parts, until the date of Completion of the relevant part, and shall make good at its own cost any loss or damage that may occur to the Facilities or the relevant part thereof from any cause whatsoever during such period. The Contractor shall also be responsible for any loss or damage to the Facilities caused by the Contractor or its Subcontractors in the course of any work carried out, pursuant to GCC Clause 27 (Defect Liability). Notwithstanding the foregoing, the Contractor shall not be liable for any loss or damage to the Facilities or that part thereof caused by reason of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GCC Sub-Clauses 32.2 and 38.1.
	32.2	If any loss or damage occurs to the Facilities or any part thereof or to the Contractor's temporary facilities by reason of (a) (insofar as they relate to the country where the Site is located) nuclear reaction, nuclear radiation, radioactive contamination, pressure wave caused by aircraft or other aerial objects, or any other occurrences that an experienced contractor could not reasonably foresee, or if reasonably foreseeable could not reasonably make provision for or insure against, insofar as such risks are not normally insurable on the insurance market and are mentioned in the general exclusions of the policy of insurance, including War Risks and Political Risks, taken out under GCC Clause 34 (Insurance) hereof (b) any use or occupation by the Employer or any third party (other than a Subcontractor) authorized by the Employer of any part of the Facilities (c) any use of or reliance upon any design, data or specification provided or designated by or on behalf of the Employer, or any such matter for which the Contractor has disclaimed responsibility herein, the Employer shall pay to the Contractor all sums payable in respect of the Facilities executed, notwithstanding that the same be lost, destroyed or damaged, and will pay to the Contractor the replacement value of all temporary facilities and all parts thereof lost, destroyed or damaged. If the Employer requests the Contractor in writing to make good any loss or damage to the Facilities thereby occasioned, the Contractor shall make good the same at the cost of the Employer in accordance with GCC Clause 39 (Change in the Facilities). If the Employer does not request the Contractor in writing to make good any loss or damage to the Facilities thereby occasioned, the Employer shall either request a change in accordance with GCC Clause 39 (Change in the Facilities), excluding the performance of that part of the Facilities thereby lost, destroyed or damaged, or, where the loss or damage affects a substantial part of the Facilities, the Employer shall terminate the Contract pursuant to GCC Sub-Clause 42.1 (Termination for Employer's Convenience) hereof, except that the Contractor

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		shall have no entitlement to profit under paragraph (e) of GCC Sub-Clause 42.1.3 in respect of any unexecuted Facilities as at the date of termination.
	32.3	The Contractor shall be liable for any loss of or damage to any Contractor's Equipment, or any other property of the Contractor used or intended to be used for purposes of the Facilities, except (i) as mentioned in GCC Sub-Clause 32.2 (with respect to the Contractor's temporary facilities), and (ii) where such loss or damage arises by reason of any of the matters specified in GCC Sub-Clauses 32.2(b) and (c) and 38.1.
	32.4	With respect to any loss or damage caused to the Facilities or any part thereof or to the Contractor's Equipment by reason of any of the matters specified in GCC Sub-Clause 38.1, the provisions of GCC Sub-Clause 38.3 shall apply.
33.	Loss of or Damage to Property; Accident or Injury to workers; Indemnification	
	33.1	Subject to GCC Sub-Clause 33.3, the Contractor shall indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property (other than the Facilities whether accepted or not), arising in connection with the supply and installation of the Facilities and by reason of the negligence of the Contractor or its Subcontractors, or their employees, officers or agents, except any injury, death or property damage caused by the negligence of the Employer, its contractors, employees, officers or agents.
	33.2	If any proceedings are brought or any claim is made against the Employer that might subject the Contractor to liability under GCC Sub-Clause 33.1, the Employer shall promptly give the Contractor a notice thereof and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim. If the Contractor fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Employer within the twenty-eight (28) day period, the Employer shall make no admission that may be prejudicial to the defence of any such proceedings or claim. The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.
	33.3	The Employer shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from any liability for loss of or damage to property of the Employer, other than the Facilities not yet taken over, that is caused by fire, explosion or any other perils, in excess of the amount recoverable from insurances procured under GCC Clause 34 (Insurances), provided that such fire, explosion or other perils were not caused by any act or failure of the Contractor.
	33.4	The party entitled to the benefit of an indemnity under this GCC Clause 33 shall take all reasonable measures to mitigate any loss or damage which has occurred. If the party fails to take such measures, the other party's liabilities shall be correspondingly reduced.
34.	Insurance	
	34.1	To the extent specified in Appendix 3 (Insurance Requirements) to the Contract Agreement, the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified in the said Appendix. The identity of the insurers and the form of the policies shall be subject to the approval of the Employer, who should not unreasonably withhold such approval.

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		(a) Cargo Insurance During Transport Covering loss or damage occurring while in transit from the Contractor's or Subcontractor's works or stores until arrival at the Site, to the Plant and Equipment (including spare parts therefor) and to the Contractor's Equipment. (b) Installation All Risks Insurance Covering physical loss or damage to the Facilities at the Site, occurring prior to Completion of the Facilities, with extended maintenance coverage for the Contractor's liability in respect of any loss or damage occurring during the Defect Liability Period while the Contractor is on the Site for the purpose of performing its obligations during the Defect Liability Period. (c) Third Party Liability Insurance Covering bodily injury or death suffered by third parties (including the Employer's personnel) and loss of or damage to property occurring in connection with the supply and installation of the Facilities. (d) Automobile Liability Insurance Covering use of all vehicles used by the Contractor or its Subcontractors (whether or not owned by them) in connection with the execution of the Contract. (e) Workers' Compensation In accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed. (f) Employer's Liability In accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed. (g) Other Insurances Such other insurances as may be specifically agreed upon by the parties hereto as listed in the said Appendix 3.
	34.2	The Employer shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GCC Sub-Clause 34.1, except for the Third Party Liability, Workers' Compensation and Employer's Liability Insurances, and the Contractor's Subcontractors shall be named as co-insureds under all insurance policies taken out by the Contractor pursuant to GCC Sub-Clause 34.1 except for the Cargo Insurance During Transport, Workers' Compensation and Employer's Liability Insurances. All insurer's rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies.
	34.3	The Contractor shall, in accordance with the provisions of Appendix 3 (Insurance Requirements) to the Contract Agreement, deliver to the Employer certificates of insurance (or copies of the insurance policies) as evidence that the required policies are in full force and effect. The certificates shall provide that no less than twenty-one (21) days' notice shall be given to the Employer by insurers prior to cancellation or material modification of a policy.
	34.4	The Contractor shall ensure that, where applicable, its Subcontractor(s) shall take out and maintain in effect adequate insurance policies for their personnel and vehicles and for work executed by them under the Contract, unless such Subcontractors are covered by the policies taken out by the Contractor.
	34.5	The Employer shall at its expense take out and maintain in effect during the performance of the Contract those insurances specified in Appendix 3 (Insurance Requirements) to the Contract Agreement.
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 50 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
	34.6	If the Contractor fails to take out and/or maintain in effect the insurances referred to in GCC Sub-Clause 34.1, the Employer may take out and maintain in effect any such insurances and may from time to time deduct from any amount due the Contractor under the Contract any premium that the Employer shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Contractor. If the Employer fails to take out and/or maintain in effect the insurances referred to in GCC 34.5, the Contractor may take out and maintain in effect any such insurances and may from time to time deduct from any amount due the Employer under the Contract any premium that the Contractor shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Employer. If the Contractor fails to or is unable to take out and maintain in effect any such insurances, the Contractor shall nevertheless have no liability or responsibility towards the Employer, and the Contractor shall have full recourse against the Employer for any and all liabilities of the Employer herein.
	34.7	Unless otherwise provided in the Contract, the Contractor shall prepare and conduct all and any claims made under the policies effected by it pursuant to this GCC Clause 34, and all monies payable by any insurers shall be paid to the Contractor as per the procedure outlined in GCC Sub-Clause 34.8 below. The Employer shall give to the Contractor all such reasonable assistance as may be required by the Contractor. With respect to insurance claims in which the Employer's interest is involved, the Contractor shall not give any release or make any compromise with the insurer without the prior written consent of the Employer. With respect to insurance claims in which the Contractor's interest is involved, the Employer shall not give any release or make any compromise with the insurer without the prior written consent of the Contractor.
	34.8	(i) Wherever total damages/loss of equipment/material, would occur, the Contractor will be entitled to payment of all payments received from the underwriters except the following amounts: (a) The amount paid to the Contractor under the Contract in respect of equipment/material damaged/lost (excluding the pro-rata initial advance) but including the entire amount of escalation, if any, already paid to the Contractor. (b) Taxes and duties which have already been paid by the Employer. In the event the claim money settled, is less than the total of the amount in a & b above, then the entire claim money settled will be retained by the Employer and the Contractor will forthwith pay the Employer the short fall amount between the claim money and the total of amounts as per a & b mentioned above. Subsequent payments, if any, due under the Contract shall be regulated by the relevant terms of payment. (ii) In case of damage to any equipment/material during any stage, the Contractor upon rectification of the damaged equipment to the satisfaction of the Employer shall be paid to the extent of full claims settled by the underwriters.
35.		Unforeseen Conditions
	35.1	If, during the execution of the Contract, the Contractor shall encounter on the Site any physical conditions (other than climatic conditions) or artificial obstructions that could not have been reasonably foreseen prior to the date of the Contract Agreement by an experienced contractor on the basis of reasonable examination of the data relating to the Facilities provided by the Employer, and on the basis of information that it could have obtained from a visual inspection of the Site (if access thereto was available) or other data readily available to it relating to the Facilities, and if the Contractor determines that it will in consequence of such conditions or obstructions incur additional cost and expense or require additional time to perform its obligations under the Contract that would not have been required if such physical conditions or artificial obstructions had not been encountered, the Contractor shall promptly, and before performing additional work or using additional Plant and Equipment or Contractor's Equipment, notify the Project Manager in writing of (a) the physical conditions or artificial obstructions on the Site that could not have been reasonably foreseen

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		(b) the additional work and/or Plant and Equipment and/or Contractor's Equipment required, including the steps which the Contractor will or proposes to take to overcome such conditions or obstructions (c) the extent of the anticipated delay (d) the additional cost and expense that the Contractor is likely to incur. On receiving any notice from the Contractor under this GCC Sub-Clause 35.1, the Project Manager shall promptly consult with the Employer and Contractor and decide upon the actions to be taken to overcome the physical conditions or artificial obstructions encountered. Following such consultations, the Project Manager shall instruct the Contractor, with a copy to the Employer, of the actions to be taken.
	35.2	Any reasonable additional cost and expense incurred by the Contractor in following the instructions from the Project Manager to overcome such physical conditions or artificial obstructions referred to in GCC Sub-Clause 35.1 shall be paid by the Employer to the Contractor as an addition to the Contract Price.
	35.3	If the Contractor is delayed or impeded in the performance of the Contract because of any such physical conditions or artificial obstructions referred to in GCC Sub-Clause 35.1, the Time for Completion shall be extended in accordance with GCC Clause 40 (Extension of Time for Completion).
36.	Change in Laws and Regulations	
	36.1	If, after the date seven (7) days prior to the deadline set for Price Bid submission, in the country where the Site is located, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or changed (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the costs and expenses of the Contractor and/or the Time for Completion, the Contract Price shall be correspondingly increased or decreased, and/or the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been affected in the performance of any of its obligations under the Contract. However, these adjustments shall not be applicable on procurement of raw materials, intermediary components, and intermediary services etc. by the Contractor. Notwithstanding the foregoing, such additional or reduced costs shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with the Appendix 2 to the Contract Agreement.
37.	Force Majeure	
	37.1	"Force Majeure" shall mean any event beyond the reasonable control of the Employer or of the Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected.
	37.2	If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within fourteen (14) days after the occurrence of such event.
	37.3	The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with GCC Clause 40 (Extension of Time for Completion).
	37.4	The party or parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Contract and to fulfil its or their obligations under the Contract, but without prejudice to either party's right to terminate the Contract under GCC Sub-Clauses 37.6 and 38.5.
	37.5	No delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		(a) constitute a default or breach of the Contract (b) (subject to GCC Sub-Clauses 32.2, 38.3 and 38.4) give rise to any claim for damages or additional cost or expense occasioned thereby if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.
	37.6	If the performance of the Contract is substantially prevented, hindered or delayed for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of one or more events of Force Majeure during the currency of the Contract, the parties will attempt to develop a mutually satisfactory solution, failing which the dispute shall be resolved in accordance with GCC Clause 6.
	37.7	Notwithstanding GCC Sub-Clause 37.5, Force Majeure shall not apply to any obligation of the Employer to make payments to the Contractor herein.
38.	War Risks	
	38.1	"War Risks" shall mean any of the following events occurring or existing in or near the country (or countries) where the Site is located: (a) war, hostilities or warlike operations (whether a state of war is declared or not), invasion, act of foreign enemy and civil war (b) rebellion, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion and terrorist acts, and (c) any explosion or impact of any mine, bomb, shell, grenade or other projectile, missile, munitions or explosive of war.
	38.2	Notwithstanding anything contained in the Contract, the Contractor shall have no liability whatsoever for or with respect to (a) destruction of or damage to Facilities, Plant & Equipment, or any part thereof (b) destruction of or damage to property of the Employer or any third party (c) injury or loss of life if such destruction, damage, injury or loss of life is caused by any War Risks, and the Employer shall indemnify and hold the Contractor harmless from and against any and all claims, liabilities, actions, lawsuits, damages, costs, charges or expenses arising in consequence of or in connection with the same.
	38.3	If the Facilities or any Plant and Equipment or Contractor's Equipment or any other property of the Contractor used or intended to be used for the purposes of the Facilities shall sustain destruction or damage by reason of any War Risks, the Employer shall pay the Contractor for (a) any part of the Facilities or the Plant and Equipment so destroyed or damaged (to the extent not already paid for by the Employer) (b) replacing or making good any Contractor's Equipment or other property of the Contractor so destroyed or damaged so far as may be required by the Employer, and as may be necessary for completion of the Facilities, (c) replacing or making good any such destruction or damage to the Facilities or the Plant and Equipment or any part thereof. If the Employer does not require the Contractor to replace or make good any such destruction or damage to the Facilities, the Employer shall either request a change in accordance with GCC Clause
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 53 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		39 (Change in the Facilities), excluding the performance of that part of the Facilities thereby destroyed or damaged or, where the loss, destruction or damage affects a substantial part of the Facilities, shall terminate the Contract, pursuant to GCC Sub-Clause 42.1 (Termination for Employer's Convenience).
	38.4	Notwithstanding anything contained in the Contract, the Employer shall pay the Contractor for any increased costs or incidentals to the execution of the Contract that are in any way attributable to, consequent on, resulting from, or in any way connected with any War Risks, provided that the Contractor shall as soon as practicable notify the Employer in writing of any such increased cost.
	38.5	If during the performance of the Contract any War Risks shall occur that financially or otherwise materially affect the execution of the Contract by the Contractor, the Contractor shall use its reasonable efforts to execute the Contract with due and proper consideration given to the safety of its and its Subcontractors' personnel engaged in the work on the Facilities, provided, however, that if the execution of the work on the Facilities becomes impossible or is substantially prevented for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of any War Risks, the parties will attempt to develop a mutually satisfactory solution, failing which the dispute will be resolved in accordance with GCC Clause 6.
	38.6	In the event of termination pursuant to GCC Sub-Clauses 38.3, the rights and obligations of the Employer and the Contractor shall be specified in GCC Sub-Clauses 42.1.2 and 42.1.3, except that the Contractor shall have no entitlement to profit under paragraph (e) of GCC Sub-Clause 42.1.3 in respect of any unexecuted Facilities as of the date of termination.
H. Change in Contract Elements		
39.	Change In The Facilities	
	39.1	Introducing a Change 39.1.1 The Employer shall have the right to propose, and subsequently require, that the Project Manager order the Contractor from time to time during the performance of the Contract to make any change, modification, addition or deletion to, in or from the Facilities (hereinafter called "Change"), provided that such Change falls within the general scope of the Facilities and does not constitute unrelated work and that it is technically practicable, taking into account both the state of advancement of the Facilities and the technical compatibility of the Change envisaged with the nature of the Facilities as specified in the Contract . 39.1.2 The Contractor may from time to time during its performance of the Contract propose to the Employer (with a copy to the Project Manager) any Change that the Contractor considers necessary or desirable to improve the quality, efficiency or safety of the Facilities. The Employer may at its discretion approve or reject any Change proposed by the Contractor. 39.1.3 Notwithstanding GCC Sub-Clauses 39.1.1 and 39.1.2, no change made necessary because of any default of the Contractor in the performance of its obligations under the Contract shall be deemed to be a Change, and such change shall not result in any adjustment of the Contract Price or the Time for Completion. 39.1.4 The procedure on how to proceed with and execute Changes is specified in GCC Sub-Clauses 39.2 and 39.3.
	39.2	Changes Originating from Employer 39.2.1 If the Employer proposes a Change pursuant to GCC Sub-Clause 39.1.1, it shall send to the Contractor a "Request for Change Proposal," requiring the Contractor to prepare and furnish to the Project Manager as soon as reasonably practicable a "Change Proposal," which shall include the following: (a) brief description of the Change (b) effect on the Time for Completion
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 54 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		(c) estimated cost of the Change (d) effect on Functional Guarantees (if any) (e) effect on any other provisions of the Contract. 39.2.2 The pricing of any change shall, as far as practicable, be calculated in accordance with the rates and prices included in the Contract. If the rates and prices of any change are not available in the Contract, the parties thereto shall agree on specific rates for the variation of the change. 39.2.3 If before or during the preparation of the Change Proposal it becomes apparent that the aggregate effect of compliance therewith and with all other Change Orders that have already become binding upon the Contractor under this GCC Clause 39 would be to increase or decrease the Contract Price as originally set forth in Article 2 (Contract Price) of the Contract Agreement by more than fifteen (15) percent, the Contractor may give a written notice of objection thereto prior to furnishing the Change Proposal as aforesaid. If the Employer accepts the Contractor's objection, the Employer and the Contractor shall agree on specific rates for valuation of the change. 39.2.4 Upon receipt of the Change Proposal, the Employer and the Contractor shall mutually agree upon all matters therein contained including agreement on rates if such rates are not available in the Contract or if the limit of 15% set forth in Clause 39.2.3 has been exceeded. Within fourteen (14) days after such agreement, the Employer shall, if it intends to proceed with the Change, issue the Contractor with a Change Order. If the Employer is unable to reach a decision within fourteen (14) days, it shall notify the Contractor with details of when the Contractor can expect a decision. If the Employer decides not to proceed with the Change for whatever reason, it shall, within the said period of fourteen (14) days, notify the Contractor accordingly. 39.2.5 <i>If the Employer and the Contractor cannot reach agreement on the price for the Change, an equitable adjustment to the Time for Completion, or any other matters identified in the Change Proposal, the Employer may nevertheless instruct the Contractor to proceed with the Change by issue of a "Pending Agreement Change Order."</i> <i>Upon receipt of a Pending Agreement Change Order, the Contractor shall immediately proceed with effecting the Changes covered by such Order. The parties shall thereafter attempt to reach agreement on the outstanding issues under the Change Proposal.</i> <i>If the parties cannot reach agreement within sixty (60) days from the date of issue of the Pending Agreement Change Order, then the matter may be referred to the <u>Expert Settlement Council (ESC)</u> in accordance with the provisions of GCC Sub-Clause 6.4.1.</i>
	39.3	Changes Originating from Contractor 39.3.1 If the Contractor proposes a Change pursuant to GCC Sub-Clause 39.1.2, the Contractor shall submit to the Project Manager a written "Application for Change Proposal," giving reasons for the proposed Change and including the information specified in GCC Sub-Clause 39.2.1. Upon receipt of the Application for Change Proposal, the parties shall follow the procedures outlined in GCC Sub-Clauses 39.2.4 and 39.2.5.
40.	Extension of Time for Completion	
	40.1	The Time(s) for Completion specified in the SCC shall be extended if the Contractor is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following: (a) any Change in the Facilities as provided in GCC Clause 39 (Change in the Facilities);

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		(b) any occurrence of Force Majeure as provided in GCC Clause 37 (Force Majeure), unforeseen conditions as provided in GCC Clause 35 (Unforeseen Conditions), or other occurrence of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GCC Sub-Clause 32.2; (c) any suspension order given by the Employer under GCC Clause 41 (Suspension) hereof or reduction in the rate of progress pursuant to GCC Sub-Clause 41.2; (d) any changes in laws and regulations as provided in GCC Clause 36 (Change in Laws and Regulations); (e) any default or breach of the Contract by the Employer, specifically including failure to supply the items listed in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement, or any activity, act or omission of any other contractors employed by the Employer or failure to give possession of site under GCC Clause 10.2; (f) any other matter specifically mentioned in the Contract; by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the Contractor.
	40.2	<i>Except where otherwise specifically provided in the Contract, the Contractor shall submit to the Project Manager a notice of a claim for an extension of the Time for Completion, together with particulars of the event or circumstance justifying such extension as soon as reasonably practicable after the commencement of such event or circumstance. As soon as reasonably practicable after receipt of such notice and supporting particulars of the claim, the Employer and the Contractor shall agree upon the period of such extension. In the event that the Contractor does not accept the Employer's estimate of a fair and reasonable time extension, the Contractor shall be entitled to refer the matter to the <u>Expert Settlement Council (ESC)</u>, pursuant to GCC Sub-Clause <u>6.4.1</u>.</i>
	40.3	The Contractor shall at all times use its reasonable efforts to minimize any delay in the performance of its obligations under the Contract.
	40.4	Documents for Consideration of Time Extension The following documents shall form the principal basis for consideration of Time Extension pursuant to GCC clause 40 with or without LD, levy of liquidated damages pursuant to GCC clause 26 and settlement of extra claims during the execution of contract: 1. The joint recordings in "Hindrance Register" and "Weekly Review Register". 2. Records of Technical Coordination Meetings. 3. Records of Contract Review meetings. 4. Written notices issued by the "Project Manager" or his authorized representative to Contractor in the relevant period.
41.	Suspension	
	41.1	The Employer/ Project Manager may, by notice to the Contractor, order the Contractor to suspend performance of any or all of its obligations under the Contract. Such notice shall specify the obligation of which performance is to be suspended, the effective date of the suspension and the reasons therefor. The Contractor shall thereupon suspend performance of such obligation (except those obligations necessary for the care or preservation of the Facilities) until ordered in writing to resume such performance by the Project Manager/ Employer. If, by virtue of a suspension order given by the Project Manager/Employer, other than by reason of the Contractor's default or breach of the Contract, the Contractor's performance of any of its obligations is suspended for an aggregate period of more than ninety (90) days, then at any time thereafter and provided that at that time such performance is still suspended, the Contractor may give a notice to the Project Manager requiring that the Employer shall, within twenty-eight (28) days of receipt of the notice,
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC) PAGE 56 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		order the resumption of such performance or request and subsequently order a change in accordance with GCC Clause 39 (Change in the Facilities), excluding the performance of the suspended obligations from the Contract. If the Employer fails to do so within such period, the Contractor may, by a further notice to the Project Manager, elect to treat the suspension, where it affects a part only of the Facilities, as a deletion of such part in accordance with GCC Clause 39 (Change in the Facilities) or, where it affects the whole of the Facilities, as termination of the Contract under GCC Sub-Clause 42.1 (Termination for Employer's Convenience).
	41.2	If (a) the Employer has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the Employer to remedy the same, as the case may be. If the Employer fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, or fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice or (b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Employer, including but not limited to the Employer's failure to provide possession of or access to the Site or other areas in accordance with GCC Sub-Clause 10.2, or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities; then the Contractor may by fourteen (14) days' notice to the Employer suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress.
	41.3	If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this GCC Clause 41, then the Time for Completion shall be extended in accordance with GCC Sub-Clause 40.1, and any and all additional costs or expenses incurred by the Contractor as a result of such suspension or reduction shall be paid by the Employer to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract. The Bank Guarantee Charges and Insurance Charges for the extended period shall be reimbursed at actuals based on the written request of Contractor. The reimbursement of BG charges shall be made on the basis of documentary evidence submitted by the Contractor (such as debit advice of Bank) along with a Certificate from the issuing Bank, as per the format enclosed in Section-VII (Forms & Procedures). Further, the reimbursement of Insurance charges shall also be made on the basis of documentary evidence submitted by the Contractor. In addition, the Contractor should obtain Insurance Policy directly from the Insurance Company and not through Brokers. The aforesaid reimbursement of Bank Guarantee Charges and Insurance Charges shall be inclusive of GST.
	41.4	During the period of suspension, the Contractor shall not remove from the Site any Plant and Equipment, any part of the Facilities or any Contractor's Equipment, without the prior written consent of the Employer.
42.	Termination	
	42.1	Termination for Employer's Convenience 42.1.1 The Employer may at any time terminate the Contract for any reason by giving the Contractor a notice of termination that refers to this GCC Sub-Clause 42.1.

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	42.1.2 Upon receipt of the notice of termination under GCC Sub-Clause 42.1.1, the Contractor shall either immediately or upon the date specified in the notice of termination (a) cease all further work, except for such work as the Employer may specify in the notice of termination for the sole purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition (b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d) (ii) below (c) remove all Contractor's Equipment from the Site, repatriate the Contractor's and its Subcontractors' personnel from the Site, remove from the Site any wreckage, rubbish and debris of any kind, and leave the whole of the Site in a clean and safe condition. The Contractor shall vacate the Site within thirty (30) days from the date of termination or such period as advised by the Employer. In case, the Contractor does not vacate the site within thirty (30) days from the date of termination or such period as communicated by the Employer, the Employer may take appropriate measures for such vacation of the Site and the expenses, if any, incurred in this regard shall be recovered from the Contractor. (d) In addition, the Contractor, subject to the payment specified in GCC Sub-Clause 42.1.3, shall (i) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination (ii) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Facilities and to the Plant and Equipment as at the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors (iii) deliver to the Employer all non-proprietary drawings, specifications and other documents prepared by the Contractor or its Subcontractors as at the date of termination in connection with the Facilities. 42.1.3 In the event of termination of the Contract under GCC Sub-Clause 42.1.1, the Employer shall pay to the Contractor the following amounts: (a) the Contract Price, properly attributable to the parts of the Facilities executed by the Contractor as of the date of termination (b) the costs reasonably incurred by the Contractor in the removal of the Contractor's Equipment from the Site and in the repatriation of the Contractor's and its Subcontractors' personnel (c) any amounts to be paid by the Contractor to its Subcontractors in connection with the termination of any subcontracts, including any cancellation charges (d) costs incurred by the Contractor in protecting the Facilities and leaving the Site in a clean and safe condition pursuant to paragraph (a) of GCC Sub-Clause 42.1.2 (e) the cost of satisfying all other obligations, commitments and claims that the Contractor may in good faith have undertaken with third parties in connection with the Contract and that are not covered by paragraphs (a) through (d) above. 42.1.4 For the work done by the Contractor till the date of termination of the contract pursuant to GCC Sub-clause 42.1.1 joint measurement of the work shall be undertaken for which the Contractor shall be present at the site on the date specified by the Employer, which shall be no later than 15 days from the date of notice of termination. Joint measurement of all works shall be completed within 30 days from the date of termination. In case, the Contractor does not turn
BIDDING DOCUMENT NO.: 9900325428	SECTION – IV (GCC) PAGE 58 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
		up or does not depute his authorized representative with-in 15 days from the date of notice of termination for joint measurement, the Employer shall carry out the measurement through independent third party and such measurements shall, notwithstanding such absence of Contractor or his authorised representative, be deemed to be joint measurement pursuant to this clause 42.1.4 and shall be binding upon the Contractor whether or not he shall have signed the measurement books etc. and no claim whatsoever shall thereafter be entertained regarding the accuracy or otherwise of measurement/ any other issues related there to.
	42.2	Termination for Contractor's Default 42.2.1 The Employer, without prejudice to any of its other rights or remedies under the Contract or in law or otherwise it may possess, may terminate the Contract forthwith in any of the following circumstances by giving a notice of termination and its reasons therefor to the Contractor, referring to this GCC Sub-Clause 42.2: (a) if the Contractor becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, if the Contractor is a corporation, a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Contractor takes or suffers any other analogous action in consequence of debt (b) if the Contractor assigns or transfers the Contract or any right or interest therein in violation of the provision of GCC Clause 43 (Assignment). v (c) if the Contractor, in the opinion of the Employer has engaged in corrupt or fraudulent or anti-competitive or coercive or obstructive practices in bidding for or in executing the Contract. For the purpose of this Sub Clause: i) "Corrupt practice" means the offering, giving, receiving or soliciting money or of anything of value to influence the action of a public official in the procurement process or in contract execution or outcome of the bidding process; ii) "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition; iii) "Anti-competitive practice": any collusion, bid rigging or anti-competitive arrangement, or any other practice coming under the purview of The Competition Act, 2002, between two or more bidders, with or without the knowledge of the Employer, that may impair the transparency, fairness and the progress of the procurement process or to establish bid prices at artificial, non-competitive levels; iv) "Coercive practice": harming or threatening to harm, persons or their property to influence their participation in the procurement process or affect the award or execution of a contract; - i)"Obstructive practice": materially impede the Employer's investigation into allegations of one or more of the above mentioned prohibited practices either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements to investigators and/ or by threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or by impeding the Employer's rights of audit or access to information. (d) If the Contractor, sub-contracts any part of the works in violation of the provision of GCC Clause 19.4. 42.2.2 (i) If the Contractor
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
PAGE 59 OF 73		

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	(a) has abandoned or repudiated the Contract (b) has without valid reason failed to commence work on the Facilities promptly or has suspended (other than pursuant to GCC Sub-Clause 41.2) the progress of Contract performance for more than twenty-eight (28) days after receiving a written instruction from the Employer to proceed. (c) persistently fails to execute the Contract in accordance with the Contract or persistently neglects to carry out its obligations under the Contract without just cause. (d) refuses or is unable to provide sufficient materials, services or labour to execute and complete the Facilities in the manner specified in the program furnished under GCC Clause 18 (Program of Performance) at rates of progress that give reasonable assurance to the Employer that the Contractor can attain Completion of the Facilities by the Time for Completion as extended. (ii) If the Executant(s) of DJU(s) / Letter(s) of Undertaking (other than contractor)/Collaborator(s)/Associate(s)/Licensor(s)/ Technology Provider(s) fails to carry out its obligations, in connection with the contract. then the Employer may, without prejudice to any of its other rights and remedies it may possess under the Contract or in law or otherwise, give a notice to the Contractor stating the nature of the default and requiring the Contractor to remedy the same. If the Contractor fails to remedy or to take steps to remedy the same within fourteen (14) days of its receipt of such notice, then the Employer may terminate the Contract forthwith by giving a notice of termination to the Contractor that refers to this GCC Sub-Clause 42.2. 42.2.3 Upon receipt of the notice of termination under GCC Sub-Clauses 42.2.1 or 42.2.2, the Contractor shall, either immediately or upon such date as is specified in the notice of termination, (a) cease all further work, except for such work as the Employer may specify in the notice of termination for the sole purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition (b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d) below (c) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination (d) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Works and to the Plant and Equipment as at the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors (e) deliver to the Employer all drawings, specifications and other documents prepared by the Contractor or its Subcontractors as at the date of termination in connection with the Facilities. (f) Contractor shall vacate (except the Contractor's Equipment as provided in GCC Clause 42.2.4) the Site within thirty (30) days from the date of termination or such period as advised by the Employer. In case, the Contractor does not vacate the site within thirty (30) days from the date of termination or such period as communicated by the Employer, the Employer may take appropriate measures for such vacation of the Site and the expenses, if any, incurred in this regard shall be recovered from the Contractor. 42.2.4 The Employer may enter upon the Site, expel the Contractor, and complete the Facilities itself or by employing any third party at the risk and cost of the Contractor. The Employer may, to
BIDDING DOCUMENT NO.: 9900325428	SECTION – IV (GCC) PAGE 60 OF 73

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	the exclusion of any right of the Contractor over the same, take over and use with the payment of a fair rental rate to the Contractor, with all the maintenance costs to the account of the Employer and with an indemnification by the Employer for all liability including damage or injury to persons arising out of the Employer's use of such equipment, any Contractor's Equipment owned by the Contractor and on the Site in connection with the Facilities for such reasonable period as the Employer considers expedient for the supply and installation of the Facilities. Upon completion of the Facilities or at such earlier date as the Employer thinks appropriate, the Employer shall give notice to the Contractor that such Contractor's Equipment will be returned to the Contractor at or near the Site and shall return such Contractor's Equipment to the Contractor in accordance with such notice. The Contractor shall thereafter without delay and at its cost remove or arrange removal of the same from the Site. If Employer gets such works done, the cost of getting such work done by the Employer shall be determined including Employer's pre-determined overhead (at the rate specified in SCC) on the value executed at the risk & cost of the contractor. 42.2.5 Subject to GCC Sub-Clause 42.2.6, the Contractor shall be entitled to be paid the Contract Price attributable to the Facilities executed as at the date of termination, the value of any unused or partially used Plant and Equipment on the Site, and the costs, if any, incurred in protecting the Facilities and in leaving the Site in a clean and safe condition pursuant to paragraph (a) of GCC Sub-Clause 42.2.3. Any sums due to the Employer from the Contractor accruing prior to the date of termination shall be deducted from the amount to be paid to the Contractor under this Contract. 42.2.6 For work done till the date of termination of the Contract pursuant to GCC Sub-clauses 42.2.1 and/or 42.2.2 Joint measurement of the work shall be undertaken for which, the Contractor shall be present at the site on the date specified by the Employer, which shall be no later than 15 days from the date of notice of termination. Joint measurement of all works shall be completed within 30 days from the date of termination. In case, the Contractor does not turn up or does not depute his authorized representative within 15 days from the date of notice of termination for joint measurement, the Employer shall carry out the measurement through independent third party and such measurements shall, notwithstanding such absence of Contractor or his authorised representative, be deemed to be joint measurement pursuant to this GCC Sub-clause 42.2.6 and shall be binding up-on the Contractor whether or not he shall have signed the measurement books etc. and no claim whatsoever shall thereafter be entertained regarding the accuracy of measurement/ any other issues related there to. 42.2.7 If the Employer completes the Facilities, the cost of completing the Facilities by the Employer shall be determined including Employer's pre-determined overhead (at the rate specified in SCC) on the value executed at the risk & cost of the contractor. If the sum that the Contractor is entitled to be paid, pursuant to GCC Sub-Clause 42.2.5, plus the reasonable costs inclusive of Employer's pre-determined overheads (at the rate specified in SCC) on the costs incurred by the Employer in completing the Facilities, exceeds the Contract Price, the Contractor shall be liable for such excess. If such excess is greater than the sums due to the Contractor under GCC Sub-Clause 42.2.5, the Contractor shall pay the balance to the Employer, and if such excess is less than the sums due to the Contractor under GCC Sub-Clause 42.2.5, the Employer shall pay the balance to the Contractor. The Employer and the Contractor shall agree, in writing, on the computation described above and the manner in which any sums shall be paid.
42.3	Termination by Contractor 42.3.1 If

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	(a) the Employer has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms and Procedures of Payment) of the Contract Agreement, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the Employer to remedy the same, as the case may be. If the Employer fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice, or (b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Employer, including but not limited to the Employer's failure to provide possession of or access to the Site or other areas or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities which the Employer is required to obtain as per provision of the Contract or as per relevant applicable laws of the country, then the Contractor may give a notice to the Employer thereof, and if the Employer has failed to pay the outstanding sum, to approve the invoice or supporting documents, to give its reasons for withholding such approval, or to remedy the breach within twenty-eight (28) days of such notice, or if the Contractor is still unable to carry out any of its obligations under the Contract for any reason attributable to the Employer within twenty-eight (28) days of the said notice, the Contractor may by a further notice to the Employer referring to this GCC Sub-Clause 42.3.1, forthwith terminate the Contract. 42.3.2 The Contractor may terminate the Contract forthwith by giving a notice to the Employer to that effect, referring to this GCC Sub-Clause 42.3.2, if the Employer becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, being a corporation, if a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Employer takes or suffers any other analogous action in consequence of debt. 42.3.3 If the Contract is terminated under GCC Sub-Clauses 42.3.1 or 42.3.2, then the Contractor shall immediately (a) cease all further work, except for such work as may be necessary for the purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition (b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d)(ii) (c) remove all Contractor's Equipment from the Site and repatriate the Contractor's and its Subcontractor's personnel from the Site (d) In addition, the Contractor, subject to the payment specified in GCC Sub-Clause 42.3.4, shall (i) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination (ii) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Facilities and to the Plant and Equipment as of the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors (iii) deliver to the Employer all drawings, specifications and other documents prepared by the Contractor or its Subcontractors as of the date of termination in connection with the Facilities.
BIDDING DOCUMENT NO.: 9900325428	SECTION – IV (GCC) PAGE 62 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		42.3.4 If the Contract is terminated under GCC Sub-Clauses 42.3.1 or 42.3.2, the Employer shall pay to the Contractor all payments specified in GCC Sub-Clause 42.1.3 and reasonable compensation for all loss or damage sustained by the Contractor arising out of, in connection with or in consequence of such termination. 42.3.5 Termination by the Contractor pursuant to this GCC Sub-Clause 42.3 is without prejudice to any other rights or remedies of the Contractor that may be exercised in lieu of or in addition to rights conferred by GCC Sub-Clause 42.3.
	42.4	In this GCC Clause 42, the expression “Facilities executed” shall include all work executed, Installation Services provided, any or all Plant and Equipment acquired (or subject to a legally binding obligation to purchase) by the Contractor and used or intended to be used for the purpose of the Facilities, up to and including the date of termination.
	42.5	In this GCC Clause 42, in calculating any monies due from the Employer to the Contractor, account shall be taken of any sum previously paid by the Employer to the Contractor under the Contract, including any advance payment paid pursuant to Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement.
43.	Assignment	
	43.1	The Contractor shall not, without the express prior written consent of the Employer, assign to any third party the Contract or any part thereof, or any right, benefit, obligation or interest therein or thereunder, except that the Contractor shall be entitled to assign either absolutely or by way of charge any monies due and payable to it or that may become due and payable to it under the Contract, barring Contractor's obligations with respect to the Escrow for provision under GCC clause 12.4, which cannot be assigned.
I. Other Conditions		
44.	Contractor Performance Feedback and Evaluation System	
		The Employer has in place an established ‘Contractor Performance and Feedback System’ against which the Contractor's performance during the execution of Contract shall be evaluated on a continuous basis at regular intervals on the following seven parameters: • Engineering & Quality Assurance Capability • Finance • Supply • Construction/ Installation • Field Quality • Safety • Claims & Disputes The score-based feedback formats based on which Contractor's performance shall be evaluated is enclosed at Annexure-A. In case the performance of the Contractor is found unsatisfactory, the Contractor shall be considered ineligible for participating in future tenders for two years. On completion of the above ineligibility period, the Contractor would be required to submit a request to Employer/NTPC for participating in future tenders specifying the measures taken to improve their performance. The Contractor may also request for early revocation of suspension after completion of at least one (1) year of the suspension period. On receipt of such request, the performance of the Contractor shall be assessed/evaluated by Employer/NTPC and if the performance is found to be satisfactory, the Contractor shall be considered eligible for participation in future tenders.
45.	Fraud Prevention Policy	

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
		The contractor along with their associate / collaborator / subcontractors / sub-vendors / consultants / service providers shall strictly adhere to the Fraud Prevention policy of the Employer displayed on its tender website http://www.ntpc.tender.ntpc.co.in . The Contractor along with their associate / collaborator / subcontractors / sub-vendors / consultants / service providers shall observe the highest standard of ethics and shall not indulge or allow anybody else working in their organization to indulge in fraudulent activities during execution of the contract. The contractor shall immediately apprise the Employer about any fraud or suspected fraud as soon as it comes to their notice.
46.	Debarment	The Contractor acknowledges and agrees to the Employer's Policy for Debarment from Business Dealings ("Debarment Policy") displayed on the website www.ntpc.tender.ntpc.co.in and agrees and undertakes not to do any act, deed or thing which is contrary to or in breach. The version of Debarment Policy presently followed by NTPC is Rev. 04. The Contractor may be debarred from Business dealings on account of any Default by the Contractor under GCC Clause 42.2.1 & 42.2.2 or any of the grounds as detailed in the said Debarment Policy.
47	Integrity Pact	If the Employer has terminated the Contract pursuant to Section-3 of the Integrity Pact (IP), the Employer shall encash the Contract Performance Bank Guarantee, in accordance with Section-4 of the Integrity Pact.
48	Independent External monitors	The Nodal Officer for necessary coordination with Independent External Monitors shall be as under: (i) Concerned Group Head in CC&M: if the issue pertains to awarding of Contract by CC&M (ii) Concerned Group Head of C&M under respective CPG of USSC : if the issue pertains to awarding of Contract by USSC (iii) Concerned Head of Department: if the issue pertains to other departments (iv) Head of Project/ Station : if the issue pertains to post-award execution or award of Contract by Project/ Station
49	Contractor's Labour Information Management System (CLIMS)	
	49.1	(a) The Contractor has to necessarily get itself registered in the Contractor's Labour Information Management System (CLIMS), which will be installed by the Employer. (b) The entry and exit of all contract labour to the plant premises will be through Gate Access Control System of above 'Contractor's Labour Information Management System'. (c) It will be responsibility of the Contractor to ensure timely exit of all labours from the plant premises after completion of job of that day. (d) The Contractor has to abide with all the statutory compliance applicable to its workers and employees and update the details of the same in the above system.
50	No Claim for interest or damage	
	50.1	Interest on money due to the contractor: Contractor shall not be entitled to any interest or damage in case of any delay on the part of the Employer to pay the amount due upon measurement or as per Contract or otherwise. Contractor shall also not be entitled to interest upon any guarantee/ security/ retention money or payments in arrears or upon any balance which may on the final settlement of his account be due to him.

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
	50.2	No claim for interest or damage: No claim for interest or damage will be entertained or be payable by the Employer in respect of any amount or balance which may be lying with the Employer or may become due upon settlement/adjudication of any dispute, difference or misunderstanding between the parties by way of arbitration or court proceedings or otherwise or in respect of any delay or omission on the part of the Employer in making intermediate or final payment or in respect of any amount/damage which may be claimed through arbitration or court proceedings or in any other respect whatsoever.
51	Human Resources	
	51.1	The Contractor for the purpose of the Contract shall engage / employ adequate number of key personnel in all areas such as design, engineering, construction, installation, planning, scheduling and carrying out of all maintenance of his plant and equipment, safety and competent and skilled work force as directed by the Project Manager. The Project Manager will approve any proposed replacement of such key personnel including work force only if their qualifications, experience, competence and capabilities are substantially equal to or better than those personnel originally identified and approved by the Project Manager.
	51.2	The Contractor shall unless otherwise provided in the Contract, make his own arrangement for engagement of all staff and labor, local or otherwise and for their payment, housing, transport, lodging and welfare as may be required by law and or by industry practice. The Contractor shall provide the Project Manager a return in detail in such form and at such intervals as he may reasonably prescribe showing the staff and number of the several classes of labour and other staff from time to time employed by the Contractor at Site or in connection with the Work along with such information as the Project Manager may reasonably require.
	51.3	The Project Manager may require the Contractor to remove from Site of Works or from any other area of Work related to the Contract, any member of the Contractor personnel or work force who (i) Persists in any misconduct or lack of care (ii) Performs his duties incompetently or negligently or otherwise carelessly (iii) Fails to conform with any provisions of the Contract or (iv) Persists in any conduct which is prejudicial to the safety, health or protection of the Work and environment. If appropriate, the Contractor shall appoint a suitable replacement within fourteen (14) days or within such period as may be agreed between the Project Manager and Contractor.
	51.4	Labor laws and Regulations and compliance thereof 51.4.1 During the entire period of Contract, the Contractor and his Sub-Contractors shall, at all times abide by all existing labor enactments, rules made therein, regulations, notifications and bye-laws by the appropriate government, local authority or any other labor laws or notification that may be issued under any labor law prevailing as on the date seven (7) days prior to the date set for opening of the Techno-Commercial Bids, published by the State or Central Government or Local Authorities. An illustrative list of applicable acts, notifications, rules etc. in connection with the labor as applicable as mentioned subsequently at para 51.4.8 in GCC. This list is not in any way exhaustive and shall not absolve the Contractor from any of his liabilities or responsibilities in compliance with any other laws, regulations, notifications that may be in force during the tenure of Contract. 51.4.2 The Contractor and his Sub-Contractors shall indemnify the Employer, from any action taken against the Employer by any competent authority in connection with the enforcement of the applicable laws, regulations, notifications, on account of contravention of any of the provisions therein, including amendments thereto. If the Employer is caused to pay or otherwise made liable, such amounts as may be necessary for non-observance of the provisions stipulated in the laws, rules, notifications including amendments, if any on the part of the Contractor and/or his Sub-Contractors, the Project Manager / Employer shall have the right to deduct any such money from any amount due to the Contractor including his performance security, under the Contract. The Employer shall also have the right to

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		recover from the Contractor any sum required or estimated as required for making good any loss or damage suffered / likely to be suffered by the Employer, on this account. 51.4.3 If due to an enactment of any new Act or Statute and rules made thereunder or any modification to the Acts/ Statute or rules made thereunder, all after seven (7) days prior to the date set for opening of the Techno-Commercial Bids and as a consequence thereof, the Contractor has to incur additional cost or expenditure, the same will be reimbursed by the Employer to the Contractor, excepting those due to reasons attributable to the Contractor and those being already compensated by other provisions of the Contract, like Price Adjustment, Taxes and Duties etc. 51.4.4 It is specifically agreed that the Contractor and his Sub-Contractors shall obtain all the necessary registration, licenses, permits, authorizations etc. required under various enactments/ Regulations enforced from time to time, specifically registration as employer under Provident Fund Act and Contract Labor Regulation & Abolition Act, and the Employer shall not be liable for any violation by the Contractor in this regard. 51.4.5 The employees of the Contractor or his Sub-Contractor(s) shall in no case be treated as the employees of the Employer at any point of time. 51.4.6 The Contractor and his Sub-Contractors shall be liable to make all due payments to all their employees and ensure compliance with labor laws. If the Employer, is held liable as 'PRINCIPAL EMPLOYER' or otherwise to incur any expenditure or to make any contributions under any legislation of the Government or Court decision, in respect of the employees of the Contractor or his Sub-Contractors, then the Contractor would reimburse the amounts of such expenditure/contribution so made by the Employer. 51.4.7 In case the ESI act is not applicable to the area where the Work is executed, as evidenced by the Certificate/Letter submitted to this effect from the local authorities, the Contractor shall be liable to arrange and pay for the expenses towards the medical treatment in respect of all labor employed by him for the execution of the Contract. 51.4.8 The number and other relevant details of key personnel required to be engaged/ employed by the Contractor in all areas shall be finalized with the successful bidder during post bid discussions (if required). During the entire period of Contract, the Contractor and his Sub-Contractors shall, at all times abide by the following Acts/ Statutes related to Human Resources: 1. Factories Act, 1948; Contract Labor (Regulation & Abolition) Act, 1970; 2. EPF & MP Act, 1952; 3. Building & Other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996; 4. ESI Act, 1948; 5. Minimum Wages Act, 1948; 6. Payment of Wages Act, 1936; 7. Payment of Bonus Act, 1965; 8. Payment of Gratuity Act, 1972; 9. Workmen's Compensation Act, 1923; 10. ID Act, 1947; 11. Maternity Benefit Act, 1961;
BIDDING DOCUMENT NO.: 9900325428		SECTION – IV (GCC)
		PAGE 66 OF 73

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)
		12. Inter-State Migrant Workmen (Regulation of Employment & Conditions of Service) Act, 1979; 13. Fatal Accidents Act, 1855 14. Model Welfare Code The above will deem to include all relevant/applicable rules made thereunder, regulations, notifications and bye laws of the State or Central Govt. or the local authority and any other labor law (including rules) regulations, bye laws as well as those that may be passed or notification that may be issued under any labor law present and in future either by State or Central Govt. or by local authority.
52	Materials obtained from Excavation Materials of any kind obtained from excavation on the Site shall remain the property of the Employer and shall be disposed of as the Project Manager may direct.	
53	Treasure, Trove, Fossils, etc. All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site shall be the absolute property of the Employer and the Contractor shall take reasonable precautions to prevent his workmen or any other person from removing or damaging any such article or thing, shall immediately upon discovery thereof and before removal acquaint the Project Manager with such discovery and carry out the Project Manager's directions as to the disposition of the same, at the cost of the Employer.	
54	Protection of Trees Trees shall be protected from damage during the course of the Works and earth level within at least one (1) meter of each such tree shall not be disturbed. Where necessary, such trees shall be protected by providing temporary fencing at the cost of the Employer.	
55.	Security Watch and Lighting The Contractor shall provide and maintain at his own expense all lights, guards, fencing and watching when and where necessary or required by the Project Manager for the protection of the Works or for the safety and convenience of those employed on the Works or the public.	
56	Prevention of Pollution The Contractor shall make necessary arrangement to prevent pollution of the water in any adjacent water bodies including stream, springs, nallah, river and lakes etc. The Contractor shall be solely responsible and liable for all damage caused by any pollution that may take place during the execution of the Work.	
57	Explosives Permission for the use of explosives shall be obtained from the Project Manager or from any appropriate authority as directed by the Project Manager and all explosive materials shall be used only under close supervision. It shall be the responsibility of the Contractor to seek and obtain any necessary permits, and to ensure that the requirements of the authorities are complied with, in all respects. Failure to do so may result in the Project Manager withdrawing permission to use explosives. The indemnification provided for, under the General Condition of Contract shall include indemnification against all claims in respect of any incident arising from the use of explosives.	
58.	Royalty	
	58.1	If the Contractor intends to engage itself in quarrying or mining of soil/earth, sand, stone/aggregates, metals, minerals or minor minerals required for the Civil works, as the case may be, it shall obtain necessary permits under the applicable law for such mining or quarrying from the State/Central Government authorities and pay the fee or charges applicable thereto.

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)	
	58.2	The Civil works component of the Contract Price shall be inclusive of any Royalties and/or Seigniorage Fee and/or Cess and /or other charges payable on the quarried and /or mined metal, minerals, and/ or minor minerals, as the case may be, at the rate(s) prevailing as on seven (7) days prior to the deadline set for Price Bid submission. 58.2.1 It shall be the responsibility of the Contractor to ensure that the Royalties and /or Seigniorage Fee and/or Cess and /or other charges on the quarried and /or mined metal, minerals and /or minor minerals are paid to the statutory authorities. 58.2.2 The component of Royalties and/or Seigniorage Fee and/or Cess and /or other charges, if applicable in a running account bill, shall only be released by the Employer to the Contractor on submission of the following documents in original: A) In case the Contractor is the primary license holder of the quarry / mines: i) Vehicle wise challan / transit permit and proof of payment of royalty, and ii) Any other document required as per the relevant Acts/Rules of the concerned state. B) In case the Contractor is the purchaser of soil/earth, sand, stone/aggregates, metals, minerals or minor minerals: i) Purchase voucher and vehicle wise challan / transit permit and proof of payment of royalty, and ii) Any other document required as per the relevant Acts/Rules of the concerned state. 58.2.3 In case the Contractor fails to provide the required proof of royalty payment with the RA bill then an amount based on the prevailing rates of the royalty shall be retained from the respective RA bill, as security against royalty, which shall be refunded to the Contractor on submission of proof of royalty payment. 58.2.4 The Contractor shall pay and indemnify the Employer against any default in payment of Royalties and /or Seigniorage Fee and/or Cess and/or other charges by the Contractor or the agency from which the Contractor purchases soil/earth, sand, stone/aggregates, metals, minerals and/or minor minerals. 58.2.5 In the event of there being a statutory increase in the rates of royalty charges and/or Seigniorage Fees and/or Cess and/or other charges /fresh levy of royalty and/or Seigniorage Fees and/or Cess and/or other charges on materials, the same shall be reimbursed to the Contractor upon submission of original challan by him of having made the payments at revised rates. In the event of there being a decrease in such rates, the same shall be recovered from the Contractor. The base date for calculating the increase or decrease shall be the rate as on seven (7) days prior to the deadline set for Price Bid submission. The total reimbursement (positive or negative) as specified above, to be paid or recovered, shall however be calculated on the quantity of materials actually considered while making the royalties and /or Seigniorage Fee and/or Cess and/or other charges payments to the concerned authorities, or the theoretical consumption of these materials (calculated on the basis of the volume of concrete or fill accepted for payment), whichever is less, and on the basis of documentary evidence of Govt. Notification. However, the Contractor will settle claims, if any, on account of over charge by the State Authorities
59.	Procedure for Contract Closing	
	59.1	The closing of the contract shall be effected after the warranty period/Defect Liability Period is successfully completed and the CPG of the Contractor is returned/ discharged.

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)			
	59.2	The following thirteen (13) certificates, as per the proforma enclosed in Section VIII (Forms and Procedures), shall be issued by the 'concerned departments of NTPC'/ 'Contractor', as applicable, and submitted to the concerned authority designated in NTPC for closing of Contracts:			
		CERTIFICATE NO.	CERTIFICATE DESCRIPTION	RESPONSIBILITY	LIMITING DATES FOR ISSUANCE OF CERTIFICATE
		CCP-01	Certificate of Final Amendment to the Contract	Site C&M/SSC C&M	7 Months from last milestone to be executed/Completed
		CCP-02	Drawing Receipt Certificate	Corporate Engineering	2 Months from last milestone to be executed/Completed
		CCP-03	QA Documents Receipt Certificate	CQA&I	2 Months from last milestone to be executed/Completed
		CCP-04	O&M Manual Receipt Certificate	Corporate Engineering	4 Months from last milestone to be executed/Completed
		CCP-05	Scope Completion Certificate	Site Erection	8 Months from last milestone to be executed/Completed
		CCP-06	Liquidated Damages for Delay Certificate		
		(a)	For cases where LD for delay is settled by Corporate Contracts	Corporate Contract Services	7 Months from last milestone to be executed/Completed
		(b)	For cases where LD for delay is settled by the Regions/ Site	Concerned Site/ Regional offices	7 Months from last milestone to be executed/Completed
		CCP-07	Shortfall in Equipment Performance Certificate	- Corporate OS : Site Performance Test- Cat-I - Regional OS: Site	5 Months from Performance and Guarantee (PG) Tests
		CCP-08	"Material Reconciliation" Certificate	Site Erection & Site Materials Mgmt.	6 Months from last milestone to be executed/Completed
		CCP-09	"Payment Reconciliation" Certificate : Indian Contractor	Site Finance	6 Months from last milestone to be executed/Completed
		CCP-09A	Reconciliation Certificate for Payments by Site : Foreign Contractor	Site Finance	6 Months from last milestone to be executed/Completed
		CCP-09B	Reconciliation Certificate for Payments by Corporate Finance: Foreign Contractor	Corporate Finance (IF Deptt.)	6 Months from last milestone to be executed/Completed
		CCP-09C	"Customs Reconciliation" Certificate : Foreign Contractor Contractor	Transportation and Customs Clearance (T&CC) office	6 Months from last milestone to be executed/Completed

Clause No.		GENERAL CONDITIONS OF CONTRACT (GCC)			
		CCP-10	Certificate regarding Labour Payments and Statutory Requirements to be furnished by Contractor.	Contractor	9 Months from last milestone to be executed/Completed
		CCP-11	"No Demand Certificate" by Contractor	Contractor	6 Months from last milestone to be executed/Completed
		CCP-12	Certificate for Completion of Warranty Period	Site Erection/ O&M*	14 Months from last milestone to be executed/Completed
		CCP-13	Certificate for Return of BGs/ Indemnity Bonds etc.	Site Finance/ Corporate Finance	All BGs except CPG: 5 Month from Trial Operation / Completion of Facilities CPG: 15 Months from Trial Operation/ Completion of Facilities
		* O&M applicable in case of R&M contracts @ In case the Contract involves more than one unit of the project, the limiting dates shall be in respect of last unit.			
	59.3	Both the Contractor and the Employer will make necessary efforts to complete the Contract Closing activities as per the timelines as mentioned at clause 59.2 above. It shall be the responsibility of the contractor to submit the drawings along with the reproducible QA documents, O&M Manuals, List of Spares, As Built drawings, deliverables, etc., as applicable, in a timely and sequential manner but before completion of Defect liability/warranty period so that the contract closing activities are not delayed/impeded. The Employer shall also use its best endeavors to expedite all activities leading to successful closure of the contract. The Employer will review and approve the documents submitted by the Contractor in a timely and expeditious manner and the approvals shall not be unreasonably withheld.			
60	Anti-Bribery and Anti-Corruption (ABAC) Policy The Contractor and its employees along with its Associate/ Collaborator/ Sub-Contractors / Sub-Vendors / Consultants / Service Providers and all other persons associated with Employer in the performance of Contract shall strictly adhere to Employer's Anti-Bribery and Anti-Corruption (ABAC) Policy displayed on website https://ntpc.tender.ntpc.co.in/ under section 'policy docs'. The Contractor and its employees along with its Associate/ Collaborator/ Sub-Contractors / Sub-Vendors / Consultants / Service Providers and all other persons associated with Employer in the performance of Contract shall comply with all applicable laws and regulations relating to anti-corruption and anti-bribery and the ABAC Policy of Employer.				

PERFORMANCE REPORT OF CONTRACTOR

GUIDELINES FOR FILLING THE FORMAT

- 1.0 The feedback shall be based on records, evidences and documents (hindrance register, DPR, monthly PRT MoM, contractor's MPR, etc). Due diligence shall be taken to capture the actual progress, hindrances, if any from the monthly progress report to be submitted by the concerned agency. As Daily Progress Report / Weekly Progress Report / Monthly Progress Report are key documents / inputs for Vendor Performance measurement. Non-submission of the aforesaid documents may also be reckoned as poor performance.
- 2.0 For measurement of contractor performance in various activities in supply, site execution etc, the Contractor shall submit quantified L-2 schedule within 3 months after scheduled completion of Basic Engg or 180 days from date of award, whichever is earlier. Based on the progress of detailed Engg, quantified L-2 shall be updated as and when required.
- 3.0 This vendor performance rating system is applicable for a particular package being executed by the vendor. If the same vendor is executing multiple packages in a project or at number of NTPC projects, the performance report shall be prepared package wise and the screening committee may then take a final view for evaluating the overall performance of the vendor before initiating action for issuance of Notice for Withholding of business dealings with the concerned contractor, in case the performance is found unsatisfactory.

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR ENGG & QA SCORE

(TO BE FILLED IN BY NTPC ENGG.)

S.No.	Parameters	Max Score (A)	Act % age w.r.t. sch (B)	Marks obtained (C) = (A)x(B)
(i)	%age of “ Approval ” category drgs/ docs submitted within submission schedule.	30		
(ii)	%age of “ Information ” category drgs/ docs submitted within submission schedule.	20		
(iii)	%age of drgs/docs approved within approval schedule (in Cat-I/IV)*	20		
(iv)	%age of drgs/docs approved within approval schedule (in Cat-II/IVR)*	20		
(v)	%age of Sub-vendor proposal for items identified in “DR” category & submitted within agreed schedule (i.e. 3 months prior to schedule date of ordering identified in L2)**	10		
	TOTAL	100		

* For (iii) & (iv) above - If all drawings/documents due for approval are approved in Cat-I/IV within approval schedule, then marks allocated against (iii) & (iv) above shall be clubbed for calculation purpose.

** In case no “DR” proposal is submitted and orders are placed on already approved vendors, then full marks shall be given for calculation purpose against item (v).

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR FINANCE SCORE

(TO BE FILLED IN BY NTPC PM PRT COORDINATOR ON MONTHLY BASIS DURING PRT MEETING, BASED ON DETAILS TO BE FURNISHED BY NTPC SITE P&S)

S. no	Parameters	Max Score (A)	% Rating (B)	Marks Obtained (C) = (A) *(B)
(i)	Number of instances NTPC has to issue Comfort letters to sub-vendors for getting supplies.	25		
(ii)	Number of instances vendor has requested for advance against BG from NTPC (beyond contractual provision)	25		
(iii)	Number of instances of supply delay beyond 1 month after issuance of MDCC.	25		
(iv)	Number of instances of direct supply / diversion of materials / consumables by NTPC.	25		
	TOTAL	100		

*Performance to be captured by NTPC PM PRT Coordinator on monthly basis during PRT Meeting, based on details to be furnished by site P&S.

*(No instances = 100%

Up to 1 instance = 50%

more than 1 instances = 0%).

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR SUPPLY SCORE

(TO BE FILLED IN BY NTPC CONTRACTS)

S. no	Parameters	Max Score (A)	Actual % w.r.t. L2 schedule (B)	Marks Obtained (C) = (A) *(B)
(i)	Ordering of Bought out items as per approved L2 network*			
	Major Bought out items	20		
	Minor Bought out items	5		
	Number of instances of cancellation / changes of Bol orders (No instances = 100% Up to 1 instances = 50% more than 1 instances = 0%).	10		
(ii)	Supply of Main Equipment per approved L2 network	60		
(iii)	Supply of Mandatory spares as per approved L2 network	5		
	TOTAL	100		

*If Major & Minor Bought out items are not separately identified in L-2 network then both shall be clubbed into single line item with Max score of 25.

Note: Overall % of actual progress vis-à-vis L2 schedule in Col (B) shall be arrived in the following manner:

- (i) Let there be n type of Items/systems identified in L2/Quantified L2 schedule i.e. E1, E2, E3 En.
- (ii) Let % progress for each type of Item/system vis-à-vis L2 schedule be %E1, %E2, %E3.....%En.
- (iii) Overall % in Col (B) = (%E1+ %E2+ %E3.....+%En)/n

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR CONSTRUCTION/INSTALLATION SCORE

(TO BE FILLED IN BY NTPC SITE)

S. no	Parameters	Max Score (A)	% of actual vis-à-vis L2 schedule (B)	Marks Obtained (C)=(A) *(B)
(i)	Physical progress i.e. Installation of equipment / item, Civil works (i.e. Excavation, RCC, Piling, etc), Structural Works (i.e. Structural Fabrication, Erection, etc) as per approved L2 network	95		
(ii)	Project Management Capability and resource Management by Vendor at site. (5 Negative marks per instance)			
	Number of instances of delay due to inadequate deployment of equipment and T&P, based on record maintained in hindrance register, monthly PRT MoM, contractor's MPR, etc.	(-)5		
	Number of instances of direct payment by NTPC to Contractor's sub-vendors to expedite supplies / services / the progress of work at site affected due to strike / delay in payments to labourers.	(-)5		
(iii)	Submission of Monthly Report in specified formats.	5		
	TOTAL	100		

Details of Area-wise performance is mentioned below:

Sr No.	Activities	Scope	L2 Finish Date	Actual Completed till L2 Finish	%age Comp
1	Excavation				
2	RCC				
3	Structural / Equipment Erection				
				Avg Comp %	

Note: For Physical Progress, overall % of actual progress vis-à-vis quantified L2 schedule in Col (B) shall be arrived in the following manner (Unit of measurement shall be as per approved BBU for respective activities):

- (i) Let there be n category of works identified in L-2/Quantified L2 schedule i.e. W1, W2, W3 Wn.**
- (ii) Let % progress for each category of work vis-à-vis L2 schedule be %W1, %W2, %W3.....%Wn.**
- (iii) Overall %in Col (B) = (%W1+ %W2+ %W3.....+%Wn)/n**

Note:

- All incidences shall be relevant to the current performance evaluation cycle.
- In case of delay in front (including construction drawings for civil packages and other inputs, if any) release by NTPC, measurement of delay in execution by the contractor shall be normalized proportionally.
- Contractor will have to submit monthly progress report capturing actual physical progress viv-a-vis L2 schedule and delay in hand over of front by NTPC, if any. In case of front delay the same has to be jointly signed by NTPC engineer & Vendor.

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR QUALITY SCORE

(TO BE FILLED IN BY NTPC SITE)

S. no	Parameters	Max Score (A)	% Rating (B)	Marks Obtained (C)=(A) *(B)
(i)	Availability of Testing facilities (Available as per contractual requirement – 100% Not available – 0%)	25		
(ii)	Preventing recurrence of defects/complaints (up to 5 cases – 100%, Up to 10 cases – 40%, more than 10 cases – 0%)	25		
(iii)	Proper Storage & Preservation of Equipment/Material (Nil violation – 100%, Up to 1 case of violation – 40%, more than 1 cases of violation – 0%)	25		
(iv)	Deployment of Qualified Quality Officers/Manpower as per Contract (% deployment w.r.t. contractual requirement)	25		
	TOTAL	100		

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR SAFETY SCORE

(TO BE FILLED IN BY NTPC SITE)

S. no	Parameters	Max Score (A)	% Rating (B)	Marks Obtained (C)=(A) *(B)
(i)	Having safety policy and approved Safety Assurance Plan (available as per requirement – 100%, Not-available – 0%)	10		
(ii)	Violation of safety requirement as per Safety Assurance Plan. (0 violation = 100% Upto 3 violations = 50% more than 3 = 0%)	20		
(iii)	No. of incidence of Fatal accidents due to contractor's negligence (0 incidence = 100% 1 incidence = 50% more than 1 cases, or multiple fatalities in one instance = 0%)	50		
(iv)	No. of incidence of Non-Fatal accidents due to contractor's negligence (0 incidence = 100% Up to 5 incidence = 50% more than 5 = 0%)	10		
(v)	Deployment of Qualified Safety Officers as per contract (% deployment w.r.t. contractual requirement)	10		
	TOTAL	100		

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR CLAIMS & DISPUTE SCORE

(TO BE FILLED IN BY NTPC SITE)

S. no	Parameters	Max Score (A)	% Rating (B)	Marks Obtained (C)=(A) *(B)
(i)	No. of cases where Contractor stopped work on account of non-admittance/non settlement of claims (No case = 100% Upto 3 cases = 50% more than 3 cases = 0%)	70		
(ii)	No. of arbitration/legal cases resorted to by the Contractor (No case – 100%, otherwise 0%)	30		
	TOTAL	100		

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

Overall Performance Evaluation

S.No.	Parameters	Max Score (A)	Score Obtained (B)	Weightage (C)	Max Weighted Score (D) = (A)*(C)	Weighted Score obtained (E) = (B)*(C)
(i)	Engineering & QA	100		0.20	20	
(ii)	Finance	100		0.20	20	
(iii)	Supply	100		0.20	20	
(iv)	Construction/Installation	100		0.20	20	
(v)	Quality	100		0.05	05	
(vi)	Safety	100		0.10	10	
	Claims & Disputes	100		0.05	05	
	Total			1.00	100	

Note: In case of Civil Contracts, score of Engineering & QA and Supply shall be NIL and weightage of Construction/Installation shall be 0.60.

Performance Rating

Total Weighted Score obtained	Performance Grade
Upto 50	Unsatisfactory
>50 to 70	Satisfactory
>70 to 80	Good
>80	Excellent

Annexure-B

Index

Chapter No	Contents	Page
	Safety Rules	1
Section -1		
	Safety Management	7
Section -2		
1	Safety in the workplace and equipment	27
2	Safety in material handling and waste disposal	34
3	Safety in welding and gas cutting	39
4	Safety in the use of electricity	43
5	Safety in the use of hand tools and power operated tools	47
6	Safety in the use of ladders and stairs	50
7	Safety in the use of lifting appliances and machines	51
8	Safety in the use of transport, earthmoving equipment and the other construction machinery	66
9	Safety in the use of runways and ramps	69
10	Safety in storage, handling and use of explosives	70
11	Safety in excavation and tunneling work	78
12	Safety in piling work	91
13	Safety in erection, use and dismantling of scaffolds	93
14	Safety in the construction of structural formwork	98
15	Safety in concreting work	101
16	Safety in construction, repair and maintenance of steep roofs	105
17	Safety in construction of catch platforms, hoardings & chutes	106
18	Safety in the work on or adjacent to water	107
19	Safety in the building of cofferdams & caissons	108
20	Safety in demolition work	109
21	Fire Extinguishers & other appliances of fire fighting	112

Appendix:		
Annexure I	Indian Standards on Safety	114
Annexure II	Format describing the Basic Structure of Safety Plan	116
Annexure III	Permit Formats	117
Annexure IV	Definitions	125

NTPC SAFETY RULES

FOR CONSTRUCTION AND ERECTION OF POWER PLANTS

INTRODUCTION:

NTPC Limited is a Maharatna organization taking lead in realizing the power dreams of the Nation with a vision “To be one of the World’s largest and best power utilities, Powering India’s growth”. Safety is one of the prime concerns of NTPC and it always strives towards accident free construction, erection, commissioning, operation and maintenance of its power projects. In this process, NTPC has already formulated Safety policy and guidelines for smooth execution of all its project activities.

In order to strengthen the existing Safety Rules for Construction and Erection and thereby curbing the chances of accidents in Construction & Erection works at various projects of NTPC, the existing safety rules have been revised for strict implementation. These Safety Rules lay down the safety requirements for safe execution of project activities, responsibilities of the contracting agencies, and all concerned involved in Construction and Erection.

A. RESPONSIBILITIES OF CONTRACTORS FOR IMPLEMENTATION OF SAFETY RULES:

The Safety Rules for Construction & Erection as outlined hereunder, while setting out a broad parameter of safety norms, are not exhaustive. The contractor and his agencies are advised to refer to the following statutory provisions as amended from time to time for details and strict compliance therewith.

FOR GREENFIELD PROJECTS:

- (a) Building and Other Construction Workers (regulation of employment and conditions of service) Act, 1996 (briefly referred to as BOCW Act),
- (b) Building and other construction workers (regulation of employment and conditions of service) Central Rules, 1998 (briefly referred to as BOCW Rules) as adopted by the various State Governments,

FOR EXPANSION, MODIFICATION, ALTERATION AND, OR CONSTRUCTION ACTIVITY WITHIN AN EXISTING PLANT OPERATING AS PER APPROVED SITE PLAN UNDER THE FACTORIES ACT;

- (a) Factories Act, 1948,
- (b) Factories Rules, as adopted by the various State Governments
- (c) BOCW Act
- (d) BOCW Rules

The contractor is also required to ensure compliance with all the relevant Acts/Rules in addition to above.

It shall be incumbent on the contractor to ensure that the requirements of safety, statutory or otherwise specified, are fully met. Thus the onus of implementation of the norms so prescribed shall squarely rest with the contractor concerned or, on his behalf, his sub-contractor or any other agency deployed by him, indemnifying NTPC from all the liabilities that may arise out of any failure to comply with the above mentioned Acts/Rules or any contravention thereof by the contractor or any other sub-agency on his behalf.

Safety cannot be ensured solely through Rules and Regulations or Codes. It is the responsibility of the Contracting Agency to ensure that basic safety principles are incorporated in the planning stage of their mobilization, execution, installation of machines, equipment, storage, etc., and initiate and maintain *safety programs*. It is desirable to have a planned programme and secure adequate cooperation of senior management, EICs, sub-contracting agencies, supervisory personnel and workers involved to ensure the implementation of the provisions of these Rules in true spirit so as to achieve the ultimate goal of *accident prevention*.

It shall also be the responsibility of the contracting agency to provide amenities and safety requirements on each construction job in order to reduce or to eliminate hazards of construction activities and also to provide necessary *first aid* facilities as well as Ambulance van (in case of major agencies) for prompt transportation of injured persons to a physician or hospital.

It is also mandated that the authorized representative of NTPC, namely, the Engineer-in-charge, may, at his convenience, exercise such superintendence, supervision and, or control as may be deemed necessary, but this shall not absolve the contractor of his basic responsibility for strict compliance with the norms, standards and, or legal provisions as applicable under the Factories Act/Rules and the Building and other construction (regulation of employment and conditions of service) Act/Rules.

Section wise checklist of provisions of BOCW Act/Rules is given hereunder for ready reference of the contractor. (This list has been prepared in chronological order with primary importance to Section of Act and secondary importance to Rules)

S - Refers relevant Sections in BOCWA

R - Refers relevant Rules in BOCWR

Sl. No.	ITEMS	RELEVANT SECTIONS / RULES IN BOCWA AND BOCWR AND RBOCWR
1	Registration of establishment	S – 7, R – 23 to 27
2.	Display of registration certification at workplace	R – 26 (5)
3.	Hours of work	S – 28 R – 234 to 237
4.	Register of overtime	S – 28; S – 29 R – 241(1) Form XXII
5.	Weekly rest and payment at rest	R – 235
6.	Night shift	R – 236
7.	Maintenance of workers registers and records	S – 30 R – 238
8.	Notice of commencement and completion	S – 46 R – 239
9.	Register of persons employed as building workers	R – 240
10.	Muster roll and wages register	R – 241(1) (a); Form XVI and XVII
11.	Payment of wages	R – 248
12.	Display of notice of wages regarding	R – 249
13.	Register of damage or loss	R – 241(1)(a); Form XIX, XX, XXI
14.	Issue of wages book	R – 241(2)(a); Form XXIII
15.	Service certificate for each workers	R – 241(2)(b); Form XXIV
16.	Display an abstract of BOCWA and BOCWR	R – 241(5)
17.	Annual return	R – 242; Form XXV
18.	Drinking water	S – 32
19.	Latrines and Urinals	S – 33 R - 243
20.	Accommodation	S – 34
21.	Creches	S – 35
22.	First-aid boxes	S – 36 R – 231 and Schedule III
23.	Canteens	S – 37 R – 244
24.	Food stuff and other items served in the canteens	R – 245
25.	Supply of tea and snacks in work place	R – 246
26.	Food charges on no loss no profit basis	R - 247
27.	Delhi BOCW welfare Board Rules	R – 250 to 296
28.	Safety committee	S – 38 R – 208

29.	Safety officer	S – 38 R – 209 and Schedule VII
30.	Reporting of accidents and dangerous occurrences	S – 39,R – 210
31.	Procedure for inquiry in to the causes of accidents	R – 211
32.	Responsibility of employer	S - 44 R – 5
33.	Responsibility of Architects, Project engineer and Designers	R – 6
34.	Responsibility of workmen	R – 8
35.	Responsibility for payment of wages and compensation	S – 45
36.	Penalties and Procedures	S – 47; S – 55
37.	Excessive noise, vibration etc.	R – 34
38.	Fire Protection	R – 35
39.	Emergency action plan	R – 36
40.	Fencing of motors	R – 37
41.	Lifting of carrying of excessive weight	R – 38
42.	Health, Safety and Environmental Policy	R – 39
43.	Dangerous and Harmful Environment	R – 40
44.	Overhead protection	R – 41
45.	Slipping, Tripping, Cutting, Drowning and Falling Hazards	R – 42
46.	Dust, Gases, Fumes, etc.	R – 43
47.	Corrosive substance	R – 49
48.	Eye Protection	R – 45
49.	Head Protection and other protection apparel	R – 46; R – 54
50.	Electrical Hazards	R – 47
51.	Vehicular traffic	R – 48
52.	Stability of structure	R – 49
53.	Illumination	R – 50; R – 124
54.	Stacking of materials	R – 51
55.	Disposal of debris	R – 52
56.	Numbering and marking of floors	R – 53
57.	Lifting appliances and gears	R – 55 to 81
58.	Runways and Ramps	R – 82 to 85
59.	Working on or adjacent to water	R – 86 & 87

60.	Transport and earthmoving equipment's	R – 88 to 95
61.	Concrete work	R – 96 to 107
62.	Demolition	R – 108 to 118
63.	Excavation and Tunneling works	R – 119 to 168
64.	Ventilation	R – 153
65.	Construction, repair and maintenance of step roof	R – 169 to 171
66.	Ladders and Step ladders	R – 172 to 174
67.	Catch platform and hoardings, chutes, safety belts and nets	R – 175 to 180
68.	Structural frame and formworks	R – 181 to 185
69.	Stacking and unstacking	R – 186 & 187
70.	Scaffold	R – 188 to 205
71.	Cofferdams and Caissons	R – 206 to 211
72.	Explosives	R – 212 & 213
73.	Piling	R – 214 to 222
74.	Medical Examination for building and other construction worker, Crane operator an Transport vehicle drivers	R – 81; R – 223(a)(iii) and Schedule
75.	Medical examination for occupational health hazards	R – 233(a)(iv)
76.	Charging of workers for Medical Examination	R – 223(b)
77.	Occupational health centres and Medical officers	R – 225 and Schedule X & XI
78.	Ambulance van & room	R – 226 & 227 and Schedule IV & V
79.	Stretchers	R – 228
80.	Occupational health service for building workers	R – 229
81.	Medical examination for occupational health hazards	R – 223(a)(iv)
82.	Emergency care services and emergency treatment	R – 232
83.	Panel of experts and agencies	Central Rule 250
84.	Power of inspectors	Central rule 251

B. RESPONSIBILITIES AND DUTIES OF WORKERS

- (a) It shall be the responsibility of the worker to comply with the requirements of safety as laid down for him and the group of workers to which he belongs and fully cooperate in the discharge of the responsibility that has been assigned to the contractor.
- (b) If he discovers any defects in the lifting appliance, lifting gear, lifting device or those concerning any transport equipment or other construction equipment or tools as well as the physical work conditions, he will report such defects promptly to his employer or NTPC Engineer or other person in authority;
- (c) No building worker shall, unless duly authorized or in case of absolute necessity, remove or interfere with any fencing, guards, gangways, gear, ladder, hatch covering, life saving appliances, lighting or other things whatsoever required and provided for safety and health. If any of the aforesaid things is removed, the persons engaged in the work shall restore such thing at the end of the period during which its removal was necessary;
- (d) Every worker shall use only means of access provided in accordance with the approved norms and no person shall authorize or order another to use such means of access or method other than those approved;
- (e) Workers shall use such means of access and egress for going to and exiting from the workplace as provided.

SECTION - I

SAFETY MANAGEMENT

1.0 SAFETY MANUAL AND SAFETY POLICY:

- 1.1** The Safety policy of the contracting agency should reflect the commitment of the concerned agency towards safety and health of the workers specified for the particular site.
- 1.2** The Contractor shall have Safety Plan detailing the safety norms evolved through Safety Policy and Job Safety Analysis (JSA) or Hazard Identification & Risk Assessment (HIRA) of all package activities and constitute a Safety management program. Contracts shall also ensure POWRA (point of work risk assessment) before start of any activity.
- 1.3** The safety management programme in the form of Safety Manual shall give details of provisions proposed by the agency w.r.t. Job Safety Analysis (JSA) or Hazard Identification and Risk Assessment (HIRA) to ensure safety of the employees and elimination of health hazards. The Safety Manual including safety policy duly signed by the head/senior executive of the agency shall be submitted to the concerned Engineer-Incharge(EIC), NTPC before start of their project activities at site.
- 1.4** Each contracting agency shall have facilities for conducting the above safety management programme, commensurate with magnitude of the work under contract.

2.0 APPOINTMENT OF SAFETY OFFICER/SAFETY SUPERVISOR:

- 2.1** Each contracting Agency shall provide a sufficient number of qualified, suitable and experienced persons to manage all safety related matter on Site relating to the works. Irrespective of manpower employed by the agency whether temporary, casual, probationer, regular or permanent or on contract, Agency shall deploy a qualified Safety Officer/executive, responsible for carrying out the safety management programme before start of the work.
- 2.2** The safety officer shall create an organization, commensurate with the project activities, consisting of other staff as required for suitable deployment.
- 2.3** The schedule of requirement of safety personnel is given below.

No. of Workers	No. of Safety Supervisors	No. of Safety Officers
Up to 100	1	1
101 to 250	2	1
251 to 500	4	1
501 to 1000	6	2
1000 to 2000	6+ One additional supervisor up to every additional 250 workers	3
2000-3000	10+ One additional supervisor up to every additional 250 workers	4
3000-4000	14+ One additional supervisor up to every additional 250 workers	5
Above 4000	18 + One additional supervisor up to every additional 250 workers	5 + one safety officer up to addition 1000 workers

2.4 The qualification and experience of the safety personnel should meet the following criteria.

- a) Safety Supervisor: (i) Possesses recognized degree in any branch of Engineering. OR
(ii) Diploma in any branch of Engineering with at least one year construction experience.
- b) Safety Officer/Safety Executive: Qualification as given under BOCW Act/rules and minimum experience of three years.

2.5 In case contractor fails to employ the required safety professionals, the department may at the cost and risk of the contractor deploy additional/required safety professionals. The cost incurred towards this shall be deducted from contractor's bill at following the rates or actual whichever is higher.

- 1. Safety Engineer Rs. 1500/day.
- 2. Safety Supervisor Rs. 1000/day.

3.0 MEETING FOR SAFETY AFTER AWARD OF THE CONTRACT:

Representatives of contracting agency along with safety Officer/executive shall meet the concerned EIC of the particular activity prior to start of construction activities for the purpose of discussing safety standards and requirements applicable to the work under contract. The person representing the agency should be a responsible person for all their site activities.

4.0 PERSONAL PROTECTIVE EQUIPMENT:

4.1 The contracting agency should ensure sufficient inventory of personal protective equipment (PPEs) prior to initial mobilization as specified in the Bidding Documents. After identifying the need of the required PPEs for various activities performed at the site, an additional inventory of approx. 20% of required PPEs should be maintain during the execution of the work. A PPE plan shall be prepared which gives fair idea regarding issue of PPEs to various personnel as per the following 'PPE Selection Matrix'.

4.2 Mandatory PPEs: Wearing of Safety Helmet, Safety Shoes and reflective jacket is mandatory for all work at site and it should be ensured that all employees and project visiting personnel shall invariably wear safety helmet, safety shoes & reflective jacket.

PPE Matrix (apart from mandatory PPEs, i.e., Safety Helmet & Safety Shoes)

Activity	Type of Protection						Remarks, if any
	Hand	Eye	Ear	Body	Respiratory	Others	
Gas Welding & Cutting	LG	WG	-	LA	*SCBA/ OLBA	-	* for confined space
Electric Arc Welding	LG	HMWS	-	LA	*SCBA/ OLBA	-	* for confined space

Rigging	CG	SG	-				--
Working at Height	-	SG	-	DLFBH	-	*FAS	* for vertical columns
Grinding & Chipping	CG	FS / SG	-	LA	-	-	--
Working in High Noise	-	-	EP / EM	-	-	-	--
Handling of Cement Concrete	RG	SG	-	-	DM	-	
Blasting	CG	SG	EP*	-	-	-	* at noise area
Excavation	CG	SG	-	-	DM	-	*Gum boot in place of Safety shoe for foot
Chemical Handling	PVCG	CSG	-	PVCA	-	-	*Full body rubber suit with hood
Electrical and C&I	ERG*	SG	-	-	-	-	*For high voltages
Sand/shot blasting	CG	-	EP/EM	CA	SAMH	-	

ABBREVIATIONS: FS: Face Shield, CSG: Chemical splash goggles, HMWS: Helmet mounted welder's shield, GB: gum boot, DLFBH: Double lanyard full body harness, SG: Safety goggles, DM: Dust mask, SAMH L Supplied air mask/hood, EP/EM: Ear plug/Ear Muff, CG: Cotton hand gloves, LG: Leather hand gloves, LA: Leather apron, RG: Rubber gloves, PVCG: PVC Gloves, PVCA: PVC Apron, SCBA: Self-contained breathing apparatus, WG: Welding goggles, ERG: Electrical Rubber Gloves. OLBA : Online breathing apparatus

4.3 The above-mentioned PPEs should be made available with contractor at site and issued to the concerned workers on the day of employment. All PPEs shall comply with ISI standards with valid test certificates.

4.4 At least two breathing apparatus sets (complying requirement as per IS: 10245) shall be provided at each site where excavation/tunneling works and Welding/ Cutting operations in confined areas are being carried out, to rescue the victims under exposure to harmful gases/vapors, if any.

5.0 SAFETY COMMITTEE:

- 5.1** *Safety committee* shall be formed within each contracting agency comprising of worker representatives with equal no. of management representatives as per the provisions of BOCW Act/rules. This committee in each agency shall meet at least once in every month. The safety officer of the concerned agency shall coordinate these meetings. NTPC Safety officer shall be special invitee for Safety Committee meetings. The safety committee functioning shall be in line with the provisions of BOCW Act/Rules.
- 5.2** Apart from the above, each agency shall organize safety meetings every day before start of day's work to educate & motivate the workers about the necessity of safety. Case study of accident/ incident can be shared in these meetings.
- 5.3** The contractor shall also regularly organize safety meetings for all job supervisors/foremen.
- 5.4** Weekly meeting with agencies' Safety Officers to be organized by safety department of NTPC and minutes to be recorded, circulated and compliance status to be checked on regular basis.

6.0 SAFETY MESSAGE PROPAGATION:

- 6.1** Contracting agencies shall arrange for display of safety hoardings depicting suitable safety cartoons/messages/ cautionary notices at appropriate places of project site to remind the workers to perform their duties safely. Minimum one safety message board/hoarding of appropriate size for every 10 workers to be provided and maintained by the concerned agency.
- 6.2** Apart from safety hoardings, each agency should maintain a safety bulletin board at all their work locations. Such safety bulletin boards should depict the activities being planned for the day, good practices, permit details etc.
- 6.3** Safety suggestion boxes shall be kept at each contractor's office at site for obtaining safety suggestions from the workers. Best suggestions should be implemented and may be rewarded suitably to encourage the workers for safety.

7. COMPETENCY OF EMPLOYEES:

- 7.1** Throughout the course of the contract, persons employed by agency shall be physically fit, qualified/experienced to perform their assigned duties/ jobs.
- 7.2** Employees shall not, knowingly be permitted to work in a manner that their ability or alertness is so impaired because of fatigue, illness or any other reason, that it may expose them and or others to injury.
- 7.3** No worker, vehicle operator shall be less than 18 years of age. And the vehicle operator shall have a valid license as per requirements of Motor Vehicle Act.
- 7.4** Contractor shall comply with all applicable state/central laws and codes related to employment of operators for Hoist, Shovel, Crane, Tractor, Bull-dozer, any other howling heavy equipment/vehicle.

8.0 SAFETY INDUCTION AND TRAINING :

- 8.1** Each worker deployed by the agency shall be given 2-days induction training which shall include the medical examination and instructions related to particular job, fire fighting, first-aid and reporting of accidents. All employees shall be given safety training as per BOCW Act/Rules.
- 8.2** The contracting agency shall also impart job specific skill based safety training to all its employees (Minimum one day) on various related safety topics using internal/external safety professionals/consultants as per the matrix given below. Record of such trainings and attendance particulars shall be maintained in a register for ready reference to statutory authorities/engineer-in charge.

TRAINING MATRIX:

Name of topic	Executives	Super visors	Skilled Workmen	Other Workers
Safety Induction	Y	Y	Y	Y
Accident_ Causes, factors, cost	Y	Y	Y	-
Industrial hazards & Accident Prevention	Y	Y	Y	-
Investigating, reporting, records	Y	Y	-	-
Personal Protective Equipment	-	Y	Y	Y
Construction Safety & Role of Supervisory personnel	-	Y	-	-
Permit to Work (PTW)	-	Y	Y	y
Statutory Provisions (BOCW Act/Rules, Factories Act 1948 etc.)	Y	Y	y	y
Material handling	-	y	Y	Y
Emergency Management	Y	Y	Y	-
Electrical Safety	-	Y	Y	-
Fire safety	Y	Y	Y	Y
First Aid & CPR (cardio pulmonary resuscitation)	-	Y	Y	Y (Selected)
Safety in Welding & Cutting	-	-	Y	-
Safety Audit	Y	Y	-	-
Safety in Lifting Tools & Tackles	-	Y	Y	y
Safety in Working at height	-	Y	Y	Y
Safety in Confined space work	-	Y	Y	Y
Defensive Driving	-	Y*	Y*	Y*

*for construction vehicle operators, helpers & crane operators

Y=Yes

9.0 ID PASS

- 9.1** CLIMS (Contract Labor Information Management System) will be the criterion for entering or gate pass system if implemented at site.
- 9.2** The contractor shall ensure that all personnel working at site having a photo Identity card before they are engaged for any work and properly mentioned details like validity, Category/designation and work area etc. This ID card should be issued only after ensuring their screening test, medical fitness and safety induction training. Id card gate pass shall be indicated with 3 nos. of offence marks. With each offence the gate pass of concerned workmen/ supervisor will be punched giving on the spot indication of persons indulging in unsafe actions.
- 9.3** Drinking of Alcoholic beverages is strictly prohibited. Employees under the influence of any intoxicants, even to the slightest degree, shall not be permitted to remain at work. Each contractor should maintain 'breath analyzer' to determine the intoxicated workers at site.

10 SAFETY AUDIT

- 10.1** Internal Safety Audit once in every six months by the contracting agency and external safety audit as once in a year by third party shall be conducted, with prior intimation to EIC and NTPC Safety Deptt. The external auditing agency should be reputed safety institution or a certified Safety Auditor under any statutory legislation. The audit report along with time bound action plan should be submitted to Engineer-in-charge and NTPC Safety Dept.
- 10.2** Apart from above, Electrical Safety Audit shall be conducted quarterly by a team comprising of Electrical engineer, Safety representative of contractor and NTPC Electrical Erection representative covering the following and submit the report to EIC.
- i) Electrical incidents investigation findings and remedial measures implemented.
 - ii) Adequacy of power supply requirements
 - iii) Power distribution system in place
 - iv) Updated electrical single line diagram including the IP44 DBs arrangement.
 - v) Electrical protection devices – ELCBs, O/L protections etc.
 - vi) Earth or ground connection and earth pit maintenance details
 - vii) Education and training of electrical personnel undertaken
 - viii) Any other point appropriate to the site conditions.

11. SAFETY BUDGET

Every contracting agency should clearly estimate and allocate a separate budget head for safety requirements every year and make the safety activity plan for the year and submit to NTPC EIC & Head of Safety. Budget allocations should be practically adequate to the site safety requirements and the details shall be intimated to the concerned EIC and safety deptt. before start of the work under the contract and subsequently, every year by 15th of April. Engineer-in Charge in consultation with Head of Safety shall review and monitor the effective utilization of allocated budget for safety related activities by the Contractor.

12. REPORTING AND INVESTIGATION OF ACCIDENTS AND DANGEROUS OCCURRENCES:

- 12.1 Reporting of accidents:** Notice of any accident (the prescribed format is annexed to the manual) to a worker at the building or construction site that
- (a) Causes loss of life; or
 - (b) Disables a worker from working for a period of **48 hours** or more immediately following the accident;
- Shall forthwith be sent by Telegram, Telephone, Fax, Email or similar other means including special Messenger within **four hours** in case of **fatal accidents** and **72 hours** in case of **other accidents**, besides the Engineer-in-charge, to:
- I. The Regional Labour Commissioner (Central);
 - II. The Board with which the worker involved was registered as a beneficiary;
 - III. Director General of Building and other construction (regulation of employment and conditions of service) Act/Rules; and
 - IV. The next of kin or other relative of the worker involved in the accident;
- 12.2** Further, notice of accident shall be sent in respect of an accident which
- (a) Causes loss of life; or
 - (b) Disables the injured worker from work for more than 10 days to
 - (1) The Officer-in-charge of the nearest Police Station;
 - (2) The District Magistrate or, if the District Magistrate by order so desires, to
 - (3) The Sub-Divisional Magistrate;
- 12.3** Where any accident causing **disablement that subsequently results in death**, notice thereof in writing of such death, shall be sent the Authorities mentioned above within **72 hours** of such death.
- 12.4** In case of an accident causing minor injury, first-aid shall be administered and that resulting in disability of **48 hours or more**, the injured worker shall be given first-aid and immediately transferred to a Hospital or other place for medical treatment.
- 12.5** All near-miss accidents shall be reported to NTPC Engineer In-charge and Safety Officer as per prescribed format.
- 12.6 Reporting of dangerous occurrences:** The following classes of dangerous occurrences shall be reported to the Inspector having jurisdiction, whether or not any disablement or death caused to the worker, namely:
- (a) Collapse or failure of lifting appliances, or hoist, or conveyors, or similar equipment for handling of building or construction material or breakage or failure of rope, chain or loose gears; or overturning of cranes used in construction work;
 - (b) Falling of objects from height;
 - (c) Collapse or subsidence of soil, any wall, floor, gallery, roof or any other part of any structure, platform, staging, scaffolding or means of access including formwork;
 - (d) Contract work, excavation, collapse of transmission;
 - (e) Explosion of receiver or vessel used for storage at a pressure than atmospheric pressure, of any gases or any liquid or solid used as building material;

- (f) Fire and explosion causing damage to any place on construction site where building workers are employed;
- (g) Spillage or leakage of any hazardous substance and damage to their container;
- (h) Collapse, capsizing, toppling or collision of transport equipment;
- (i) Leakage or release of harmful toxic gases at the construction site;
- (j) In case of failure of a lifting appliance, loose gear, hoist or building and other construction work, machinery and transport equipment at a construction site, such appliances, gear, hoist, machinery or equipment and the site of such occurrence shall, as far as practicable, be kept undisturbed until inspected by the Authorities;

12.7 Every notice given for fatal accidents shall be followed by a written report to the concerned Statutory Authorities and the Engineer In-charge in the specified Form annexed as Schedule, under acknowledgement.

12.8 Incident / injury statistics shall be maintained by all agencies cause wise.

12.9 Investigation of accidents and dangerous occurrences

Besides reporting, it shall be the responsibility of the contractor to constitute a team (members as per the gravity of the incident) of responsible person to thoroughly investigate all incidents involving near-miss accidents, lost-time and reportable accidents and dangerous occurrences with a view to finding out the causative factor, taking remedial measures and fixing responsibility, and make a copy of the investigation report along with action-plan, specifying a definite time-frame for implementation of the findings, available to the Engineer in-charge forthwith.

13. MEDICAL AND FIRST AID AMENITIES:

13.1 It is the responsibility of each contracting agency to ensure the availability of suitable arrangements at their work site for rendering prompt and efficient First aid to injured persons.

13.2 Arrange one trained and certified first aid for every twenty workers in each shift.

13.3 Ambulance with proper equipment for prompt transportation of the injured persons to a physician or a hospital shall be provided before start of the work in cases where 500 or more than 500 workers are employed. For smaller contracts, where less than 500 workers are employed, Contractor shall have a tie-up with suitable Agency for providing Ambulance with proper equipment for prompt transportation of the injured persons to a physician or a hospital in case of an Accident / Emergency. Further, Contractor shall submit a proof of the same to EIC/Safety Officer of NTPC.

13.4 Deploy one full time construction medical officer (qualification as per Schedule XI of BOCW Central Rules -1998) for cases where 500 or more workers are employed (upto one thousand workers) and one additional construction medical officer for additional one thousand workers or part thereof. For smaller contracts, where less than 500 workers are employed, Contractor shall have a tie-up with suitable Hospital / Nursing home in the vicinity of the

Project/Site where work is being executed, for providing adequate medical treatment by qualified medical officers and nursing staff, as and when required. Further, Contractor shall submit a proof of the same to EIC/Safety Officer of NTPC.

Notwithstanding anything stated above, Contractor/Agency shall strictly comply with the requirements of relevant BOCW Act/ BOCW Rules/ Factory Act/Factory Rules/ any other statutory Act/Rules/Law with regards to providing suitable medical facilities to the workers.

In case contractor fails to employ the required construction medical officer alongwith Additional staff, corresponding payment for the same shall not be made and/or necessary action as per provisions of the Bidding documents shall be taken by NTPC.

- 13.5** Additional staff including one nurse, one dresser-cum compounder, one sweeper-cum-ward boy with each construction medical officer for full working hours
- 13.6** The Telephone nos. of Medical officer, Hospital(s) or ambulance shall also be conspicuously displayed at each work site.
- 13.7** First-aid kits as approved by medical officer shall be provided at accessible points in the ratio of at least one kit for every 50 employees.
- 13.8 Health Management:** The site manager shall implement health examinations for the working personnel on a regular basis.

Types of health examination	Target	Frequency
General health examination	All workers	Annual
Occupational health examination (Audiometric, PFT, Vision etc.)	Worker engaging in noise, dust, vibration, harmful light generating work	Annual
Occupational health examination (Vision)	Personnel involved in operation of Cranes, heavy vehicles	Annual
Occupational health examination (Vertigo/Height pass)	Workers engaged at Height Works	At the time of induction training and every year

14. TESTING & EXAMINATION OF LIFTING, TOOLS, TACKLES, PRESSURE VESSELS AND OTHER EQUIPMENT:

- 14.1** All the lifting equipment, tools, tackles, pressure vessels etc. shall be tested & examined as per BOCW or Factories Act and rules made there under.

- 14.2** The records & certificates of such testing & examination shall be maintained and readily available for reference to statutory authorities/engineer-in-charge.
- 14.3** Proper color coding system should be maintained and marking should be done accordingly on all lifting tackles.
- 14.4** Regular testing of ELCBs and RCCBs by competent electrician must be ensured by agencies and record should be maintained.

15. EMERGENCY MANAGEMENT PLAN

- 15.1** The contractor shall ensure that an Emergency Management Plan is prepared to deal with emergencies arising out of:
 - a. Fire and explosion;
 - b. Collapse of lifting appliances and transport equipment;
 - c. Collapse of building, sheds or structure etc.;
 - d. Gas leakage or spillage of dangerous goods or chemicals;
 - e. Drowning of workers, sinking vessels, and
 - f. Landslides getting workers buried; floods, storms and other natural calamities.
- 15.2** While arrangements shall be made for emergency medical treatment and evacuation of the victim in the event of an accident or dangerous incident occurring, the chain of command and the responsible persons of the contractor with their telephone numbers and addresses for quick communication shall be adequately publicized and conspicuously displayed in the workplace.
- 15.3** It is also required that there is a tie-up with the hospitals and fire stations located in the neighborhood for attending to the casualties promptly and emergency vehicle kept on standby duty during the working hours for the purpose.
- 15.4** It shall be the responsibility of the contractor to keep the Local Law & Order Authorities informed and seek urgent help, as the case may be, so as to mitigate the consequences of an emergency. Prompt communication to NTPC, telephonically initially and followed by a written report, shall be made by the contractor.

16. ENFORCEMENT OF SAFETY CODE, SAFETY RULES & REGULATIONS:

The Engineer-In charge shall ensure that the contractor is exercising at all times, reasonable and proper precautions for the safety of people at works and complying with the provisions of current safety rules and laws according to safety code and relevant statutes of state/central governments. In case of negligence or default, the agency shall be penalized suitably as per penal provisions of NTPC Safety Rules.

17. WORK PERMIT SYSTEM

- 17.1** The Contractor shall implement Work Permit system, which is a formal written system used to control certain types of work that are potentially hazardous. A work permit is a document, which specifies the work to be done, and the precautions to be taken. Work Permits form an essential part of safe systems of work for many construction activities. They start the work

only after safe procedures have been defined and clearance taken from respective NTPC EICs. Permits to Work are usually required in high-risk areas as identified by the Risk Assessments.

17.2 Examples of high-risk activities include but are not limited to:

- i) Entry into confined spaces
- ii) Cutting & welding
- iii) Working at Height along with checklist
- iv) Working on electrical equipment
- v) Heavy lifting operations
- vi) Removal of grating/ Handrail / floor opening
- vii) Material Shifting

The copies of recommended formats for reference is given in annexure-IV.

17.3 The permit-to-work system should be fully documented, laying down:

- i) How the system works
- ii) The jobs it is to be used for;
- iii) The responsibilities and training of those involved; and
- iv) How to check its operation;

17.4 A Work Permit authorization form shall be completed with the maximum duration period not exceeding 12 hours.

17.5 A copy of each Permit to Work (PTW) shall be displayed near to work are (on PTW Display board) in close proximity to the actual works location to which it applies.

18. ACCESS TO AND FROM THE WORKPLACE

18.1 Safe, clean, well lit, unencumbered access and egress to and from work areas shall be maintained at all times in normal operating conditions.

18.2 The number and location of accesses and egresses from and to the workplace shall be adapted to the number of people likely to be present at any time, and therefore to evacuate from the workplace in case of emergency.

18.3 If access and egress to work areas are restricted due to operational conditions (e.g. access restricted due to pressure testing, etc.), alternative access and egress ways must be implemented, so far as is reasonably practicable. If this is not reasonably practicable, all concerned organizations and persons must be informed of the access restrictions, and work scheduling must be adapted in consequence.

18.4 Temporary access to height or into ground openings shall be of purpose made material such as scaffolds, stair cases/towers and ramps, which incorporate guardrails .

19. INTERFERENCE WITH MOVING VEHICLES AND PEDESTRIANS

- 19.1** The circulation of vehicles and pedestrians must be segregated by establishing restricted areas, one way routes where possible, pedestrian crossing zones and designated parking areas.
- 19.2** The appropriate measures must be implemented in order to prevent collision between pedestrians and vehicles at pedestrian crossings. This may include, but shall not be limited to:
- Mirrors;
 - Lighting;
 - Speed bumps before the crossing point.
- 19.3** Vehicle and pedestrian ways shall be physically separated with Hard-barriers, so far as is reasonably practicable, and be indicated with signs.



- 19.4** When it is not reasonably practical to implement a physical segregation, pedestrians must maintain safety distance of at least 2 meters from moving/operating vehicles at all times.
- 19.5** Traffic rules must be made visible through signage and traffic stops, consistent with those used on public
- 19.6** Roads as per road safety requirement.
- 19.7** All pedestrians on Project sites must wear high-visibility garments.
- 19.8** Pedestrians (including banksmen) must wear high-visibility garments in all areas where trucks and other vehicles (forklifts, cranes, etc.) maneuver. These areas must be clearly signaled / marked (floor painting, Hard-barriers, signs, etc.).Additional points:
- 19.9** Competent banksmen must be used for operations involving reversing or maneuvering where space or view is restricted.
- 19.10** Drivers must only operate vehicles they are competent to drive and must follow the established traffic routes and comply with all site rules.
- 19.11** The maximum driving speed on site is 15 km per hour.
- 19.12** Drivers and passengers must not get on or off moving vehicles.
- 19.13** When driving a forklift, forks must be lowered, the mast tilted back.
- 19.14** Smoking, eating, drinking, using a mobile phone or using earbuds or headphones when driving a vehicle is strictly prohibited.
- 19.15** When the vehicle is not in use, it must be ensured that:
- The engine is stopped and prevented from unauthorized use (e.g.: starter key removed), brake applied (and with wheels chocked for heavy vehicles);
 - All raised parts are lowered to the ground or put in a safe position (cranes);
 - It does not obstruct emergency exits, other routes, fire equipment or electricity panels.

20. HOUSEKEEPING

The contractor shall ensure that their work area is kept clean, tidy and free from debris generated by their activities. All debris/scrap should be stored in separate bins. The work areas must be cleaned on a daily basis and a full cleaning session of each area shall be conducted on a weekly basis. All equipment, materials and vehicles shall be stored in an orderly manner. Access to emergency equipment, exits, telephones, safety showers, eye wash stations, fire extinguishers, pull boxes, fire hoses, etc. shall not be blocked or otherwise disturbed, restricted or delayed.

21. STACKING AND STORAGE PRACTICE

Contractor Agency shall ensure stacked material is bonded on a stable and level footing capable of carrying the mass of the stack. Adequate clearances shall be provided between the sides of the stack and top to facilitate unimpeded access to service equipment like overhead wiring, cranes, forklifts and firefighting equipment, and hoses. Circular items shall be sufficiently choked with wedges not with odd bits of materials. Free-standing stacks of gunny bags and sacks such as Cement bags shall be stacked to prescribe safe stacking heights with layers formed for stable bonding, preventing slippage causing accidents. Stacking against walls shall not be permissible.

Contractor shall maintain the premises and surrounding areas in clean and clear manner with safe access and egress. There shall be sufficient and adequate storage racks, shelving, bins and pallets and material handling equipment to stack his construction materials such as Pipes, Structural and his construction enabling materials. Unwanted materials shall be promptly moved away for efficient material movement.

Any temporary store shed will be built in conformity with fire safety requirements. The stores must be provided with adequate lighting arrangement (Flame proof / intrinsically safe depending upon the Zone category) and must be equipped with sufficient fire extinguishing arrangement. "No Smoking" and other relevant signage must be displayed conspicuously at strategic locations and safety precautions must be strictly enforced.

All material should be kept at least 150mm above from the ground by providing wooden packing below. Maximum height of material stacking should not be greater than 3 meter. All loose material must be kept in wooden box or in sharp edge protected drum and material identification details to be displayed. Materials inside store room should be kept on scaffold rack.

Gas cylinder storage area must be 30m away from the hot work zone and separate storage facility must be available for empty and full cylinder with proper shed. Storage area must be design in a way that 6 meter distance between LPG/DA and oxygen maintained

22. CONFINED SPACES

All Confined Spaces belonging to Subcontractor shall be identified and clearly signed posted as a confined space forbidden to unauthorized Personnel at every entrance. A method for preventing entry must be established and maintained for all Confined Spaces. Physical prevention system (such as locks) is preferred.

Before commencing work in a Confined Space, the Subcontractor must obtain a Permit to Work from the relevant authority.

The following requirements shall be met at any time:

- Only competent and trained workers can participate to work in confined spaces (as a minimum as per local Law). A Confined Space Entry Log (or equivalent) must be used to identify the person inside the Confined Space at any time;
- Air Analysis tests must be carried out to determine if the Confined Space is oxygen deficient and/or contains flammable substances, toxic agents, carbon monoxide and/or harmful physical agents. The air shall be analyzed before starting work, during work and after work. Adequate ventilation must be provided;
- Working in the confined space without a watcher is strictly forbidden. An adequate means of communication is required and shall enable easy and clear communication:
 - Between those inside the space,
 - Between those inside the space and those outside,
 - To summon help in case of emergency;
- Adequate emergency provisions must be in place. In particular, necessary rescue equipment must be ready, pre inspected and available. The arrangements need to be suitable and sufficient for the rescue of persons in the event of an emergency.

23. FIRE PROTECTION AND PREVENTION

Routine hot works should be described in the contractor Risk Control Plan .Non-routine hot works are submitted to daily hot works permits given by the relevant authority.

Full and unrestricted access to emergency exits, fire-fighting equipment, fire control and emergency vehicles shall be maintained at all times. The Subcontractor shall provide, install and maintain their own temporary fire protection against hazards they introduce to the Site (work areas, storage areas, and temporary facilities under their responsibilities).

Fire extinguishers shall be inspected at least annually by a certified person and visually inspected monthly and documented by the Contractor.

24. ELECTRICAL SAFETY

Personal authorization must be issued by Contractor Management (or formally designed delegates) likely to perform or supervise electrical works.

Without such an authorization validated by EIC, no Contractor's employee shall undertake electrical works.

No live work on high voltage or medium voltage is allowed. All high voltage and medium voltage electrical works must be performed on isolated equipment and only after verification of absence of voltage with suitable equipment. Low voltage and very low voltage live work is only allowed for measurement tests and checks of equipment. The below measures will be taken:

- Work practices must protect against direct or indirect body contact by means of tools or materials and be suitable for work conditions and the exposed voltage level
- A Lockout and Tagout procedure must be applied prior to commencing any electrical work. Prior to commencing works on isolated equipment, a verification of absence of voltage with suitable safety test equipment must be performed.
- Energized panels will remain locked with a specific key or tool whenever they are unattended and tagged with the signs and warnings indicating the presence of danger. If not reasonably practicable, a restricted area delimited with physical barriers and supported by warning signs must be implemented around the opened equipment.
- Only qualified electrical Contractor Personnel may enter substations and/or transformer vaults and only after being specifically authorized by NTPC EIC.
- All joints (Both terminal and intermediate) in cable should be made using lugs and joint area should be crimped using crimping tools.
- All temporary connection should be provided through 30mA ELCB/RCCB using 3 core double insulated cable and only 3 pin industrial plug top will be used for connection.
- Zero energy verification needs to be ensured before any electrical operation using only VAV before working on a live circuit which has been isolated
- Only industrial type DB to be used for connection and weather protection shed needs to be provided for every DB and shed height should not be less than man height.
- Double earthing protection must be provided for every electrical equipment and earthing value should be less than 1 Ohm
- Deployment of trained, experienced & licensed electrician as well as licensed electrical supervisor must be ensured at site as per Rule-45 of the Indian Electricity Rules, 1956 ;
- EIC May perform screening/ competency test for all contractor electrical professions i.e. electrical engineers and helpers. Selection/ rejection of the personnel who appear for the screening is sole discretion of EIC
- Electrical helper who will be engaged in helping the electrician/ engineer must have minimum ITI certificate to be eligible for working with him
- All PPE's used while being involved in electrical work must be as per IS Standards available for electrical work

25. COMPRESSED GAS CYLINDERS

Gas cylinders shall be securely stored and transported, and identified and used in line with the safety Requirements as per Gas Cylinder Rules -2106.

Hose lines shall be adequately protected, inspected and tested for leaks in line with the safety Requirements. Flash back arrestor /NRV must be used at both ends of the hoses and all hose should be free from damage and fixed properly preferably using crimping clamps. Leakage test must be done before every use by soap solution and physical inspection of hose must be carried out regularly. Only trolley attached with wheel will be used for cylinder transportation in which cylinders must be kept secured with chain. Only Industrial type regulator fitted with two stage double dial pressure gauge is allowed to be used.

26. LIFTING OPERATIONS

The Contractor shall prepare a lifting plan, checked and submit for authorization by contractor's competent authorized persons prior to any lifting operation and formally communicated to all persons undertaking the work.

All persons preparing, issuing lifting plans and all persons involved in lifting operations must be subject to formal competence checks by the contractor to ensure necessary training, experience and qualification prior to commencing work. The Subcontractor must ensure that their nominated Lifting Leader has appropriate qualifications.

Contractor lifting plans include:

The lifting methodology, step by step

The risk analysis of the operation including consideration for weather conditions and work environments (e.g.: proximity of hazards and obstructions to the load, consideration for overturning, load integrity) where appropriate and consideration for simultaneous operations and the measures taken to avoid conflicting tasks in the lifting area

The identification of the designated lifting area, the fall zone and the control measures to prevent access such as barriers, signs, etc.

The description of the type, weight, size, shape and center of gravity of the load and the method used for slinging, attaching and detaching the load with the availability of approved lifting points on load when necessary

The list of the certified and inspected equipment and lifting accessories to be used

The composition of the team required to perform the task (crane driver, rigger, etc.) with the needed qualifications and description of their roles and responsibilities including the intended communication method

Any Heavy equipment (crane, winch machine, etc.) manufactured less than 15 years from the current year shall be only allowed to be used at our project Site's. Pre-safety Inspection of the equipment by safety deptt. shall be done before mobilizing the equipment at our project site.

The contractor must ensure that a competent operational leader is formally appointed to supervise each lifting operation. All lifting plans must clearly define the specific roles and responsibilities for each person involved (e.g.: crane drivers, lifting coordinators and riggers) and must be checked and issued prior to lifting operation. Clear communication channels must be formally established and maintained between everyone involved in a lift with only authorized person giving instruction to the operator.

Special permission needs to be taken from NTPC EIC for tandem lifting and for any non-routine lifting operations must strictly adhere to the guidelines described in corresponding Standard / Procedures / Directive.

No employee of the contractor shall be positioned under a suspended load or between a suspended load and fixed objects.

All lifting equipment and accessories must have valid manufacturers certificates or thorough examination records and be uniquely identified, marked with the safe working load, listed in a register and subject to formal regular inspection as per EHS requirements and shall have valid certificates from a competent authority. Inspection before use by the operator is mandatory. All lifting hooks must have latch. All cranes shall be fitted with Automatic Safe Load Indicator (ASLI) and Anemo Meter.

The contractor shall operate and maintain cranes and hoisting equipment in accordance with manufacturers' specifications and limitations and the safety Requirements. All defective, non-inspected or unidentified (safe working load / identification number) lifting equipment or accessories must be either removed from site or physically prevented from use.

27. LOCKOUT TAGOUT (“LOTO”)

Prior to performing work on Machines or Equipment, the Subcontractor shall ensure that all energy sources are isolated and verify the absence of residual energy (e.g.: by using specific voltage detecting device for electricity).

At any time, the contractor shall follow the Site-specific LOTO and Permit to Work rules. The contractor must ensure that all of their affected Subcontractor Personnel receive the necessary training. Lockout/ Tagout must be implemented before servicing and maintenance is performed on Machines and Equipment, which could unexpectedly start-up, become energized, or release stored energy exposing persons to a risk of injury, unless the works undertaken are performed using alternative measures that provide effective protection.

Absence of residual energy must be verified using the suitable equipment or process adapted to the machine and the kind of energy to be checked before start of work. *The contractor must procure suitable VAV instrument for verification of absence of voltage before implementing LOTO all by themselves.*

When the contractor is in charge of LOTO, each authorized person must be issued with an individual lock with a unique key. The contractor shall secure areas where energy sources have been de energized, so as to prevent the access of unauthorized personnel and erect suitable signs. All affected Personnel shall be notified.

Once an item of electrical equipment has been energized, an item of mechanical plant and/or System has been erected and released for Commissioning, no work will be allowed on such item of Equipment or System unless a valid Permit to Work (PTW) has been obtained from the relevant authority.

28. MONTHLY SAFETY REPORT

Agency has to submit the monthly safety activity report in the form of Lead-Lag indicator to NTPC Safety Deptt. Sample format attached as annexure –IV.

- 29.** In case the Contractor doesn't adhere to any of the provisions of the NTPC Safety Rules for Construction and Erection of Power Plants, corresponding payment for the provisions not adhered, shall not be made and/or necessary action as per provisions of the Bidding documents shall be taken by NTPC.

SECTION-II

1. Safety at workplace and equipment

1.0 GENERAL PROVISIONS:

1.1. Housekeeping:

- a. The contractor shall be primarily responsible for maintaining Good housekeeping and safety standards in the workplace;
- b. Loose materials that are not required for use shall not be placed or left behind so dangerously as to obstruct workplaces or passageways;
- c. All projecting nails shall be removed or bent to prevent injury;
- d. Equipment, tools and small objects shall not be left lying unattended or unsecured from where they could fall or cause a person to trip;
- e. Scrap, waste or rubbish shall not be allowed to accumulate in the site as these combustibles can create serious fire hazards and affect safe working;
- f. Workplaces and passageways that become slippery owing to spillage of oil or other causes shall be cleaned up or strewn with sand, ash or the like;
- g. Portable equipment shall be returned after use to their designated storage place.

1.2. Means of access and egress shall consist of

- a. Adequate and safe means of access and egress shall be provided in all workplaces;
- b. The means of access and egress shall be maintained in a safe condition;

1.3 Lighting and ventilation

- a. All practical measures shall be taken to prevent smoke, fumes etc. from obscuring any workplace or equipment at which any worker is engaged;
- b. Adequate and suitable artificial lighting shall be provided where natural lighting is not sufficient as per IS 3646 (Part II). The artificial lighting so provided shall not cause any incidental any danger, including that of producing glare or disturbing shadows;
- c. To prevent danger to health from air contamination by dust generated during grinding, cleaning, spraying or manipulation of materials as also to provide protection against dangerous gases, fumes, vapours, mist, etc. effective arrangements shall be made for ventilation;
- d. Workers shall be provided with suitable respiratory protective equipment, if it is not technically possible to have uncontaminated air. To this end, a study by a competent person shall be made to decide on the due protection. Sufficient illumination at all times for maintaining safe working conditions shall be provided where building workers are required to work or pass, and for passageways, stairways and landings such illuminations shall not be less a than 0.5 foot candles at the floor level;
- e. Where natural lighting is not adequate to prevent danger, adequate and suitable lighting shall be provided as per IS: 3646 – Part II;
- f. Artificial lighting shall not cause any danger due to a brightness greater than 10 foot candles per square inch, except where the angle of inclination from the eye to the source or the part pf the fitting as the case may be exceeds 20⁰, including that of producing glare or disturbing shadows;
- g. Where necessary to prevent danger to health from air contamination by dust from the grinding, cleaning, spraying, or manipulating of materials or objects, arrangements shall be made to limit the concentration of the pollutants by thorough ventilation, and dust generated due to movement of earthmoving machinery and other construction equipment, by spray of water in the area from time to time;
- h. Adequate ventilation by the circulation of fresh air shall be maintained in such places where the concentration of pollutants is likely to affect the health of the workers;

- i. Special care shall be taken to ventilate the workplace where gas cutting, welding or other operations involving generation of dangerous fumes, vapours, mists, gases etc is likely;
- j. Where it is technically not possible to eliminate dust or noxious or harmful fumes or gases sufficiently to prevent injury to the health of the workers, the contractor shall provide suitable respiratory equipment like dust mask or gas/fume mask or breathing apparatus or other suitable respiratory equipment.

1.4. Dangerous and harmful environment:

- a. When an internal combustion engine exhausts into confined space or excavation or tunnel or any other workplace where neither natural ventilation nor artificial ventilation system is adequate to keep the carbon monoxide content of the atmosphere below fifty parts per million, adequate and suitable measures shall be taken at such workplace in order to avoid exposure of building workers to health hazards;
- b. No building worker shall be allowed to enter any confined space or tank or trench or excavation wherein there is given off any dust fumes or other impurities of such nature and to such extent as is likely to be injurious or offensive to the building worker or in which explosives, poisonous, noxious or gaseous material or other harmful articles have been carried or stored or in which dry ice has been used as a refrigerant, or which has been fumigated or in which there is a possibility of oxygen deficiency, unless all practical steps have been taken to remove such dust, fumes or other impurities and dangers which may be present and to prevent any further ingress thereof, from such workplace or tank or trench or excavation;
- c. No worker shall be allowed to enter any such space unless a responsible person has certified it safe and fit for the entry of such building workers.

1.5. Fumes/gases due to Welding and gas-cutting operations: When welding or cutting operations are carried out in a confined space:

- a. Adequate ventilation, by means of exhaust fans or forced draught, as the condition may require, shall be constantly provided; otherwise enough quantity of air shall be circulated by means of air compressors to dilute the contaminant within permissible limits;
- b. Workers shall take necessary precautions to prevent unburned combustible gas or oxygen from escaping inside a tank or vessel or other confined space;
- c. Welding or cutting operations on any container that has held explosives or where inflammable gases may have been generated, shall be undertaken after the container has been thoroughly cleaned by steam or other effective means; and
- d. Gas-test shall be carried out ensure that the confined space is completely free from combustible gases and vapours.

1.6. Dust, gases, fumes

- a. Concentration of dust, gases or fumes shall be prevented by providing suitable means to control their concentration within the permissible limit so that they may not cause injury or create health hazard to a building worker;

- b. For protection against such hazardous substances, besides efficient and effective means of control, personal protective equipment like dust masks, breathing apparatus, other respiratory appliances, goggles, as the case may be, shall be provided.

1.7. Excessive noise:

- a. Adequate measures shall be taken against the harmful effects of an excessive noise;
- b. Use of earplugs/muffs and anti-vibration gloves shall be ensured to protect the workers from the impact of exposure to such dangers;
- c. The noise level in no case shall exceed as prescribed in the concerned Rules and exposure in excess of 115 dBA over the period of a quarter of an hour cannot be permitted:

1.8. Corrosive substances:

- a. All corrosive substances, including alkalis and acids, shall be stored and used by a person dealing with such substances at a building or other construction work in such a manner that it does not endanger the building worker and suitable protective equipment shall be provided by the employer to a building worker during handling or use of such substances at a building or other construction work and in case of spillage of such substances on the building worker, immediate remedial measures shall be taken;
- b. While protection of the body could be ensured by use of corrosion resistant apparel/overalls, suitable goggles, gloves, apron, gum boots etc. shall be made available to all concerned personnel;
- c. To deal with an accidental spillage of a corrosive substance on the body of a worker, the facility of eyewash fountain or water shower, as the case may be, shall be installed, within the easy reach of the workplace.

1.9. Eye protection:

- a. Suitable personal protective equipment for the protection of eyes shall be provided and used by the building worker engaged in operations like welding, cutting, chipping, grinding or similar operations which may cause hazard to his eyes;
- b. Goggles or face shield or welding screen with suitable shade of glass/filters etc shall be provided for the protection of the eyes.

1.10. Overhead protection:

- a. It shall be ensured that at the building or other construction site, overhead protection is erected along the periphery of every building under construction that shall be of fifteen meters or more in height when completed;
- b. Overhead protection shall not be less than two meters wide and shall be erected at a height not more than five meters above the base of the building and the outer edge of such overhead protection shall be one hundred fifty millimeters higher than the inner edge thereof or shall be erected at an angle of not more than twenty degrees to its horizontal sloping into the building;

- c. It shall be also ensured that at the building and other construction work that any area exposed to risk of falling material, articles or objects is roped or cordoned off or otherwise suitably guarded from inadvertent entry of persons other than building workers at work in such area.

1.11. Lifting and carrying of excessive weight:

- a. No building worker lifts by hand or carries overhead or over his back or shoulders any materials, articles, tools or appliances exceeding in weight the maximum limits as set out in the following table unless aided by any other building worker or a mechanical device;
- b. No worker aided by other workers, lift by hand or carry overhead or over their back or shoulders any materials, articles, tools or other appliances exceeding in weight the sum total of the maximum limits as prescribed in the concerned Rules, unless aided by a mechanical devices:

1.12. Protections against fall of persons –

- a. All scaffolds/working platforms at height of two metres or more shall be fenced;
- b. All guard-rails for the fencing of floor openings, gangways, elevated workplaces shall be made of sound material, good construction and possess adequate strength and be between 1 m and 1.5 m above platform level, consist of two rails (two ropes or chains may be used if they are sufficiently taut) and supporting stanchions;
- c. Intermediate rails, ropes or chains shall be midway between the top and lower of edges of the top rail;
- d. Sufficient number of stanchions or standard poles or uprights shall be maintained to ensure the required stability and resistance;
- e. Guard-rails shall be free from sharp edges and be maintained in good repair;
- f. Floor openings through which persons could fall, shall be guarded by covering or fencing;
- g. If the means of protection is removed to allow the passage of persons or goods or other purpose, the same shall be replaced as soon as possible, while making temporary arrangements for reasonable degree of safety in the meanwhile;
- h. Covers for floor opening shall be safe to walk on and if vehicles operate thereon it shall be safe for the same. This will require the contractor to have prior assessment of expected loads;
- i. Cover for floor opening shall be secured by hinges, grooves, stops or other effective means against sliding, falling down or lifting out or any other inadvertent displacement;
- j. Covers for any openings shall not constitute any hindrance to traffic and, as far as practicable, be flush with the floor;
- k. If covers constitute as grids, the bars shall be spread not more than 5 cm apart;
- l. Elevated workplaces at more than 2 m above the floor or ground shall be protected on all open sides by guardrails. It is commonly observed that fragile barricade tapes are used as a substitute of a strong and dependable fencing. This practice is prohibited. The barricade tapes can be used as markers/route guide only;
- m. Elevated workplaces shall be provided with safe means of access and egress such as stairs, ramps or ladders according to suitability;
- n. Persons employed at elevated workplaces or other situations at more than 2m from which they may fall, shall be protected by means of adequate safety nets, or platforms, or be secured by

safety belts with the lanyard properly anchored above the head level of the user. All possible effort shall be made to have strong and dependable mechanical arrangement.

1.13. Protection against fall of objects and materials:

- a. Materials and objects such as scaffolding materials, waste materials or tools shall not be thrown up or down from heights, as they are liable to cause injury;
- b. If materials and other objects cannot be safely lowered from heights, adequate precautions such as the provision of fencing, lookout men or barriers shall be provided to protect any person from injury.

1.14. Protection against entry of unauthorized persons:

- a. Construction zones in the site and built up areas alongside main traffic routes shall be barricaded;
- b. Unauthorized persons shall not be allowed access to construction sites and visitors shall be provided with the required protective equipment and it be ensured that they use them effectively.

1.15. Head protection and other protection apparel:

Every building worker who is required to –

- a. Pass through or working within the areas where there is hazard of his being struck by falling objects or materials, shall be provided with safety helmets of the type approved and tested in accordance with the national standards;
- b. Work in water or in wet concrete or in other similar work, shall be provided with suitable waterproof;
- c. Work in rain or in similar wet condition, shall be provided with waterproof coat with hat;
- d. Workers using or handling of alkalis, acid or other similar corrosive substances shall be provided with appropriate protective equipment in accordance with the approved standards;
- e. Every building worker engaged in handling sharp objects or materials at a building or other constriction work, which may cause hand injury, shall be provided with suitable hand gloves in accordance with the approved standards.

1.16. Stability of structures:

- a. No wall, chimney or other structure or part of a structure shall be left unsupported in such condition that it may fall, collapse or weaken due to wind pressure, vibration or due to any other reason. Entry of persons into such locations where tall structures are being built shall be regulated without a let up.

1.17. Safety of Structures and equipment and other safety concerns

- a. Safety of structures like scaffoldings, platforms, gangways/walkways, towers, stairs, ladders, ramps, safety in excavation, formwork, falsework, demolition work, storage, handling and use of explosives, inflammable substances and hazardous materials, gas cutting and welding, use of electricity etc.; and equipment viz. construction machinery, crushers and batching plant, boiler and other pressure vessels, transport and material handling equipment, lifting appliances, vehicles etc., shall be operated and maintained as per approved norms and –
 - i. They shall be made of sound material and of good construction, free from patent defects, provided with adequate safe guards, properly maintained, periodically inspected and strong enough to withstand safely the loads and stresses to which they may be subjected;
 - ii. They shall carry enough factor of safety bearing in mind that the possibility of their abuse, which otherwise shall be prevented by constant and adequate supervision, cannot be ruled out altogether;
 - iii. It is incumbent on the contractor to ensure that only competent and authorized persons operate the equipment or attend to electrical and mechanical systems and repair of faults or breakdowns etc.
- b. Working in the confined space may involve certain serious hazards. Strict adherence to the conditions of Permit-to-work issued for the purpose is required;
- c. Control of energy sources shall be ensured through Log-out/Tag-out practices.

1.18. Slipping, tripping, cutting, drowning and falling hazards:

- a. The contractor shall keep all passageways, platforms and other places free from accumulations of dust, debris or similar material and from other obstructions that may cause tripping;
- b. Any sharp projections or protruding nails or similar projections which may cause any cutting hazard to a building workers shall be removed or otherwise made safe by taking suitable measures;
- c. No contractor shall allow any building worker at construction work to use the passageway, or a scaffold, platform or any other elevated working surface which is in slippery and dangerous condition and shall ensure that water, grease, oil or other similar substances which may cause the surface slippery, be removed or sanded/saw-dusted or covered with suitable material to make it safe from slipping hazard;
- d. Wherever building workers are exposed to the hazard of falling into water, they shall be provided with rescuing arrangement from such hazard and if it is considered necessary, well equipped boat or launch manned with trained personnel shall be provided by the contractor at the site of such work;
- e. Every open side or opening into or through which a building worker, vehicle or lifting appliance or other equipments may fall at a building or other construction work shall be covered or guarded suitably to prevent such fall except where free access is necessary by reasons of their nature of the work;
- f. Wherever building workers are exposed to the hazards of falling from height while employed on such work they shall be provided by the employer with adequate equipment or means for

saving them from such hazards, Such equipments or means shall be in accordance with the standards as laid down;

- g. Whenever there is a possibility of falling of any martial, equipment or building worker at a construction site relating to a building or other construction work, adequate and suitable safety net shall be provided in accordance with the above stipulation;

2.0 SAFETY IN MATERIAL HANDLING AND WASTE DISPOSAL

2.1. GENERAL PROVISIONS:

- a. All building materials stored in tiers shall be stacked, racked, blocked, interlocked or otherwise secured safely to prevent sliding, falling or collapse and in an orderly manner to avoid obstruction of any passageway at the place of work. Piles of materials shall be stored or stacked in such a manner as to ensure their stability;
- b. Maximum safe load limits of floors within buildings and structures in kg/cm² shall be conspicuously posted in all storage areas, except for floor or slab on gradient. Maximum safe load shall not be exceeded. Material or equipment shall not be stored upon any floor or platform in such quantity as to exceed its safe carrying capacity;
- c. Ailes and passageways shall be kept clear to provide for the free and safe movement of material handling equipment or persons. Such areas shall be kept in good repair;
- d. When a difference in road or working levels exist, means such as ramps, blocking or grading shall be used to ensure the safe movement of vehicles between two levels;
- e. Material stored inside buildings under construction shall not be placed within 2 m of any hoist way or inside floor openings nor within 3.2 m of exterior wall which does not extend above the top of material stored;
- f. Persons employed required to work on stored material in silos, hoppers and similar storage areas shall be equipped with lifelines and safety belts;
- g. Non-compatible materials shall be segregated in storage;
- h. Bagged materials shall be stacked by stepping back the layers and cross-keeping the bags at least every 10 bags high;
- i. Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations;
- j. Bricks stacks shall not be more than 2.2 m in height. When a loose brick stack reaches a height of 1.3 m it shall be tapered back 5 cm in every foot of height above the 1.25 m level;
- k. When masonry blocks are stacked higher than 2 m, the stack shall be tapered back on half block per tier above the 2 m level;
- l. Material or equipment shall not be stored or placed so close to any edge of a floor or platform as to endanger the safety of persons below or working in the vicinity. Where stacking, unshackling, stowing or unstaring of construction material or article, or handling in connection therewith cannot be safely carried out unaided, reasonable measures to guard against accident or dangerous occurrences shall be taken by shoring or otherwise to prevent any danger likely to be caused by such handling;
- m. Stacking of material or article shall be made on firm foundation not liable to settle and such material or article and shall not overload the floor on which such stacking is made;

- n. The material or articles shall not be stacked against partition or walls of a warehouse or stores unless it is known that such partition or the wall is of sufficient strength to withstand the pressure of such materials or articles;
- o. The materials or articles shall not be stacked to such a height and in such a manner as would render the pile of such stack unstable and cause hazards to the building workers or the public in general;
- p. Where the building workers are on stack exceeding one point five meters in height, safe means of access to the stack shall be provided;
- q. All stacking or unstacking operations shall be performed under the supervision of a responsible person for such stacking or unstacking;
- r. The stacking of construction materials or articles shall not be made near the site of excavation, shaft, pit or any other such opening;
- s. Stacks that may lean heavily or become unstable or collapse are barricaded shall be avoided;
- t. Structural steel, poles, pipe, bar stock and other cylindrical materials, unless racked, shall be stacked and blocked so as to prevent sliding, spreading or tilting.

2.2. LUMBER:

- a. Used lumber shall have all nails withdrawn before stacking;
- b. Lumber shall be stacked on level and solidly supported sills;
- c. Lumber piles shall not exceed 6 m in height provided that lumber is handled manually, shall not be stacked more than 5 m height;
- d. Lumber shall be so stacked as to be stable and self-supporting.

2.3. STACKING OF CEMENT AND BAGS CONTAINING OTHER MATERIALS:

- a. The cement or other material in bags shall be stacked in a header and stature-wise in rows alternately in not more than 10 numbers and there will be circulation of space of at least 600 mm in between two such rows;
- b. While removing bags from the stack pile the stability of such stack pile shall be ensured;
- c. Bags containing cement or lime shall be stored on a firm ground;
- d. The materials like bricks, tiles or blocks shall also be stored on a firm ground;
- e. Reinforcing steel shall be stored according to its shape, size and length and stack of reinforcing steel kept as low as possible;
- f. No pipe shall be stored on rack or in stack where such pipe is likely to fall by rolling;
- g. The angle of repose shall be maintained where loose materials are stacked;
- h. When dust laden material is to be stored or handled, measures shall be taken to suppress the dust produced by such storing or handling and suitable personal protective equipment supplied to and used by the building workers working for such storing or handling.

2.4. DISPOSAL OF DEBRIS AND WASTE MATERIAL:

- a. It shall be ensured that debris is
 - i. Handled and disposed of by a method, which does not cause danger to the safety of a person and not allowed to accumulate so as to constitute a hazard;
 - ii. Kept sufficiently moist to bring down the dust under control;
 - iii. Not thrown inside or outside from any height of such building or other construction work;
- b. Brought down by suitable means/chutes provided for the purpose and on completion of work, leftover building material, article or other substance or debris shall be disposed off as soon as possible to avoid any hazard to any traffic or person;
- c. Whenever materials are dropped more than 6 m to any point lying outside the exterior walls of the building an enclosed chute of wood, or equivalent material shall be used;
- d. When debris is dropped through holes in the floor without the use of chutes, the area where the material is dropped shall be completely enclosed with barricades not less than 1.1 m high and not less than 1.9 m back from the edge of the opening above. Signs warning of the hazard of falling material shall be posted at each level;
- e. All scrap lumber, waste material and rubbish shall be removed from the immediate work area as the work progresses;
- f. Disposal of waste material or debris as per the guideline issued by CPCB in compliance of Rule 10 sub-rule 1(a) of C & D Waste Management Rules, 2016).
- g. All bio-degradable material shall be disposed off in the pit for making compost. Pellets can also be made from bio-degradable material
- h. All solvent wastes, oil rags and flammable liquids shall be kept in fire resistant covered containers until removed from the work site.

2.5. HANDLING GAS CYLINDERS:

- a. Gas cylinders shall not be lifted on bare slings. For lifting the cylinders, cage of suitable size shall be used and all cylinders shall be horizontally positioned in it. Such cage shall have fencing in such a way that there is no possibility of fall of cylinders from this cage.

2.6. RIGGING EQUIPMENT FOR MATERIAL HANDLING:

- a. Rigging equipment for material handling shall be inspected prior to use in each shift as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service;
- b. Rigging equipment shall not be loaded in excess of its recommended safe working load, as prescribed in the Indian standards;
- c. Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to persons engaged in the area;

- d. Special custom designed grabs, hooks, clamps, or other lifting accessories, for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads shall be proof tested prior to use 125% of their rated load;
- e. Welded alloy steel chain slings shall have permanently affixed-durable identification standing size, grade, rated capacity and manufacturer.

2.7. FENCING OF MOTORS ETC

- a. All motors, cogwheels, chains and friction gearings, flywheels, shafting and the other dangerous and moving parts of machinery (whether or not driven by mechanical power) and steam pipes shall be securely fenced and the fencing of dangerous parts of machinery not removed while such machinery is in motion or in use;
- b. No part of any machinery which is in motion and which is not securely fenced, shall be examined, lubricated, adjusted or repaired except by a person skilled and trained for such examination, lubrication, adjustment or repairs and machine parts cleaned only when such machine is stopped;
- c. When a machine is stopped for servicing or repairs, adequate measures shall be taken to ensure that such machine does not restart inadvertently and not only tag-out sign is required; it is also essential that an active system of isolating the power be applied.

2.8. PROTECTION AGAINST LIGHTNING

- a. Where necessary, installations shall be protected against lightning, provided further that;
- b. No bare conductors or bare current-carrying parts of equipment be permitted to be installed unless adequate precautions are taken to prevent direct or indirect contact;
- c. Only flame-proof equipment and conductors shall be installed at places where explosives or inflammable substances are stored, handled or used or where explosive atmosphere exists;
- d. Persons competent and authorized only shall attend to electrical breakdowns and other operational faults and give or restore power to an equipment and such persons shall be easily identifiable by their dress or special helmet worn;
- e. It will constitute a standard practice to switch off portable tools while shifting from one place to another or while leaving them behind unattended;
- f. The contractor shall ensure that a system is in place to always keep tools well maintained.

2.9. VEHICULAR TRAFFIC

- a. Whenever any building or other construction work is being carried on, or is located in close proximity to a road or any other place where any vehicular traffic may cause danger to building workers, it shall be ensured that such building or other construction work is barricaded and suitable warning signs and lights displayed or erected to prevent such danger and if necessary, a request in writing made to the concerned authorities to control such traffic;

- b. All vehicles used at construction site shall comply with the requirements of the Motor Vehicles Act, 1988 (59 of 1988) and the Rules made hereunder;
- c. The driver of a vehicle of any class or description operating at a construction site shall hold a valid driving license under the Motor Vehicles Act. 1988 (59 of 1988).

2.10. USE OF SAFETY BELT OR OTHER FALL ARREST SYSTEMS:

Wherever any work at a height of 3 m or more is carried out, use of a suitable fall arrest system is mandatory if the workplace has already not been provided with an otherwise reliable means of protection for preventing the fall of persons from that height, provided further that:

- a. Safety belt, lanyard, life lines and devices for the attachment of such life lines shall conform to the approved standards;
- b. Every building worker shall be supplied with safety belt and safety life lines for his protection and such building worker shall use such belts and life lines during the performance of his work;
- c. All building workers using safety belt and safety life lines shall have the knowledge of safe use and maintenance of such belts and life lines and shall be supplied with necessary instructions for its use;
- d. The responsible person for supervising the use of safety belts and safety lifelines shall inspect and ensure that such safety belts and lifelines are fit for use before taking them into use.

2.11. SAFETY NET AND ITS USE

- a. Every safety net shall be of adequate strength, made of sound material and suitable for use and conform to the approved standards;
- b. The responsible person for maintenance of safety nets and their use shall ensure safe fixing of such safety nets and provide such safety nets with suitable and sufficient anchorage so that the purposes for which such safety net is intended for use is served;
- c. Use of multi-layer safety net to be ensured to avoid fall of material/objects.

2.12. STORAGE OF SAFETY BELTS AND NETS, ETC:

- a. Proper arrangement shall be made for the safe storage of safety belts, safety lifelines and safety nets when they are not in use and are protected against mechanical damage, damages from chemicals and damages from biological agents.

2.13. SAFETY HELMETS AND SAFETY FOOTWEAR

- a. The Engineer in-charge may declare whole or part of a site as the hardhat area and in such an eventuality it shall be the responsibility of the contractor to provide safety helmet of the approved quality to all personnel engaged in construction and erection work, including the visitors to the site;
- b. Accordingly, wherever safety footwear is required for the safety of the personnel, the contractor shall provide the same of the approved type free of charge.

3.0 WELDING AND GAS CUTTING OPERATIONS

3.1 GAS WELDING:

3.1.1 GENERAL PROVISIONS:

- a. All welders shall be provided with fire resistant protective clothing and equipment, such as fire resistant gauntlets and aprons, helmets and goggles with suitable filter lenses and its usage shall be ensured;
- b. The welders shall not be allowed to wear clothing that is not free from grease, oil and other flammable material;
- c. Adequate precautions shall be taken to protect persons working or passing near welding operations from dangerous sparks and radiation;
- d. When welding or cutting is being done on materials containing toxic or harmful substances or liable to produce toxic or harmful fumes, adequate precautions shall be taken to protect workers from the fumes, either by
 - i) Exhaust ventilation, or
 - ii) Respiratory protective equipment;
 - iii) Arrangement shall be made so that welding sparks do not fall down on the persons working below or material, which are combustible in nature and may be damaged with such sparks.
- e. The oxygen pressure for welding shall always be high enough to prevent acetylene flowing back into the oxygen cylinder;
- f. Acetylene shall not be used for welding at a pressure exceeding 1 atmosphere gauge;
- g. Adequate precautions shall be taken to prevent:
 - i) Fire being started by sparks,
 - ii) Slag or hot metal; and
 - iii) Damage to fibre ropes from heat, sparks, slag or hot metal;
- h. Precautions shall be taken to prevent flammable vapours and substances from entering the working area;

3.2. WELDING AT PLACES WITH FIRE RISKS:

- a. Unless adequate precautions are taken, no welding or cutting operations shall be allowed near the place where combustible materials are stored, or near materials or plant where explosive or flammable dusts, gases or vapours are likely to be present or given off. If hot work permit system exists at the site, the same shall be followed;
- b. Combustible materials and structures that cannot be removed from the vicinity of welding operations shall be shielded by asbestos or protected by other suitable means.

3.3. WELDING IN CONFINED SPACE:

When welding or cutting operations are being carried out in a confined space;

- a. Adequate ventilation, by means of exhaust fans or forced draught as the condition may require, shall be constantly provided; otherwise enough quantity of air shall be blown in by means of compressors to dilute the pollutants;

- b. No blow pipe shall be left unattended inside a tank or vessel or other confined space during meal break or other interruption of the work;
- c. The worker shall take all necessary precautions to prevent unburned combustible gas or oxygen from escaping inside a tank or vessel or other confined space; and
- d. When necessary to prevent danger, an attendant shall watch the welders from outside.

3.4. WELDING ON CONTAINERS FOR EXPLOSIVE OR FLAMMABLE SUBSTANCES:

Welding or cutting operations on containers in which they are explosives or flammable substances shall not be allowed;

- i) Welding or cutting operations on any container that has held explosive or where flammable gases may have been generated, shall only be undertaken,
- ii) After the container has been thoroughly cleansed by steam or other effective means; and
- iii) Found by air tests to be completely free from combustible gases and vapours; or
- iv) After the combustible gas in the container has been completely replaced by an inert gas or by water;
- v) If an inert gas is used as laid down in clause 4.2.3, after the vessel has been filled with gas, the gas shall continue to flow slowly into it thorough out the welding or cutting operations;
- vi) Before starting any welding operations on, or otherwise applying heat to, closed or jacketed containers or other hollow parts, such containers or parts shall be adequately vented in suitable manner.

3.5. GAS CYLINDERS

- a. Gas cylinders shall be inspected, stored, handled and transported in conformity with the requirements of Gas Cylinders Rules, 1981;
- b. When in use, cylinders shall be held in upright positions by straps, collars or chains;
- c. Devices referred to in clause 6.2 shall be such that the cylinders can be rapidly removed in an emergency;
- d. Welders shall not temper with or attempt to repair safety devices and valves on gas cylinders;
- e. When acetylene cylinders are coupled, flash back arrestor shall be inserted between the cylinder and the coupler block, or between the coupler block and the regulator;
- f. Only acetylene cylinders or approximately equal pressure shall be coupled;
- g. No gas shall be taken from a cylinder unless a pressure reducing regulator has been attached to the valve;
- h. Only the right pressure reducing regulator shall be used for the gas in the cylinder;
- i. Cylinder valves shall be kept free from gases, grease, oil, dusts and dirt;
- j. Leaky cylinders charged with acetylene or liquefied fuel gas shall be taken into the open air at a safe distance from any open flame or sparks.

3.6 HOSE

- a. Only hose especially designed for welding and cutting operations shall be used to connect an oxy-acetylene torch to gas outlet;
- b. Hose lines for oxygen and for oxy-acetylene shall be of different colours and preferably of different size;
- c. Hose connections shall be sufficiently light to withstand without leakage a pressure twice the maximum delivery pressure of the pressure regulators in the system;

- d. Care shall be taken that hose does not become kinked or tangled, stepped on or run-over or otherwise damaged;
- e. Any length of hose in which a flashback has burned, shall be discarded;
- f. No hose with more than one gas passage shall be used;
- g. Only soapy water shall be used for testing hose for leaks.

3.7. TROCHES

- a. When torches are being changed, the gases shall be shut off at the pressure reducing regulators and not by crimping hose;
- b. Torches shall be lit with friction lighters or other safe source but not with matches.
- c. Electric welding equipment:
- d. Welding machines shall be controlled by a switch mounted on or near the machine framework that, when opened, immediately cuts off the power from all conductors supplying the machine;
- e. Welding circuit shall be so designed as to prevent the transmission of high potential from the source of supply to the welding electrodes;
- f. The maximum open circuit voltage shall be in accordance with Indian Standards;
- g. Electrode conductors or cables shall not be excessive in length and shall not be longer than necessary to perform the work;
- h. Return conductors shall be taken directly to work and securely connected mechanically and electrically to it or to the work bench, floor etc. and to an adjacent metallic object;
- i. Cable shall be supported so as not to create dangerous obstruction;
- j. Motors, generators, rectifiers and transformers in arc welding or cutting machines, and all current carrying parts, shall be protected against accidental contact with uninsulated live parts;
- k. Ventilating slots in transformer enclosures shall be so designed that no live part is accessible through any slot;
- l. Frames of arc welding machines shall be effectively earthed;
- m. In hand-operated arc welding machines, cables and cable connectors used in arc welding circuits shall be effectively insulated on the supply side;
- n. The outer surface electrode holders of hand-operated arc welding machines, including the jaw so far as practicable, shall be effectively insulated;
- o. Electrode holders of hand-operated arc-welding machines shall, if practicable, be provided with discs or shields to protect the operator's hands from the heat of the arcs;
- p. Only heavy-duty cable with unbroken insulation shall be used;
- q. Circuit connections shall be waterproof;
- r. When lengths of cable have to be joined, only insulated connectors shall be used on the earth line and the electrode holder line;
- s. Connections to welding terminals shall be made at distribution boxes, socket outlets, etc. by bolted joints;
- t. Welding terminals shall be adequately protected against accidental contact by enclosures, covers or other effective means;
- u. Electrode holder shall
 - i. Have adequate current capacity;
 - ii. Be adequately insulated to prevent shock, short-circuiting or flashovers.

3.8. OPERATIONS

- a. Arc welding and cutting operations that are carried on at places where persons other than the welders are working or passing shall be enclosed by means of suitable stationary or mobile screens;
- b. Walls and screens of both permanent and temporary protective enclosures shall be provided to absorb harmful rays from the welding equipment and prevent reflection, and if necessary, be painted or otherwise treated for the purpose;
- c. When arc welding is done in damp confined spaces;
 - i) Electrode holders shall be completely insulated; and
 - ii) The welding machines shall be outside the confined space;
- d. Welders shall take adequate precautions
 - i) To prevent any part of their body from completing an electric circuit
 - ii) To prevent contact between any part of the body and the exposed part of the electrode, or electrode when in contact with metal; and
 - iii) To prevent wet or damaged clothing, gloves and boots from touching any live part;
- e. Welding circuits shall be switched off when not in use;
- f. Electrodes shall only be inserted in the holder with insulating means such as insulating gloves;
- g. Electrode and return leads shall be adequately protected against damage;
- h. Live parts of electrode holders shall be inaccessible when they are not in use;
- i. Electric arc-welding equipment shall not be left unattended with current switched on.

4.0 SAFETY IN THE USE OF ELECTRICITY

4.1. GENERAL PROVISIONS

- a. Before commencement of any building or other construction work, adequate measures shall be taken to prevent any worker from coming into physical contact with any electrical equipment or apparatus, machines or live electrical circuit which may cause electrical hazard during the course of his employment and suitable warning signs shall be displayed and maintained at conspicuous places in Hindi and in local language understood by the majority of the building workers;
- b. In workplaces where the exact location of underground electric power line is not known, the building workers using jack hammers, crow bars or other hand tools which may come in contact with a live electrical line shall be provided with approved insulated protective gloves and footwear;
- c. As far as practicable, no wiring or cable, which may come in contact with water or which may be mechanically damaged or which may result in electric shock shall be left on ground or;
- d. All electrical appliances and current carrying equipment used shall be made of sound material and adequately earthed;
- e. All temporary electrical installations shall be provided with earth leakage circuit breakers;
- f. It is required that all portable power-driven hand tools are provided with double insulation to secure a high degree of protection from electrical hazards;
- g. Electrical installations shall comply with the requirements of any law for the time being in force, especially the Indian Electricity Act/Rules in particular with specific reference to the following:
 - i) All parts of installations shall be of standard construction not lower, from the safety point of view, than the national standards, as applicable. All parts of electrical installations shall be so constructed, installed and maintained so as to prevent electrical fires, explosion and shock;
 - ii) Earthing of metal work of electrical equipment, other than the parts which carry current, shall be provided and will conform to Electricity Act and IS: 3042 – 1966 (code of practice for earthing);
- h. All parts of electrical installation shall be adequate size and characteristics for the work they may be called upon to do and in particular they shall:
 - i) Be of adequate mechanical strength to withstand working conditions in construction operations; and
 - ii) Be not liable to damage by water, dust or electrical, thermal or chemical action to which they are subjected to in construction operations;
- i. All parts of electrical installations shall be so constructed, installed and maintained as to prevent the danger of electric shock; fire and external explosion;
- j. It shall be made impossible for circuit breakers to be opened or closed inadvertently, by gravity or by mechanical impact;

- k. Before operation of OCBs, oil level must be checked and the event of short, extra quantity must be filled;
- l. Use of rubber gloves and rubber gum boots of tested quality where electric shock is likely to occur shall be provided, but these shall not be considered as providing adequate protection against the risk of electric shock in lieu of inbuilt safety arrangement in the system;
- m. First-aid boxes, instruction for restoration of persons affected by electric shock shall be made;
- n. Arrangement shall be made for sufficient number of CO₂/chemical powder type fire extinguishers/sand buckets etc.;
- o. No electrical circuits shall ever be overloaded to the dangerous extent or beyond the rated capacity;
- p. In confined areas, only 24 volt supply shall be used for every equipment, including hand-held portable tools and hand lamps;
- q. All electrical appliances and outlets shall be clearly marked to indicate their purpose and voltage.

4.2. FUSES

- a. Fuses shall bear markings indicating their rated current, whether they are of the fast or slow-breaking type and, as far as practicable, and their rated breaking capacity. Fuses as per need and of correct rating shall be used in the circuit;
- b. Effective measures shall be taken to ensure that persons removing or inserting fuses will not be endangered, in particular by any adjacent live parts;
- c. In case of blow of fuses only after finding out and correcting of the fault, new fuses shall be provided in the circuit.

4.3. SWITCHES

- a. All switches shall be of enclosed type and so installed and earthed as to prevent danger in their operation;
- b. Use of switches, which may connect or disconnect circuit through gravity, shall not be used.

4.4. MOTORS

- a. All motors shall be equipped with a switch;
- b. When a motor can be cut off from more than one place, where practicable, a stopping device shall be installed in the immediate vicinity of the motor;
- c. Motors shall be so installed as to ensure that they can be adequately cooled;
- d. Motors shall be effectively protected against over current;
- e. Whenever the motors installed are in the open area where there is the possibility of fall of liquid corrosives or otherwise, it shall be suitably protected with covering;
- f. Earthing shall be connected to all motors, generators etc. as prescribed in the Indian Electricity Rules, amended from time to time.

4.5. CONNECTIONS

- a. At points where conductors are joined, branched or led into apparatus, they shall be:
 - i. Mechanically protected, and
 - ii. Properly maintained;

- b. Conductors shall be joined, branched or led into an apparatus through junction boxes, bushings, glands or equivalent connecting devices;
- c. Junction boxes or plug-out-socket couplings shall be used for joining cables wherever practicable;
- d. When parts of conductors are joined together, or conductors are joined to one another or to an apparatus, the attachment shall be made by screwing, clamping, soldering, riveting, brazing, crimping, or equivalent means. Loose connections shall not be provided in any case;
- e. Cable joints, junction boxes and connectors shall be protected as far as practicable, against traffic, fall of ground, water and other sources of damage;
- f. Whenever armoured cables are joined, the junction boxes shall be bridged by a suitably conductive bond between the armouring of the cables.

4.6. TRANSPORTABLE AND PORTABLE ELECTRICAL EQUIPMENT:

- a. The supply of electricity to portable apparatus shall not exceed 250v;
- b. Hand-held and portable machines shall be equipped with a built-in switch to switch off power in case of emergency;
- c. Hand-held electrically operated tools shall be provided with built-in switch to disconnect the circuit when the tool is not being used;
- d. Portable electrical tools, unless flameproof, shall not be used in flammable or explosive atmosphere;
- e. Only three-core cable shall be used for single-phase operated tools with the third core connected to earth

4.7. HAND LAMPS

- a. Hand lamps shall be equipped with strong cover of glass or other transparent material;
- b. Portable lamp holders shall have:
 - i) All current –carrying parts enclosed;
 - ii) Insulated handle; and
 - iii) They shall operate at 24 v;

4.8. INSPECTION, MAINTENANCE

- a. All electrical equipment shall be inspected before it is taken into use to ensure that it is suitable for its purpose of use;
- b. At the beginning of every shift every person using electrical equipment shall make a careful external examination of the equipment and conductors for which he is responsible, especially flexible cables;

- c. Periodic inspections, testing, maintenance of all electrical equipment is to be made and record of test of transformer oil and pit earthing shall be maintained;
- d. Electrical conductors and equipment shall be repaired by the electrician only as far as practicable, no work shall be done live conductors or equipment;
- e. Before any work is begun on conductors or equipment that does not have to remain live;
 - i) The current shall be switched off;
 - ii) Adequate precautions shall be taken to prevent the current from being switched on again;
 - iii) The conductors or the equipment shall be tested to ascertain that they are dead;
 - iv) The conductor and equipment shall be earthed and short-circuited; and
 - v) Neighbouring live parts shall be adequately protected against accidental contact;
- f. After work on conductors and equipment, the current shall only be switched on again on the orders of a competent person;
- g. Electricians shall be provided with adequate tools, and person protective equipment, such as rubber gloves, mats etc.;
- h. All conductors and equipment shall be considered to live unless there is certain proof to the contrary.

4.9. WORK IN THE VICINITY OF ELECTRICAL INSTALLATION

- a. When work is to be done in the neighborhood of electrical conductors or installations, the contractor shall ascertain the voltage carried and the works shall not be allowed to reach to unsafe distance from them;
- b. When any excavation is to be made or any bore-holed sunk, the contractor shall ascertain whether there are any underground conductors, in or in dangerous proximity to, the zone of operations;
- c. No work shall be done in dangerous proximity to a conductor or an installation until it has been made dead;
- d. Before work begins, work permit shall be obtained from the Engineer in-charge if live electricity lines/circuit are passing in close vicinity;
- e. Before the current is restored, the contractor shall ensure that no work remain on the work site;
- f. If conductor or an installation in the neighbourhood of which work is to be done can not be made dead, special precautions shall be taken and special instructions given to the workers so as to prevent danger by adequately enclosing or fencing;
- g. If mobile equipment has to be employed in the neighbourhood of conductors or installations that cannot be made dead, its movement shall be so controlled as to keep it at a safe distance from them.

5.0 SAFETY IN THE USE OF HAND TOOLS AND POWER-OPERATED TOOLS

5.1 GENERAL PROVISIONS

- a. All hands and power tools and similar equipment, shall be maintained in safe condition.
- b. When power operated tools are designed to accommodate guards, they shall be equipped with such guards, when in use;
- c. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains and other reciprocating, rotating or moving parts of the equipment shall be similarly guarded;
- d. Personnel using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapours, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazards;
- e. All hand-held powered platen sanders, grinders, grinders with wheels of 5 cm or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws and jigsaws with blade shanks of 0.5 cm wide or less shall be equipped with only a positive **on-off control**.
- f. All hand-held powered drills, tappers, fastener drivers, horizontal, vertical or angle grinders with wheels greater than 5 cm in diameter, disc sanders, belt sanders, reciprocating saws, saber saws and other operating powered tools shall be equipped with a momentary contact on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

5.2. HAND TOOLS

- a. The contractor shall not issue or permit the use of unsafe hand tools;
- b. Wrenches including adjustable pipe end and socket wrenches shall not be used when saws are sprung to the point that slippage occurs;
- c. Impact tools such as drift pins, wedges and chisels shall be kept free of mushroomed heads;
- d. The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight on the tools.

5.3. POWER OPERATED TOOLS

- a. Electric power operated tools shall be either of the approved double-insulated type or shall be grounded;
- b. The use of electric cords for hoisting or lowering loads shall not be permitted;
- c. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected;
- d. Safety clips or retainers shall be securely installed or maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled;
- e. All pneumatically riveting machine staplers and other similar equipment provided with automatic fastener feed, which operate at more than 7 kg/cm² pressure at the tool a safety device on the

muzzle to prevent the tool from ejecting the fasteners unless the muzzle is in contact with the work surface;

- f. Compressed air shall not be used for cleaning purposes except when the pressure is reduced to less than 2 kg/cm² and that too with effective chip guarding. The 2 kg/cm² pressure requirement does not apply to concrete form, mill scale and similar cleaning purposes;
- g. The manufacturer's safe operating for hoses, pipes, valves, filters and other fittings shall not be exceeded;
- h. Only personnel who has been trained in the operation of the particular tool shall be allowed to operate power-actuated tools;
- i. The tool shall be tested each day before loading to see that the safety devices are in proper working condition. The method of testing shall be accordance with the manufacturer's recommended procedure;
- j. Any tool found not in proper working order, or that which develops a defect during use, shall be immediately removed from service and not used until properly repaired;
- k. Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any other person. Hands shall be kept clear of the open barrel end;
- l. Loaded tools shall not be left unattended;
- m. Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tiles, surface hardened steel, glass block, live rock, face brick or hollow tiles;
- n. Driving into materials that can be easily penetrated shall be avoided unless backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side;
- o. No fastener shall be driven into a palled area caused by an unsatisfactory fastening;
- p. Only non-sparking tools shall be used in an explosive or flammable atmosphere;
- q. All tools shall be used with the correct shield, guard or attachment as recommended by thee manufacturer.

5.4. ABRASIVE WHEELS AND TOOLS

- a. All grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation;
- b. Grinding machines shall be equipped with suitable safety guards;
- c. The maximum angular exposure of the grinding wheel periphery and sides shall not be more than 90⁰, except that when the work requires contact with the wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 120⁰. In either case, the exposure shall begin not more than 65⁰ above the horizontal plane of the spindle. Safety guards shall be strong enough to withstand the bursting of the wheel;
- d. Floor and bench-mounted grinders shall be work-rests, which shall be rigidly supported and readily adjustable. Such work-rests shall be kept at a distance not to exceed 5 mm from the surface of the wheel;

- e. Cup type wheels used for external grinding shall be protected by either revolving cup guard or a band type guard;
- f. When safety guards are required, they shall be mounted as to maintain proper alignment with the wheel and the guard and the guard and its fastening shall be adequate strength to retain the fragments of the wheel in case of accidental breakage. The maximum angular exposure of the grinding wheel periphery and sides shall not exceed 180°;
- g. Portable abrasive wheel used for internal grinding shall be provided with suitable safety flanges;
- h. When safety flanges are required, they shall be used only with wheels designed to fit the flanges. Only safety flanges, of a type and design and properly assembled so as to ensure that the pieces of the wheel will be retained in case of accidental breakage, shall be used;
- i. All abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects;
- j. Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place;
- k. All employees using abrasive wheels shall be protected by suitable eye protection equipment.

5.5. WOODWORKING TOOLS

- a. All fixed power driven woodworking tools shall be provided with a disconnect switch that can either be locked or tagged in the **off-position**;
- b. The operating speed shall be attached or otherwise permanently marked on all circular saws over 0.5 m in diameter or operating at over 3000 peripheral rpm. Any saw so marked shall not be operated at a speed other than that marked on the blade. When a marked saw is retensioned for a different speed, the marking shall be corrected to show the new speed;
- c. Automatic feeding devices shall be installed on machines wherever the nature of the work will permit. Feeder attachments shall have the feed rolls or other moving parts covered or guarded so as to protect the operator from hazardous points;
- d. All portable power driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

6.0 SAFETY IN THE USE OF LADDERS AND STAIRS

6.1. GENERAL ASPECTS OF SAFETY RELATED TO USE OF LADDERS

- a. Every ladder or step-ladder used in building or other construction work shall be of good construction, made of sound material and of adequate strength for the purpose for which such ladder or step-ladder is used;
- b. When a ladder is used as a means of communication, such ladder shall be lashed to a fixed structure so that while working on such ladder it does not slip;
- c. A ladder or step ladder shall not stand on loose bricks or other loose packing and have a level and firm footing;
- d. No ladder shall be used which has a missing or defective rungs or rungs, which depend for support solely on nails, spikes or other similar fixing.

6.2. MATERIALS FOR LADDERS

- a. Shall be constructed with upright of adequate strength and are made of straight-grained wood, free from defects and having the grain of such wood running length wise;
- b. Shall have rungs made of straight-grained wood free for defects and mortised or securely notched into the upright, reinforcing metal ties, if wedges shall not secure the tenors of such ladders;
- c. Where it is required, in case of use of fixed ladders, sufficient foot-hold and hand-hold shall be provided for use by the building worker;
- d. Every ladder shall be -
 - i. Secured so as to prevent undue swaying;
 - ii. Equally and properly supported on each of its upright;
 - iii. So used as not to cause undue sagging; and
 - iv. Placed as nearly as possible at an inclination of four in one;
- e. The use of all ladders and stepladders shall conform to the approved standards;
- f. Wooden ladders shall be constructed with uprights of adequate strength as well as rungs made of wood free from visible defects and having the grains of the wood in the ladders running lengthwise and rungs mortised or rebuted into the uprights;
- g. Uprights and rungs of metal ladders shall have a cross-section adequate to prevent dangerous deflection, shall be equal and not less than 25 cm or more than 35 cm;
- h. Rungs of metal ladders shall be kept clean so as to prevent them from becoming slippery;
- i. Portable ladders shall not exceed 9 m in length;
- j. Every ladder or run of ladders rising to a height exceeding 9 m shall be provided with an intermediate landing, providing further that the intervals between landings shall not exceed 9 m. The landings shall be of suitable size and protected by railings;
- k. Defective ladders that cannot be satisfactorily repaired shall be tagged Not Fit For Use and destroyed;
- l. Wooden ladders shall not be painted, but oiled or covered with clean varnish or other transparent preservatives;
- m. Metal ladders shall be protected against corrosion by being coated with rust-proof paint or by other means unless they are made of non-corrosive metals;

- n. Every ladder shall rise at least 1 m above the highest point to be reached and have one of the uprights continued to that height to serve as a hand-rail at the top;
- o. Ladders shall not stand on loose bricks or other loose packing but have a level and firm footing so that they are equally supported on each upright;
- p. Every ladder shall be securely fixed so that it cannot move from its top and bottom points of rest and if it cannot be secured at the top, it shall be securely fastened at the base and if fastening at the top is also impracticable, it shall have a man stationed at the foot holding the end to prevent it from slipping;
- q. Where a run of two or more ladders connects different floors, the ladders shall be staggered and a protective landing with the smallest practicable opening shall be provided at each floor;
- r. A ladder having only one upright or a missing or dangerously defective rung shall not be used;
- s. When a ladder is placed in position, the distance between the foot of a ladder and the base of the structure against which it rests shall be about one-quarter of its length;
- t. Workers using ladders shall leave at least one hand free for climbing up and down, face the ladder, avoid wearing slippery footwear and avoid carrying heavy or bulky loads;
- u. A ladder shall not be placed in front of a door that opens towards it unless the door is fastened or locked or guarded;
- v. A ladder shall not be placed against a window frame unless the ladder is fitted with a board at the top so that the applied load is safely distributed over the frame;
- w. Metal ladders shall not be used in the vicinity of live electrical equipment;
- x. Adequate means shall be provided to prevent displacement of the ladder set up in public thoroughfare or where persons, vehicles etc. may accidentally collide with it.

6.3. PORTABLE STEPLADDERS

- a. The length of portable stepladders shall not exceed 6 m and their back legs shall be adequately braced;
- b. Stepladders exceeding 1.5 m in length shall have two or more cross-ties;
- c. The spread between the front and back legs shall be restricted by means of hinged metal flat bars or high-grade fibre or other effective means;
- d. When in the open position, treads of stepladders shall be horizontal.

6.4. PORTABLE TRESTLE LADDERS

- a. The height of the trestle ladders shall not exceed 5.5 m;
- b. The spread between the front and back legs shall be restricted by means of hinged metal flat bars or high-grade fibre or other effective means;
- c. The front and back legs shall be joined at the top by bolted steel hinges of adequate dimensions or other effective means;
- d. Both legs of trestle ladders shall be equipped with sufficient number of steel crossties.

6.5. EXTENSION LADDERS

- a. The length of extension ladders shall not exceed 15 m;
- b. Extension ladders shall be equipped with an effective lock and guide brackets by which the ladder can be extended, retracted or locked in any position;

- c. The rungs of overlapping sections shall coincide so as to form double treads and shall be equipped with one or more extension ropes;
- d. Extension ropes shall be securely anchored and run over suitable pulleys.

6.6 MECHANICAL LADDERS

- a. Mechanical ladder is that ladder, which is a mechanically extendable ladder, mounted on a wheeled frame;
- b. Mechanical ladder shall be equipped with guard-rails and toe-boards and a cage of heavy-gauge steel mesh;
- c. If mechanical ladder has no railed platform or cage, workers using it shall be secured by suitable safety belt;
- d. Mechanical ladders shall not be moved, while a person is on them, unless they have specially designed to ensure that perfect stability is maintained during movement.

6.7. FIXED LADDERS

- a. Uprights of fixed ladders shall be at least 40 cm and shall be set an angle of 15° to the vertical;
- b. Clearance at the back of the rungs shall be at least 15 cm and no obstruction within 75 cm of the face of the ladder;
- c. There shall be at least 7.5 cm clearance between the ladder and the nearest fixed object;
- d. When it is necessary for a ladder to pass closely through a hole in a platform or a floor, the edges of the hole shall be padded so as to prevent injury to the users;
- e. The length of the runs of fixed ladder shall not exceed 9 m;
- f. Landing platform shall be provided for each 9 m or fraction thereof;
- g. As far as practicable, runs shall be staggered;
- h. Runs from which a person could fall from more than 6 m shall be enclosed in a cage of heavy-gauge mesh or hoops;
- i. Fixed ladders shall be firmly bolted or welded in position.

6.8. STAIRS

- a. Stairs shall be of adequate strength to withstand safely the loads that they will have to carry;
- b. Stairs used for the purpose of construction work shall have a clear width of at least 60 cm;
- c. Stairs made of perforated material shall not have openings exceeding 1.2 cm in width;
- d. No step of a stairway shall depend for its support solely on nails, spikes, screws or other similar fixing;
- e. No stairway with missing or dangerously defective steps shall be used;
- f. Every stairway that is at an angle of less than 30° from the vertical shall be provided with a secure handhold at the top landing place, either by extending one upright for at least 1 m or by other effective means;
- g. Movable and removable stairs shall be adequately secured in the position of use;
- h. In all building structures permanent stairs shall be constructed as soon as practicable;
- i. When work on a building has progressed to a height of more than 18 m above the ground and it has not been practical to construct the permanent stairs, sufficient number of stairs shall be provided to ensure safe access to the working levels.

7.0 SAFETY IN THE USE OF LIFTING APPLIANCES & GEARS

7.1. CONSTRUCTION AND MAINTENANCE OF LIFTING APPLIANCES:

All lifting appliances, including their parts and working gear, whether fixed or movable, and any plant or gear used in anchoring or fixing of such appliances -

- a. Shall be of sound construction, sound material, and of adequate strength to serve the purpose for which these are to be used and all such appliances shall be free from patent defects, and
- b. Maintained in good repair and working condition;
- c. Every drum or pulley around which the rope of any lifting appliance is carried, shall be of adequate diameter and sound construction in relation to such rope;
 - i. Any rope that terminates at the winding drum of lifting appliance shall be securely attached to such drum and at least three dead turns of such rope remain on such drum in every operating position of such lifting appliance;
 - ii. The flange of a drum projects twice the rope diameter beyond the last layer of such rope and if such rope and if such projection is not available, other measures like anti-slackness guards shall be provided to prevent such rope from coming off such drum;
- d. Every lifting appliance shall be provided with adequate and efficient brakes which shall be:
 - i) Capable of preventing fall of suspended load (including any test load),
 - ii) Effectively controlling such load while it is being lowered, acting without shock and shall be attached with shoes that can be easily removed for running and which shall be simple and have easily accessible means of adjustment;
- e. Provided that nothing contained above shall apply to **steam-winch** that can be operated as safely as with brakes.

7.2. CONTROLS OF EVERY LIFTING APPLIANCE SHALL BE SO;

- a. Situated that the driver of such appliance at his stand or seat has ample room for operating and has an unrestricted view of building or other construction work, as far as practicable, and that he remains clear of the load and the ropes, and that no load passes over him;
- b. Positioned with due regard to ergonomic considerations for proper operation of such appliance;
- c. Located that the driver of such appliance remains above the appliance and shall have upon them or adjacent to them clear markings to indicate their purpose and mode of operations;
- d. Provided, where necessary, with a suitable locking device to prevent accidental movement or displacement and shall move, as far as practicable, in the direction of the resultant load movement;
- e. Wherever automatic brakes are provided, they shall automatically come to the neutral position in case of power failure.

7.3. TEST AND PERIODICAL EXAMINATION

7.3.1 Test: all lifting appliances including all parts and gears thereof, whether fixed or movable, shall be tested and examined by a competent person before being taken into use for the first time or after it

has undergone any alteration or repairs liable to affect its strength or stability or after erection on a site and also once at least in every five years, in the manner as specified;

7.3.2. Examination: all lifting appliances shall be thoroughly examined by a competent person at least in every twelve months and where the competent person making such examination forms the opinion that the lifting appliance cannot continue to function safely, he shall forthwith give notice in writing of his opinion to the contractor.

7.4. AUTOMATIC LOAD INDICATOR

- a. Cut-out shall be provided which automatically arrests the movement of the lifting parts of every crane if the load exceeds the safe working load, wherever possible;
- b. Wherever the above provisions cannot be applied and if it is not possible to install an automatic safe load indicator, in that case, provision of a table showing the safe working loads at the corresponding inclinations or radii of the jib on the crane shall be considered sufficient.

7.5. INSTALLATION:

Fixed lifting appliances shall be installed by a competent person in a manner that

- a. Such appliances cannot be displaced by the load, vibration or other influences;
- b. The operator of such appliance is not exposed to danger from loads, ropes or drums;
- c. The operator can either see over the zone of operation or communicate with all loading and unloading points by signal, or other communication system;
- d. Adequate clearance is provided between parts or loads of lifting appliances and between the fixed objects such as walls and posts, or electrical conductors;
- e. The lifting appliances; when exposed to wind loading, are given sufficient additional strength, stability and rigidity to withstand such loading safely;
- f. No structural alterations or repairs are made on any part of the lifting appliances that affect the safety of such appliances without obtaining the opinion of the competent person to this effect.

7.6. WINCHES

- a. Winches shall not be used if their control levers operate with excessive friction or play;
- b. Double gear winches shall not be used unless a positive means of locking the gearshift is provided;
- c. There shall be no load other than the fall and the hook assembly on the winch while changing gears on a two-gear winch;
- d. Adequate protection shall be provided to the winch operator against abnormal weather;

- e. Temporary seats or shelters for winch operators that may pose hazard to the winch operator or any other building workers shall not be allowed to be used;
- f. Control levers shall be secured in the neutral position and, whenever possible, the power shall shut off if the winch is left unattended.

7.7. IN USE OF EVERY STEAM-WINCH

- a. Measures shall be taken to prevent escaping steam from obscuring any part of the construction site or other workplace or from otherwise hindering or injuring any building worker;
- b. Extension control levers which tend to fall off their own weight shall be counter-balanced;
- c. Winch operators shall not be permitted to use the which control extension levers except for short handles on wheel type controls and that such levers shall be of adequate strength, secure and fastened with metal connections at the fulcrum and at the permanent control lever;
- d. In use of every electric winch, no building worker shall be permitted to transfer, alter or adjust electric control circuits in case of any defect in such winch;

7.8. ELECTRIC WINCHES SHALL NOT BE USED FOR BUILDING WORK WHERE

- a. The electromagnetic brake is unable to hold the load; or
- b. One or more control points either hoisting or lowering are not operating properly.

7.9. BUCKETS:

It shall be ensured that tip-up buckets are equipped with a device that effectively prevents accidental tipping.

7.10. IDENTIFICATION AND MARKING OF SAFE WORKING LOAD:

- a. Every lifting appliance and loose gear shall be clearly marked for its safe working load and identification by stamping or other suitable means;
- b. Every derrick (**other than derrick crane**) shall be clearly marked for its safe working load when such derrick is used either in single purchase with lower block or in union purchases in all possible block positions;
- c. The lowest angle to the horizontal, to which the derrick may be used, shall be legibly marked;
- d. Every lifting appliance having more than one working load shall be fitted with effective means to enable the operator to determine safe working load at each point under all conditions of use;
- e. Means to ascertain the safe working load for lifting gears under such conditions in which such gears may be used shall be provided to enable a worker using such gears and such means safely, which shall comprise:
 - i) Marking of the safe working load in plain figures or letters upon the sling or upon a tablet or ring of durable material attached securely thereto in case of chain slings; and

- ii) The means specified or notices so exhibited as can be easily read by any concerned building worker stating the safe working load for the various sizes of the wire rope slings used.

7.11 LOADING OF LIFTING APPLIANCES AND LIFTING GEARS

- a. No lifting appliance, lifting gear or wire rope shall be used in an unsafe way and in such a manner as to involve risk to life of building workers and they are not loaded beyond their safe working load except for testing purposes under the direction of a **competent person** in the manner as specified in schedule;
- b. No lifting appliance and lifting gear, or any other material-handling appliance shall be used if the Inspector having jurisdiction under the Building and Other construction (regulation of employment and conditions of service) Act/Rules is not satisfied with reference to a certificate of test or examination or to an authenticated record maintained as provided under the Rules or if in his view the lifting appliance, lifting gear or any other material handling appliance is not safe for use in building or other construction work;
- c. No pulley block shall be used unless the safe working load and its identification are clearly marked on such block.

7.12. OPERATOR'S CAB OR CABIN SHALL

- a. Be made of fire resistant material;
- b. Have a suitable seat, a foot rest and protection from vibration;
- c. Afford the operator an adequate view of the area of operation;
- d. Afford the necessary access to working parts in the cab;
- e. Afford the operator adequate protection against the weather;
- f. Be adequately ventilated; and
- g. Be provided with a suitable fire extinguisher.

7.13. OPERATION OF LIFTING APPLIANCES:

Operator of every crane or lifting appliance shall possess adequate skill and training in the operation of the particular lifting appliances, provided further that

- a. No person under eighteen years of age shall be in control of any lifting machine, scaffold winch, or give signals to the operator;
- b. Precaution shall be taken by the trained operator to prevent lifting appliance from being set in motion inadvertently;
- c. The operation of lifting appliances shall be governed by signals in conformity with the approved standards;
- d. The operator's attention shall not be distracted while he is working;
- e. No crane, hoist, winch or other lifting appliance or any part of such crane, hoist, winch or other lifting appliance shall, except for testing purposes, be loaded beyond the safe working load;
- f. During the hoisting operation, effective precaution shall be taken to prevent any person from standing or passing under the load in such operation;

- g. Operator shall not leave lifting appliance unattended while power is on or the load is suspended to such appliance;
- h. No person shall ride on a suspended load of any lifting appliance;
- i. Every part of a load in course of being hoisted or lowered shall be adequately suspended and supported to prevent danger;
- j. Every receptacle used for hoisting bricks, tiles, slates or other material shall be suitably enclosed as to prevent the fall of any such material;
- k. The hoisting platform shall be enclosed when loose material or loaded wheel barrows are placed directly on such platform or lowering such materials or wheel barrows;
- l. No material shall be raised, lowered or slewed with any lifting appliance in such a way as to cause sudden jerks to such appliance;
- m. In hoisting a barrow, any wheel of such barrow shall not be used as a means of support unless adequate steps have been taken to prevent the axle of such wheel from slipping out of its bearing;
- n. Long objects like planks or girders shall be provided with tag line to prevent any possibility of danger while raising or lowering such objects;
- o. During the process of landing or material, a building worker shall not be permitted to lean out into empty space for finding out the loading and unloading of such material;
- p. When hoisting of load is done in an enclosed space, neither the lifting material nor the boom shall project outside the enclosed space;
- q. Adequate steps shall be taken to prevent a load, in the course of being hoisted or lowered from coming into contact with any object to avoid any displacement of such load and appropriate appliances provided and used for guiding heavy loads when raising or lowering heavy loads to avoid crushing of hands of building workers during such raising or lowering of loads.

7.14. HOISTS

- a. Hoist towers shall be designed according to the relevant national standards;
- b. Hoist shafts shall be provided with rigid panels or other adequate fencing at the ground level on all sides of such shafts and at all other levels on all sides of the access to such shafts while the walls of hoist shafts, except at approaches, extend at least two meters above the floor or platform of access to such shafts;
- c. Approaches to hoist shall be adequately lit and provided with gates that shall be guarded to maintain visibility at least of two meters height; and equipped with a device, which requires such gate to be closed before the platform of such hoist can leave the landing, and prevents the gate from being opened unless such platform is at the landing;
- d. The guides of hoist platforms shall offer sufficient resistance to bending and to buckling in the case of jamming, by providing a safety catch;
- e. Overhead beams and their supports are capable of holding the total maximum live and dead loads that such beams and supports will be required to carry, with a safety factor of at least five;

- f. A clear space shall be provided –
- i. Above the highest stopping place of a cage or platform to allow sufficient unobstructed travel of such cage or platform in case of over-winding and
 - ii. Below the lowest stopping place of such cage or platform;
- g. Adequate covering shall be provided above the top of hoist shafts to prevent materials from falling into such shafts;
- h. Outdoor hoist towers shall be erected on adequately firm foundations and securely braced, guyed and anchored;
- i. A ladder way shall extend from the bottom to the top of every outdoor hoist tower in case no other ladder way exists within easy reach and such ladder way shall comply with the relevant national standards;
- j. The rated capacity of a hoisting engine shall at least be one and a half times the maximum load that such engine will be required to move;
- k. All gearing on a hoisting engine shall be securely enclosed;
- l. Steam piping of hoisting engine shall be adequately protected against accidental contact of such piping with a building worker;
- m. Electrical equipment of a hoisting engine shall be effectively earthed;
- n. A hoist shall be provided with suitable devices to stop a hoisting engine as soon as the platform of such hoist reaches its highest stopping place;
- o. A hoisting engine shall be protected by suitable cover against weather and falling objects;
- p. A hoisting engine set up in a public thoroughfare shall be completely enclosed;
- q. All exhaust steam pipes shall discharge steam in such a manner that the steam so discharged does not scald any person or obstruct the operator's view;
- r. The motion of a hoist shall not be reversed without first bringing it to rest to avoid any harm from such reverse motion;
- s. A hoist not designed for the conveyance of persons shall not be set in motion from the platform of such hoist;
- t. Pawls and ratchet wheels of a hoist, requiring disengagement of such pawls from such ratchet wheels, before the platform of such hoist is lowered, shall not be used;
- u. A platform of a hoist shall be capable of supporting such maximum load that such platform may carry with a safety factor of at least three;
- v. A platform of a hoist shall be equipped with suitable safety gear which can hold such platform with its maximum load in case its hoisting rope breaks;
- w. On platform of a hoist, the wheel barrows or truck shall be efficiently blocked in safe positions;

- x. A cage of a hoist or platform where the building workers are required to enter into such cage or to go on such platform at landing levels, shall be provided with a locking arrangement to prevent such cage or platform from moving during the time a worker enters or leaves such cage or platform;
- y. The sides of platform of a hoist which are not used for loading or unloading, shall be provided with toe-board and enclosures of a wire mesh or any other suitable means to prevent the fall of any part of a load from such platform, further provided that
 - i. The platform of a hoist, which has any probability of falling of any part of a load from it, shall be provided with an adequate covering to prevent such fall;
 - ii. The counter weights of a hoist consisting of an assemblage of several parts shall be so constructed that such parts shall be rigidly connected together;
 - iii. The counter weights of a hoist shall run between guides;
 - iv. At every level of work the building workers shall be provided with adequate platforms for performing such work;
 - v. A legible notice in Hindi as well as in a local language shall be displayed in a conspicuous place of the platform of a hoist and that such notice shall state the maximum carrying capacity of such hoist in kilograms on the hoisting engine;
 - vi. On a hoist authorized and certified for the conveyance of the persons on the platform or in the cage and such notice shall state the maximum number of persons to be carried on such hoist at one time;
 - vii. On a hoist carrying goods and other materials such notice shall state that such hoist is not meant for carriage of persons.

7.15. FENCING AND MEANS OF ACCESS TO LIFTING APPLIANCES

- a. Safe means of access shall be provided to every part of lifting appliances;
- b. The operator's platform on every crane or tip driven by mechanical power shall be securely fenced and provided with safe means of access and where access to such platform is by a ladder, the sides of such ladder shall extend to a height reasonable beyond such platform or some other suitable handhold shall be provided in the platform;
- c. The handling place on such platform shall be maintained free from obstruction and slipping; and
- d. In case the height of such ladder exceeds six meters, the resting platforms shall be provided on such ladder at every six meters of its height and where the distance between last platform so provided and the top end of such ladder is more than two meters then on such top end.

7.16. RIGGING OF DERRICKS:

Every derrick shall have current and relevant rigging plans and any other information necessary for the safe rigging of such derrick and its gear.

7.17. SECURING OF DERRICK FOOT:

Appropriate measures shall be taken to prevent the foot of a derrick from being lifted out of its socket or supports.

7.18. CONSTRUCTION AND MAINTENANCE OF LIFTING GEAR

- a. Every lifting gear shall be –
 - i. of good design and construction, sound material and adequate strength to perform the work for which it is used;
 - ii. free from patent defects; and
 - iii. properly maintained in good repair and working order;
- b. Components of the loose gear, at the time of its use, shall be renewed if one of its dimensions at any point has decreased by ten per cent or more;
- c. A chain shall be withdrawn from use when it is stretched and increased in length which exceeds five per cent of its length or when a link of such chain is deformed or is otherwise damaged or defects in the welds have appeared on it;
- d. Rings, hooks, swivels and end links attached to a chain shall be of the same materials as that of such chain;
- e. The voltage of electric supply to any magnetic lifting device shall not fluctuate by more than **plus** or **minus** 10%.

7.19. TEST AND PERIODICAL EXAMINATION OF LIFTING GEARS

- a. A lifting gear shall be initially tested for the manufacturer by a competent person in a manner specified as per schedule annexed before taking into use or after undergoing any substantive alterations which renders its any part liable to affect its safety and such gear after such test shall subsequently be retested for the use of its owner at least once in every five years;
- b. A lifting gear in use shall thoroughly examined once at least in every twelve months by a competent person;
- c. A chain in use shall be thoroughly examined at least once every month by a responsible person for its use;
- d. Certificates of initial and periodical test and examinations of loose gears shall be obtained in the form annexed.

7.20. ROPES

- a. No rope shall be used for building or other construction work unless -
 - i) It is of good quality and free from patent defects; and
 - ii) In the case of wire rope, it shall be tested and examined by a competent person in the manner annexed;
 - iii) Every wire rope of lifting appliance or lifting gear used for building or other construction work shall be inspected by a responsible person for such use, once at least in every three month;

- b. Provided that after if any such wire is broken in such rope, the responsible person shall thereafter inspect it once at least in every month and ensure that;
- c. No wire rope shall be used for building or other constructing work if in any length of eight diameters of such wires, the total number of visible broken wires exceed ten per cent of the total number of wires in such rope, or such rope shows signs of excessive wear, corrosion or other defects which in the opinion of the person who inspects it, is unfit for use;
- d. Eye splices and loops of ropes for the attachment of hooks, rings and other such parts to wire rope shall be made with suitable thimble;
- e. A thimble or loop splice made in any wire rope sling shall conform to the following standards, namely:
 - i) Wire rope sling shall have at least three tucks with full strand of rope and two tucks with one-half of the wires cut out of each of such strand in all cases, such strands shall be tucked against the lay of the rope;
 - ii) Protruding ends of such strands in any splice of wire rope slings shall be covered or treated so as to leave no sharp points;
 - iii) A fiber rope or a rope sling shall have at least four tucks, tail of such tuck being whipped in a suitable manner; and
 - iv) A synthetic fiber rope or rope sling shall have at least four tucks with full strands followed by further tuck with one-half filaments cut out of each of such strand and final tuck with one-half of the remaining filaments cut out from such strands. Any portion of the splices containing such tucks, with reduced number of filaments, shall be securely covered with suitable tape or other materials;
 - v) Provided further that nothing contained above shall apply where any other form of splice, which may be shown to be as efficient as the splice with above standards, shall be used.

7.21. HEAT TREATMENT OF LIFTING GEARS

- a. All chains other than bridle chains attached to derricks and all rings, hooks, shackles and swivels used in hoisting or lowering of such derricks shall be effectively annealed under supervision of a competent person and at the following intervals, namely:
 - i) Such chains, rings, hoods, shackles and swivels which are not more than twelve and a half millimeter of length annealed at least once in every six months; and
 - ii) All other such chains rings hooks shackles and swivels shall be so annealed at least once in every twelve months;
- b. Provided that the clause (a) above shall not apply to -
 - i) Pitched chains, working on sprocket or sprocket wheels;
 - ii) Rings, hooks and swivels permanently attached to pitched chains, pulley blocks or weighing machines, and
 - iii) Hooks and swivels having ball bearings or other case hardened parts;

- c. A chain or a loose gear made of high tensile steel or alloy steel shall be plainly marked with a mark indicating that it is so made;
- d. No chain or loose gear made of high tensile steel or alloy steel shall be subjected to any form of heat treatment except where such treatment is necessary for the purpose of repair of such chain or loose gear and that such repair shall be made under the direction of the competent person;
- e. That the wrought iron gear, the past history of which is not traceable, shall be suspected of being heat treated at incorrect temperature shall be normalized before using it on any building or other construction work.

7.22. CERTIFICATE TO BE ISSUED AFTER ACTUAL TESTING AND EXAMINATION ETC:

A competent person shall issue a certificate after actual testing or examination of the apparatus specified and record of such test or examination shall be maintained for inspection.

7.23. REGISTER OF PERIODICAL TEST, EXAMINATION AND CERTIFICATION THEREOF

- a. A register in the form annexed shall be maintained and particulars of such test and examination of lifting appliances, lifting gears and heat treatment as required shall be entered in such register;
- b. Certificate in respect of each of the following shall be obtained from a competent person:
 - i) In cases of initial and periodical test and examination of the lifting appliances such as Winches, Derricks and their accessory gears, Cranes or Hoists and their accessory gears;
 - (ii) In case of test, examination and re-examination of loose gears;
 - (iii) In case of test and examination of wire ropes;
 - (iv) In case of heat treatment and examination of loose gears;
 - (v) In case of annual thorough examination of the loose gears, except where required particulars of such exemption have been enclosed in the register referred to in Form annexed and such certificates are attached to the register referred to as above and certificates kept at such construction site in case such register and certificate relate to lifting appliances, loose gear and wire ropes and
- c. Produced on demand and retained for at least five years after the date of the last entry made in such register;
- d. No lifting appliance or lifting gear in respect of which an entry is required to be made in register referred to above and certificate of test and examination are required to be attached in such register in the manner as specified, shall be used for building or other construction work unless the required entries have been made in such register and certificates.

7.24. VACUUM AND MAGNETIC LIFTING GEAR

- a. No vacuum lifting gear, magnetic lifting gear or any other lifting gear where the load on it is held by adhesive power, shall be used while workers are performing operations beneath such gear;
- b. A magnetic lifting gear used in connection with building or other construction work shall be provided with an alternative supply of power, such as batteries, which may come into operation immediately in the event of failure of the main power supply;

- c. No building worker shall work within the swinging zone of the lifting gear or load or building or other construction material suspended to such lifting gear.

7.25. KNOTTING OF CHAINS AND WIRE ROPES:

No chain or wire rope with a knot in it shall be used in building or other construction work.

7.26. CARRYING OF PERSONS BY MEANS OF LIFTING APPLIANCES ETC.

- a. No building worker shall be raised, lowered or carried by a power driven lifting appliance, except
 - i. On the drive's platform in the cage of a crane; or
 - ii. On as hoist; or
 - iii. On an approved suspended scaffold;
- b. Provided that a building worker may be raised, lowered or carried by a power driven lifting appliance:
 - i. In circumstances where the use of a hoist or of a suspended scaffold shall not reasonably be practicable, or
 - ii. On an aerial cableway or aerial ropeway, provided further that the following requirements are met:
 - iii. That the appliance referred to above can be operated from one position only and that
 - iv. Any winch used in connection with the appliance shall also comply with the requirements as laid down above.
- c. The appliance referred to above shall not carry any person except:
 - i. In a chair or cage,
 - ii. In a skip or other receptacle at least three feet deep which shall be suitable for safe carriage of a person and any such chair, cage, skip or other receptacle shall be made of good construction, sound material, and adequate strength and properly maintained with suitable means to prevent any occupant therein from falling out of it and shall be free from any material or tools which may interfere with the handhold or foothold of such occupant or otherwise endanger him; and
 - iii. Those suitable measures shall be taken to prevent the chair, cage skip or other receptacle from spinning or tipping in a manner dangerous to any occupant therein.

7.27. HOISTS CARRYING PERSONS

- a. No building worker shall be carried with the help of a hoist unless it is provided with a cage which:
 - i) Is so constructed as to prevent, when its gates are shut, any building worker carried by such hoist from falling out of it or from being trapped between any part of such cage and any fixed structure or other moving part of such hoist or from being struck by articles or materials falling down the hoist way on which such hoist is moving; and
 - ii) Is fitted on each of its side from which access is provided to a landing place with a gate which has efficient interlocking or other devices to secure so that such gate cannot be opened except when such cage is at a landing place and that such cage cannot be moved away from any such place until such gate is closed;

- b. Every gate in the hoist way enclosure of such hoist used for carrying persons shall be fitted with efficient interlocking or other devices to secure so that such gate cannot be opened except when the cage of such gate is at the landing place and that such cage cannot be moved away from the landing place until such gate is closed;
- c. In every hoist used for carrying building workers there are provided with suitable and efficient automatic devices to ensure that the cage of such hoist comes to rest at a point above the lowest point to which such cage may travel.

7.28. ATTACHMENT OF LOADS

- a. When a sling is used to hoist long materials, a lifting beam shall be used to space the sling legs for proper balance and when a load is suspended at two or more points with slings, the eyes of the lifting legs of such slings shall be shackled together and such shackled eyes of the shackled slings shall be placed on the hook or the eyes of such lifting legs shall be shackled directly to the hoisting block, ball or balance beam, as the case may be;
- b. Every container or receptacle used for raising or lowering stone, bricks tiles, slates or other similar objects shall be so enclosed with the hoist as to prevent the fall of such objects;
- c. A loaded wheel barrows placed directly on a platform of a hoist for raising or lowering of such wheel barrows shall be so secured that such wheel barrows cannot move and such platform shall be enclosed to prevent the fall of the contents kept in such wheel barrows;
- d. Landings of hoists shall be so designed and arranged that building workers on such hoist be not required to lean out into empty space for loading and unloading on any material from such hoist

7.29. TOWER CRANES

- a. No person other than the operator trained and capable to work at heights shall be employed to operate tower cranes;
- b. The ground on which a tower crane stands shall have adequate bearing capacity;
- c. Bases for tower cranes and trucks for rail mounted tower cranes shall be firm and leveled and such cranes erected at a reasonably safe distance from excavations and operated within gradient limits as specified by the manufacturer of such cranes;
- d. Tower cranes shall be sited where there is a clear space available for erection, operation and dismantling of such cranes;
- e. Tower cranes shall be sited in such a way that the loads on such cranes shall not be handled over any occupied premises, public thoroughfares, railways or near power cables, other than construction works for which such cranes are used;
- f. Where two or more tower cranes are sited and operated, every care shall be taken to ensure positive and proper communication between operators of such cranes to avoid any danger or dangerous occurrences;
- g. Tower cranes shall not be used for loading magnet, or demolition ball service, piling operation or other similar operations which could impose excessive load stresses on the crane structure of such cranes;

- h. The instruction of the manufacturer of a tower crane and standard safe practices regarding such cranes shall be followed while operating or using such cranes.

7.30. QUALIFICATION OF OPERATOR OF LIFTING WINCHES AND OF SIGNALER ETC.

- a. No person shall be employed to drive or operate a lifting appliance whether driven by mechanical power or otherwise or to give signals to driver of operator of such lifting appliance or to work as an operator of a rigger or derricks unless he is
 - i) Sufficiently competent and reliable;
 - ii) Possesses the knowledge of the inherent risks involved in the operation of lifting appliance;
 - iii) Medically examined periodically as specified and
 - iv) Is above eighteen years of age.

8.0 SAFETY IN THE USE OF TRANSPORT, EARTHMOVING EQUIPMENT & OTHER CONSTRUCTION MACHINERY

8.1 EARTHMOVING EQUIPMENT AND VEHICLES

- a. All vehicles and earthmoving equipment shall be made of good material, proper design and sound construction and be sufficiently strong for the purpose for which such equipment are properly used in accordance with standard safe operating practices;
- b. Provided that the truck or trailer employed for transporting freight containers shall be of the size sufficient to carry the containers, without over hanging and provided with twist locks conforming to approved standards, at all the four corners of each of such use by an authority under the relevant law for the time being in force and is inspected by a responsible person, at least once in a month and record of such inspection shall be maintained:
- c. All transport or earth moving equipment and vehicles shall be inspected at least once a week by a responsible person and in case any defect is noticed in such equipment or vehicle it shall be immediately taken out of use;
- d. Power trucks and tractors shall be equipped with effective brakes, headlights and tail lamps and maintained in good repair and working order;
- e. Side stanchions on power trucks and trailers for carrying heavy and long objects shall be
 - i. Of sound construction and free from defects;
 - ii. Provided with tie chains attached to the top across the loads for preventing such stanchions from spreading out; and
 - iii. Kept in position while loading and unloading;
 - iv. Safe gangways provided for to and fro movement of building workers engaged in loading and unloading of lorries, trucks, trailers and wagons;
 - v. Trucks and other equipment shall not be loaded beyond their safe capacity and carry workers engaged in loading and unloading of lorries, trucks trailers and wagons in an unsafe condition;
 - vi. Handles of trucks shall be so designed as to protect the hands of the building workers working on such trucks, or such handles provided with knuckle guards;
 - vii. No unauthorized person shall ride the transport equipment employed in such work;
 - viii. A driver of a transport equipment shall maneuver such equipment under the direction of a signaler;
 - ix. Adequate precaution such as isolating the electric supply or erecting overhead barriers of a safe height shall be taken when earth moving equipment or vehicles are required to operate in dangerous proximity to any live electric conductor;
 - x. Vehicles and earth moving equipment shall not be left on a slope with the engine of such vehicles or equipment running;

- xi. All earth moving equipment, vehicles or other transport equipment shall be operated only by such person who are adequately trained and possess such skills as required for safe operation of such equipment, vehicle or other transport equipment.

8.2. POWER SHOVELS AND EXCAVATOR

- a. A shovel or an excavator whether operated by steam or electric or by internal combustion, shall be constructed, installed, operated, tested and examined as per approved standards;
- b. Excavator equipped for use as a mobile crane shall be examined and tested in accordance with the requirements for such mobile cranes as laid down by the manufacturer; and
- c. Fitted with an automatic safe working load indicator;
- d. Buckets or grabs of power shovels shall be propped to restrict the movement of such buckets or grabs while being repaired or while the teeth of such buckets or grabs are being changed.

8.3. BULLDOZER

- a. Operator of every such bulldozer before leaving the dozer shall take the following steps:
 - i) Apply the brakes;
 - ii) Lower the blade and sipper and
 - iii) Put the shift lever into neutral;
 - iv) Dozer left on level ground at the close of the work for which such bulldozer is used;
 - v) The blade of a bulldozer kept low when such bulldozer is moving uphill;
 - vi) The bulldozer blades not used as brakes except in an emergency.

8.4. SCRAPERS

- a. A tractor and scraper shall be joined by safety line at the time of its operation;
- b. The scraper bowls shall be propped while blades of such scraper are being replaced;
- c. A scraper moving downhill shall not be left in gear.

8.5. MOBILE ASPHALT LAYERS & FINISHERS

- a. A mixture elevator shall be located within a wooden or sheet metal enclosure with a window for observation, lubrication and maintenance;
- b. Bitumen scoops shall have adequate covers;
- c. When asphalt plants are working on public road, adequate traffic control shall be established on such road and the building workers working with such plant provided with reflective jackets;
- d. A sufficient number of fire extinguishers shall be kept in readiness at such workplace where fire hazards may exist;
- e. The materials shall be loaded on the elevator after the drying drain has warmed up of such elevator;
- f. No open light shall be used for ascertaining the level of asphalt;

- g. Inspection opening shall not be opened till there is a pressure in the boiler, which may cause injury to building workers.

8.6. PAVERS:

Pavers shall be equipped with guards suitable to prevent building workers from walking under the skip of such pavers.

8.7. Road rollers: Before a road roller is used on the ground, such ground shall be examined for its bearing capacity and general safety, especially at the edges of slopes such as embankment on such grounds and shall not be moved downhill with the engine out of gear.

8.8. GENERAL SAFETY IN RESPECT OF POWERED CONSTRUCTION MACHINERY

- a. Every vehicle or earthmoving equipment shall be equipped with -
 - i) Silencers;
 - ii) Tail lights
 - iii) Power and hand brakes;
 - iv) Reversing alarm; and
 - v) Search light for forward and backward movement, which are required for safe operation of such vehicle or earthmoving equipment;
- b. The cab of vehicle or earthmoving equipment shall be kept at least one meter from the adjacent face of a ground being excavated;
- c. When cranes or shovel are traveling, the boom of such crane or shovel shall be in the direction of such travel and the bucket or scoop attached to such crane or shovel raised and without load except when such traveling is downhill.

9.0 SAFETY IN THE PROVISION OF RUNWAYS AND RAMP

9.1. USE OF RUNWAYS AND RAMPS:

- a. Runway or ramps shall not be less than 430 mm in width and constructed of not less than 25 mm thick planking or any other material of adequate strength to withstand the required load, supported substantially in relation to the span and braced with such runway or ramp, and design and construction of such runway or ramp shall be in accordance with the approved standards;
- b. Every runway or ramp located more than 3 m above the floor or ground shall be on open sides and provided with a guardrail of adequate strength and height of not less than 1 m.
- c. Use of runways and ramps by vehicles:
 - i. All runways and ramps shall be of sound construction, strength and securely braced and supported;
 - ii. Every runway or ramp for the use of transport equipment like trailers, trucks or heavier vehicles shall have a width of not less than 3.7 m and provide with timber curbs or any other material of adequate strength with not less than 200 mm by 200 mm in width placed parallel to, and secured to, the sided of such runway or ramp and such runways or ramps or ramps shall be designed in accordance with the approved standards.

9.2. SLOPE OF RAMPS:

Every ramp shall have a slope not exceeding one in four and the total rise of a continuous ramp used by building workers carrying material or using wheelbarrows shall not exceed 3.7 m, unless broken by horizontal landing of at least 1.2 m in length.

9.3. USE OF RUNWAYS OR RAMPS BY WHEELBARROWS, ETC.

- a. Every runway or ramp used for wheelbarrows and carts or hand trucks shall not be less than 1 m width and constructed of not less than 50 mm thick planking, and supported and braced suitably for such use;
- b. Every runway or ramp located more than 3 m above the floor or ground shall be provided on the open sides with suitable guardrails of adequate strength.

10. SAFETY IN HANDLING AND USE OF EXPLOSIVES

10.1 GENERAL PROVISIONS:

- a. The use of explosives shall be carried out in a safe manner to avoid injury to any person and under the direct supervision of a responsible person;
- b. No person other than authorized and competent one shall be allowed to handle and use explosives;
- c. Before using any explosive, necessary warning and danger signals shall be erected, at conspicuous places of such use to warn the building workers and the general public of the danger involved in such use.
- d. No person other than authorized and competent one shall be allowed to handle and use explosives.
- e. Smoke, open lamps, other type of hot or heat producing items and sparks shall be prohibited in or near explosives magazines or while explosives are being handled, transported or used.
- f. No person shall be allowed to handle or use explosives while under the influence of intoxicating liquors or dangerous drugs.
- g. The explosives shall be accounted for at all times. No explosives or blasting agents shall be abandoned.
- h. No fire shall be fought where the fire is in the imminent danger of contact with explosives. All employees shall be removed to a safe area and the fire area shall be guarded against intruders.
- i. Employees authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution including but not limited to visual and audible warning signals, flags, or barricades to ensure employee safety.
- j. Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by induced voltage, lightning, adjacent power lines, dust storms, or other sources of extraneous electricity or otherwise. These precautions shall include:
- k. Short-circuiting of detonators in holes, which have been primed and shunted until wired into the blasting circuit.
- l. The suspension of all blasting operations and removal of persons from the blasting area during the approach and progress of an electric storm.
- m. The prominent display of adequate signs, warning against the use of radio transmitters, on all roads within 1000 ft of blasting operations. Whenever adherence to the 1000 ft distance would create an operational handicap, a competent and expert person shall be consulted to evaluate the particular situation, and an alternative provided, which are adequately designed to prevent any premature firing of electric blasting of caps. A description of any such blasting shall be reduced to writing and shall be certified as meeting the purposes of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection.

- n. Empty boxes and paper and fiber packing materials, which have previously contained high explosives, shall not be used again for any purpose, but shall be destroyed by burning at an approved location.
- o. Explosives, blasting agents and blasting supplies that are obviously deteriorated or damaged shall not be used.
- p. Delivery and issue of explosives shall only be made authorized persons into authorized magazines or approved temporary storage or handling areas.
- q. Blasting operations in the proximity of overhead power lines, communication lines, utility services, or other services and structures shall not be carried on until the operators and/or owners have been notified and measures for safe control have been taken. In such situations controlled blasting shall be restored to.
- r. All loading and firing shall be directed and supervised by competent persons thoroughly experienced in this field.
- s. Loaded boreholes shall not be left unattended after the end of the shift.
- t. Suitable and sufficient means of egress to ground level shall be provided in all cases of excavations, trenches, all other places where explosives are handled above or below ground level.
- u. At an appropriate time before the final blasting warnings, workers in the area shall be removed to a designated safe place.
- v. An unmistakable, audible, final warning shall be sounded one minute prior to the detonation of explosives; after completion, when the person in charge has established that safe conditions prevail, an "all clear" shall be sounded.
- w. To prevent persons entering any danger zone during blasting operations notices shall be given to all concerned.
- x. Notices referred above shall indicate:
 - i. that explosives are in use;
 - ii. the audible warning sound and the "all clear" and state when they will be sounded; and
 - iii. the warning flags in use, including an "all clear" flag.
- y. Precautions against lightning shall be provided in accordance with the Indian Electricity Act and Indian Explosives Act and Rules and regulations framed there under.
- z. Package containing explosives shall not be dragged, dropped or handled roughly.
 - aa. Non-sparking tools shall be used to open keys.
 - bb. The explosives shall not be carried in the box or otherwise on any individual.
 - cc. Nothing shall be inserted in the open end of the blasting cap except fuses.

- dd. Deteriorated or damaged explosives shall not be used but shall be disposed or destroyed strictly in accordance with the approved methods and in the doing so the manufacturers or the appropriate authority's instructions shall be followed.
- ee. lightning shall be in accordance with Indian Electricity Act/Rules

10.2. TRANSPORTATION OF EXPLOSIVES

- a. Keep safe distance and to use non-sparking tools while opening packages containing explosives;
- b. Stop the use of explosives and handling thereof while the weather conditions are not suitable for such use or handling;
- c. Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by induced voltage, lightning, adjacent power-lines, dust storms or other sources of extraneous electricity or otherwise. These precautions shall include –
 - i. Suspension of all blasting operations and evacuation of persons;
 - ii. All warning signs shall be displayed within 200 m of blasting operations and in case putting up a sign at 200 m is impractical, the contractor shall consult the Engineer-in-charge for alternatives;
 - iii. All loading and firing shall be directed and supervised by competent persons thoroughly experienced in the field;
 - iv. To prevent persons entering any danger zone during blasting operations, notices shall be given to all concerned;
- d. In addition to these provisions, all measures and precautions that are required to be observed for use, handling, storing or transportation of explosives under the Rules framed under the Explosives Act, 1884 (4 of 1884) shall be observed;
- e. All the relevant statutory provisions, local laws and rules and regulations shall be complied with.
- f. Where the magazine is located near the construction site and blasting operation continues daily, actual requirement of explosives shall be drawn from the magazine and transported to the site. Any leftovers shall be returned to the magazine each time after the blast. In case of work at scattered places and for a small duration, portable magazines shall be used and kept within a fence in safe place and properly guarded.
- g. For carrying higher quantity (more than 5 kg of explosives) specially designed insulated containers shall be used. These containers shall be constructed of finished wood not less than 5cm thick or plastic not less than 6mm thick or pressed fibre not less than 10mm thick. There shall be no metal parts (not even nails, bolts, screws etc.) and the containers shall be provided with suitable non-conductive carrying device, such as rubber, leather or canvas handle or strap.
- h. Vehicles to be used for transportation explosives shall be in good working condition and shall have a tight wooded or non-sparking metal (copper, brass and the like) floor with sides and

ends high enough to prevent the explosives from falling off the vehicle. In open bodied vehicles, the explosives shall be covered with a waterproof and fibre tarpaulin.

- i. Electrical wiring in vehicle shall be fully insulated so as to prevent the danger of short-circuiting and at least two fire extinguishers of carbon dioxide type shall be carried. The vehicle shall be properly marked indicating adequate warning to the public in regard to the nature of cargo.
- j. No metals except approved metal truck shall be allowed to come in contact with cases of explosives, metal, flammable, or corrosive substance shall not be transported with explosives. As far as possible, transportation of any material along with explosives shall be prohibited.
- k. Smoking shall be prohibited in the vehicle carrying explosives.
- l. No unauthorized person shall be allowed in the vehicle, carrying explosives.
- m. Loading and unloading of explosives shall be done carefully.
- n. Explosives and detonators or blasting caps shall not be permitted to be transported in the same vehicle.
- o. Detonators and other explosives for blasting shall be transported to the site of work in the original containers or in securely locked separate non-metallic containers and shall not be carried loose or mixed with other materials.

10.3. STORAGE OF EXPLOSIVES AND BLASTING AGENTS

- a. Explosives and related materials shall be stored in approved facilities.
- b. Blasting caps, electric blasting caps, detonating primers, and primed cartridges shall not be stored in the same magazine with other explosives or blasting agents.
- c. Smoking and open flames shall not be permitted within 50 feet of explosives and detonators storage magazine.
- d. No Explosives or blasting agents shall be permanently stored in any underground area until the area has been developed to the point where at least two modes of exit have been provided.
- e. Permanent underground storage magazine shall be at least 300 feet from any shaft or other active underground working area.
- f. Permanent underground magazines containing detonators shall not be located closer than 50 feet to any magazine containing other explosives or blasting agents.

10.4. DRILLING AND LOADING

- a. Before planning out the drilling operations for blasting purposes, nature of stratum and the overburden shall necessarily be examined to avoid possibilities of landslides after blasting.
- b. The face or rock shall be carefully examined before drilling to determine the presence of unfired explosives. No attempt shall be made to drill at a site if un-detonated explosives are suspected. In such case the boreholes shall be thoroughly cleaned before a cartridge is

inserted. Wooden tamping rods (not pointed, but cylindrical throughout) shall be used in the charging the holes. The cartridge will be on the top.

- c. The borehole shall be carefully checked for length, presence of water dust, etc. with a wooden tamping pole or a measuring tape before loading.
- d. Surplus explosives shall not be stacked near working areas during loading/unloading.
- e. The line of detonating fuse extending into a borehole shall be cut from the spool before loading the remainder of the charge.
- f. A bore shall not be loaded with explosives after springing (enlarging the hole with explosives) or upon completion of drilling without making sure it is cool and it does not contain any hot smoldering material. Temperatures in excess of 65° C are dangerous.
- g. A bore near another hole loaded with explosives shall not be sprung.
- h. No force shall be used for inserting cartridges or any explosives into a bore hold or pass any obstruction in a borehole.
- i. No force shall be used for inserting a blasting cap or an electric blasting cap into explosive. The cap shall be inserted into a hole made with a pickers designed for the purpose. A hitch of the electric blasting cap leading wire shall be made on the primer cartridge so as to prevent pulling out the electric blasting cap from the explosive charge. In case of fuse, the fuse shall be tied to the explosive cartridge so that the blasting cap is not pulled out. Care shall be taken so that the blasting cap is not pulled out. Care shall be taken so that the electric blasting cap, leading wire or the length of the fuse does not get damaged during loading of the charge.
- j. No attempt shall be made to slit, drop, deform or abuse the primer.
- k. Blasting caps or electric blasting caps shall not be connected to detonating fuse except by methods recommended by the manufacturers of caps.
- l. Explosive cartridge shall not be cut, nor explosive removed from the cartridge for use.
- m. Metallic devices of any kind shall not be used in tamping. Wooden tamping tools with not exposed metal parts except non-sparking metal connectors for jointed poled shall be used. Violent tamping shall be avoided. Primer shall not be tamped.
- n. Care shall be taken to confine the explosives in the bore hold with sand, earth clay or other suitable combustible stemming material.
- o. Kinking or injuring of fuse or electric blasting cap wires shall be avoided when tamping.

10.5. ELECTRICAL SHOT-FIRING CIRCUIT

- a. In deciding the sizes of wires, fuses, circuits, blasting switches, etc., instructions issued by the manufacturers of these articles shall be followed, if they do not contradict with Indian Explosives Act or framed under it.
- b. No person shall attempt to uncoil the wires and open out the short-circuited bare leading wires of the electric blasting cap during approach of dust storm or near any source of large

charge of static electricity or near a radio transmitter. The manufacturer of the cap or the Inspectorate of Explosives shall be consulted regarding the distance from the transmitter beyond which electric short firing shall be conducted.

- c. Firing circuit shall be kept completely insulated from the ground of the other conductors, such as wires, rails, pipes or other paths or stray current.
- d. There shall not be any electric live wires or cables of any kind near electric blasting caps or other explosives except at the time and for the purpose of firing the blast.
- e. All electric blasting caps shall be tested singly and also when connected in a circuit in series using only an approved type of circuit continuity tester or ohmmeter.
- f. No attempt shall be made to use in the same circuit either electrical blasting caps made by more than one manufacturer or electric blasting caps of different design or function even if made by the same manufacturers unless such use is approved by the manufacturers.
- g. No attempt shall be made to fire a circuit of electric blasting caps with less than the minimum current specified by the manufacturer of that electric blasting cap.
- h. Care shall be taken to ensure that all wire ends to be connected are bright and clean.
- i. The electric cap wires or leading wires shall be kept short circuited until ready to fire.
- j. When energy for blasting is taken from power circuits the voltage shall not exceed 220v. The wiring controlling arrangements shall conform to the following:
- k. The blasting switch shall be strictly according to the specifications, externally operated double-throw switch, which when locked in the open position will short circuit and ground the leading wires. The switch shall be installed at the location where the firing is to be controlled.
- l. A 'safety' switch of the same type as the blasting switch shall be installed between the blasting switch and the firing circuit and lead lines, at a distance not to exceed 180cm from the blasting switch.
- m. Both the safety switch and the blasting switch shall be locked in the open position immediately after the shot and before any person is permitted to return to the blasting area. Key to the switches shall remain in the possession of the blaster at all times.
- n. Rubber covered or other adequately insulated copper wires in good condition shall be used for firing lines and shall have solid cores of appropriate gauge. Sufficient firing line shall be provided to permit the blaster to be located at a safe distance from the blast. Single conductor lead lines shall be used.
- o. Blasting operations in the proximity of overhead power lines, communication lines, utility lines, or other structures shall not be carried on until the operator or the owner, or both of such lines as been notified and precautionary measures deemed necessary, have been taken.
- p. All holes loaded on a shift shall be fired on the same shift.
- q. As far as possible, blasting shall be carried out using suitable exploder with 25 per cent excess capacity. Electric power from the mains shall be used only when it is absolutely necessary.

10.6. SHOT-FIRING WITH SAFETY FUSE

- a. The fuse shall be carefully handled to avoid damaging the covering. In very cold weather the fuse shall be slightly warmed before using so as to avoid cracking the waterproofing.
- b. Short fuse shall not be used. The length of a fuse shall not be less than 120cm. The rate of burning of the fuse shall be known and it would be necessary to make sure that it will take sufficient time in burning so as to enable all persons to reach a place of safety. The burning rate of the fuse shall not be more than 60 cm/min.
- c. The fuse shall not be cut until the operation to insert the fuse into a blasting cap is ready. The fuse shall be cut off about 2.5 to 5 cm to ensure a dry end. It shall be cut squarely across with a clean and sharp blade. The fuse shall be seated lightly against the cap charge and care shall be taken to avoid twisting after it has been placed in position.
- d. Blasting caps shall not be crimped by any means except by a cap crimper designed for the purpose. It shall be necessary to make sure that the cap is squarely crimped to the face.
- e. The fuse shall be lighted with a fuse lighter designed for the purpose. If a match is used, the fuse shall be slit at the end and the match head held in then slit against the power core and then the match head rubbed against an abrasive surface to light the fuse.
- f. The fuse shall not be lighted until sufficient stemming has been placed over the explosives to prevent sparks of live match heads from coming into contact with the explosives.
- g. The explosives shall not be held in hands when lighting the fuse.

10.7. UNDERGROUND WORK

- a. Only permissible explosives and in the manner as specified by the appropriate authority shall be used.
- b. Excessive quantities of explosives shall not be taken underground at any time. Black blasting powder or pellet powder shall not be used with any other explosive in the same borehole.

10.8. BEFORE AND AFTER FIRING

- a. Before firing, sufficient warning shall be given to enable the people working in the area to get off the danger zone. The danger zone shall be suitable cordoned off and flag men posted at important points.
- b. No loose materials, such as tools, drilling implements etc. Shall be left on the rock surfaces to be blasted.
- c. Blasting in the open shall be carried out during the fixed hours every day or on fixed days in the week. This information shall be amply publicized and the following precautions observed:
- d. On the project sites, where blasting operations are carried out, daily blasting hours shall be clearly printed on the sign-boards on all the roads approaching that area.
 - i. Road closing barriers should be provided to close the traffic on these roads, at least 400 meters away when the firing is to take place.

- ii. The beginning of the firing shall follow loud sirens and similarly loud sirens shall succeed the completion of the firing.
- e. The shot-firer shall not be allowed to return to the blasting site after firing, until at least 5 min have elapsed. In case of electric shot firing, the shot holes shall be examined after firing and in case of misfire no person shall be allowed to approach the blasting site for at least 5 min. In case of shot firing with safety fuse, utmost care shall be taken to count the number to ensure that all the shots have fired and in the event of misfire, no person shall be allowed to approach the blasting site for at least 30 min. In any case, a careful inspection for the remaining un-detonated explosive shall be made after firing the shots. All misfired shot holes shall be cross-marked. No other person than those duly authorized shall approach the holes until one of the following operations has been performed in respect of each of the misfired holes:
 - f. If the misfire is due to a faulty cable or faulty electrical connection the defect shall be remedied and the shot fired.
 - g. The stemming shall be floated out by use of water or air jet from hose until the hole has been opened to within 60 cm of the charge, whereupon water will be siphoned or pumped out, then a fresh new charge placed and duly detonated. Or
 - i. A careful search shall be made of unexploded material in the debris of the charge.
 - ii. If a shift charge is unavoidable, the person in-charge of one shift before leaving the work shall inform the person relieving him for the next shift of any cases misfired and shall point out their position duly cross marked and also state clearly what action has to be taken in the matter.

Note: The rules are made considering statutory provisions and other National/International standards. However, if any statutory provision overruling these laws is made, the statutory provisions shall overrule the NTPC Rules.

11.0 SAFETY IN EXCAVATION & TUNNELING WORK

SAFETY IN EXCAVATION

11.1 GENERAL PROVISIONS

- a. Before undertaking any activity, the soil shall be tested and in case of availability of any explosive gas, necessary arrangements must be made to remove/dilute such gases and in case they are found to be toxic or poisonous, the workplace must be purged and continuous ventilation maintaining the contamination below the permissible level ensured;
- b. The position of underground installations such as sewers, water pipes and electrical cables shall be verified and in case of their existence, they must be isolated;
- c. If they cannot be isolated or removed or shutdown, they shall be fenced, hung up or otherwise protected. On every part likely to be visited by persons or where transport vehicles ply, the area shall be suitably fenced, guarded or barricaded to prevent fall of persons, vehicles or livestock into the excavated area;
- d. Warning signs shall be erected and the in the night hours the area shall be illuminated to warn pedestrians and vehicular traffic;
- e. Arrangements shall be made to prevent external vibrations due to rail/road traffic;
- f. Blasting shall be carried out in accordance with the norms applicable in this regard. Special care shall be taken to control the impact of vibrations/tremor caused by blasting to protect excavations from cave-ins;
- g. Arrangements shall be made to save other buildings/structures in the affected zone or in the vicinity of the area of excavation, from collapse;

11.2 SHORING AND TIMBERING

- a. Site of excavations, where workers are exposed to danger from moving ground, shall be made safe by maintaining due slope not exceeding the angle of repose of different types of soil or otherwise by shoring, portable shields or other effective means;
- b. All trenches in the soil, other than rock or hard compact soil more than 1.5 m deep into which men enter, shall be securely shored and timbered under the supervision of a competent person and only the trained workers shall be allowed to substantially alter or dismantle the shoring or timbering;
- c. All struts, braces and walls in excavation shall be adequately secured so as to prevent their accidental displacement;
- d. In all excavations in soft or fissured rock or hard soil exceeding 2 m in depth, except those which are sloped to within 1.5 m of the bottom into which men enter, shall be securely shored and timbered;
- e. Where the sides of the excavations are sloped as outlined above, but not within the 1.5 m of the bottom, vertical sides shall be shored and the shoring shall extend at least 30 cm above the vertical sides. When open spaced sheathing is used, a toe-board shall be provided to prevent material rolling down the slope and falling into the excavated.

11.3. SHEATHING

- a. The sheathing should be placed against the side of the trench so that length of each piece of sheathing is vertical. It should be held securely in place against the wales by ensuring that sheathing is kept firmly pressed against the wall of the trench. Where the trench excavated is loose, sandy or soft soil or soil which has been previously excavated or soil which is under hydrostatic pressure, each piece of sheathing shall be driven into the bottom of the trench so as to firmly hold it in place;
- b. Where two or more pieces of sheathing are used one above another, the sheathing shall be so arranged that the lower pieces of sheathing shall overlap the lowest wales supporting the piece of sheathing next above it. These pieces of sheathing shall be firmly driven into the soil and securely supported by wales and struts, as the trench is made deeper.

11.4. WALES

- a. The wales shall be parallel to the bottom or the proposed bottom of the trench. Each wale shall be supported on cleats spiked to the sheathing or by posts set on the wales next below it and in the case of the lowest wale on the bottom of the trench itself. Where necessary, wedges may be provided between a wale and the sheathing it supports so that roughly uniformity is given to all individual pieces of sheathing.

11.5. STRUTS

- a. Struts shall be horizontal and at right angles to the wales or sheathing supported thereby. Struts shall be cut to the proper length required to fit in tightly between the wales. Where necessary, the struts shall be held securely in place by wedges, driven between the struts and the wales;
- b. Struts shall be placed on cleats spiked or bolted to the posts supporting the Wales.

11.6. LOOSE SITE MATERIALS:

No loose material shall be kept very close to the excavation creating possibility of its fall into the excavated area. A safe distance of at least 1 m shall be maintained.

11.7. PLANT & MACHINERY:

Movement of vehicles and heavy equipment shall be kept at a distance least equal to the depth of the excavation or at least 6 m for excavation deeper than 6 m and the workers shall be provided with proper tools.

11.8. MEANS OF ACCESS

- a. For trenches deeper than 1.5 m, safe means of access and egress shall be provided at intervals of every 15 m. Where it is not possible to provide safe means of access and egress as above, ladders shall extend from the bottom of the trench to at least 90 cm above the ground;
- b. Walkways, runways and sidewalks shall be kept clear of excavated materials or other obstructions and no side walls shall be undermined-undercut unless it is capable of carrying a minimum live load of 125 lbs per square feet;

- c. If planks are used for raising walkways, runways or sidewalks, they should be parallel to the length of the walk and fastened together against displacement;
- d. Lone worker shall not be allowed to work in the excavated area.

11.9. INSPECTIONS:

A competent person shall make inspections every day and necessary measures shall be taken to safeguard against possible cave-ins or slide or collapse of the excavations.

11.10. NOTIFICATION OF INTENTION TO CARRY OUT EXCAVATION AND TUNNELING WORK

- a. Within thirty days, prior to the commencement of such excavation or tunneling work, the contractor shall inform in writing the detailed layout plans, method of construction and schedule of such excavation or tunneling work to the Engineer in-charge of NTPC;
- b. In case compressed air is used in such excavation or tunneling work or any work incidental to or required for such excavation or tunneling work, the technical details and drawings of all man-locks and medical-locks together with names and addresses of all construction medical officers duly qualified and so appointed by such contractor for the purpose of such excavation or tunneling work shall be sent to the Engineer in-charge.

11.11. PROJECT ENGINEER

- a. The contractor undertaking any excavation or tunneling work shall appoint a Project Engineer for safe operation of such projects;
- b. Such Project Engineer shall exercise overall control of the operations and the activities at such project and be responsible for carrying out the activities safely.

11.12. RESPONSIBLE PERSON

- a. The contractor undertaking excavation or tunneling work at construction site of a building or other construction work shall appoint a responsible person for safe operation of such excavation or tunneling work;
- b. The name and addresses of such responsible persons shall be forwarded to the Engineer in-charge;
- c. Duties and responsibilities of the responsible person referred to above person shall include
 - i. To carry out smoothly such excavation or tunneling work;
 - ii. To inspect and rectify any hazardous situation relating to such excavation or tunneling work;
 - iii. To take remedial measures to avoid any unsafe practice or conditions relating to such excavation or tunneling work.

11.13. WARNING SIGNS AND NOTICES

- a. Suitable warning signs or notices, required for the safety of building workers carrying out the work of an excavation or tunneling, shall be displayed or erected at conspicuous places in Hindi

and in language understood by the majority of such building workers at such excavation or tunneling work;

- b. Such warning signs and notices with regard to compressed air working shall include:
 - i) The danger involved in such compressed air work;
 - ii) Fire and explosion hazards;
 - iii) The emergency procedures for rescue from such danger or hazards.

11.14. REGISTER OF EMPLOYMENT

- a. The contractor shall ensure that at a construction site of a building or other construction work where an excavation or tunneling work is being carried on, a register of employment of building workers carrying out such excavation or tunneling work is maintained and produced on demand;
- b. Periods of work of such excavation or tunneling work shall be maintained in a register on day-to-day basis and such register shall be produced on demand

11.15. ILLUMINATION

- a. All contractors carrying out excavation or tunneling work at a construction site of a building or other construction work shall provide for emergency generators on such construction site to ensure adequate illumination at all work places where such excavation or tunneling work is being carried out;
- b. In case of power failure, all workplaces where excavation or tunneling works are carried out shall be adequately illuminated

11.16. PNEUMATIC TOOLS:

Supply lines to pneumatic tools used within a tunnel are fitted with water trap or safety chain or safety wire, as the case may be.

11.17. STABILITY OF STRUCTURE DURING GENERAL EXCAVATION & TUNNELING:

The contractor shall ensure that where there is any doubt as to the stability of any structure adjoining the workplace or other areas to be excavated or where tunneling work is to be carried out –

- a. The Project Engineer shall arrange for measures like underpinning, sheet piling, shoring, bracing or other similar means to support such structure and to prevent injury to any building worker working adjacent to such structure or damage to property or equipment adjacent to such structure;
- b. Where any building worker engaged in excavation is exposed to hazard of falling or sliding material or article from any bank or side of such excavation which is more than 1.5 m above his footing, such worker shall be protected by adequate piling and bracing against such bank or side;

- c. The excavation and its vicinity shall be checked by a responsible person after every rain, storm or other occurrences carrying hazards and in case a hazard is noticed at such checking, adequate protection against slides and cave-in to prevent such hazard shall be provided;
- d. Temporary sheet piling installed for the construction of a retaining wall after excavation shall not be removed, except on the advice of the responsible person after an inspection carried out by such responsible person;
- e. Where banks of an excavation are undercut, adequate shoring shall be provided to support the material or article overhanging such bank;
- f. Excavated material shall not be stored at least 0.5 m from the edge of an open excavation or trench and the banks of such excavation or trench shall be stripped of loose rocks and other materials which may slide, roll or fall upon a building worker working below such bank;
- g. Adequate and suitable warning signs shall be put-up at conspicuous places at the excavation work to avoid any person falling into the excavations or trenches;
- h. The responsible person shall ensure at the excavation that no building worker is permitted to work where such building worker may be struck or endangered by the excavation machinery or material or article used in such excavation.

11.18. SAFE ACCESS AND EGRESS:

Ladders, staircases or ramps are provided, as the case may be, for safe access to and egress from excavation where the depth of such excavation exceeds one point 1.5 m and such ladders, staircases or ramps comply with the relevant national standards.

11.19. TRENCHES

- a. A trench or excavation shall be protected against falling of a person by suitable measures if the depth of such trench or excavation exceeds 1.5 m and such protection shall be an improved protection in accordance with the design and drawing of a Professional Engineer, where such depth exceeds 4 m;
- b. Where the depth of a trench requires two lengths of sheet piling, one above the other, the lower piling shall be set inside the bottom strings or wales of the upper piling and such sheet piling shall be driven down and braced as the excavation continues;
- c. All metal sheet piles used in excavation or a trench shall be welded end-to-end and secured by other similar means.

11.20. POSITIONING AND USE OF MACHINERY:

Any machinery used in excavation and tunneling work shall be positioned and operated in such a way that such machinery will not endanger the operator of such machinery or any other person in the vicinity.

11.21. BREATHING APPARATUS:

Suitable breathing apparatus shall be provided to a building worker while working in compressed air environment for his use at excavation or tunneling work and such breathing apparatus shall be maintained in good working condition at all times.

11.22. SAFETY MEASURES FOR TUNNELING OPERATIONS

- a. Where there is a danger of falling or sliding of material from the roof face or wall of a tunnel, adequate measures such as shoring, supporting by means of rock bolts, segments or steel sets shall be taken for the safety of building workers;
- b. The excavated areas shall be made safe by use of suitably designed and installed steel sets, rock bolts or similar other safe means;
- c. The responsible person shall examine and inspect the workplaces in a tunnel before the commencement of work in such tunnel and at regular intervals thereafter to ensure safety of the building workers in such tunnel;
- d. The portal areas of a tunnel with loose soil or rock, likely to cause injury to a person shall be adequately protected with supports.

11.23. SURROUNDINGS OF A SHAFT

- a. Surroundings of a shaft used in excavation or tunnel work shall be protected from being washed away by construction of sufficient height;
- b. Where a building worker is required to enter a shaft at an excavation or tunneling work, safe means of access shall be provided for such entry;
- c. Every shaft at excavation or tunneling work shall be provided with a steel casing, concrete piping, timber shoring or other materials of adequate strength for the safety of building workers working in such shaft;
- d. Such casing and bracing shall be provided to shafts at an excavation or tunneling work according to the appropriate design for such casing and bracing;
- e. A reinforced concrete raft and beam shall be provided around the opening of a shaft at an excavation or tunneling work if the ground surrounding such opening is unstable or unsafe.

11.24. LIFT FOR SHAFT:

Lift shall be provided for transport of building workers and materials or articles at an excavation or tunneling work required to descend more than 50 m in a shaft.

11.25. MEANS OF COMMUNICATION

Reliable and effective means of communication such as telephone or walkie-talkie shall be provided and maintained in working order for arranging better and effective communication at an excavation or tunneling work at the following locations, namely:

- i. Working chamber of an excavation;
- ii. Intervals of hundred meters along the tunnel;
- iii. Working chamber side of a man lock near the door of such man lock;
- iv. Interior or each chamber of a man lock;
- v. Location conspicuous lock attendant's situation;
- vi. A compressor plant;

- vii. A first-aid station, and
- viii. Outside the portal or the top of a shaft;
- ix. Such number of bells and whistles shall be made available at all times at the locations as are necessary for the safety of persons at such locations.

11.26. SIGNALS:

The standard audio or video signals shall be used in excavation or tunneling work and conspicuously located or displayed near entrance to the workplace and in such other locations as may be necessary to bring such signals to notice of all building workers employed in such excavation or tunneling work.

11.27. CLEARANCES

- a. The minimum lateral clearances of 0.5 m shall be maintained between any part of a vehicle and any fixture or any equipment used in an excavation or tunneling work after allowing the throw or swing of such fixture or equipment;
- b. The overhead clearance for a locomotive drive at excavation or tunneling work shall not be less than 1.20 m above the seat of such driver and not less than 2 m above the platform where such driver stands or of any other dimension in accordance with the approved standard.

11.28. SHELTERS:

The adequate number of shelters for the safeguard of the building workers are provided where, in the course of working, they are liable to be struck by a moving vehicle or other material handling equipment in a tunnel.

11.29. USE OF INTERNAL COMBUSTION ENGINE:

No internal combustion engine shall be used underground in excavation or tunneling work unless such engine is so constructed that the air entering the engine gets cleared before entry and the engine emits no fumes or sparks.

11.30. INFLAMMABLE OILS:

Inflammable oils with the flash point below the working temperature that is likely to be encountered in a tunnel shall not be used in excavation or tunneling work.

11.31. COUPLING AND HOSES:

All high-pressure hydraulic hoses and couplings shall be adequately protected against any possible damage in excavation or tunneling work.

11.32. HOSE INSTALLATION:

All hydraulic lines and plants working at a temperature exceeding 750 c shall be protected by adequate insulation or otherwise against accidental human contact in excavation or tunneling work.

11.33. FIRE RESISTANT HOSES:

No fire hydraulic hoses other than fire resistant hydraulic hoses are used when hydraulically activated machinery and equipment are employed in tunnels.

11.34. FLAMEPROOF EQUIPMENT:

Only flameproof equipment of appropriate type as per approved standards shall be used where there is a danger of flammable or explosive atmosphere being prevalent inside the tunnel.

11.35. STORING OF OIL AND FUEL UNDERGROUND:

All oils, greases or fuels stored underground in excavation or tunneling work shall be kept in tightly sealed containers and in fire resistant areas at safe distances away from explosive and other flammable chemical and appropriate flameproof installation shall be used in such storage areas.

11.36. USE OF GASES UNDERGROUND

- a. Petrol or liquefied petroleum gas or any other flammable substances shall not be used or stored inside the tunnel except with the prior approval of the Project Engineer;
- b. After the use of the petroleum or liquefied petroleum gas, or highly inflammable substances, all remaining petroleum or liquefied petroleum gas or highly inflammable substances shall be removed immediately from such tunnel;
- c. No oxy-acetylene gas shall be used in a compressed air environment in excavation or tunneling work.

11.37. WATER FOR FIRE FIGHTING

- a. Adequate number of water outlets shall be provided on excavation or tunneling work and readily made accessible throughout the tunnel for fire fighting purposes and such water outlets shall be maintained for effective fire fighting;
- b. All air locks shall be equipped with fire fighting facilities at excavation or tunneling work;
- c. An audible fire alarm shall be provided to warn the building workers whenever a fire breaks out on an excavation or tunneling work;
- d. Adequate number and types of fire extinguishers, in accordance with relevant national standards, shall be provided and made readily available to fight any outbreak of fire at an excavation or tunneling work;
- e. Fire extinguishers with vaporizing liquids and high pressure carbon dioxide shall not be used in tunnels or other confined spaces;
- f. The instructions regarding steps to be followed to fight outbreak of fire, at an excavation or tunneling work, written in Hindi or local language understood by the majority of the building workers employed on such excavation or tunneling work, shall be displayed at conspicuous and vulnerable places of such excavation or tunneling work.

11.38. FLOODING

- a. Water tight bulkhead doors shall be installed at the entrance of a tunnel to prevent flooding during a tunneling work where more than one tunnel is driven from a shaft;
- b. All necessary measures shall be taken to ensure that no building worker is trapped in any isolated section of a tunnel when any bulkhead door of such tunnel is closed;
- c. Where there is likelihood of flooding or water rushing into a tunnel during a tunneling work, arrangements shall be made for immediate starting of water pumps to take out water of such flooding or water rushing and for giving alert signals to the building workers and other persons to keep them away from danger.
- d. Airtight steel curtains shall be provided in areas liable to flooding at tunneling work and in case of descending tunnels, such curtains shall be provided in the top half of such tunnels to ensure the retention of pockets of air for rescue purpose.

11.39. REST SHELTERS

- a. Where building workers employed in a compressed air environment in a tunneling work are required to remain at the work site for one hour or more after de-compression from pressure exceeding one bar, adequate and suitable facilities shall be provided for such building workers to rest;
 - a. Every man-lock, medical-lock and any other facility inside these locks in a tunneling work shall be maintained in a clean state and in good repairs;
 - b. A first-aid room shall be provided and readily available at a construction site of a tunneling work;
 - c. Each man-lock attendant at the station shall be provided with a first-aid box.

11.40. PERMISSIBLE LIMIT OF EXPOSURE OF CHEMICALS

- a. The working environment in a tunnel or a shaft in which building workers are employed shall not contain any of the hazardous substances in concentrations beyond the permissible limits;
- b. The responsible person referred to shall conduct necessary test before the commencement of a tunneling work for the day and at suitable intervals as fixed by the Engineer in-charge, to ensure that the permissible limits of exposure are not exceeded and a record of such test shall be maintained and made available for inspection.

11.41. VENTILATION:

All working areas in a free air tunnel shall be provided with the approved ventilation system and the fresh air supplied in such tunnel shall not be less than 6 m³ per minute for each building worker employed underground in such tunnel and the free air-flow movement inside such tunnel not less than 9 m³ per minute.

11.42. AIR SUPPLY INTAKE POINT:

The air intake points for all air compression shall be located at places where such intake air does not get contaminated with dust, fumes, vapor and exhaust gases or other contaminants.

11.43. EMERGENCY GENERATORS

- a. Every compressed air system in a tunnel shall be provided with emergency power supply system for maintaining continued supply of compressed air in such compressed air system, which shall be capable of operating air compressor and ancillary systems of such compressed air system;
- b. The emergency power supply system shall be maintained and made readily available at all times.

11.45. AIR MAINS:

Every air-main supplying air to the working chamber, man-lock or medical-lock used at an excavation or tunneling work shall be protected against accidental damage and where it is not practicable to provide such protection, a stand-by air-main shall be provided.

11.46. BULKHEAD AND AIR LOCKS

- a. A bulk head or air tight diaphragms retaining compressed air, when used within a tunnel or a shaft, shall be constructed to withstand the maximum pressure at 1.25 the maximum working pressure of such bulk head or diaphragm and such bulk head or diaphragm shall be tested before its each use by a responsible person to ensure that such bulk head or diaphragm is in proper working order;
- b. Such responsible person shall keep the record of each test and such record shall be produced for inspection.
- c. The bulk head or diaphragm shall be made of sound material of adequate strength, which shall be able to withstand the maximum pressure on which they are subjected to at any time of their use;
- d. A bulkhead anchorage and air lock shall be tested at its work place at an excavation or tunneling work immediately after their installation at such place.

11.47. DIAPHRAGM:

All diaphragms, which are in the form of horizontal decks across a shaft used at excavation or tunneling work, shall be securely anchored

11.48. PORTABLE ELECTRICAL HAND TOOLS:

All portable electrical hand tools and inspection lamps used underground or in a confined space shall be operated at a voltage not exceeding 24 V.

11.49. CIRCUIT BREAKER

- a. Adequate numbers of differential ground fault circuit breakers shall be installed for every electrical distribution system and its sub-systems used at an excavation or tunneling;
- b. Work and the sensitivity of each of circuit breaker shall be adjusted in accordance with the requirement set out in accordance with the approved standards;
- c. No semi-enclosed fuse unit shall be used in underground place.

11.50. TRANSFORMER:

The contractor shall ensure no transformer is used in any section of a tunnel under compressed air unless such transformer is of the dry type and conforms to the approved standards.

11.51. LIVE WIRES:

There shall be no exposed live wire in working areas at an excavation or tunneling work which are accessible to building workers other than those authorized to work on such live lines.

11.52. WELDING SETS:

All welding sets used in a tunnel shall be of adequate capacity and of suitable type, duly approved.

11.53. QUALITY AND QUANTITY

- a. Every working chamber at an excavation or tunneling work where compressed air is used, the supply of such air shall be maintained at not less than 0.3 m³ per minute per person working therein;
- b. A reserve supply of compressed air shall be made available at all times for man-locks and medical locks used at a tunneling work;
- c. The air supplied in a compressed air environment at a tunneling work shall be, as far as practicable, free from contaminants, namely, dust, fumes and other toxic substances.

11.54. WORKING TEMPERATURE:

The temperature in any working chamber at an excavation or tunneling work where building workers are employed shall not exceed 29° c and the arrangement shall be maintained for kipping records in which the temperatures measured by dry bulb and wet bulb inside such working chamber once in every hour and for producing such records for inspection on demand.

11.55. MAN-LOCKS AND WORKING IN COMPRESSED AIR ENVIRONMENT

- a. Man-locks used at a tunneling work shall be of adequate strength, made of sound material and designed to withstand any pressure, internal or external, to which it may be subjected in the normal use or in an emergency;
- b. Doors of man-locks at an excavation or tunneling work shall be made of steel and used at a tunneling work for keeping the work airtight and devices shall be provided for sealing the doors when such locks are under pressure. The anchorage of a man-lock used at tunneling work shall have adequate strength to withstand the pressure exerted by air on the man-lock. There shall be adequate room available for the workers for working in the man-locks;
- c. Where work is carried out in any compressed air tunnel, a Man-lock in accordance with the approved standards shall be used;
- d. Where a man-lock is used, safety Instructions in Hindi and in local language understood by majority of building workers employed there, shall be displaced at conspicuous places;
- e. Except in an emergency, compression and de-compression operations shall be carried out in a man-lock and in an emergency any material-lock may be used;
- f. A record of compression and de-compression shall be kept in writing and produced for inspection on demand;
- g. Material lock shall be used with the permission of the Engineer in-charge where it is impracticable to install both the man-lock and the material-lock at;
- h. The man-lock at tunneling work shall not be used for any purpose

- i. other than compression or de-compression of building workers;
- j. No de-canting of building workers at tunneling work shall be carried
- k. out without prior approval of the Engineer in-charge except in an emergency;
- l. In case a building worker collapses or is taken ill during his de-compression in a man-lock, the lock attendant of such man-lock shall raise the pressure to a level equal to the maximum pressure which that building worker was exposed to in the working chamber prior to such de-compression and such lock attendant shall immediately report the matter relating to such collapse to the medical lock attendant and medical officer on duty;
- m. A building worker who had previously received training with a trained building worker to work in a compressed air environment at tunneling work shall be employed to work independently in such a compressed air environment;
- n. A building worker who had undergone three de-compressions from a pressure exceeding one bar in a period of eight hours at tunneling work shall not be allowed to enter a compressed air environment except for the purpose of carrying out rescue work;
- o. A building worker employed in a compressed air environment for a period of eight hours in a day at tunneling work shall not be employed again in such environment unless he has spent not less than twelve consecutive hours of rest at atmospheric pressure;
- p. No building worker shall be engaged in a compressed air environment at a pressure, which exceeds three bars at a tunneling work unless prior permission, in writing, has been obtained from the Engineer in-charge;
- q. No building worker shall be employed in a compressed air environment for more than fourteen consecutive days in a month;
- r. A register of employment of all building workers in compressed air environment shall be maintained;
- s. An identification badge shall be supplied to a building worker employed in compressed air environment;
- t. The badge of a building worker shall contain particulars of his name, location of the medical-lock allotted to him for work, the telephone number of the Construction Medical Officer concerned for his treatment and the instructions in case of his illness of unknown and doubtful causes;
- u. Record of all identification badges supplied to building shall be kept in a register;
- v. Every building worker whose name appears in the register shall wear the badge supplied to him at all times during his duty hours;
- w. Suitable warning signs shall be displayed in the compressed air for the prohibition of the following, namely:
 - i) Use of alcoholic drinks;
 - ii) Use and carrying of lighters, matches or other sources of ignition;
 - iii) Smoking; and

iv) No entry to person who has consumed alcoholic drink

11.56.SAFETY INSTRUCTION:

All building workers employed in compressed air environment at tunneling work shall follow the instructions issued for their safety in the course of such employment.

11.57.MEDICAL-LOCK

- a. A suitably constructed medical lock shall be maintained at tunneling work where building workers are employed in a working chamber at a pressure exceeding one bar;
- b. Where more than one hundred building workers are employed in a compressed air working environment exceeding one bar at tunneling work, one medical-lock is provided for every one hundred building workers or part thereof and such medical lock shall be situated as near as possible to the main-lock used at such tunneling work.

12.0. SAFETY IN PILING WORK

12.1. GENERAL PROVISIONS

- a. All pile driving equipment shall be of good design and sound construction, taking into account the ergonomic principles and properly maintained;
- b. A pile driver shall be firmly supported on a heavy timber sill, concrete bed or other secured foundation;
- c. In case a pile driver is required to be erected in dangerous proximity to an electrical conductor, all necessary precautions shall be taken to ensure safety;
- d. The hoses of steam and air hammer shall be securely lashed to such hammer so as to prevent them from whipping in case of connection or break;
- e. Adequate precaution shall be taken to prevent the pile driver from over turning and hammer from missing the pile;
- f. A responsible person for inspecting pile-driving equipment shall inspect such equipment before taking it into use and takes all appropriate measures as required for the safety of building workers before commencing piling work by such equipment;
- g. Where there is any question of stability of a structure for its adjoining areas to be piled, such structure shall be supported, where necessary, by underpinning, sheet piling, shoring, and bracing or by other means to ensure safety and stability of such structure and to prevent injury to any person.

12.2. PROTECTION OF OPERATOR:

The operator of every pile driving equipment shall be protected from falling objects, steam, cinders or water by substantially covering or otherwise or by other means.

12.3. INSTRUCTION TO AND SUPERVISION OF BUILDING WORKERS WORKING ON PILE-DRIVING EQUIPMENT:

Every building worker working on a pile driving equipment shall be given instructions regarding safe work procedure to be followed in piling operation and shall be supervised by a responsible person throughout such work.

12.4. ENTRY OF UNAUTHORIZED PERSON:

The contractor shall ensure at a construction site of a buildings or other construction work that all piling areas where pile-driving equipment is in use are effectively cordoned off to prevent entry of unauthorized persons.

12.5. INSPECTION AND MAINTENANCE OF PILE DRIVING EQUIPMENT

- a. Pile-driving equipment shall not be taken into use until it has been inspected by a responsible person and found to be safe for such use;
- b. A responsible person for such inspection at suitable intervals to ensure safety to the building worker working on such equipment shall inspect pile driving equipment in use;

- c. All pile lines and pulley blocks shall be inspected by a responsible person before the beginning of each shift of piling operations.

12.6. OPERATION OF PILE-DRIVING EQUIPMENT

- a. Only experienced and trained building worker shall operate pile driving so as to avoid any probable danger from such operation;
- b. Pile-driving operations shall be governed generally prevalent and accepted signals so as to prevent any probable danger from such operations;
- c. Every building worker employed in pile driving operation or in the vicinity of such pile driving operation shall wear ear protection and safety helmet or hardhat and safety shoes;
- d. Piles shall be prepared at a distance, at least equal to twice the length of the longest pile, from the place of pile-driving operations;
- e. When a pile driver is not in use, the hammer of such pile driver shall be blocked at the bottom of the heads of such pile driver.

12.7. WORKING PLATFORM ON PILING FRAMES:

Where a structural tower supports the lead of a pile driver, leads at which it is necessary for the building workers to work and such platforms except on the hammer of such pile driver or lead sides of such platform and where such platforms cannot be provided with such railing and toe boards, a safety belt shall be provided to each such building worker.

12.8. PILE TESTING

- a. The testing of pile shall be conducted under the supervision of a responsible person for such testing;
- b. All practicable measures like displaying of warning notices, barricading the area and other similar measures shall be taken to protect the area where the pile testing is carried out;
- c. Entry to a pile testing area shall be prohibited to general public to ensure safety.

12.9. PILING, SHORING AND BRACING

- a. Planks used for sheet piling in excavation or tunneling work shall be of sound material with adequate strength;
- b. Shores and braces used in excavation or tunneling work shall be of adequate dimensions and so placed as to be effective for their intended purposes;
- c. Earth supported shores or braces used in excavation or tunneling work shall bear against a footing of sufficient area and stability to prevent the shifting of such shores or braces.

13.0. SAFETY IN THE ERECTION, USE AND DISMANTLING OF SCAFFOLDS

13.1. SCAFFOLD CONSTRUCTION

- a. Every scaffold and every component thereof shall be of adequate construction, made of sound material and free from defects and safe for the purposes for which it is intended for use;
- b. In case bamboo is used for scaffolding, such bamboo shall be of suitable quality, good condition, free from protruding knots and stripped off to avoid any injury to building workers during handling such bamboo;
- c. All metal scaffolds used in building or other construction work shall conform to the approved standards;

13.2. SUPERVISION BY A RESPONSIBLE PERSON: No scaffold shall be erected, added, altered or dismantled except under the supervision of a responsible person.

13.3. Maintenance

- a. The scaffold used in building or other construction work shall be maintained in good repairs and the measures taken against its accidental displacement or any other hazard;
- b. No scaffold or part thereof shall be partly dismantled and allowed to remain in such a condition unless –
 - i) The stability or safety of the remaining portion of such scaffold has been ensured by a responsible person for the safety of such scaffolds;
 - ii) In case the remaining part of such scaffold cannot be used by the building workers, necessary warning notice written in Hindi and in a language understood by the majority of the building workers that such scaffold is unfit for use, shall be displayed at the place where such scaffold is erected.

13.4. STANDARDS, LEDGERS, PUTLOGS

- a. Standards of a scaffold shall be plumb, where practicable, fixed sufficiently close together to secure the stability of such scaffold having regard to all the possible working situations and conditions for the intended use of such scaffold, spaced, as close as practicable, to ensure safety and stability of such scaffold;
- b. Adequate measures are taken to, prevent displacement of a standard of a scaffold either by providing sole plate or a base plate, as necessary;
- c. Ledgers of metal scaffold are placed at vertical intervals with due regard to safety and stability of such scaffold;
- d. Bamboo ledgers are kept as nearly as possible and are placed and fastened to the standards of a scaffold with due regard to the stability of such scaffold.

13.5. WORKING PLATFORM

- a. Working platform shall be provided around the face or edge of a building adjoining at every upper most permanent floor of such building under construction and at any level where construction work of such building is carried out;
- b. A platform shall be designed to suit the number of building workers to be employed on each bay of a scaffold work on such platform and the materials or articles and tools to be carried with them in such bay;
- c. The safe working load and the number of building workers to be employed in each bay of a scaffold shall be displayed for the information of all the building workers employed at such construction site.

13.6. BOARD, PLANK AND DECKING

- a. Board, plank and decking used in the construction of a working platform shall be of uniform size and strength and shall be capable of supporting the load and number of building workers keeping in view the safety of such building workers;
- b. Metal decking, which forms part of a working platform, shall be provided with non-skid surface;
- c. No board or plank which forms the working platform shall be projected beyond its end support unless it is effectively prevented from tripping or lifting and board, plank or decking shall be fastened and secured;
- d. At any one time, not more than two working platforms per bay, shall be used to support building workers or materials or articles at such bay;
- e. Adequate measures shall be taken to prevent injury which may be caused by falling material and objects by using safety nets or other suitable means;
- f. Concrete, other debris or materials shall not be allowed to accumulate at any platform on a scaffold;
- g. Where a work is to be done at the end of a wall, working platform at such workplace shall be faced or, wherever practicable, at least 0.6 m beyond the end of such wall.

13.7. REPAIR OF DAMAGED SCAFFOLD

- a. No building worker shall be permitted to work on a scaffold that has been damaged or weakened unless adequate safety measures have been taken to ensure the safety of such building worker;
- b. Necessary warning signs shall be displayed at such places where repairs of scaffold are undertaken.

13.8. OPENING

- a. There shall be no opening in any working platform except for allowing access to such working platform;
- b. Wherever opening on a platform is unavoidable, necessary measures for protection against falling of objects or building workers from such platform shall be taken by providing suitable safety nets, belts or any other similar means;
- c. Access from one working platform to another platform on a scaffold, if required, shall be provided with suitable and safe ladder for the use of building workers working on such platforms;

- d. Every opening or shaft in the floor shall be provided with suitable means to protect the fall of a person or material by providing suitable fencing or railing of height not less than 900 mm.

13.9. GUARDRAILS: Every side of a working platform from which a person is liable to fall shall be provided with suitable and safe guardrails and toe board of adequate strength to prevent fall of any building worker, material or tools from such platform.

13.10. SCAFFOLD USED BY BUILDING WORKERS OF DIFFERENT EMPLOYERS

- a. Where a scaffold or a part of a scaffold is used, which has previously been used by another employer for his building workers, such scaffold or part thereof shall be used only after its inspection and examination by a responsible person for ensuring that such scaffold or part thereof is safe and fit for such use;
- b. If any rectification, alteration or modification in a scaffold or part thereof, needed to suit its use, shall be made in consultation with the responsible person.

13.11. PROTECTION AGAINST ELECTRIC POWER LINE:

The contractor shall ensure that all necessary and practical measures for protection are taken to prevent any building worker, working on a scaffold, from coming into contact with the electric wires or dangerous equipment.

13.12. SCREENING NET AND WIRE NETS:

Where a scaffold is erected in an area where the construction activities may pose hazards to pedestrians or vehicular traffic nearby from the falling of objects, wire nets or screening nets shall be used to envelope such scaffold.

13.13. TOWER SCAFFOLD

- a. The height of every tower scaffold used in building or other construction work shall not be more than eight times the lesser to the base dimension of such scaffold;
- b. A tower scaffold shall be lashed to a building or a fixed structure before being used by the building workers;
- c. Any tower scaffold which can be moved or castered shall be –
 - i) Constructed with due regard to the stability and, if necessary, adequately weighted at the base;
 - ii) Used only on plain and even surface; and
 - iii) Has casters provided with positive locking devices to hold such scaffold in position;
- d. No building worker shall remain on board scaffold or leave behind tools and material when it is being shifted from one position to another position.

13.14. GEAR FOR SUSPENSION OF SCAFFOLD

- a. Chains, ropes or lifting gears used for suspension of a scaffold shall be of adequate strength, made of sound material and suitable for the purpose of their use and maintained in good repairs;
- b. Chains, wires, ropes or metal tubes used for the suspension of a scaffold shall be:

- i) Properly and securely fastened to every anchorage point and to the scaffold ledgers of other main supporting members used for the support of such scaffold; and
- ii) So positioned as to ensure stability of the scaffold.

13.15. TRESTLE SCAFFOLD AND CANTILEVER SCAFFOLD

- a. No trestle scaffold shall be constructed with more than three tiers or if its working platform is more than 4.5 m above the ground or floor or other surface upon which such scaffold is erected;
- b. Trestle scaffold shall be designed by professional engineer and shall have the approval of the Engineer in-charge before being taken into use.
- c. No trestle scaffold shall be erected on a suspended scaffold;
- d. No cantilever or jib scaffold shall be used unless it is adequately supported, fixed and anchored on opposite side of its support and have out triggers of adequate length and, where necessary sufficiently, supported and braced to ensure safety and stability of such scaffold;
- e. No working platform resting on bearers let into a wall at one end and without other support shall be used unless such bearers are of adequate strength, braced through the wall and securely fastened on the other side.

13.16. SCAFFOLD SUPPORTED BY BUILDING

- a. No part of a building shall be used as support or part of a scaffold unless such part of the building is made of sufficient strength and made of sound material to afford safe support;
- b. Overhanging eaves gutters shall not be used for supporting scaffold;
- c. Suspended scaffold shall be made of in accordance with the approved standards before being used by the building workers.

13.17. USE OF WINCHES AND CLIMBERS FOR SUSPENDED SCAFFOLD

- a. No scaffold shall be raised or lowered by winches or climbers unless such scaffold is made of sound material, adequate strength and has been tested and certified safe for use of winches or climber by a competent person before being taken into use;
- b. All suspended scaffolds counter-balanced by counter weights shall be of approved types before being taken into use for building or other construction work;
- c. The working platform of a suspended scaffold shall be securely fastened to the building or structure as to be safe and to prevent such platform from swing;
- d. The safe working load that a suspended scaffold can carry, shall be displayed where such scaffold is being used

13.18. SAFETY DEVICES FOR SUSPENDED SCAFFOLD

- a. Every suspended scaffold, raised or lowered by the winches or climbers, shall be provided at each of its suspension point with a safety rope with automatic safety device mounted on each of such rope so that such safety rope with such automatic safety device support the platform of such

scaffold in the event of failure of the primary suspension wire ropes, winches, climbers or any part of the mechanism used for raising or lowering such suspended scaffold;

b. Provided that the clause (a) shall not apply -

- i) Where the platform of such scaffold is supported at two independent suspension wire rope at or near each end of such platform so that in the event of failure of one of such suspension wire rope, the other wire rope is capable of sustaining the weights of such platform and its load and prevent it from tilting; or
- ii) Where a system is incorporated which operates automatically to support the platform of such scaffold and its load in the event of failure of the primary suspension wire rope of such scaffold.

14.0. SAFETY IN THE ERECTION OF STRUCTURAL FRAME & FORMWORK

14.1. GENERAL PROVISION

- a. The trained building worker under the direct supervision of a person, responsible for structural frame and formwork, shall be employed for erection of such structural frame or formwork, dismantling of building and structure and performance of and engineering work formwork, false work and shoring work;
- b. Adequate measures shall be taken to guard against hazards arising from any temporary state of weakness or unsuitability of a structure.

14.2. FORMWORK, FALSE WORK AND SHORING

- a. Formwork and false work shall be so designed, constructed and maintained that such formwork and false work are able to support the load that may be imposed on them;
- b. Such formwork shall be so erected that working platform, means of access, bracings, means of handling and stabilizing could easily be fixed with such formwork.

14.3. ERECTION OR DISMANTLING OF STEEL AND PREFABRICATED

- a. Erection or dismantling of any pre-fabricated structure shall be made safe against danger by using appropriate means such as ladders, gangways or fixed platforms, buckets, boatswains chair or other appropriate means suspended from lifting appliances, safety harness, life lines, catch nets or catch platforms, power-operated mobile working platforms etc.;
- b. The work of erection or dismantling of buildings or structures or formwork or false work or shoring or any other civil engineering work shall be carried out by trained building workers under the supervision of a person responsible for such work;
- c. Steel or prefabricated structures shall be so designed and made that such structures can be safely transported or erected; and weight of each unit of such structures shall be clearly marked on such unit;
- d. The design of each such part shall maintain stability of each part of the structures referred to in clauses above when erected, and to prevent danger, the design shall explicitly take into account –
 - i) The relevant conditions and methods of attachment in the operations of stripping, transport, storing and temporary support during erection of such parts;
 - ii) Safeguards, such as provision of railings with working platforms, and for mounting such railings and platforms easily on the structural steel or prefabricated parts;
- e. The hooks and softer devices built in or provided on the structural steel or prefabricate parts that are required for lifting and transporting such parts shall be so shaped, dimensioned and positioned to withstand the stresses to which such hooks or other devices are subjected;

- f. Prefabricated parts made of concrete shall not be stripped or erected before such concrete has set and hardened sufficiently to the extent provided for in the plans, and such parts are examined by the responsible person for any sign of damage before their use;
- g. Store-places shall be so constructed that –
 - i) There shall be no risk of structural steel or prefabricated parts falling or overturning;
 - ii) Storage conditions shall generally ensure stability and avoid damage having regard to the method of storage and atmospheric conditions; and
 - iii) Racks shall be set on firm ground and designed so that units cannot move accidentally in such store-places;
- h. Structural steel or pre-fabricated parts shall not be subjected to stresses prejudicial to their stability while they are stored or transported or raised or set down;
- i. Tongs, clamps and other appliances for lifting structural steel and prefabricated part shall be:
 - i) In such shape and dimensions as to ensure a secure grip without damaging and marked with the maximum permissible load in the most unfavourable lifting conditions; and
 - ii) Structural steel or pre-fabricated parts shall be lifted by such methods and appliances that prevent them from spinning accidentally;
- j. Structural steel or pre-fabricated parts shall be provided with railings and working platforms before raising such parts to prevent any danger of falling of building workers, materials or articles at the time of any work with such parts;
- k. All reasonably practical measures shall be taken to avoid injury to building workers, building structure or equipment while structural steel or pre-fabricated parts are handled or stored or transported or raised or lowered;
- l. Structures shall not be worked on during violent storms or high winds or any other such hazardous situation;
- m. The risk of falling to which building workers, moving on high or sloping girders, may be exposed is limited by all means of adequate collective protection or by the use of a safety harness which shall be well secured to a sufficiently strong supports;
- n. Structural steel parts, which are to be erected at a great height, shall, as far as practicable, be assembled on the ground;
- o. When structural steel or pre-fabricated parts are being erected, a sufficiently extended area underneath the workplace shall be barricaded or guarded;
- p. Steel trusses, which are being erected, shall be adequately shored, braced or guyed until they are permanently secured in position;
- q. Structural members shall not be forced into place by the hoisting machine while any building worker is in such a position that he is likely to be injured by such operation.

14.4. FORMWORK

- a. All formwork shall be properly designed keeping in view the safety of building workers, buildings or structures;
- b. A responsible person for structural frame and formwork shall –
 - i. Inspect and examine the material, timber, structural steel and scaffolding for its strength and suitability before being taken into use;
 - ii. Lay-down procedures to cover all stages of such structural frame and formwork;
 - iii. Supervise such structural frame and formwork;
 - iv. Take all necessary steps or measure to correct any situation with a view to prevent accident or dangerous occurrence during performances of such structural frame and formwork.

14.5. DE-SHORING

- a. When shoring is removed, sufficient props shall be left in place of such shoring to prevent any possible hazard; and
- b. Deshoring shall be adequately braced and tied together with support to prevent any hazard.

15.0. SAFETY IN CONCRETE WORK

15.1. GENERAL PROVISIONS REGARDING USE OF CONCRETE

- a. All construction with the use of concrete or reinforced concrete shall be based on plans including specification of steel and concrete and other material to be used in such construction –
 - i. Giving technical details regarding methods for safe placing and handing of such materials and indicating the type, quality and arrangement of each part of a structure of such construction; and
 - ii. Explaining the sequence of steps to be taken for completion of such construction;
- b. Formwork and shores used for concrete work shall be structurally safe and properly braced or tied together so as to maintain position and shape of formwork or shores;
- c. Formwork structure used shall have sufficient catwalks and other secure access for inspection of such structure if such structure is in two or more tiers;
- d. No machinery or any object should fall below by using wire nets, screen nets etc.

15.2. PREPARATION AND POURING OF CONCRETE AND ERECTION OF CONCRETE STRUCTURE

- a. A building worker handling cement or concrete shall –
 - i) Wear close-fitting clothing, gloves, helmet or hardhat, safety goggles, proper footwear and respirator or mask to protect himself from danger in such handling;
 - ii) Keep as much of his body covered as is required to protect himself from danger in such handling;
 - iii) Take all necessary precautions to keep cement and concrete away from his skin in such handling;
- b. Lime pits shall be fenced or enclosed and filled and emptied by such devices, which do not require workers to go into the pit;
- c. Moving parts of the elevators, hoists screens bunkers, chutes, grouting equipment used for concrete work and of other equipment used for storing, transport and other handling ingredients of concrete shall be securely fenced to avoid contact of building workers with such moving parts;
- d. Screw conveyors used for cement, lime and other dusty materials shall be completely enclosed.

15.3. BUCKETS

- a. Concrete buckets used with cranes or aerial cableways shall be free from projections from which accumulations of concrete could fall;
- b. Movements of concrete buckets shall be governed by signals necessary to avoid any danger by such movements.

15.4. PIPES AND PUMPS

- a. A scaffolding carrying a pipe for pumped concrete shall be strong enough to support such pipe at a time when such pipe is filled with concrete or water or any other liquid and carry the combined load of the all the building workers who may be on such scaffold at such time, safely;
- b. Every pipe for carrying pumped concrete shall be –
 - i) Securely anchored at its end point and at each curve on it;
 - ii) Provided near the top of such pipe with an air release valve;
 - iii) Securely attached to a pump nozzle by a bolted collar or other adequate means;
- c. The operation of concrete pumps shall be governed by standard signals;
- d. Building workers employed around a concrete pump shall wear safety goggles;

15.5. MIXING AND POURING OF CONCRETE

- a. The concrete mixture shall not contain any material, which may unduly affect the setting of such concrete, weaken such concrete or corrode steel used with such concrete;
- b. When dry ingredients of concrete are being mixed in confined spaces such as silos –
 - i) The dust shall be exhausted at the time of such mixing and
 - ii) In case the dust the dust cannot be exhausted, as specified, the workers shall wear respirators at the time of such mixing;
- c. When concrete is being tipped from buckets, building workers shall be kept out of the range of any kickbacks of such buckets;
- d. Loads shall not be dumped or placed on settling concrete.

15.6. CONCRETE PANELS AND SLABS

- a. All parts of a concrete panel or concrete slab shall be hoisted uniformly;
- b. Concrete panels shall be adequately braced in their final positions and such bracings shall remain in such positions until such panels are adequately supported by other parts of the construction for which such panels are used;
- c. Temporary bracings of concrete panels shall be securely fastened to prevent any part of such panels from falling when such panels are being moved.

15.7. STRESSED AND TENSIONED ELEMENTS

- a. Building workers shall not stand directly over jacking equipment while stressing of concrete girders and beams is being done;
- b. A pre – stressed concrete unit shall not be handled except at points on such unit and by the devices specified for such work by the manufacture of such devices;
- c. During transport, pre-stressed concrete girders or concrete beams shall be kept upright by bracing or other effective means;

- d. Anchor fittings for pre-tensioned strands of pre-stressed concrete girders of concert beams are kept in a safe condition in accordance with the instruction of manufacturer of such anchor fittings;
- e. Building workers shall not stand behind jacks or in line with tensioning elements and jacking equipment during tensioning operations of pre-stressed concrete girders of concrete beams;
- f. Building workers do not cut wires of pre – stressed concrete girders or concrete beams under tension before such concrete used of such girder or beams is sufficiently hardened.

15.8. VIBRATORS

- a. A building worker, who is in good physical condition, shall operate vibrators used in concreting work;
- b. All practical measures shall be taken to reduce the amount of vibration transmitted to the operators working in concreting work and
- c. When electric vibrators are used in concreting work
 - i) Such vibrators shall be earthed;
 - ii) The leads of such vibrators shall be heavily insulated; and
 - iii) The current shall be switched off when such vibrators are not in use.

15.9. INSPECTION AND SUPERVISION

- a. A person responsible for a concreting work shall supervise the erection of the formwork, shores, braces and other supports used for such concreting work, make a through inspection of every formwork to ensure that such formwork is safe, regularly inspect the formwork, shores, braces, reshores and other supports during the placing of concrete, keep all records of inspections referred to above at the workplace relating to such inspection and produce them for inspection upon the demand.
- b. Any unsafe condition, which is discovered during the inspections, shall be remedied immediately.

15.10. BEAMS, FLOORS AND ROOFS

- a. Horizontal and diagonal bracings shall be provided in both longitudinal and transverse direction as may be necessary to provide structural stability to formwork used in concreting work and shores used in such concreting work shall be properly seated on top and bottom and secured in their places;
- b. Where shores used in concreting work rest upon the ground, base plates shall be provided for keeping such shores firm and in level;
- c. Where the floor to ceiling height of a concreting work exceeds 9 m or where the formwork deck used in such concreting work is supported by shores constructed in two or more tiers, or where the dead, live and impact loads on the formwork used in such concreting work exceed 700 kilogram per m², the structure of such formwork shall be designed by a professional engineer in the relevant field and the specifications and drawings of such formwork kept at such construction site and produced on demand.

- d. Where a professional engineer designs the structure of the formwork used in concreting work, such engineer shall be responsible for the supervision of construction and the stability of such structure.

15.11. STRIPPING

- a. Stripping of formwork used in concreting work shall not commence until the concrete on such formwork is fully set, examined and certified to this effect by the responsible person and record of such examination and certification is maintained;
- b. Stripped forms in concreting work shall be removed or stock piled promptly after stripping from all areas in which building workers are required to work or pass;
- c. Protruding nail, wire ties and other formwork accessories not required for subsequent concreting work shall be pulled, cut or otherwise made safe.

15.12. RE-SHORING

- a. Re-shoring used in concreting work shall be provided to a slab or beam for its safe support after its stripping or where such slab or beam is subjected to superimposed loads due to construction above such slab or beam;
- b. The provisions applicable to shoring in a concreting work shall also be applicable to reshoring in such work or pass.

16.0. SAFETY IN CONSTRUCTION, REPAIR & MAINTENANCE OF STEEP ROOFS

16.1.WORK ON STEEP ROOFS:

All practicable measures shall be provided to protect the building workers against sliding when carrying outwork on steep roofs.

16.2. CONSTRUCTION AND INSTALLATION OF ROOFING BRACKETS

- a. Roofing brackets shall be constructed to fit the pitch of steep roof and such brackets shall be used to provide level working platform;
- b. Roofing bracket shall be secured in its place by nailing pointed metal projections attached to the underside of such bracket and securely driven into a steep roof on which it is used or secured by a rope passed over the ridgepole and tie of such roof.

16.3. CRAWLING BOARDS

- a. All crawling boards used for work on steep roofs shall be of adequate strength, made of sound material and of the type approved for the purpose of their use;
- b. Crawling boards shall be kept in good repairs and inspected by a responsible person before being taken into use;
- c. Crawling boards shall be secured to a steep roof on which it is used by ridge hooks or other effective means;
- d. A firmly fastened lifeline of adequate strength shall be strung beside each crawling board throughout its length while using such crawling boards.

17.0. SAFETY IN CATCHES PLATFORMS, HOARDINGS & CHUTES

17.1. CATCH PLATFORM

- a. Catch platform shall not be used for storage of material or as a working platform;
- b. Catch platform shall at least be of 2 m wide and inclined so that the position of outer edge of such platform is 1500 mm higher than the inner edge;
- c. The open end of catch platform shall be properly fenced to the height not less than 1 m.

17.2. HOARDINGS:

Hoardings shall be constructed when the Registering Authority / Assistant Labour Commissioner considers it necessary for protection of building workers and directs such employer to construct such hoardings.

17.3. CHUTES, ITS CONSTRUCTION AND USE

- a. Wooden or metal chutes which are at an angle of more than 45° to the horizontal and used for the removal of materials shall be closed on all sides except at their openings used for receiving or discharging of materials or articles;
- b. All openings of chutes except their top openings shall be closed when not in use;
- c. Every chute –
 - i. Shall be constructed of sound material, adequate strength and suitable for the purpose it is intended for use;
 - ii. Exceeding 12 m in height shall be constructed in accordance with the design and drawings of professional engineer for such;
 - iii. A suitable warning notice shall be displayed at conspicuous locations, written in Hindi and in a local language, at the discharge end of every chute;
 - iv. Shall be cleared when debris has accumulated to a height, which can pose danger to building worker, but such clearance shall be done in no case less frequently than once a day.

18.0. SAFETY IN WORK ON OR ADJACENT TO WATER

18.1. TRANSPORT OF WORKERS BY WATER

- a. When any building worker has to proceed to or from any workplace by water for purposes of carrying on a building or other construction work, proper measures shall be taken to provide for his safe transportation and vessels used for such purpose shall be in charge of a responsible person, properly equipped for safe navigation and maintained in good condition;
- b. Maximum number of persons which can be safely carried in a vessel shall be marked plainly and conspicuously on such vessel and such number shall not be exceeded during use of such vessel for carrying persons;
- c. Adequate protecting shall be provided to the building workers in such vessel from inclement weather;
- d. Such vessel shall be manned by adequate and experienced crew;
- e. In case the bulwarks of such vessel are lower than 60 cm from the level of the deck of such vessel, the open edge of such bulwarks shall be fitted with suitable fencing to a height of at least 1 m above such deck and the post and stanchions and similar parts used in such fencing shall not be spaced more than 2 m;
- f. The number of life buoys on deck of such vessel shall at least be equal to the number of crew members of such vessel and shall not be less than two;
- g. All life buoys on deck of such vessel shall be kept in good state of maintenance and so placed that if such vessel sinks then they will remain afloat and one of such buoys shall be within the immediate reach of the Steersman of such vessel and another is situated after part of such vessel; and
- h. The position of the steersman of the vessel shall be such that he has a reasonably free view of all sides.

18.2. PREVENTION FROM DROWNING

- a. Where, on or adjacent to the workplace of any contraction site, there is water into which a building worker employed for work on such site, in the course of his employment, may fall and has the risk of drowning, suitable rescue equipment shall be provided and kept in an efficient state of ready use and measures shall be taken to arrange for the prompt rescue of such building worker from the danger of drowning and where there is a special risk of such fall from the edge of adjacent land or from a structure adjacent to or above the water, or from floating stage on such water, secure fencing shall be provided near the edge of such land, structure or floating stage, as the case may be, to prevent such fall, and such fencing may be removed or allowed to remain unerected for the time and to the extent necessary for the access of building workers to such work or the movement of material for such work;
- b. For handling rescue equipment, at least two persons knowing diving should be available at such sites.

19.0 SAFETY IN COFFERDAMS & CAISSONS

19.1 EVERY COFFERDAM AND CAISSON SHALL BE

- 19.1.1 Of good construction, sound material and of adequate strength, provided with adequate means for workers to reach safely at the top of such cofferdam or caisson in the event of an inrush of water and safe means of access to every place where workers shall be employed;
- 19.1.2 Work relating to construction, positioning, modification, dismantling of cofferdams or caissons shall be carried out under the supervision of a responsible person and inspected by the responsible person at the specified intervals;
- 19.1.3 A worker shall be allowed to work in a cofferdam or caisson after such cofferdam or caisson has been inspected and found safe by responsible person within such preceding period as approved and a record of such inspection maintained.

19.2 WORK IN COMPRESSED AIR IN A COFFERDAM OR CAISSON SHALL BE

- 19.2.1 Carried out in accordance with the procedure laid down;
- 19.2.2 Carried out by such building workers who have completed eighteen years of age and are medically examined and found fit for the work;
- 19.2.3 Carried out under the supervision of a responsible person;
- 19.2.4 If the work in cofferdam or caisson is carried out in shifts, a record of the time spent by each worker in each such shift for carrying out the work shall be maintained in a register with particulars or time taken for the compression of such building worker, if any;
- 19.2.5 At every work site or project in a cofferdam or caisson, where workers are employed to work in compressed air environment, a construction medical officer assisted by a nurse or trained first-aid attendant, shall be available at all times and there shall be one standby reserve compressor to meet the emergency.

19.3 PRESSURE PLANT AND EQUIPMENT

- 19.3.1 Pressure plant and equipment for which it is used shall be –
- 19.3.2 Properly maintained in good repairs and working condition and fitted with a suitable safety valve or other effective device to provide maximum safe discharge pressure from being exceeded at any time; a suitable pressure gauge with a dial range not less than 1.5 times and not exceeding twice the maximum working pressure, easily visible and designed to show at all times, the internal pressure in kilogram per square centimeter and marked with the maximum safe working pressure, a suitable stop valve or valves by which the pressure plant or the system of the pressure plant may be isolated from the source supply of pressure or otherwise;
- 19.3.3 Every pressure plant or equipment shall be thoroughly examined by the competent person, externally, once in every period of six months; internally, once in every period of twelve months; and by hydraulic test, once in a period of four years.

20. SAFETY IN DEMOLITION WORK

20.1 PREPARATION

- 20.1.1 All glass or similar material or article in exterior openings shall be removed before commencing any demolition work and all water, steam, electric, gas and other similar supply lines put off and suitably capped and the concerned department of the appropriate authority informed and permission obtained wherever required before commencing;
- 20.1.2 Wherever it is necessary to maintain water, gas or electric line or power during such demolition, such line shall be so located or protected with substantial coverings so as to protect it from damage and to afford safety to the building workers and the general public.

20.2 PROTECTION OF ADJACENT STRUCTURES

20.2.1 Examination of walls etc. of adjacent structures –

- i) During demolition process, the contractor shall examine the walls of all structures adjacent to the structure to be demolished to determine the thickness, method of support to such adjacent structures and;
- ii) In case, such employer has reason to believe that any of such adjacent structure is unsafe or may become unsafe during such demolition process, he shall not perform demolition activity unless stability to such unsafe adjacent structure from collapsing has been taken. All roads and open spaces adjacent to the site of demolition work shall be closed or suitably protected by bracketing.

20.3 DEMOLITION OF WALLS, PARTITIONS, ETC.

- 20.3.1 Any demolition of walls or partitions shall be proceeded in a systematic manner as per the standard safe operating practices approved and all work above each tier of any floor beams shall be completed before the safety of the supports of such beam is impaired;
- 20.3.2 Masonry shall be neither loosened nor permitted to fall in such masses or volume or weight as to endanger the structural stability of any floor or structural supports;
- 20.3.3 No wall chimney or other structure or part of a structure shall be left unguarded in such a condition that it may fall, collapse or weaken due to wind pressure or vibration;
- 20.3.4 In the case of demolition of exterior walls by hand, safe footing shall be provided for the workers employed in, such walls or partitions, which are to be demolished by hand shall be not left standing more than one storey high above the uppermost floor on which persons are working.

20.4 METHOD OF OPERATION: The contractor shall ensure that debris, bricks and other materials or articles are removed by means of chutes, buckets or hoists and through openings in the floors.

20.5 ACCESS TO FLOOR

- 20.5.1 Safe access to and egress from every building shall be provided at all times in the course of demolition by means of entrances hallways, stairways or ladder runs which shall be so protected as to safeguard the workers using such means from falling material or articles;

- 20.5.2 Demolition of structural steel etc. shall be demolished column by column and tier by tier and every structural member, which is being demolished, shall not be under any stress, and such structural member shall be suitably lashed to prevent it from any uncontrolled swinging, dropping or falling or falling;
- 20.5.3 Large structural members shall not be thrown or dropped from the building, but carefully lowered by adopting suitable safe method;
- 20.5.4 Where a lifting appliance like a derrick is used for demolition, the floor on which such lifting appliance rests shall be completely planked over or supported and such floor shall be of adequate strength to sustain bearing load for such lifting appliance and its operation.

20.6 STORAGE OF MATERIAL OR ARTICLE

- 20.6.1 No materials or articles shall be not stored or kept on platform, floor or stairways of a building being demolished, provided that this clause shall not apply to the floor of a building when such floor is of such strength as to support safely the load to be superimposed by storing such material or articles;
- 20.6.2 No access to any stairway or passageway shall be affected or blocked by storing any material or article;
- 20.6.3 Suitable barricades shall be provided so as to prevent materials or articles from sliding or rebounding into any space used by the workers.

20.7 FLOOR OPENINGS:

Every opening used for the removal of debris from every floor which is not closed to access, except the top or working floor, shall be provided with an enclosure from such floor to its ceiling, or such opening is so barricaded that no building worker shall access to within a horizontal distance of 6.0 m from such opening through which debris is being dropped.

20.8 INSPECTION:

A person responsible for demolition work shall make continuous inspections during demolition process so as to detect any hazard resulting from weakened or deteriorated floors or walls or loosened materials or articles, and that no building worker shall be permitted to work where such hazard exist unless remedial measures like shoring or bracing shall be taken to prevent such hazards.

20.9 WARNING SIGNS, BARRICADES, ETC.

- 20.9.1 Barricades and warning sign shall be erected along every side throughout the length and breadth of a building or other construction work to be demolished to prevent unauthorized persons from entering into the during demolition operations;
- 20.9.2 During the demolition of an exterior masonry wall or a roof from a point more than 12 m above the adjoining ground level of such wall or roof, if persons below such wall or roof are exposed to falling objects, suitable and safe catch platform shall be provided and maintained at a level not more than 6 m below the working level except where an exterior built-up scaffold is provided for safe and adequate protection of such persons;
- 20.9.3 Suitable and standard warning signs shall be displayed or erected at conspicuous places or position at the workplace;

20.10 MECHANICAL METHOD OF DEMOLITION

20.10.1 The following requirements shall be fulfilled in case the mechanical method of demolition like use of swinging weight, clamshell bucket, power shovel, bulldozer or other similar mechanical methods are used for the purpose of demolition namely –

- i) The building or structure or structure or remaining portion thereof shall be not more than 12 m in height;
- ii) Where a swinging weight is used for demolition, a zone of such demolition having a radius of at least 1.5 times the height of the structure of portion thereof being demolished shall be maintained around the points of impact of such swinging weight;
- iii) Where a clamshell bucket is being used for demolition, a zone of demolition shall be maintained within eight metres of the liner of travel of such bucket;
- iv) Where other mechanical methods are being used to affect total or partial collapse of a building or other construction work, there shall be maintained, in the area into which the affected portion of such building or other construction work may fall, a zone of demolition at least 1.5 times the height of such affected portion thereof; and
- v) No person other than building workers or other persons essential to the operation of demolition work shall be permitted to enter a zone of demolition, which shall be provided with substantial barricades.

21. FIRE EXTINGUISHERS & OTHER APPLIANCES OF FIRE FIGHTING

21.1 FIRE EXTINGUISHERS & OTHER MEANS OF PREVENTION AND PROTECTION

21.1.1 Every contractor shall have a fire protection and prevention plan developed and implemented keeping in view the following:

- i) The specific work practices requiring fire control measures;
- ii) Response measures to be taken in case of fire;
- iii) Equipment required;
- iv) Personnel requirements and responsibilities;
- v) Schedules of daily and weekly inspection;
- vi) Open flames and fires are prohibited in all underground construction;
- vii) Readily visible signs to be posted in the fire prone/inflammable/explosive areas prohibiting smoking use of open flames and other hot work.
- viii) A system of Permit-to-Work.

27.1.2 For the protection of the workers from the outbreak of fire, the contractor shall Provide, maintain and regularly inspect the Fire extinguishing equipment, which shall be sufficiently provided to extinguish any probable fire;

Suitability of portable fire extinguishers			
Class of fire	Type of extinguisher		
	Water	DCP	CO ₂
A	Yes	Yes	Yes
B	No	Yes	Yes
C	No	Yes	Yes
D	No	Yes	Yes
Electrical	No	Yes	Yes

27.1.3 Ensure availability of an adequate supply of water at ample pressure;

27.1.4 Make available

- i. Adequate number of trained persons required to operate the fire extinguishing equipment;

- ii. Properly maintain Fire extinguishing equipment and inspect them at regular intervals of not less than once in a year by the responsible person and a record of such inspections maintained;
- 27.1.5 Portable fire extinguishers provided in the operator's cabin of earthmoving machinery, material handling systems, construction equipment etc. shall be regularly inspected, maintained and replenished/refilled;
 - 27.1.6 The operators and the helpers of such equipment shall be trained in the methods operating the equipment and fighting the fire effectively;
 - 27.1.7 All combustion engine power equipment shall be so located that the exhausts are well away from combustible material;
 - 27.1.8 No smoking shall be allowed at or in the vicinity of operations, which constitute fire hazards and shall be conspicuously posted with No smoking or open flame **signs**;
 - 27.1.9 In the flammable environment as described in IS: 9570, the electrical fittings and equipment shall be of flame proof type conforming to IS: 2206 & IS: 2148;
 - 27.1.10 Arrangements shall be made to contain sparks generated during welding, cutting or other operations and spark shall not be allowed to fall down on combustible material kept below; All means of exit shall be kept free of obstruction at all times;
 - 27.1.11 Appropriate type of fire extinguishers according to IS: 5698 shall be kept in fully charged condition at the places which have potential risk of fire;
 - 27.1.12 The contractor shall educate his or his sub-contractors' men working in the vicinity of fire risk, on how to operate these equipment and know in particular circumstances which type of extinguishers is to be used;
 - 27.1.13 The contractor shall take full responsibility for the upkeep and replenishment/refilling of the fixed and portable fire extinguishers.

APPENDIX

Annexure I

IMPORTANT INDIAN STANDARDS RELATED TO SAFETY

Personal Protection

- IS: 1179-1967 Equipment for eye and face protection during welding
- IS: 4770-1991 Rubber gloves for electrical purposes
- IS: 8519-1977 Guide for selection of industrial safety equipment for body protection
- IS: 8520-1977 Guide for selection of industrial safety equipment for eye, face & ear protection
- IS: 8807-1978 Guide for selection of safety equipment for protection of arms and hands
- IS: 1224-1985 Safety shoes
- IS: 2925-1984 Safety helmets
- IS: 8940-1978 Code of practice for maintenance and care of industrial safety equipment eye and face protection
- IS: 8990-1978 Code of practice for maintenance and care of industrial safety clothing
- IS: 10667-1983 Guide for selection of industrial safety for protection of foot and leg
- IS: 816-1969 Code of practice for safety and health requirements in electric and gas welding and cutting operations
- IS: 818-1968 Code of practice for safety and health requirements in electric and gas welding and cutting operations
- IS: 7194-1994 Assessment of noise exposure during work for hearing conservation purposes

Civil Engineering Construction

- IS: 2750- 1967(Part II) Steel scaffolds
- IS: 875-1987 Structural safety of building: loading standards
- IS: 4014-1967 Code of practice for steel tubular scaffolding
- IS: 3696 Safety code of scaffolds and ladders
- IS: 4138-1977 Safety code for working in compressed air
- IS: 4912-1978 Safety requirements for floor and wall openings, railings and toe boards
- IS: 7293-1974 Safety code for working with construction machinery
- IS: 9944-1992 Recommendations on safe working load for natural and man-made rope slings
- BS: 1129 Portable timber ladders, steps, Trestles & lightweight staging
- BS: 1139 Metal scaffolds
- BS: 5973 Code of practice for access & working scaffolds
- BS: 5974 Code of practice for temporary installed scaffolds and access equipment
- BS: 5975 Code of practice for falsework

Fire Protection

- IS: 2190-1992 Code of practice for selection, installation and maintenance of portable first-aid fire extinguishers
- IS: 5896 Code of practice for selection, operation and maintenance of fire-fighting appliances

IS: 8433-1984 Code of practice for dissolved acetylene cylinders

Electrical

IS: 3043-1987 Code of practice for earthing

IS: 5424-1969 Rubber mats for electrical purposes

IS: 3646 (Part II) Artificial lightings

IS: 2148 & IS: 2206 Flame proof electrical fittings

Machinery

IS: 1860-1980 Code of practice for installation, operation and maintenance of electric passenger and goods lifts

IS: 1991-1987 Safety requirements for the use, care and protection of abrasive grinding wheels

IS: 5903-1970 Safety devices for gas cylinders

IS: 8216-1976 Guide for inspection of lift wire ropes

IS: 8964-978 Recommendations for safety conditions for woodworking machines

IS: 9474-1980 Principles of mechanical guarding of machinery

IS: 11461-1985 Code of practice for compressors safety

IS: 13367-1992 Code of practice for safe use of cranes

BASIC STRUCTURE OF SAFETY PLAN

- 01- Safety Policy
- 02- When was the Safety Policy last reviewed
- 03- Details of implementation procedure / methods to implement Safety Policy / Safety Rules
- 04- Qualification & Experience of Safety Officers
- 05- Review of Accidents analysis - Methods to ensure safety & health and steps identified for prevention of accidents
- 06- Unit/site Executive responsible for ensuring safety at various levels in the workplace
- 07- List of Employees trained in safety at the commencement of execution of the job; details of training – its module and contents
- 08- Safety Training Targets, Schedules, Methods to be adopted for providing safety training to all employees
- 09- Details of checklists for different jobs/ work & responsible persons to ensure Compliance
- 10- Regular Safety Inspection Methods and Periodicity and the list of members authorized
- 11- Risk Assessment, Safety Audit by professional agencies, their Periodicity
- 12- Implementation of recommendations of Audit / Inspections. - Procedures for implementation & follow-up
- 13- Provision for treatment of Injured persons at work site
- 14- Review of overall safety by top Management and Periodicity
- 15- System for implementation of statutory provisions.
- 16- Issue of PPE to employees, Periodicity / stock on hand, etc.

Signature

Head of Organization

With Date & Stamp

Annexure - III

CONFINED SPACE WORK PERMIT

Date of Work :		Initiator:		Permit No.:	
Description of work :					
Name of person supervising:			Dept./Function:		
Names of workmen involved in the job :					
1		2			
3		4			
Exact Location of Work:					
JSA Reference No.					
Job Instruction & Confirmation Sheet Ref. No					
Valid From : Time Date: To Time: Date:					
Other relevant information (if any)					
Initiated by Engineer / Supervisor of Agency			Checked by Agency Safety Representative		
Name		Name			
Signature		Signature			
Date		Date			
Check list for Authorization of Work Permit					
Minimum and Mandatory Precautions					Y/ N / NA
1	Permit form filled in completely?				
2	Have wind, atmospheric, and work area conditions (e.g. cold, hot, snow, poor lighting & Ventilation etc.) been considered throughout the job so that work can be done safely?				
3	All necessary Personnel Protective Equipment like Breathing Set, Waist Rope, Light Mounted Helmet etc. is put on by all the workmen?				
4	A lifeline, a rope tied on the safety belt of the person entering the confined space is provided?				
5	All practicable measures are taken to ensure that the atmosphere inside is not deficient in oxygen and does not contain flammable vapors and no hazardous gases like H ₂ S. (Open at least 2 manholes & keep for 2 hours)?				
6	One fully trained person is stationed at ground level/outside to assist the inside workers and emergency contact No's available?				
7	All the workers trained for emergency?				

8	Safe means of access and egress provided?		
9	Is the suitable fire extinguisher available at work location?		
10	Are they Using only 24V lamps & working tools inside the confined space?		
Following additional precautions need to be taken before the start of the work			
Permit Issued By:			
	Approved by Principal Agency work in charge		Endorsed by Principal Agency HSE Dept
Name			
Signature			
Date			
Permit Close Out by: Name & Signature (Principal Agency)			
Date :		Time :	
Note: All extra information on preparation and precautions to be provided on the reverse side of this PTW.			

HOT WORK PERMIT

Date of Work :		Initiator:		Permit No.:	
Description of work :					
Name of person supervising:			Dept./Function:		
Names of workmen involved in the job :					
1		2			
3		4			
Exact Location of Work:					
JSA Reference No.					
Job Instruction & Confirmation Sheet Ref. No					
Valid From : Time Date: To Time: Date:					
Other relevant information (if any)					
Initiated by Engineer / Supervisor of Agency			Checked by Agency Safety Representative		
Name		Name			
Signature		Signature			
Date		Date			
Exact location of work					
Relevant information					
Check list for Authorization of Work Permit					
Minimum and Mandatory Precautions					Y/ N / NA
1	Permit form filled in completely?				
2	Form filled in correctly and in full.				
3	Has the work area been inspected for any abnormalities - specify on wind, atmosphere, surroundings, etc.				
4	Are the necessary PPE provided and do the workmen know their use?				
5	Is the fitter, experienced and knowledgeable enough to carry out the job?				
6	Area has to be cleared of any flammables and combustible material.				
7	Electrical equipment to be protected and grounded.				
8	Are fire-fighting equipment - extinguishers, water, sand buckets etc, located nearby for ready in case of any mishap?				
9	Gas cylinders in upright state/ trolleys/ flash-back arrestors/ hose condition/ NRVs, etc.				
10	Is the area easily accessible?				

Additional precautions to be taken:		
This permit is valid only for one week. A fresh hot work permit has to be taken for continued works for the next week.		
Permit Issued By:		
	Approved by Principal Agency work in charge	Endorsed by Principal Agency HSE Dept
Name		
Signature		
Date		
Permit Close Out by: Name & Signature (Principal Agency)		
Date :		Time :
Note: All extra information on preparation and precautions to be provided on the reverse side of this PTW.		

PERMIT FOR LIFTING OF MATERIAL

Date of Work :	Initiator:	Permit No.:
Description of work:		
Name of person supervising:		Dept./Function:
Names of workmen involved in the job :		
Exact Location of Work:		
JSA Reference No.		
Job Instruction & Confirmation Sheet Ref. No		
Valid From : Time Date: To Time: Date:		
Other relevant information: (If any)		
Initiated by Engineer / Supervisor of agency		Checked by Agency Safety Representative
Name		Name
Signature		Signature
Date		Date
Check list for Authorization of Work Permit		
1	Details of type of crane(s) to be used?	
2	Name of Lift Co-ordinator, Rigger/Crane Operator?	
3	Adequate and suitable lifting gears available and in good condition	
4	Have soil, wind, atmospheric, and work area conditions (e.g. cold, hot , snow, poor lighting & Ventilation etc.) been considered throughout the job so that work can be done safely?	
5	Lifting Equipments, Lifting gears and Slings are tested and certified?	
6	Are all operators trained, competent and healthy (Having Licenses / Experience Certificate)?	
7	Are all the examinations and tests carried out on the equipment (Crane) and certified by competent persons?	
8	Is the safe working load (SWL) marked on all lifting tools & tackles?	
9	Lifting area cordoned off?	
10	Tag lines provided to control the swing of load?	
11	Load tied properly and secured against toppling and falling?	
12	Signalman/Rigger is provided and competent?	
13	Proper communication available between operator and rigger?	
14	Is the vehicle for transportation adequate for the load?	

Following additional precautions need to be taken before the start of the work:			
Permit Issue b By:			
Approved by Principal agency work incharge		Endorsed by main agency HSE Dept	
Name		Name	
Signature		Signature	
Date		Date	
Permit Close Out by: Name & Signature (Main agency)			
Date :		Time :	
Note: All extra information on preparation and precautions to be provided on the reverse side of this PTW.			

WORKING AT HEIGHT PERMIT

Date of Work :	Initiator:	Permit No.:	
Description of work :			
Name of person supervising:		Dept./Function:	
Names of workmen involved in the job :			
1	2		
3	4		
Exact Location of Work:			
JSA Reference No.			
Job Instruction & Confirmation Sheet Ref. No			
Valid From : Time Date: To Time: Date:			
Other relevant information			
Initiated by Engineer / Supervisor		Checked by Agency Safety Representative	
Name		Name	
Signature		Signature	
Date		Date	
Check list for Authorization of Work Permit			
Minimum and Mandatory Precautions			Y/ N / NA
1	Permit form filled in completely?		
2	Work area below is temporarily cordoned/barricaded		
3	The scaffold erected has pipes and clamps in good condition.		
4	Diagonal / lateral bracings pipes are provided to ensure stability		
5	Access ladder is provided to reach the work location		
6	Planks / sheet used in temporary platform are in good condition		
7	Planks / sheets are tied properly using binding wire		
8	Temporary platform is having temporary side railing		
9	Workers are wearing Helmet, Shoes & Safety belt in good condition.		
10	For Anchoring of safety belt at height rigid support / life rope line is provided		
11	Experienced workers are engaged for work		
12	Portable elect equip/fibre body checked for its healthiness including earthing		
13	The sling / pulley blocks / ropes are tested for fitness		

14	Workers are briefed on Safety Precautions to be taken	
	Power hand tools used at eight are connected through 30mA ELCB.	
Following additional precautions need to be taken before the start of the work		
Permit Issued By:		
	Approved by Principal Agency work in charge	Endorsed by Principal Agency HSE Dept
Name		
Signature		
Date		
Permit Close Out by: Name & Signature (Principal Agency)		
Date :		Time :
Note: All extra information on preparation and precautions to be provided on the reverse side of this PTW.		

DEFINITIONS

1. **Building or other construction work:** means the construction, alteration, repairs, maintenance or demolition, of or, in relation to, buildings, streets, roads, railways, tramways, airfields, generation, transmission and distribution of power, water works, oil and gas installations, electric lines, tunnels, bridges, viaducts, pipelines, towers, cooling towers and such other work as may be specified.
2. **Building worker:** means a person who is employed by a contractor to do any skilled, semi-skilled or manual, supervisory, technical or clerical work for hire or reward, whether the terms of employment be expressed or implied, in connection with any building or other construction work;
3. **Establishment:** means an establishment who or which employs building workers in any building or other construction work, and includes an establishment belonging to a contractor;
4. **Contractor:** means a person who undertakes to produce a given result for any establishment, other than a mere supply of goods or articles of manufacture by the employment of building workers or who supplies building workers for any work of the establishment, and includes a sub-contractor or any other agency engaged on his behalf;
5. **Employer:** in relation to an establishment, means the owner thereof that is the contractor himself.
6. **Competent Person:** means a person so approved by the Central Government who belongs to a testing establishment in India possessing adequate qualification, experience and skill for the purpose of testing, examination or annealing and certification of lifting appliances, lifting gears, wire ropes or pressure plant or equipment;
7. **Responsible Person:** means a person appointed by the employer to be responsible for the performance of specific duty or duties and who has sufficient knowledge and experience and the requisite authority for the proper performance of such duties;
8. **Danger:** means danger of accident or of injury or danger to health;
9. **Hazard:** means danger or potential danger;
10. **Hazardous substance:** means any substance, which due to its explosiveness, inflammability, radioactivity, toxic or corrosive properties and similar hazardous characteristics may Cause injury; or Affect adversely the human system; or Cause loss of life or damage to property or environment;
11. **Hazardous Process:** comprises roof work, steel erection, and work under and over water, demolition and work in confined space;

- 12. National Standard:** means standards as approved by the Bureau of Indian Standards (BIS) and in the absence of such standards, the standards approved by the Central Government for a specific purpose;
- 13. Lifting Appliance:** means a crane, hoist, derrick, winch, jack, pulley block or other equipment used for lifting materials, objects or building workers;
- 14. Lifting gear:** means ropes, chains, hooks, slings and other accessories of a lifting appliance;
- 15. Safe Operating Practice:** Means the practice followed in building and construction activities for the safety of workers and for safe operation of machinery and equipment used in such activities. Such practices shall conform to all or any of the following:
Relevant Standards approved by BIS;
National Building Codes;
Manufacturer's instruction on safe use of equipment and machinery;
Code of practice on safety in construction industry published by International Labour Organization .
- 16. Safe working load:** in relation to an article of lifting gear or lifting appliance, means the load which is the maximum load that may be imposed on such article or appliance with safety in the normal conditions as assessed and certified by a competent person;
- 17. Workplace:** means all places where building workers are required to be present or to go for work and which are under the control of an employer;
- 18. Personal Protective Equipment (PPE):** are the protective devices made available for individual or collective use of the workers likely to be affected by the hazards of the workplace or process;
- 19. Construction & Erection Manual (E&C) Rules:** all references to E&C Manual shall mean the Construction & Erection Rules that are detailed hereunder;
- 20. Engineer in-charge:** All references to the Engineer in-charge shall mean the person in-charge of a building and construction of the NTPC.
- 21. Interpretation of words not defined:** words and expressions not defined or used in this Manual shall have the same meaning as generally assigned in common engineering practices

Annexure-C to General Conditions of Contract

Standard Operating Procedures (SOPs) for IE

Investigations by Independent Engineer for any contentious issue / disagreement shall be as per pre-defined Standard Operating Procedure (SOP). IE shall strictly follow the SOPs and will also document and maintain all the records. Following is a representation of the SOPs for IE for processing key tasks, roles and responsibilities and commensurate timelines.

Based on the preliminary hearing of the Parties, IE shall prescribe resolution timeline depending upon the number and nature of disagreements subject to a maximum duration of thirty (30) days.

Key Task	Stakeholder involvement	Activity Description	Proposed Timeline
1 Disagreement Filing	Contractor Client	Case Filing – A disagreement case begins when claimant party submits a demand for intervention by IE in the prescribed format along with documentary evidence. Demand without initial documentary evidence will not be admissible for IE intervention.	Day 0
2 Preliminary Hearing & Scheduling	Independent Engineer Contractor Client	Preliminary hearing and scheduling process - IE to organize a preliminary hearing with the parties and prescribe suitable timeline for resolution or settlement.	Day 1 to Day 6
3 Finalisation of Issues	Independent Engineer	Finalisation of Issues – After due examination and diligence to finalise the issues requiring resolution.	Day 3 to 9
4 Hearing/ Mediation	Independent Engineer Contractor Client	Hearing / Mediation –The parties and IE meet in person to conduct the Hearings.	Day 4 to 12
5 Inspection	Independent Engineer	Inspection - IE conducts the inspections involving field measurements, if any, to further investigate evidence conferred to the IE by both parties during the hearing.	Day 5 to 17
6 Post Inspection Briefs	Independent Engineer Contractor Client	Post-Inspection Briefs - After the inspection takes place; both the parties may come up with additional testimony, as permitted by the IE.	Day 10 to 30
7 Closure	Independent Engineer	Closure - IE closes the report on the case and issues a decision, along with any claim settlement, if applicable.	Day 10 to 30

Annexure-D to General Conditions of Contract

Standard Format for Disagreement Case Filing (Indicative)

In line with the SOPs, an IE expert should follow a standard format provided below for disagreement case filing and further investigations.

Disagreement Documentation Report (to be filled by Independent Engineer)

1. Name of Party	2. Disagreement Reporting Date	3. Has the documentary Evidence been Submitted
		☐ Yes ☐ No ☐ Not Applicable
4. Contract Reference number	5. Party Representative Name Reporting Disagreement	
	Name: _____ Contact: _____ Details: _____	
6. Name of Independent Engineer(IE)		8. Disagreement Reference Number Allocated by IE
7. IE Contact details		
9. Supplementary Note Recording the Disagreement		
[Text]		
<i>Documentary Evidences to be Annexed</i>		
10. Critical Engineering Expertise Relevant to investigate the Disagreement (Check All Required)		
☐ Engineering Design ☐ Geology ☐ Civil Works ☐ Hydro Mechanical ☐ Electro Mechanical ☐ Electrical Switchgear ☐ Quality Assurance & Inspection		
11. Record Notes of Preliminary hearing Organized by IE with the parties		
[Text]		
<i>Documentary Evidences by Parties along with MoM to be Annexed</i>		
12. Brief Narration on discovery process - after Preliminary hearing & listing of next step to examine the issues and procedural difficulties relating to the case		
[Text]		
<i>Documentary Evidences to be Annexed</i>		
13. Record notes of Hearing/Mediation between the parties and IE		
[Text]		
<i>Documentary Evidences with Video Records to be Annexed</i>		
14. Inspection Records with Field Measurements Conducted by IE		
[Text]		
<i>Documentary Evidences to be Annexed</i>		
15. Record notes of Inspection Briefs by IE along with additional testimony by the Parties if any		
[Text]		
<i>Documentary Evidences & Inspection Reports to be Annexed</i>		
16. Closure Report by IE with Decision & Claim settlement if applicable		
[Text]		
<i>Documentary Evidences to be Annexed</i>		
Final Acceptance by All the Parties		

NTPC LIMITED
(A Government of India Enterprise)



SECTION – V
SPECIAL CONDITIONS OF CONTRACT
(SCC)

SECTION - V

SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract (SCC), Section-V, shall supplement the General Conditions of Contract (GCC). Wherever there is a conflict, the provisions herein shall prevail over those in the GCC. The corresponding clause number of the GCC is indicated in parentheses.

Special Conditions (SCC) No.	GCC Clause Ref., if any	Special Conditions
1.	Definitions (GCC Clause 1)	Name and Address of Employer: AGM CS Project CC&M 5th Floor, NTPC Intelligent Office Building, SRHQ, Kavadiguda Road, Secunderabad - 500020 Tel.No. 040-27683456/ 0120-4946535 E-mail: pattelavimla@ntpc.co.in / shrishksingh@ntpc.co.in Websites: https://eprocurementtpc.nic.in/ www.ntpc.co.in / www.ntpc.co.in Registered Office Address: NTPC Limited, NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodi Road, New Delhi-110003. CIN: L40101DL1975GOI007966, Website: www.ntpc.co.in Engineer - in - Charge: AGM (EED)
1.1.	Definitions GCC 1	The terms 'Subcontractor' and 'Sub vendor' are interchangeable and they have the same meaning as defined under "Subcontractor" in GCC Clause No. 1.
1.2.	Definitions GCC 1	Employer means NTPC Ltd., Company incorporated under the Companies Act, 1956, having its Registered Office at NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi - 110 003, INDIA
2.	Clause 3.6.1	The Contracts to be entered into between the Employer and the successful bidder shall be as under: NTPC SAP PO will be issued to successful bidder.

Special Conditions (SCC) No.	GCC Clause Ref., if any	Special Conditions
3.	(GCC Clause 3) GCC 3.10	The word “Joint Venture or consortium” in GCC Clause 3.10 stands Deleted.
4.	Settlement of Dispute GCC 6.0	-
4.1.	Clause 6.2	Resolution of Dispute through Independent Engineer (IE)- Not Applicable
4.2.	Clause 6.3	Mediation through Independent External Monitors(IEMs): Not Applicable
4.3.	Clause 6.4.2.2	Conciliation Committees of Independent Experts The Panel of Conciliation Committees of Independent Experts (CCIE) is enclosed as Annexure-V to SCC.
5.	Time for Commencement and Completion (GCC Clause 8) GCC 8.2	<u>Contract period: 6 Months</u> Details as per Scope of Work & Technical Specification
6.	Clause 12.4	Deleted
7.	Securities (GCC Clause 13) GCC 13.3.1: GCC 13.5	i. The Contractor shall, within twenty-eight (28) days of the Notification of Award, provide securities for the due performance of the Contract for Ten Percent (10%) of Contract Price of all the Contracts, with an initial validity up to ninety (90) days beyond the end of scheduled Defect Liability Period. However, in case of delay in completion of the defect liability period, the validity of all the contract performance securities shall be extended by the period of such delay. ii. “NTPC reserves the right to impose additional performance security wherever required, at its discretion to safeguard the Company's interests for contract execution.” iii. Replace GCC sub-clause 13.5 as under*: The Bank Guarantees submitted towards ~~Advance Payment Security~~ , Contract Performance Security shall be essentially from any of the Banks listed at Annexure-I to Section-V (Special Conditions of Contract) of the bidding documents. * Advance Payment is not Applicable

Special Conditions (SCC) No.	GCC Clause Ref., if any	Special Conditions
8.	Guarantee Tests and Operational Acceptance (GCC Clause 25 GCC 25.2)	Not Applicable
9.	Completion Time Guarantee (GCC clause 26) GCC 26.2	As per GCC
10.	Defect Liability (GCC Clause 27) GCC 27.10	Two (2) years from the date of successful commissioning of the complete system Details of warranty & Defect liability period - <i>As per Scope of Work & Technical Specification</i>
11.	Functional Guarantee (GCC Clause 28)	Not Applicable
12.	GCC Clause 47 & 48	Integrity Pact: Not applicable Independent External monitors : Not applicable
13.	General	The instruments such as Letter of Undertakings, ~~Joint deed of Undertaking~~ etc which are presently specified to be furnished on non-judicial stamp paper of appropriate/requisite value, shall be stamped as per Indian Stamp Act.
14.	General	Throughout the Bidding Documents (including amendment) Ex-works (India) shall mean EXW (India)
15.	GCC 46 (Debarment)	The version of Policy for Debarment from Business dealings presently followed by NTPC is Rev.04
16.	Price Adjustment	NOT APPLICABLE (The entire contract / package is to be executed on firm price basis).
17.	GCC 44	Contractor Performance Feedback and Evaluation System.
18.	<u>ANNEXURES TO SCC</u>	
1.	ANNEXURE-I:	List of Banks NTPC's Letter dated 03.09.2014 to SBI
2.	ANNEXURE-II:	Not Applicable
3.	ANNEXURE-III	Not Applicable
4.	ANNEXURE-IV:	Restrictions on contractors/subcontractors from a country which shares land border with India.
5.	ANNEXURE-V:	Panel of Conciliation Committees of Independent Experts (CCIE)

**LIST OF BANKS ACCEPTABLE FOR SUBMISSION
OF BANK GUARANTEE FOR CONTRACT PERFORMANCE SECURITY**

A SCHEDULED PUBLIC SECTOR BANKS

- 1 Bank of Baroda
- 2 Bank of India
- 3 Bank of Maharashtra
- 4 Canara Bank
- 5 Central Bank of India
- 6 Indian Overseas Bank
- 7 Indian Bank
- 8 Punjab National Bank
- 9 Punjab & Sind Bank
- 10 State Bank of India
- 11 UCO Bank
- 12 Union Bank of India

B SCHEDULED PRIVATE BANKS (INDIAN BANKS)

- 1 Axis Bank Limited
- 2 Bandhan Bank Limited
- 3 CSB Bank Limited
- 4 City Union Bank Limited
- 5 DCB Bank Limited
- 6 Dhanlaxmi Bank Limited
- 7 Federal Bank Limited
- 8 HDFC Bank Limited
- 9 ICICI Bank Limited
- 10 IndusInd Bank Limited
- 11 IDFC FIRST Bank Limited
- 12 Jammu & Kashmir Bank Limited
- 13 Karnataka Bank Limited
- 14 Karur Vysya Bank Limited
- 15 Kotak Mahindra Bank Limited
- 16 Nainital Bank Limited
- 17 RBL Bank Limited
- 18 South Indian Bank Limited
- 19 Tamilnad Mercantile Bank Limited
- 20 Yes Bank Limited
- 21 IDBI Bank Limited

C SCHEDULED FOREIGN BANKS

- 1 AB Bank PLC
- 2 American Express Banking Corporation
- 3 Australia & Newzealand Banking Group Limited
- 4 Barclays Bank Plc
- 5 Bank of America
- 6 Bank of Bahrain & Kuwait B.S.C.

- 7 Bank of Ceylon
- 8 Bank of China Limited
- 9 Bank of Nova Scotia
- 10 BNP Paribas
- 11 Citi Bank NA
- 12 Cooperatieve Rabobank U.A./ Coöperatieve Centrale Raiffeisen-Boerenleenbank B.A.
- 13 Crédit Agricole Corporate and Investment Bank
- 14 CTBC Bank Co Ltd
- 15 DBS Bank India Limited (Subsidiary of DBS Bank Ltd.)
- 16 Deutsche Bank A.G.
- 17 Doha Bank Q.P.S.C
- 18 Emirates NBD Bank P.J.S.C.
- 19 First Abu Dhabi Bank PJSC
- 20 FirstRand Bank Ltd
- 21 Hong Kong and Shanghai Banking Corporation Limited
- 22 Industrial & Commercial Bank of China
- 23 Industrial Bank of Korea
- 24 J.P. Morgan Chase Bank N.A.
- 25 JSC VTB Bank
- 26 KEB Hana Bank
- 27 Kookmin Bank
- 28 Mashreqbank P.S.C.
- 29 Mizuho Bank Ltd
- 30 MUFG Bank, Ltd
- 31 NatWest Markets Plc
- 32 NongHyup Bank
- 33 PT Bank Maybank Indonesia TBK
- 34 Qatar National Bank (Q.P.S.C.)
- 35 Sberbank
- 36 SBM Bank (India) Limited (Subsidiary of SBM Group)
- 37 Shinhan Bank
- 38 Societe Generale
- 39 Sonali Bank PLC
- 40 Standard Chartered Bank
- 41 Sumitomo Mitsui Banking Corporation
- 42 United Overseas Bank Ltd
- 43 UBS AG
- 44 Woori Bank

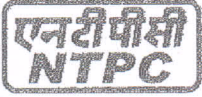
D SMALL FINANCE BANKS

- 1 AU Small Finance Bank Limited
- 2 Capital Small Finance Bank Limited
- 3 Equitas Small Finance Bank Limited
- 4 ESAF Small Finance Bank Limited
- 5 Suryoday Small Finance Bank Limited
- 6 Ujjivan Small Finance Bank Limited
- 7 Utkarsh Small Finance Bank Limited
- 8 North East Small Finance Bank Limited
- 9 Jana Small finance Bank Limited
- 10 Shivalik Small Finance Bank Limited

11 Unity Small Finance Bank Limited

Note - Any Addition/ Deletion/ Modification in Bank list shall be as per changes in Second Schedule List by RBI from time to time.

*** Bidder to take note of NTPC letter ref. NTPC/FC/CS/BG/01 dated 03.09.2014 and SBI letter ref. CAG-I/AMT-1/2014-15/370 dated 04.09.2014 attached herewith this Annexure-I to BDS.**



एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)

NTPC Limited
(A Govt. of India Enterprise)

केन्द्रीय कार्यालय/Corporate Centre

Date : 03rd September 2014

Ref. No.: NTPC/FC/CS/BG/01

Deputy General Manager,
State Bank of India,
CAG Branch,
12 th floor, Jawahar Vyapar Bhavan, 1, Tolstoy Marg,
New Delhi 110 001

Kind Atten: Sh. Sandeep Mishra

Sub: Format of the Bank Guarantee (BG) issued by State Bank of India – reg.

Dear Sir,

NTPC Limited is India's largest Power Company and a 'Maharatna PSU' with a significant presence in the entire value chain of power generation business. The procurement process of NTPC requires its participating Bidders to submit Bank Guarantees (BGs) as Bid security/other securities in a fixed format provided by NTPC.

It has been observed recently that BGs issued by various branches of State Bank of India are inserting the following additional clause.

QUOTE

Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this guarantee shall not be assignable or transferable by the beneficiary. Notice or invocation by any person such as assignee, transferee of agent of beneficiary shall not be entertained by the bank. Any invocation of guarantee can be made only by the beneficiary directly.

UNQUOTE

The inclusion of the aforesaid clause in the BGs restricts the rights of NTPC under the BG and it may not be possible for NTPC to accept the aforesaid clause in the BGs submitted to us by our Bidders. It may also be mentioned that incorporation of the above additional clause in the BG results in the BG being returned by NTPC and consequently rejection of the bids of parties that have submitted such BGs.

In view of the above, it is requested that please take up at appropriate levels so that suitable instructions are issued to all your branches not to incorporate any such additional clause and henceforth BGs may be issued strictly as per NTPC format only.

Kindly acknowledge the receipt of this letter

Yours faithfully,

(K.P.Gupta)
General Manager (Finance)

Copy for Kind information: ED(CC&M) for kind info of u.s.

एन टी पी सी भवन स्कोप कॉम्प्लेक्स, 7, इंस्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली-110003 टेल/Tel.: 24360100, फैक्स/Fax: 011-24361018
NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003, वेबसाइट/Website: www.ntpc.co.in



भारतीय स्टेट बैंक
State Bank of India

कॉरपोरेट लेखा समूह शाखा, जवाहर व्यापार भवन,
11-12 वां तल, 1, टॉलस्टोय मार्ग, नई दिल्ली-110 001

Corporate Accounts Group Branch, Jawahar Vyapar Bhawan,
11th & 12th Floor, 1, Tolstoy Marg, New Delhi-110 001

Tel. : 23374525, 23374505, 23374541 (AMT-1), 23353022 (DGM & COO), 23701043, 23359506 (A & A), 23352995 (CS), 23352968 (IB)
Fax : 23353101 (Sectt.), 23352793 (CS), 23353029 (IB)

Shri K.P. Gupta,
General Manager (Finance),
NTPC Limited
Scope Complex, 7, Institutional Area,
Lodhi Road,
New Delhi: 110 003.

CAG-I/AMT-1/2014-15/370

04.09.2014

Dear Sir,

Format of the Bank Guarantee (BG) issued by State Bank of India

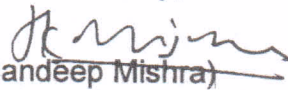
We refer to your letter dated 3rd September 2014 wherein you have requested for excluding bidders/vendors of NTPC from insertion of additional Clause restraining assignment/transferability of BG.

Looking at our relationship with NTPC, as a very special case, we have since obtained waiver from our Authorities for excluding NTPC from insertion of the referred clause for BGs issued in your favour.

We are taking steps to issue suitable instructions to our offices for exclusion of this clause for BGs issued in favour of NTPC. In case any bidder or vendor submits to you a Bank Guarantee issued by any of our Branches containing the additional clause as mentioned above, request you to please bring it to our notice and advise us so that we can take-up with the concerned Branch for excluding it.

This is for your information and necessary action please.

Yours faithfully,


(Sandeep Mishra)

Deputy General Manager &
Relationship Manager, AMT-1

ANNEXURE-IV to SCC

F. No. DPE/7(4)/2017-Fin.
Government of India
Ministry of Finance
Department of Public Enterprises

Block No. 14, CGO Complex,
Lodi Road, New Delhi-110003
Dated the 24th February, 2023

To,

Chief Executives of all CPSEs

Subject:- Restrictions under Rule 144(xi) of the General Financial Rules
(GFRs), 2017 - regarding

Sir/Madam,

The undersigned is directed to reiterate the instructions as contained in
Department of Expenditure O.M. No. 7/10/2021-PPD(1) dated 23rd February, 2023
(copy enclosed) to all CPSEs for their information and strict compliance.

Encl : As stated


(Kailash Bhandari)
Deputy Director
Tel : 2436-6247

Copy to :- Shri Kanwalpreet, Director (PPD), Department of Expenditure, Room No.
264-C, North Block, New Delhi.

No.F.7/10/2021-PPD (1)
Government of India
Ministry of Finance
Department of Expenditure
Procurement Policy Division

264-C, North Block, New Delhi.
23.02.2023.

Order (Public Procurement No. 4)

Subject: Restrictions under Rule 144(xi) of the General Financial Rules (GFRs), 2017.

Attention is invited to Order (Public Procurement No. 1) issued vide F.6/18/2019-PPD dated 23.07.2020, Order (Public Procurement No. 2) issued vide F.6/18/2019-PPD dated 23.07.2020, Order (Public Procurement No. 3) issued vide F.6/18/2019-PPD dated 24.07.2020, Office Memorandum (OM) No. F.18/37/2020-PPD dated 08.02.2021, OM No. F.12/1/2021-PPD(Pt.) dated 02.03.2021 and OM No. F.7/10/2021-PPD dated 08.06.2021. In this regard, the following is hereby ordered under Rule 144(xi) (as amended vide OM No. F.7/10/2021-PPD dated 23.02.2023) on the grounds stated therein, in supersession to all of the above mentioned Orders/ clarifications:

Requirement of registration:

2. Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority, specified in **Annexure I**.
3. Any bidder (including an Indian bidder) who has a Specified Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority, specified in **Annexure I**.
4. The requirement of registration for cases covered by paragraph 2 above has been applicable since 23.07.2020. The requirement of registration for bidders covered by paragraph 3 above will be applicable for all procurements where tenders are issued/ published after 01.04.2023.
5. In tenders issued after 23.07.2020 or 01.04.2023, as the case may be, the provisions of requirement of registration of bidders and of other relevant provisions of this Order shall be incorporated in the tender conditions.

Applicability:

6. Apart from Ministries/ Departments, attached and subordinate bodies, notwithstanding anything contained in Rule 1 of the GFRs 2017, the Order shall also be applicable

- a) to all Autonomous Bodies;
- b) to all public sector banks and public sector financial institutions;
- c) to all Central Public Sector Enterprises;
- d) to all procurement in Public Private Partnership projects receiving financial support from the Government or public sector enterprises/ undertakings; and
- e) Union Territories, National Capital Territory of Delhi and all agencies/ undertakings thereof.

7. This order will not be applicable for cases falling under **Annexure II**.

Definitions:

8. "*Bidder*" for the purpose of the Order (including the term 'tenderer', 'consultant' 'vendor' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.

9. "*Tender*" for the purpose of the Order will include other forms of procurement, except where the context requires otherwise.

10. "*Transfer of Technology*" means dissemination and transfer of all forms of commercially usable knowledge such as transfer of know-how, skills, technical expertise, designs, processes and procedures, trade secrets, which enables the acquirer of such technology to perform activities using the transferred technology independently. (Matters of interpretation of this term shall be referred to the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade, and the interpretation of the Committee shall be final.)

11. "*Specified Transfer of Technology*" means a transfer of technology in the sectors and/ or technologies, specified in paragraph 15, occurring on or after 23.07.2020.

12. "*Bidder (or entity) from a country which shares a land border with India*" for the purpose of the Order means

- (a) An entity incorporated, established or registered in such a country; or
- (b) A subsidiary of an entity incorporated, established or registered in such a country; or
- (c) An entity substantially controlled through entities incorporated, established or registered in such a country; or
- (d) An entity whose beneficial owner is situated in such a country; or
- (e) An Indian (or other) agent of such an entity; or
- (f) A natural person who is a citizen of such a country; or

(g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

13. *Beneficial owner* for the purposes of Para 12 (d) will be as under:

(i) In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means.

Explanation:-

a. "Controlling ownership interest" means ownership of, or entitlement to, more than twenty-five per cent of shares or capital or profits of the company;

b. "Control" shall include the right to appoint the majority of the directors or to control the management or policy decisions, including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

(ii) In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

(iii) In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

(iv) Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

(v) In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

14. "*Agent*" for the purpose of the Order is a person employed to do any act for another, or to represent another in dealings with third persons.

[Note:

i. A person who procures and supplies finished goods from an entity from a country which shares a land border with India will, regardless of the nature of his legal or commercial relationship with the producer of the goods, be deemed to be an Agent for the purpose of this Order.

ii. However, a bidder who only procures raw material, components etc. from an entity from a country which shares a land border with India and then manufactures or converts them into other goods will not be treated as an Agent.]

Sensitive Sectors/ Technologies (relevant only for the provisions on ToT arrangements):

15. (i) Certain sectors and technologies have been identified as sensitive from the national security point of view. The sectors listed in Schedule I to this Order are considered Category-I sensitive sectors. The sectors listed in Schedule II to this Order are considered Category-II sensitive sectors. The technologies listed in Schedule III are considered sensitive technologies.

(ii) For Category-I sensitive sectors, bidders with ToT arrangement in any technology with an entity from a country which shares a land border with India shall require registration.

(iii) For Category-II sensitive sectors, bidders with ToT arrangement in the sensitive technologies listed in Schedule III, with an entity from a country which shares a land border with India shall require registration.

(iv) In Category-II sensitive sectors, the Secretary (or an officer not below the rank of Joint Secretary to Government of India, so authorized by the Secretary) of the Ministry/ Department of the Government of India is empowered, after due consideration, to waive the requirement of registration for a particular item/ application or a class of items/ applications from the requirement of registration, even if included in Schedule III. The Ministry/ Department concerned shall intimate the Department for Promotion of Industry and Internal Trade (DPIIT) and National Security Council Secretariat (NSCS) of their decision to waive the requirement of registration. Ministries/ Departments of the Government of India are not required to consult the DPIIT/ NSCS before deciding and are only required to intimate the decision to DPIIT/ NSCS. If any point is raised by DPIIT/ NSCS, it should be considered in future procurements; ongoing procurement for which the waiver was granted need not be interrupted or altered.

16. Based on security considerations, a Ministry/ Department in a Category II sensitive sector or other Ministries/ Departments may recommend to DPIIT inclusion of any other technology in the list of sensitive technologies, either generally or for their Ministry/ Department.

Sub-contracting in works contracts

17. In works contracts, including turnkey contracts, contractors shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority. The definition of "contractor from a country which shares a land border with India" shall be as in paragraph 12 above. This shall not apply to sub-contracts already awarded on or before 23.07.2020.

[Note: Procurement of raw material, components, etc. does not constitute sub-contracting.]

Certificate regarding compliance

18. An undertaking shall be taken from bidders in the tender documents (**Annexure III**) that the extant guidelines for participation in the tenders (which should include conditions for implementation of this Order) have been complied with. If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for debarment and further legal action in accordance with law.

Validity of registration

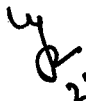
19. In respect of tenders, registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution.

Government e-Marketplace (GeM)

20. GeM shall remove non-compliant entities from GeM unless/ until they are registered in accordance with this Order.

Model Clauses/ Certificates

21. Model Clauses and Model Certificates which may be inserted in tenders/ obtained from Bidders are given at Annexure-III. While adhering to the substance of the Order, procuring entities are free to appropriately modify the wording of these clauses based on their past experience, local needs etc.


23/02/2023
(Kanwalpreet)
Director(PPD)

Tel.No. 2309 3811; email: kanwal.irss@gov.in

To

1. Secretaries of all Ministries/ Departments of Government of India for information and necessary action. They are also requested to inform these provisions to all procuring entities.
2. Secretary, Department of Public Enterprises with a request to immediately reiterate these orders in respect to public enterprises.
3. Secretary, Department of Financial Services with a request to immediately reiterate these orders in respect to public sector and public sector financial institutions.
4. Secretary DPIIT with a request to take action as provided under Annexure I.
5. Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi.
6. CEO/ GeM with a request to ensure implementation of this order on GeM.

List of Category-I Sensitive sectors:

Sr.No.	Sector
(i)	Atomic Energy
(ii)	Broadcasting/ Print and Digital Media
(iii)	Defence
(iv)	Space
(v)	Telecommunications

List of Category-II Sensitive sectors:

Sr.No.	Sector
(i)	Power and Energy (including exploration/ generation/ transmission/ distribution/ pipeline)
(ii)	Banking and Finance including Insurance
(iii)	Civil Aviation
(iv)	Construction of ports and dams & river valley projects
(v)	Electronics and Microelectronics
(vi)	Meteorology and Ocean Observation
(vii)	Mining and extraction (including deep sea projects)
(viii)	Railways
(ix)	Pharmaceuticals & Medical Devices
(x)	Agriculture
(xi)	Health
(xii)	Urban Transportation

List of Sensitive Technologies:

Sr.No.	Sensitive Technologies
(i)	Additive Manufacturing (e.g. 3D Printing)
(ii)	Any equipment having electronic programmable components or autonomous systems (e.g. SCADA systems)
(iii)	Any technology used for uploading and streaming of data including broadcasting, satellite communication etc.
(iv)	Chemical Technologies
(v)	Biotechnologies including Genetic Engineering and Biological Technologies
(vi)	Information and Communication Technologies
(vii)	Software

Competent Authority and Procedure for Registration

- A. The Competent Authority for the purpose of registration under this order shall be/ continue to be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT)*. [This Committee was already constituted under Order (Public Procurement) No.1].
- B. The Registration Committee shall have the following members*:
- i. An officer, not below the rank of Joint Secretary, designated for this purpose by DPIIT, who shall be the Chairman;
 - ii. Officers (ordinarily not below the rank of Joint Secretary) representing the Ministry of Home Affairs, Ministry of External Affairs, and of those Departments whose sectors are covered by applications under consideration;
 - iii. Any other officer whose presence is deemed necessary by the Chairman of the Committee.
 - iv. With effect from 01.04.2023, an officer (ordinarily not below the rank of Joint Secretary) representing the National Security Council Secretariat.
- C. DPIIT shall lay down the method of application, format etc. for such bidders as covered by the Order.
- D. On receipt of an application seeking registration from a bidder covered by Para 2 and 3 of this order, the Competent Authority shall first seek political and security clearances from the Ministry of External Affairs and Ministry of Home Affairs, as per guidelines issued from time to time. Registration shall not be given unless political and security clearance have both been received.
- E. The Ministry of External Affairs and Ministry of Home Affairs may issue guidelines for internal use regarding the procedure for scrutiny of such applications by them.
- F. The decision of the Competent Authority, to register such bidder may be for all kinds of tenders or for a specified type(s) of goods or services, and may be for a specified or unspecified duration of time, as deemed fit. The decision of the Competent Authority shall be final.
- G. Registration granted by the Competent Authority of the Government of India shall be valid not only for procurement by the Central Government and its bodies specified in para 6 of this order, but also for procurement by State Governments and their agencies/ public enterprises etc. No fresh registration at the State level shall be required.
- H. The Competent Authority is empowered to cancel the registration already granted if it determines that there is sufficient cause. Such cancellation by itself, however, will

not affect the execution of contracts already awarded. Pending cancellation, it may also suspend the registration of a bidder, and the bidder shall not be eligible to bid in any further tenders during the period of suspension.

- I. For national security reasons, the Competent Authority shall not be required to give reasons for rejection/cancellation of registration of a bidder.

[*Note:

(i) In respect of application of the Order to procurement by/ under State Governments, all functions assigned to DPIIT shall be carried out by the State Government concerned through a specific department or authority designated by it. The composition of the Registration Committee shall be as decided by the State Government. However, the requirement of political and security clearance as per para D shall remain and no registration shall be granted without such clearance.

(ii) Registration granted by State Governments shall be valid only for procurement by the State Government and its agencies/ public enterprises etc. and shall not be valid for procurement in other states or by the Government of India and their agencies/ public enterprises etc.]

Special Cases

- A. In projects which receive international funding with the approval of the Department of Economic Affairs (DEA), Ministry of Finance, the procurement guidelines applicable to the project shall normally be followed, notwithstanding anything contained in this order and without reference to the Competent Authority. Exceptions to this shall be decided in consultation with DEA.
- B. This order shall not apply to procurement by Indian missions and by offices of government agencies/ undertakings located outside India.
- C. This order will not apply to bidders (or entities) from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. Updated lists of countries to which lines of credit have been extended or in which development projects are undertaken are given on the website of the Ministry of External Affairs.
- D. Procurement of spare parts and other essential service support like Annual Maintenance Contract (AMC)/ Comprehensive Maintenance Contract (CMC), including consumables for closed systems, from Original Equipment Manufacturers (OEMs) or their authorized agents, shall be exempted from the requirement of registration.

Model Clause/ Certificate/ Undertaking to be inserted in tenders etc.

[While adhering to the substance of the Order, procuring entities and GeM are free to appropriately modify the wording of the clause/ certificate based on their past experience, local needs etc.

The conditions relating to specified ToT (as shown in italics) should be incorporated only in the tenders which attract the restrictions due to specified ToT.]

A. Model Clauses for Tenders (including tenders issued manually or any electronic portal including GeM):

I. Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority. *Further, any bidder (including bidder from India) having specified Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India, shall also require to be registered with the same competent authority.*

II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder (or entity) from a country which shares a land border with India" for the purpose of this Order means: -

- (a) An entity incorporated, established or registered in such a country; or
- (b) A subsidiary of an entity incorporated, established or registered in such a country; or
- (c) An entity substantially controlled through entities incorporated, established or registered in such a country; or
- (d) An entity whose beneficial owner is situated in such a country; or
- (e) An Indian (or other) agent of such an entity; or
- (f) A natural person who is a citizen of such a country; or
- (g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

IV. The beneficial owner for the purpose of (iii) above will be as under:

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation—

a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;

b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. [To be inserted in tenders for Works contracts, including Turnkey contracts] The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

VII. The registration shall be valid at the time of submission of bid and at the time of acceptance of bid.

VIII. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution

Model Certificate for Tenders:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate for Tenders for Works involving possibility of sub-contracting:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any

work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model additional certificate by Bidders in the cases of specified ToT:

"I have read the clause regarding restrictions on procurement from a bidder having Transfer of Technology (ToT) arrangement. I certify that this bidder does not have any ToT arrangement requiring registration with the competent authority."

OR

"I have read the clause regarding restrictions on procurement from a bidder having Transfer of Technology (ToT) arrangement. I certify that this bidder has valid registration to participate in this procurement."

B. Model Certificate for GeM (to be taken by the GeM from seller during registration on GeM. GeM should also obtain this certificate from all existing bidders as soon as possible):

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this vendor/ bidder is not from such a country and does not have any specified Transfer of Technology (ToT) from such a country or, if from such a country or if having specified ToT from such a country has been registered with the Competent Authority. I hereby certify that this vendor/ bidder fulfills all requirements in this regard and is eligible to be considered for procurement on GeM. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

506076(17)/2022/HYDEL-II SECTION

F. No. 11/22/2021-Th.II
 Government of India
 (Bharat Sarkar)
 Ministry of Power
 (Vidyut Mantralay)

Shram Shakti Bhawan, Rafi Marg
 New Delhi, the 22nd March, 2022

OFFICE MEMORANDUM

Subject: Constitution of Conciliation Committee of Independent Experts for resolution of contractual disputes in respect of the projects implemented by CPSUs / Statutory Bodies under administrative control of Ministry of Power – regarding.

With the approval of Hon'ble Minister of Power and New & Renewable Energy, Ministry of Power, vide OM of even number dated 29.12.2021 (**Annex-I**), introduced a conciliation mechanism for settlement of contractual disputes in contracts of CPSUs / Statutory Bodies under Ministry of Power executing power projects. For this purpose, it was decided to constitute three numbers of Conciliation Committees of Independent Experts (CCIEs).

2. Accordingly, a Notification of even number was issued on 07.01.2022 inviting Expression of Interest from the eligible candidates for empanelment as Independent Expert for constitution of the CCIEs. Consequently, with the approval of Hon'ble Minister of Power, a Search-cum-Selection Committee was also constituted for scrutiny of the EoIs as well as screening of the candidates.

3. Based on the recommendations of the Search-cum-Selection Committee, following three nos. of Conciliation Committee of Independent Experts are hereby constituted for settlement of contractual disputes in contracts of CPSUs / Statutory Bodies under Ministry of Power executing power projects:-

CCIE	Members of CCIE
CCIE-1	Shri Anup Wadhawan, Ex-Secretary (Commerce), GoI
	*Shri Ravinder Kumar Sharma, Ex-MD, HBSEBL
	Shri Mrinal Kanti Bhattacharya, Ex-Executive Director, Indian Bank
CCIE-2	Ms. Rashmi Verma, Ex-Secretary (Tourism), GoI
	*Shri Dharendra Veer Singh, Ex-CMD, THDC (India) Ltd.
	Shri Naveen Bhushan Gupta, Ex-Director (Finance), PFC Ltd.
CCIE-3	Shri P. S. Kharola, Ex-Secretary (Civil Aviation), GoI
	*Shri Anil Kumar Jha, Ex-Director (Technical), NTPC Ltd.
	Shri Chinmaya Gangopadhyaya, Ex-Director (Projects), PFC Ltd.

4. The aforementioned CCIEs shall function as per the Standard Operating Procedure enumerated in this Ministry's Office Memorandum of even number dated 29.12.2021. Moreover, the tenure, remuneration and other terms and conditions of the engagement of above Members of CCIEs shall also be governed by the aforesaid OM.

This issues with the approval of Hon'ble Minister of Power and New & Renewable Energy.

Encl: as above.



(Vikrant S. Dhillon)
 Deputy Director

Email: hydro2-mop@gov.in

***Second member in the CCIE(s) shall stand substituted by coal-mining expert Member (presently, Shri Tapas Kumar Nag, Ex-CMD, NCL), as notified by Ministry of Power from time to time, in case of disputes relating to captive coal mines**

To

1. Chairperson, CEA
2. CMDs – PGCIL, REC, PFC, NTPC, NHPC, SJVN, THDC, NEEPCO, POSOCO
3. Chairman - BBMB, DVC
4. Director General – BEE, NPTI, CPRI

Copy to:

1. PS to Hon'ble Minister of Power & NRE
2. APS to Hon'ble MoS for Power
3. Sr. PPS to Secretary (Power)
4. Sr. PPS to AS(SKG) / Sr. PPS to AS&FA / Sr. PPS to AS(VKD)
5. All Joint Secretaries of Ministry of Power
6. All Directors / Deputy Secretaries of Ministry of Power.
7. Members of the CCIEs

Copy also to:

In-charge, NIC Cell, MoP with request to publish the OM on the website of Ministry of Power.



(Vikrant S. Dhillon)
Deputy Director

Scope of work/ Technical specifications

SECTION-VI

**“ Development of a Flood Forecasting System & its
Integration with existing Automatic Flood Warning
System for TVHEP (4x130MW)”**



This document is meant for the exclusive purpose of bidding against this Bidding Document / Specification and shall not be transferred, reproduced or otherwise used for purposes other than that for which it is specifically issued).

TABLE OF CONTENTS

Section 1 - Bill of Quantities	4
Section 2 - Special Conditions of the Contract	8
Section 3 - Technical Specifications of Instruments / Equipment.....	20

ABBREVIATIONS

AWS	Automatic Weather Station
G & D	Gauge and Discharge
GSM	Global Systems for Mobile
GPRS	General Packet Radio Service
VSAT	Very Small Aperture Terminal
GS	Ground Station
INSAT	Indian National Satellite System
NIT	Notice Inviting Tender
AMC	Annual Maintenance Cost
CAMC	Comprehensive Annual Maintenance Cost
MCM	Million Cubic Meters

Section 1 - Bill of Quantities

BOQ as per Section-VII BOQ.xls

Note:

1. The vendor may suggest any other alternative cost-effective better technology in the technical proposal.
2. The field-testing of Automatic Gauge and Discharge sensors will be done using an ADCP/ Current meter for 15 days during the monsoon period, i.e. June to September, three times a day (8.30 AM, 2.30 PM & 5.30 PM). The cost should be inclusive of any temporary arrangement which may be required to carry out field observations.
3. The quoted cost should be inclusive of installation and civil work required at the site.
4. Training of NTPC Limited and IITR officials should be included in the quoted cost.
5. Transportation and insurance costs of material should be included in the quoted cost.
6. The system integration charges should include any other cost that may be required to make and keep the system operational in real time.
7. The quoted rates are to be inclusive of all other taxes like duties, levies, etc. whatsoever applicable as per prevailing acts., except GST. GST shall be quoted separately against all the BOQ items as provisioned in the BOQ sheet.

Section 2 - Special Conditions of the Contract

(A) INTRODUCTION

NTPC Limited, hereinafter referred to as NTPC, is setting up the 4 X 130 MW Tapovan Vishnugad Hydroelectric Power Project (TVHPP) near Joshimath in Chamoli District of Uttarakhand as a run-of-the-river project on river Dhauliganga. TVHPP's Barrage is located on river Dhauliganga, and the Power House is located on the bank of river Alaknanda, both of which are fed by glaciers and several streams and are prone to floods.

In the aftermath of the disaster that occurred on 07.02.2021, NTPC immediately set up manual monitoring stations at Three locations (One each on Dhauliganga, Rishiganga and Alaknanda rivers), and since regular communication facilities were not available, the status of river levels was transmitted manually through Satellite phones to the Control Room set up at the Barrage of TVHPP at Tapovan.

Subsequently, several discussions with various domestic and global entities like Lotus Wireless, Hexagon, DHI, Sterlite, Telecon, Fluent grid, etc., were held to explore the possibility of developing an Early Warning system to monitor and detect the hazards in the Tapovan catchment area.

Site visits were carried out by NTPC officials as well as the prospective vendors to identify the location of the Sensor Stations upstream of the Tapovan Barrage as well as the Powerhouse at Helang. With the available topology of the area and difficult accessibility to the upper reaches, especially along the Rishiganga River, six (6) Sensor locations were identified. Few of these remote locations remain inaccessible during the winter months due to heavy snow cover.

Thus, an Automated Flood Warning System has been conceived with Sensor Stations on each river and a central Command & Control Centre. Since there are no reliable terrestrial communication facilities available in the proposed locations for Sensor installation, VSAT communication was selected along with provision for GSM/GPRS for communication between all the locations. Further, a Hybrid Solar Power Supply system with 14 days of Battery Backup was also decided upon in view of the absence of reliable power supply sources in the area.

The Overview of the Flood Warning System showing all the locations is shown in Figure 1.



Figure 1 Flood warning system for TVHPP

With the construction of the project, the area has also benefitted from the development of infrastructure, education, medical facilities, and employment opportunities. However, considering the disasters that have occurred in the past, there is a pressing need to strengthen preparedness and resilience in the region. To enhance early warning capabilities and obtain advanced information about incoming flows, a real-time operational inflow forecasting system for TVHPP is proposed to be developed.

(B) PROJECT INFORMATION

The salient features of the project are given as under:

1	Location	
a)	State	Uttarakhand
b)	District	Chamoli
c)	Tehsil	Joshimath
2	Hydrology	
a)	Catchment area up to the barrage	3100 sq km
b)	Snowbound catchment area	1483 sq km (above EL 4877 m)
c)	Design Flood	4600 cumecs
3	Barrage	
a)	No. of spillway bays	4 bays of 14 m each
b)	Crest elevation	EL 1783.00 m
c)	Pond level	Maximum: EL 1803.5 m Minimum: EL 1790.5 m
4	Desilting Basin	
a)	Type	Underground
b)	Size	140 m * 76.5 m
5	Power House	
a)	Type	Underground
b)	Location	200 m upstream of the confluence of Animath Gad with Alaknanda
c)	Number & Size of units	4*130 MW

(C) SITE VISIT

The Bidder shall visit all the sites/locations identified for installation of the FWS before submission of the Bid so as to assess the available facilities/infrastructure, site conditions, etc. and propose appropriate arrangements for installation of the sensors, power supply and communication systems, etc. An undertaking in this regard shall be submitted along with Bid documents, failing which the Bid is liable to be rejected. The Bidder shall bear the cost of visiting the site. The owner will assist the interested bidders in seeing and inspecting the site of work.

(D) SCOPE OF WORK

- 1) Establishment of a real-time inflow forecasting system for TVHPP,
 - a) Supply, Installation, Testing, Training, and Commissioning of the real-time hydro-meteorological data collection network and establish data communications using Dual SIM (GSM/GPRS) and or VSAT between the remote stations and the Data Centre.
 - b) Integration of the system with existing warning system, established Ground stations (GS)/ Master station at TVHPP, NTPC Limited, Uttarakhand data reception from network and dissemination to IIT Roorkee. The system shall include a Dual SIM (GSM/GPRS) or VSAT

Development of a Flood Forecasting System for Tapovan Vishnugad Hydro Power Project (TVHPP)

- receiver system (Some stations will have transmission through GSM/ GPRS, and a few stations will have VSAT transmission) and a software system with HOT redundant servers.
- c) Integrating the hydro-meteorological stations with the existing Ground station (GS)/ Master station and demonstrating uninterrupted data reception for one month at GS.
 - d) Supply a detailed operation and maintenance manual for each appropriate unit of supplied goods.
 - e) Provide classroom and field training (Minimum 5 days). It includes operation and maintenance procedures to be carried out at the field stations.
 - f) Development of the website of the entire system with a provision of entry of forecasting discharge and levels by IIT Roorkee and its linkage with NTPC Limited.
- 2) Operation and warranty services for one year after the final acceptance of the full system.
 - 3) Operation and extended warranty services for two years after the completion of a one-year warranty.
 - 4) A guarantee by the manufacturer that all equipment being provided will have maintenance support for a minimum of 10 years after the commissioning of the equipment if felt necessary and ordered by NTPC.
 - 5) In addition to the warranty, the Bidder will provide manpower as one trained hardware engineer stationed at TVHPP, NTPC Limited, Tapovan, Joshimath (Uttarakhand) and report to concerned officials at NTPC Limited for troubleshooting/ Operation on a yearly basis. Hardware Engineer shall visit stations as per the requirement of work or as directed by the Engineer in Charge. The charges for such manpower will be included in the AMC charges. The problems that are not rectified by the hardware engineer shall be attended to by a next-level trained person by the company to minimize the penalty charges for the downtime.
 - 6) The bidder will also provide a trained software engineer to integrate the data collected from the stations with models (Interface development) under the supervision of the ICED, IIT Roorkee stationed at Roorkee. A software engineer may be asked to visit Tapovan or any station as per the work requirement or as directed by the Engineer in Charge.
 - 7) In case the brand of the equipment is other than the preferred brands mentioned in section 3- Technical specifications, the interested firms who are participating in this tender will be required to demonstrate the functioning of their equipment with complete integration of one AWS/ one G&D equipment or both (as decided by EIC) in the remote station and server at Tapovan, Joshimath for two weeks.
 - 8) Nos of Earthing and lighting protection at shall be provided as per the relevant IS codes.

(E) Essential Qualification Criteria: As per Appendix to IFB

(F) TIME SCHEDULE

- Time for the supply of material shall be 45 days from the date of acceptance of the confirmed supply order by the supplier or the 5th day of placing the supply orders by NTPC Limited, whichever is earlier.
- The total contract period for obtaining land permissions for sensors, execution of civil works, installation, testing, and commissioning shall be six (6) months. Compensation for delay shall be calculated based on the value of the stores/materials that remain uninstalled and/or uncommissioned beyond the stipulated contract period.
- System integration shall be a continuous process from the installation of the first AWS/G&D Site till the installation of the last equipment and full-fledged working of the Ground station and Master station as referred above and as per the satisfaction of EIC and our Consultant IIT Roorkee.

(G) ACCOMMODATION

- Bidders must make their own arrangements for accommodation.

(H) MATERIAL AND EQUIPMENT REQUIRED FOR THE WORK

- The bidder shall provide/arrange the material and equipment required to establish a real-time inflow forecasting system for the TVHPP for bona fide use under the contract at their expense.
- Bidder shall make necessary arrangements at their expense for the safe and secure storage of all the equipment/parts of work-related until final acceptance of the station. NTPC shall provide space to keep all equipment. Watch & ward will be done by the bidder/supplier.

(I) SAFETY KITS/ GADGETS

- The bidder shall provide all required safety kits/gadgets to their personnel deputed for the work, such as safety shoes, helmets, safety belts, gloves, glasses, safety harness etc., at their own expense.

(J) OTHER MANDATORY CONDITIONS OF THE CONTRACT

- 1) The bid form in the tender document in **Annexure I to V** shall be used for bidding.
- 2) The specifications are clearly mentioned in the document, and the bidder is requested to submit a bid only if their offer strictly complies with these specifications. The bidding for the instruments having different specifications will be at the bidder's risk, as NTPC Limited will not entertain such bids. Bids carrying the statement like "**SPECIFICATIONS AS PER TENDER DOCUMENT**" shall not be entertained. The product specifications supported by **TECHNICAL LITERATURE** and **LIST OF USERS** must be enclosed.
- 3) The nomenclature of the instruments and spares must invariably be the same in the Performa Invoice, Invoice, and Packing list and in other relevant papers in case the bidder is asked to execute the work against its offer.
- 4) The installation of the instruments at the respective site shall be the responsibility of the bidder. It must be done either by the principal supplier or their authorized agents strictly within the duration specified in this document. On request of the bidder, NTPC Limited will provide space/room for storage of materials free of cost at the dam site and other locations, but the bidder will be responsible for watch and ward of the equipment and materials till the whole project is accepted by NTPC Limited.
- 5) The bidder should provide a complete list of spares, sensors and consumables required for (05) five years for trouble-free operation and maintenance of the instruments.
- 6) In case of failure, the bidder should be able to attend to the system immediately when needed and ensure a trouble-free operation of the system. The bidder should provide full information about its local contacts in India.
- 7) The price must be quoted item-wise in the Annexures and shall include basic price, packing, forwarding, handling, installation, incidental charges, and GST rate in % (if any) shall be provided item-wise separately. The charges must be quoted clearly, and terms like "As actual or approx." should not be used, the bid will be rejected.

- 8) If the instrument installed is found defective/ unsatisfactory/ lower than minimum specifications, the same will have to be replaced at the risk and cost of the supplier. NTPC Limited will pay no freight and other charges for replacement.
- 9) The instruments/ equipment shall include a 1-year onsite warranty after successfully establishing a real-time inflow forecasting system. Additional charges for a 2-year onsite extended warranty shall be mentioned in the price proposal.
- 10) Defect liability period (DLP) shall be 02 years Two (2) years from the date of successful commissioning of the complete system and taking over by the Employer. Further, there will be Onsite comprehensive AMC for 03 years after the expiry of 02 years of DLP for 3rd year, 4th year and 5th year. The AMC for each year shall not be less than 5% of the total price of the Contract and the same shall be quoted separately in the Bid, which shall be considered for Bid evaluation.
- 11) The items shall be supplied in standard packing to avoid any damage. Damaged items shall be rejected. The same will have to be replaced by the supplier at their own risk and cost.
- 12) The location of stations and their numbers are given in the tender document, which may be changed at the discretion of the Engineer-in-charge without assigning any reason thereof within the catchment of TVHPP.
- 13) **Bidders may be required to present their technical proposal before the NTPC & IIT Roorkee (consultant) and demonstrate the capability of their system. The financial bid of technically qualified bidders shall only be opened.**
- 14) The responsibility for the safety and security of 13 nos. of meteorological stations (10 Automatic Weather Stations and 3 conventional meteorological stations) and 2 nos. of Automatic Gauge & Discharge Stations & 5 nos. manual gauge & discharge stations after their installation, testing and commissioning shall be of the landowners under whose land the instruments are being installed. The arrangements with the landowners will be jointly done by NTPC Limited and IIT Roorkee.
- 15) The continuous operation of the instruments shall be ensured by the bidder/supplier. The whole responsibility for maintenance of all the stations for their smooth functioning shall be of the bidder/supplier. In case of discontinuity of data for a duration of more than 48 hours due to maintenance problems, a penalty of Rs. 2000/- per day per station shall be imposed on the bidder. Therefore, it is suggested that the bidder keep all required spare items in sufficient numbers with their maintenance staff for such maintenance.
- 16) The accommodation for hardware and software engineers engaged **shall be arranged by the bidder at their own cost.**
- 17) A pre-tender discussion meeting with bidders will be scheduled 15 days prior to the last date for submission of the tender.
- 18) No advance payment will be made. Payment shall be subject to clause 3.0 of this tender.
- 19) Acceptance of this tender form and submission of the quote within the stipulated time would be treated as:
 - 1) The Bidder has understood all requirements as described in our tender document.
 - 2) Acceptance to provide/establish all the facilities mentioned in our tender without any price escalation in case the bidder finds it necessary to add any hardware or software or other materials during implementation.

- 3) Agreeing to execute the order to the satisfaction of NTPC Limited or its authorized representatives within the stipulated time.

2.0 Taxes and duties

The above charges are inclusive of all other taxes like duties, levies, etc. whatsoever applicable as per prevailing acts. However, GST, as per actual, shall be paid in addition upon submission of the necessary certificates.

3.0 Payment Conditions

- (A) For Section 1, all item numbers except 8 are as follows:
 - i. For each station, 50% after the successful establishment of a station and integration and 20% after the establishment of a real-time inflow forecasting system for TVHPP. Balance 30% payment after successful completion of the warranty period or on submission of a bank guarantee equivalent to 30%, which will be valid for the period up to the expiry of the warranty period.
- (B) For the remaining items as given below:
 - i. For items 8.1, 8.2, 8.3 and 8.4 – 100% at the end of successful completion of the period.

4.0 Additional Conditions

1. Coordination with respective agencies / service providers for necessary allocation of bandwidth, licenses and other clearances for Satellite based (VSAT) and Terrestrial (Cellular) communication shall be the responsibility of contractor.

WARRANTY / DEFECT LIABILITY (DL)

The Contractor shall provide an unlimited warranty for all the systems / equipment / devices and software provided as part of the FFS for a period of Two (2) years from the date of successful commissioning of the complete system and taking over by the Employer.

Minimum One (1) expert manpower of at least diploma level with minimum salary of Rs 30000 per month shall be deputed at site on 24X7 basis during the DL period.

Defect Liability Period (DLP) and Annual Maintenance Services (AMS)

1. Round-the-clock support by providing dedicated expert manpower along with necessary material at site during the Defect Liability (DL) Period.
2. In addition to the Fixed Cost of the communication infrastructure (VSAT, Cellular & Satellite phone) including applicable license fees, the Running / Recurring Cost up to the DL period shall be included in the quoted price for this package.
3. The Contractor shall provide maintenance services of complete FFS under a comprehensive Annual Maintenance Services (AMS) for period of Three (3) years after the completion of Warranty (DL) period. All required hardware & software along with fixed and running costs during the DL & AMS periods shall be in Contractor's scope.
4. The running cost during the AMS period shall be included in the quoted AMS charges for each year. The AMS charges for each year shall not be less than 5% of the total price of the FFS and the same shall be quoted separately in the Bid, which shall be considered for Bid evaluation. Employer at its discretion can choose to terminate the AMS at the end of any year, during the Three (3) year AMS period.
5. Periodic visit of expert manpower shall be done every three months during AMS period. However, there shall be no ceiling on the number of visits for attending any breakdown. In case of any problem / issue is reported, the Contractor shall respond within 24 hrs. and depute expert manpower to site within 48 hrs. of issue / problem reporting. The Contractor shall ensure upkeep of FWS during warranty & AMS in all aspects and shall supply any material / service required for the same without any financial implication on the Employer.
6. Remote support on 24X7 basis during both DL and AMS periods for troubleshooting. The Contractor shall provide a 24X7 toll free helpline for registering user complaints. Remote support through secure access shall be provided in case the reported issue / fault warrants the same.

Land for sensors:

Land for Sensor Stations and of FFS shall be arranged by the contractor. However, any assistance required to the Employer for obtaining permission / clearance for installation of Sensor Stations, by furnishing requisite details, documents, etc. shall be provided by the Contractor. The charges for rent/lease for land/house shall be in the scope of the contractor.

Other Conditions:

- a) The work shall be executed and completed under this Contract in every respect in conformity with all applicable rules and regulations and as per the directions of and to the satisfaction of the Engineer-in-Charge.

- b) The Contractor shall submit Drawings / Data Sheets / Test Report for approval of the Engineer-in-Charge upon award of the Contract. General arrangement drawing of equipment, Datasheet are to be submitted by the agency on receipt of Purchase Order for approval of NTPC.
- c) All the equipment shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at site.
- d) Contractor shall ensure all the relevant statutory compliance as imposed by the Govt. of Uttarakhand.
- e) Contractor shall take Erection all risk insurance policy to cover all risks in terms of tender provisions. In this regard, all the expenditure shall be borne by Contractor without any extra financial implication to NTPC.
- f) The price shall be firm for whole Contract period and no escalation is allowed.
- g) Labour Laws: The Contractor shall comply with all labour laws of Central Govt. or State Govt. as the case may be and pay minimum wages to the workers as mentioned in the General Conditions of Contract.
- h) The Contractor shall get the workers insured under Workmen Compensation Policy and the copy of the insurance policy shall be submitted to NTPC. Insurance coverage of deployed man power has to be arranged by Contractor before starting of work. In this regards, all the expenditure shall be borne by Contractor without any extra financial implication to NTPC.
- i) Contractor shall have registration for Labour License for engaging 20 or more Contract Workers.
- j) Contractor shall get the workers enrolled in NTPC's Contractor's Labour Information Management System (CLIMS) and shall get their Health Check-up & Police Verification prior to start of the work without any financial implication to NTPC.
- k) No accommodation & transportation shall be provided for deployed manpower by NTPC.
- l) A suitable uncovered place for storage shall be provided to Contractor on free of cost basis up to assignment period. It shall be the responsibility of the Contractor to keep the material in safe and healthy condition.
- m) NTPC reserves the right to foreclose the Contract in full or in part due to abandonment or reduction in scope of work. The Engineer-In-Charge shall give 15 days prior notice in writing to that effect to the Contractor and the Contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.
- n) The Contractor shall provide all Personal Protective Equipment (PPE) like Helmets, Safety Shoes, Reflective jackets, Safety belts (Full body harness) in adequate quantity. In this regard, all the expenditure shall be borne by Contractor without any extra financial implication to NTPC.
- o) The Contractor shall be fully responsible for the safety of his workmen and shall take all necessary precautions to avoid accidents and provide sufficient no. of safety appliances.

Note: Period for requirement of software engineer at IIT, Roorkee shall also be mentioned. The vendor will post one software engineer, with minimum degree in Computer Science and salary at least Rs 40,000 per month. The software engineer shall closely work in close collaboration with the IIT Roorkee team. The software engineer shall have access to all the software related to the flood forecasting system and the details shall be shared with IIT Roorkee so that necessary changes can be made in the software independently.

The salary (inclusive of all the perks, insurance, esi, hra, etc. as per GoI rules, mentioned in the tender) to the hardware and software engineers with mandatory perks shall be paid by IIT Roorkee/ NTPC Limited and shall be deducted from the bills of the vendor.

5.0 Catchment details

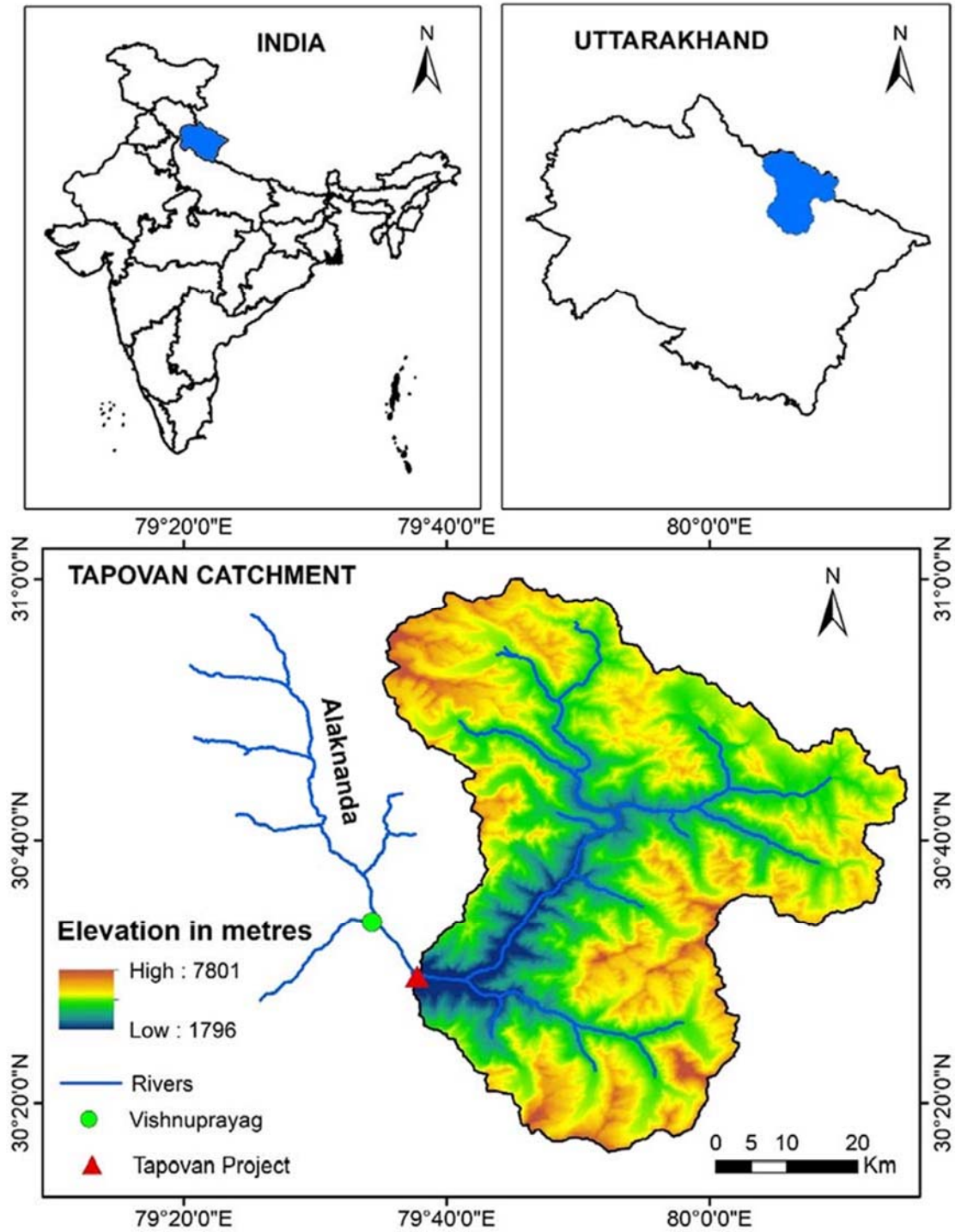


Figure 2 Tapovan Catchment

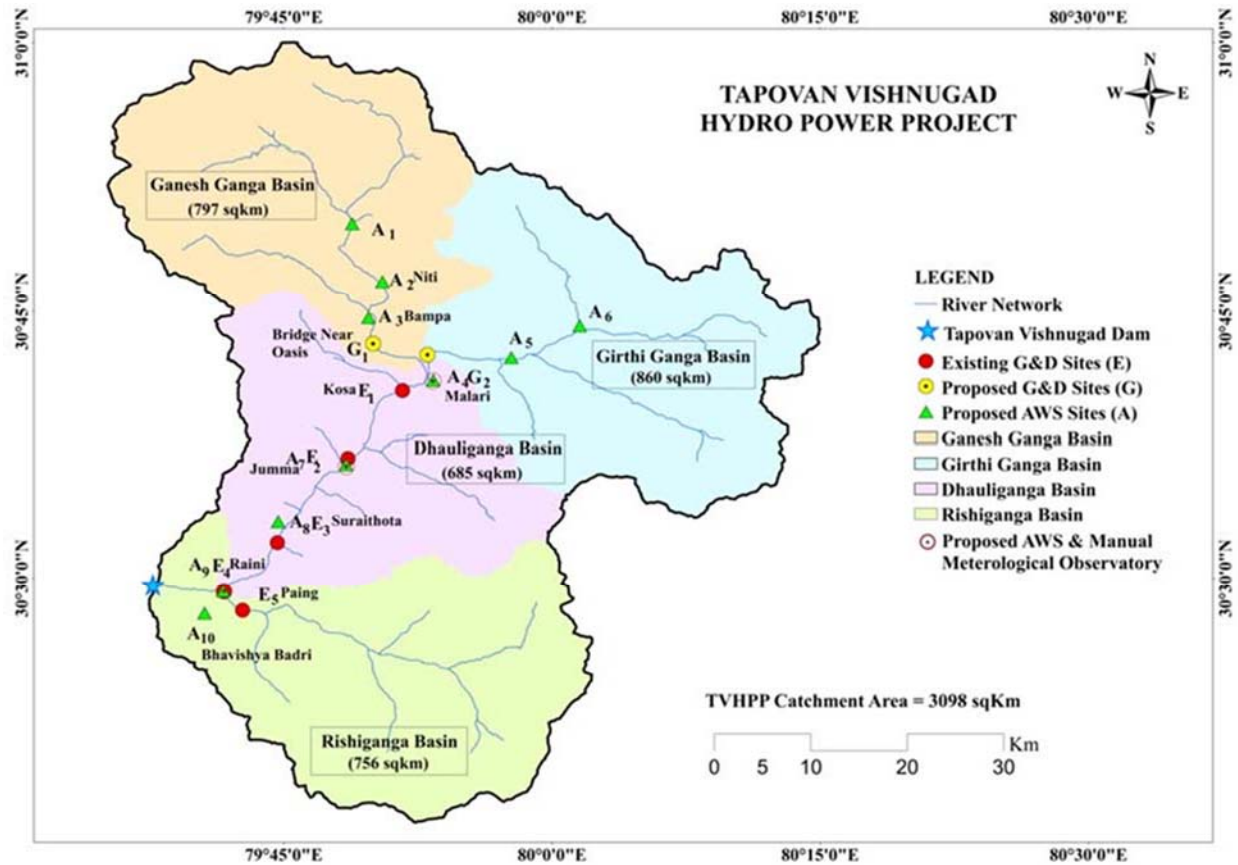


Figure 3: Location map of proposed AWS, Manual Meteorological Observatory and G & D sites (Tentative)

5.1 Location of Meteorological and Hydrological Stations

Table 1 shows the locations of existing G&D sensors installed at TVHPP catchment. It is proposed to establish automatic weather stations at 10 locations, 3 manual meteorological observatories and hydrological stations (gauge and discharge) at 2 locations as per details given in Table 2 & Table 3.

Table 1 Locations of Existing G&D Sites

Locations	Station Name	Latitude (N)	Longitude (E)
E ₁	Kosa	30.6753	79.8607
E ₂	Jumma	30.6126	79.8098
E ₃	Surathota	30.5336	79.7441
E ₄	Raini	30.48795	79.6936
E ₅	Paing	30.4698	79.7116

Table 2 Proposed Tentative Locations for Additional AWS and G&D sites

Sl. No	Proposed Locations	Sensor	Latitude (N)	Longitude (E)
A ₁	Above Niti Village	AWS	30.832347	79.813747
A ₂	Niti Village	AWS	30.7777966	79.8420068
A ₃	Bampa Village	AWS	30.7437304	79.8289585
A ₄	Malari	AWS	30.684098	79.889087
A ₅	Near Mahar Gaon	AWS	30.706192	79.962006
A ₆	Above Mahar Gaon	AWS	30.736039	80.025853
A ₇	Jumma	AWS	30.6067034	79.8080781
A ₈	Surathota	AWS	30.55327948	79.7447743
A ₉	Raini	AWS	30.4879489	79.6935938
A ₁₀	Bhavishya Badri	AWS	30.467117	79.676147
G ₁	Bridge near Oasis	G&D	30.719281	79.833251
G ₂	Malari	G&D	30.708825	79.883905

Table 3 Proposed locations for Manual Meteorological Observatory

Locations	Station Name	Latitude (N)	Longitude (E)
1	Malari	30.684098	79.889087
2	Jumma	30.6067034	79.8080781
3	Raini	30.4879489	79.6935938

*** These locations may vary as per requirement in the vicinity at the time of installation at the sole discretion of EIC.**

5.2 Details of the Required Instruments

The hydro-meteorological stations are classified as follows:

- 1) Category- I- Establishment of Automatic Weather Station** - Consists of temperature, humidity, atmospheric pressure, wind speed & direction, rainfall and solar radiation sensors with data logger, Cellular modem for data communications, high gain antenna, solar power, intrusion alarm and cabling with waterproof enclosure and all other accessories required for data transmission as per the Specifications given in Section-3 or better specifications (Including 3 meters lattice mast and mounting accessories and installation at site) (7 Nos.)
and

Category- I- Establishment of Automatic Weather Station – Consists of temperature, humidity, atmospheric pressure, wind speed & direction, rainfall and solar radiation sensors with data logger, Cellular and VSAT modem for data communications, high gain antenna, solar power, intrusion alarm and cabling with waterproof enclosure and all other accessories required for data transmission as per the Specifications given in Section-3 or better specifications (Including 3 meters lattice mast and mounting accessories, installation at the site) (3 Nos.)

- 2) Category- II- Establishment of Additional Water Level and Discharge Sensors to be integrated with Automatic Weather Station to be established under Category- I**

- (a) Consists of water level and discharge sensors as per the Specifications given in Section 3 or better specifications, including installation and testing at the site (2 Nos.)
- (b) Field calibration and validation for 15 days at each site during the monsoon period using ADCP or current meter using CWC method three times a day (2 Nos.)
- (c) Manual G&D for calibration and verification of existing Automatic G&D Stations for four months (5 nos.)

3) Category- III: Establishment of Additional Snow Gauge Sensor to be integrated with Automatic Weather Station to be established under Category-I.

- (a) Consists of Snow Gauge Sensor as per the specification given in Section 3 or better specifications (5 Nos.)

4) Category- IV: Establishment of Water level recorder at Dam

- (a) Consists of water level recorder as per the specifications given in Section 3 or better specifications including installation and testing at site (one No.)

5) Category- V- Conventional Meteorological Stations- Consists of 4 thermometers (Minimum, Maximum, dry bulb, wet bulb), hygrograph, thermograph, evaporation pan, ordinary rain gauge, self-recording rain gauge, anemometer, wind vane, and Stevenson screen and installation at the site with charts for one year

Note: Thermometers, hygrographs and thermographs shall be housed in a standard Stevenson screen as per IMD specifications. (3 sets)

Note: The thermometers, hygrograph and thermograph shall be housed in a standard Stevenson screen as per the specification given in Section 3.

6) Radar Guns (4 nos.)

The telemetry system should be based on a cellular-based modem at 7 locations and cellular-based along with VSAT technology at 3 locations where mobile signals are unavailable.

Section 3 - Technical Specifications of Instruments / Equipment

1. Category- I: Automatic Weather Stations- (10 nos. Tentative)

1.1 Automatic Weather Stations shall consist of the following sensors-

- Air Temperature sensor
- Relative Humidity sensor
- Barometric Pressure sensor
- Snowfall sensor (only at few locations)
- Wind speed & direction sensor
- Rainfall sensor
- Solar Radiation sensor
- Data logger with waterproof enclosure
- GSM/GPRS/VSAT modem for data communications
- Solar power battery and cabling

Temperature and Relative Humidity Sensor with Radiation Shield		
Air Temperature		
a)	Sensor type	Pt 100 RTD
b)	Measurement range	-40°C to +60°C
c)	Accuracy (with radiation shield)	±0.20 °C or better for +10 °C to +60 °C ±0.35 °C or better for -40°C to +10°C
d)	Resolution	0.10°C
e)	Output	Analog/Digital
Relative Humidity		
a)	Measurement	Range 0% to 100%
b)	Accuracy (Including nonlinearity, hysteresis and repeatability)	±3% RH or better with membrane filter (In the range 10% to 100%)
c)	Output	Analog/Digital
d)	Resolution	1% or better
e)	Sensor type	Capacitive/Solid state
Radiation Shield		
a)	Type	Thermoplastic
b)	Louvered	Minimum 9
c)	Ventilation	Natural
d)	Mounting Accessories	Aluminum Mounting bracket and stainless-steel U bolt
Wind Sensor (Ultrasonic 2 Dimensional)		
a)	Range (Operation)	0 to 60 m/s or better
b)	Sustainability	Up to 60m/sec

c)	Accuracy	±0.5 m/s or better
d)	Resolution	0.1 m/s
e)	Threshold	0.5 m/s or less
f)	Response time	1 sec or better
g)	Output	Digital
Wind Direction		
a)	Range	0 to 359 Degrees
b)	Accuracy	±5° or better
c)	Resolution	1°
d)	Response time	1 sec or better
e)	Output	Analog/Digital
Tipping Bucket Rain Gauge Sensor or with better technology		
a)	Collector area	Specified collector area should be between 200 cm ² to 325 cm ²
b)	Height above funnel	Height above funnel should be sufficient to accumulate rain during heavy rainfall as per WMO guidelines
c)	Switch	Rugged Magnetic Proximity
d)	Resolution	0.5 mm/tip
e)	Output	0.1-sec switch closure
f)	Accuracy	± 2% or better, for rain rate up to 25mm/hr ± 3% or better, for rain rate up to 25mm/hr to 50 mm/hr ± 4% or better, for rain rate up to 50mm/hr to 100 mm/hr ± 5% or better, for rain rate up>100 mm/hr
g)	Material of outer Body/housing (Base/collector)	Rust Proof Housing
h)	Levelling	Suitable levelling adjustment screws and circular spirit level must be provided on the base of TBRG for levelling the tipping bucket mechanism.
i)	Debris protection filter	Suitable (Wire mesh) debris protection filter should be provided inside the collector
Pressure Sensor		
a)	Range	600 to 1100 hPa
b)	Accuracy	0.2 hPa or better for complete range (600 to 1100 hPa)
c)	Resolution	0.1 hPa or better
d)	Output	Digital
Solar Radiation/ Sunshine Recorder Sensor		
a)	Sensor type	Silicon photovoltaic detector type pyranometer or equivalent/ alternate
b)	Spectral Range	400 to 1100 nm

c)	Measurement Range	0 to 2000 Watt/m ²
d)	Sensitivity	60 to 100 μ V/W/m ² or better
e)	Accuracy	Less than $\pm 5\%$, including the stability, temperature dependence and any other error
f)	Resolution	1 Watt/m ²
g)	Operating temperature	-40°C to +60°C
h)	Calibration	The sensor must have calibration against WMO-WRC secondary standard Pyranometer
i)	Sensor Housing	Waterproof, Aluminized case with acrylic diffuser with levelling screws (IP 65)

- For all sensors offered should be rugged, well-proven sensors and used for operational purposes.
- Cables used for sensors to connect data logger should be Teflon insulated multi strand and silver coated.
- For sensors, valid certification from a reputed International/ Indian Institute is to be submitted.

2. Category - II: Additional Automatic Gauge & Discharge sensors to be integrated with Automatic Weather Station to be established under Category-I (2 nos.)

2.1 Automatic Gauge & Discharge stations having non-contact radar-based water level and velocity sensors

The radar level-discharge sensor is to record readings of water level, water velocity and discharge versus time in rivers and canals. The level, velocity and discharge data are stored on a data logger and optionally transmitted to a base station via a GSM/GPRS/VSAT modem; also, optionally, the actual level and velocity/discharge reading should be shown on an LED display of the data logger installed on the site.

A radar sensor shall measure the water level and surface water velocity indirectly. The mean velocity shall be calculated using the pre-determined, stored relationships between surface velocity and mean velocity specific to the monitoring site. The cross-sectional area shall be calculated using pre-determined stored relationships between the water level and the cross-sectional area specific to the monitoring site. The discharge shall be calculated using pre-determined stored relationships between mean velocity, cross-sectional area and discharge specific to the monitoring site. The radar level-discharge sensor may be easily mounted to a bridge, frame pipeline or extension arm. The purchaser may execute his judicious discretion in the choice of configuration and options. The Automatic water level & Discharge sensor shall be at a nearby location, and the power supply shall be through the battery/power supply of AWS.

Note: The river cross sections shall be arranged by the bidder at their cost.

Surface Velocity Sensor		
a)	Technology	Radar

Development of a Flood Forecasting System for Tapovan Vishnugad Hydro Power Project (TVHPP)

b)	Measurement Range	0.1-15 m/sec
c)	Flow velocity resolution	0.01 m/sec
d)	Flow accuracy	1% or better
e)	Installation height above water level	As per site condition
f)	Power Supply Voltage	9-27 VDC
g)	Operating temperature	-40°C to +60°C
h)	Sample rate	10 sps
i)	IP rating	IP 67 or higher
j)	Communication protocol	MODBUS RTU
k)	Communication interface	2-wire RS-485

Water Level Sensor		
a)	Technology	Radar
b)	Process fitting & beam angle	Thread G2, Flange from DN 80; Beam angle 5° or better. Fitting as per the suitability of the site.
c)	Measurement range	0-30 m (may be increased depending upon site conditions)
d)	Resolution	5 mm
e)	Accuracy	±3 mm- 4mm
f)	Power supply voltage	9-27 VDC
g)	Operating temperature	-40°C to +60°C
h)	Signal output	4-20 mA/HART (2-wire/4-wire)
i)	IP rating	IP 67 or higher
j)	Communication protocol	MODBUS RTU/OEM specific to meet the application requirement
i)	Communication interface	2-wire RS-482

Surface velocity radar gun (4 Nos.)	
a.	Water-resistant enclosure with superior ergonomics and balance
b.	Drop proof - up to 1.5m without internal damage
c.	Tilt sensor for auto-correcting vertical cosine angle
d.	Display compatible with polarized sunglasses
e.	Optional SD-card-based data logger with automatic date and time information.
f.	USB data transfer for data retrieval and analysis
g.	Large 2.8" colour, sunlight readable LCD display with intuitive colour-coded instantaneous and average speed displays
h.	Replaceable & rechargeable Li-ion batteries with USB battery charging
i.	Long battery run time - over 25 hours of use before needing recharge
j.	Touchscreen controls
k.	Wide velocity flow range (0.3 – 9.1 m/s); with a measurement accuracy: 5% of reading

l. Accepts tripod mounting
m. User-friendly measurement and reading

3. Technical Specifications for General/Common Items

3.1 Specifications for Power Supply

- The complete AWS station shall have the capability for unattended operation at remote places using a Sealed Maintenance Free (SMF) battery, Electrical charger, Solar charge controller and rechargeable through a Solar panel.
 - i. **Battery:** Double 12 V chargeable SMF batteries with 50 AH capacity or better designed for extreme cold climatic conditions.
 - ii. **The switch with fuse is required for the power supply to the Data logger.**
 - iii. **Solar Charge Controller (MPPT):** It should charge the double 12 V, 50 AH SMF battery through a 75 W Solar panel and also Overload protection, Short circuit protection, Protection from lightning strikes and Under-voltage protection. It should have a provision to control the power supply to the Datalogger.
 - iv. **Solar Panel (Mono Crystalline):** Rated capacity 100 W or better,
- AWS should run for 15 days on cloudy days or without charging the battery and this must be demonstrated.

3.2 Specifications for Weatherproof FRP Enclosure for AWS

- Two separate enclosures are required for AWS.
- The Weatherproof Enclosure of AWS should be FRP Enclosure (IP 66) and for outdoor use to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water. FRP enclosure should be capable of retaining ambient temperature for battery operation, i.e. charging & discharging.
- **One enclosure** FRP Enclosure (IP 66) is suitable to keep the Data logger, solar charge Controller, Pressure sensors, and switch with a suitable fuse for power supply to the Data logger and GPRS modem.
- **Another separate** FRP Enclosure (IP 66) for 12 V, 65 AH SMF batteries
- Silicone gasket is used for both Enclosures for harsh environments and extreme temperatures.
- FRP Enclosure (IP 66) enclosures should be designed for outdoor applications that require corrosion protection against chemicals and water. From humble to harsh environments, it safeguards vital electrical and electronic components with enclosures, climate control and accessories to help keep operations up and running smoothly.
- Enclosure with a hinged door and locking facility.
- Data Pockets provide convenient storage for wiring diagrams, operation manuals and other documentation inside an enclosure.

3.3 MAST FOR AWS (Tiltable type / Foldable/Sliding up and down)

- Mast shall be a 3-meter **(Tiltable type / Foldable/Sliding up and down)** mast. The mast is designed to withstand high wind conditions, up to 60 m/s of maximum wind speed, with a standard set of guy wires.
- It shall be corrosion-resistant and salt-water-resistant.
- The Mast can be lowered down any time to remove for maintenance and reinstallation of the wind sensors.
- Instrument booms suitable for mounting on the Mast need to be designed on the basis of the mounting requirements of the sensors.
- The bidder shall be responsible for the installation of sensors at various levels, fixing and laying of the signal cables from all the sensors up to the ground level, along with fixing the cable identification tags. The signal cables should be laid out properly on the mast and tied to the structure elements with cable ties of appropriate lengths.
- Tension in the guy wires shall be adjusted by means of tension meters, or any standard method for adjusting the tension in the guy wires may be followed, and tension should be adjusted in the presence of a representative of the developer.
- The overall specifications of Mast are given in the table below:

1	Height	10 m
2	Wind	60 m/s
3	Guy levels	At 6 m
4	Lightning arrestor	A lightening arrestor with a spiked copper rod of at least 3 meters in height should be installed at the top of the mast and connected to an earth pit with copper bars and suitable copper cable. Separate maintenance-free type earth pits conforming to the relevant IS specifications should be provided for this purpose. A lighting counter shall be provided.
5	Cable routing	Provision for cable routing from instrument booms/junction boxes to the bottom of the mast will be provided. The cable bunch has to run in a steel pipe / with an equivalent arrangement from the top to the lower end of the tower and into the instrument enclosure

3.4 General Technical Specification for GPRS/ 3G/ 4G/ 5G MODEM

4 G-based GPRS Modem (compatible with 3G) with dual SIM facility and has the provision of fast and reliable wireless data communications along with support for IP-based access to the central server IP. The GPRS Modem shall be compatible with all SIMs. The following technical specifications are indicative.

- GPRS facility with fast and reliable wireless data communications.
- Remote dial-up facility.
- Shall support SMS, Email and FTP.
- Accept dual standard SIM cards.

- v. Ethernet/RS 232/485/USB interface with DATALOGGER.
- vi. Indication of network availability (signal strength).
- vii. Suitable High-gain GPRS Antenna for reliable communication.

In order to provide redundancy in Connectivity for facilitating Data transfer from AWS to the Master Control Room, VSAT services (Extended C band) with Internet facility can be provided, for which minimum specifications are as follows:

Indoor Unit (IDU)

Forward Channel

1. DVB-S2X with Adaptive Coding and Modulation (ACM)
2. Frequency: Extended C band
3. Modulation: QPSK, 8PSK, 16APSK, 32APSK, 64APSK
4. Encapsulation: GSE 5. Symbol rate: Up to 235 Msps

Return Channel

1. MF-TDMA
2. LDPC FEC with efficient variable block/burst sizes
3. OQPSK, QPSK, 8PSK, or 16APSK
4. Symbol rate from 256 Ksps to 12Msps
5. Adaptive Coding and Modulation (ACM) capability

Network Interfaces

1. 2/4 GigE LAN ports
2. USB

ODU

1. Radio interface: Operates in Extended C and network
2. Antennas: 74 cm, 98 cm, 120 cm, or 180 cm.
3. IFL cable type and length: Dual RG-6, 75-ohm, F-type connector up to 150'

IP Features

1. Dual stack IPv4/IPv6
2. Static and Dynamic addressing
3. BGP Routing Support
4. Policy Based Routing
5. DHCP
6. VRRP
7. Access Control List (ACL)

8. DNS Caching
9. SIP Call Proxy
10. Advanced Web Acceleration
11. Layer 2 transport with acceleration and compression

GPRS Network Service

There should be provision for SMS and IP-based communication with DATALOGGER remotely to access and configure the DATALOGGER through a GPRS / VSAT modem.

• GSM & GPRS MODEM

- a. Shall have embedded HTTP/FTP/TCP/UDP Protocol.
- b. Shall be compatible with standard 3G and 4G GSM networks of all reputed national operators.
- c. Shall be compatible with the data logger proposed by the vendor.
- d. Shall have ISO 16759 qualification.
- e. Standby current: < 0.90 mA
- f. Shall have GSM/GPRS functionality scalable to customer needs.
- g. The modem/software in the data logger shall be configurable to send SMS/GPRS packets to the central reception facility at a user-defined interval ranging from 1 minute to 24 hours.
- h. The modem configuration shall ensure that no data is missed. The modem or the data logger should send data in packets (GPRS) at pre-defined intervals. In case of the non-availability of the mobile network during its scheduled transmission time, the data will be transmitted as and when the mobile network is available. In such cases, all the data that has not been transmitted till any time shall be transmitted once a mobile network is available.

3.5 General Technical Specification for VSAT

- a. Dedicated 128 kbps (upload) and 128 kbps (download) bandwidth
- b. Extended C band VSAT
- c. Antenna size: 1.2m
- d. Separate battery bank for VSAT to provide power backup for a minimum of 15 days.
- e. Other Standard IDU and ODU features.
- f. Smooth operation during rainy or cloudy conditions.
- g. Snow cover shall be provided.

3.6 General Technical Specification of Data Logger

- The data logger shall have the facility to sample the output of the attached sensors with user-selectable sampling intervals. The process of the samples collected is to obtain instantaneous, average, maximum and minimum values along with their time stamp for the selected measurement interval for transmission.

- There should be provision for Maximum wind observation (Gust and squall) for both wind sensors along with their time stamp.
- All Data Logger should have a suitable port to interface with any external display unit.
- The sampling and measurement interval for individual parameters shall also be user-selectable.
- The datalogger should have the capability to store the data for specified parameters at user-defined intervals in distinct multiple log files for each sensor and other related parameters (data volume 1GB or more).
- Stored data shall be retrievable via Telemetry/serial port/ USB port/Ethernet port to a PC/laptop and a pen drive or any other compact and commercially available solid-state memory device in standard text file format without the requirement of specific software to retrieve the data.
- The data logger should have a menu-driven keypad and backlit LCD/LED display (internal/external unit) and the facility to display the command and data characters. h) All the Analog and Digital channels in the data logger must be compatible with the sensors supplied and integrated with the system.
- The data logger should have built-in high-performance analogue channels, equate a number of built-in digital channels to accommodate the digital output of the sensors, and Counter channels for rainfall measurement.
- The data logger shall have a suitable interface for a 4G dual SIM GPRS modem.
- Data logger should have provision to accept SMS commands from remote mobile for Remote configuring data logger for communicating.
 - a. Changing time interval of server communication from 1min to 15min.
 - b. Display current data.
 - c. Monitoring the signal strength of the mobile network.
- Provision to access to the data logger through a GPRS modem shall also be made with password protection.
- To facilitate data processing, the data logger shall have a provision for 24-hour Real Time Clock (RTC) powered by a battery (with min. one-year lifetime) to ensure that time is maintained even during power outages. The data logger shall have provision to easily include and change the “Unique station identification code”, “Station Name”, “Time of observation and transmission”, “Measurement schedule” and “Sensor identification information”, for all parameters, as mandatory requirements. Any change in the data logger should be properly logged along with user, date and time details.
- The data logger should transmit the AWS data as per the specified data format to the receiving server.

Data Logger for Automatic Weather Station

- i. It should have menu-driven status monitoring and settings to enable.
- ii. View connected sensor data onsite.
- iii. View real-time data.
- iv. Take data backup in USB drives onsite.
- v. View station ID System Health, etc. View system clock onsite.
- vi. Sensor Measurement/Auto Transmission as scheduled by the User.

Development of a Flood Forecasting System for Tapovan Vishnugad Hydro Power Project (TVHPP)

- vii. The data logger should support a minimum of 8 uni-polar channels or 4 bi-polar channels (passive transducers) or mixed-up.
- viii. It should have multiple communication facilities, including RS 232, SDI-12, Ethernet (Compact flash), USB, etc.
- ix. Two or more numbers of SDI-12 Interface ports.
- x. 24-bit or better Analog to Digital converter.
- xi. Conversion Accuracy ± 1 LSB.
- xii. Maximum scan rate of data logger 1000 Hz.
- xiii. Should support individual recording intervals for different sensors/parameters connected.
- xiv. Firmware Operating System: Multi-tasking operating system - must log data and transmit at the same time.
- xv. Internal memory of the data logger should be sufficient to store a minimum of 10,00,000 readings, expandable to 100,00,00,000 readings (16 GB) via an internal SDHC card.
- xvi. If internal memory is full, it should overwrite the data. While overwriting, it should delete the oldest data and store the current data.
- xvii. Power supply: 12V DC, low current drain (quiescent ≤ 10.0 mA).
- xviii. Internal battery backup for clock: Lithium-ion Battery with storage: 3 years.
- xix. Charge Controller: Internal or External.
- xx. User Permissions: System of user rights/passwords, access restricted to authorized personnel.
- xxi. Shall receive time synchronization with NAVIC/GPS time (UTC/GMT) through a NAVIC/GPS receiver connected to the data logger. The time synchronization should be automatic, at least once in 6 hours.
- xxii. Should have an LED Display with a Graphical dot matrix of a minimum of 122×32 pixels or an LCD Display of a minimum of 16×2 alphanumeric display.
- xxiii. Should have a separate key for navigation of the menu and other functions.
- xxiv. Should have at least one USB 3.0 Compatible host for data backup in a USB Memory Stick.
- xxv. Sensor Interface: $8 \times$ Sensor Channels, $4 \times$ Sensor Power Control.
- xxvi. Operating Temperature Range: -40°C to $+60^{\circ}\text{C}$
- xxvii. Battery-Backed SRAM: Minimum 4 MB.
- xxviii. The data logger software shall be compatible with the Microsoft Windows 10 operating system or an updated version with all required licenses.
- xxix. Necessary accessories: Serial cable + adaptor for notebook connection. All accessories (fixing units, etc.) as required.
- xxx. Tools: a complete tool kit for installation and routine maintenance giving full detail (number of pieces and type).
- xxxi. Manuals: Full documentation and maintenance instructions in English (1 copy per station).

Data Logger for Automatic G&D and AWLR.

- a. Four analogue/digital input channels
- b. Input range: The data logger should have multiple input ranges to measure the sensors accurately without any loss of accuracy. The data logger should have at least these input ranges: $\pm 5000\text{mV}$, $\pm 2500\text{mV}$, $\pm 78\text{mV}$
- c. SDI-12 Input: at least 1 Channel
- d. RS485/RS232 Input: at least 1 Channel (Programmable as Master or Slave Modbus)

Analog to Digital Conversion

- a. Resolution: (16 Bit) or more

Development of a Flood Forecasting System for Tapovan Vishnugad Hydro Power Project (TVHPP)

- b. Conversion Accuracy +/-1 LSB
- c. The DCP should have watchdog timer to reset the system and restore the previous set-up case of microprocessor resets and power glitch.
- d. Visual Display and Keypad type numeric or alphanumeric or touch with the keypad and display it should be possible to program the data logger, manually initiate data transfer, and display data.
- e. The display should be 2 lines x 20 characters and should have a soft keypad for configuration.
- f. The display should have a time-out feature to conserve power.

Real Time Clock

In addition, the system should also have battery backed real time clock so that the time is updated even during power failure. The accuracy of this clock should be better than 6 seconds per month.

RS 232- Port

The DCP should have multiple RS 232 ports capable of having communication with external devices like GSM/GPRS Modem, VSAT, LOS Radio modem and INSAT Satellite Transmitter. Also, it should be possible to configure the port through software. It should support MODBUS communication.

Ethernet Port

The DCP should have an Ethernet port for interfacing with VSAT Terminal for data transmission where there is no cellular network. It should also support Modbus communication.

Data Storage

The data logger shall have the capacity to store 1 year of data at 15 seconds of sampling and 15 minutes of averaging.

Measurement Interval	1.0 Second to 24 hours (Programmable)
Number of Measurements Supported	Unlimited
Accuracy	0.002% of 5V
Expandable	Option for future channel expansion
Functions Supported	frequency inputs, quadrature inputs, Status inputs, counter inputs,
Output Type	Open collector with 100-ohm current limiting resistor, 100 mA max, 15V max
Excitation Channels	5 Channels
Communication Ports	RS232 for communications
Telemetry	INSAT Satellite Transmitter, Radio, Direct Connect, GPRS, MODBUS, and custom devices via BASIC/Python
Number of Simultaneous Communications	4
Operating Temperature	-40°C to +60°C
Display Operating Temperature	LED operates to -20°C
Programming	Menu-driven setup, Expanded complexity via BASIC/Python Custom capability via C++/Python
ADC Resolution	16-bit or better

3.7 Solar Panel and Battery

- i. Monocrystalline Solar panel of rated capacity 50W or better, Open Circuit voltage: 21 V or better, Short circuit current: 2.5A or better, and a sealed maintenance-free (SMF) battery of minimum 65

AH (12 V) of the reputed national brand shall be used to power the system. In no-sun conditions, the AWS should operate for at least 15 days. The vendor shall provide a calculation sheet to demonstrate the same.

- ii. The system shall have a battery charger of proper rating to charge the battery through the solar panel.
- iii. The system shall have a photovoltaic battery charge controller for protection of the battery from overcharging and under-voltage protection. Short circuit protection and Protection from the lightning strike.
- iv. All fixing devices required to fix the solar panel to the tower/mast shall be provided by the vendor.

4. Category – V: Establishment of Conventional Meteorological Stations – 3 Nos.

4.1 Conventional Meteorological Observatories

Conventional Meteorological observatories shall be established as per IMD specifications. The list of equipment in each observatory is given below:

1. Thermometers (Minimum, Maximum, Dry and Wet Bulb) as per IS:5681-1992
2. Hygrograph as per IS: 5900-1970
3. Thermograph as per IS:5901-1970
4. Evaporation Pan as per IS:5973-1998
5. Ordinary rain gauge as per IS:5225-1992
6. Self-recording rain gauge as per IS:5235-1992
7. Anemometer as per IS:5912-1997
8. Wind vane as per IS:5799-1970
9. Stevenson screen as per IS: 5948-1970

Note: The thermometers, hygrograph and thermograph shall be housed in a standard Stevenson screen. All the equipment under conventional meteorological observatories shall be as per IS codes mentioned against the equipment names. The Bidders are required to go through the codes carefully. The codes describe the specifications about dimensions, material and installation procedures and construction materials etc.

The brief descriptions of specifications are given in the following sections. The remaining specifications shall be as per the IS codes given above.

4.1.1 Thermometers- as per IS:5681-1992

Max Thermometer Specifications

- Type : Mercury-in-Glass
- Range : Maximum -40° to +50 °C
- Graduations : 0.5°C
- Accuracy : ± 0.2°C

Min Thermometer Specifications

- Type : Alcohol-in-Glass
- Range : Minimum -40° to +50°C
- Graduations : 0.5°C
- Accuracy : $\pm 0.3^\circ\text{C}$

Dry and Wet bulb thermometer:

The dry and wet bulb will be fixed vertically inside the Stevenson screen.

- Type : Mercury-in-Glass
- Range : As per IS code:5681-1992 (GENERAL METEOROLOGICAL LIQUID IN-GLASS THERMOMETERS — SPECIFICATION)
- Graduations : 0.5°C

4.1.2 Hygrograph as per IS: 5900-1970

- Material : Light and durable like aluminum or glass reinforced polyester for base and cover and stainless steel or brass for remaining components
- Measurement : Humidity
- Humidity Sensor : Hair Bundle
- Range : 0-100% RH
- Accuracy : Error should not exceed $\pm 5\%$ above 20% humidity

Thermograph as per IS:5901-1970

- Measurements : Temperature
- Temperature Sensor: Bimetallic Strip
- Range : -40°C to 50°C
- Accuracy : $\pm 1^\circ\text{C}$

4.1.3 Evaporation Pan Gauge as per IS:5973-1998

Standard Class A Type Evaporation Pan Specifications

- Material Pan Evaporimeter: Copper or non-rusting non-magnetic stainless-steel sheet of thickness 1.0 ± 0.1 mm
- Fixed point gauge and stilling well: Brass
- Measuring cylinder: Clean cast seamless acrylic plastic tubing or brass sheet
- Thermometer clamp: Brass
- Platform: Rot-resistant lumber treated with creosote or other effective wood preservative
- Dimensions: 1220 mm dia. Rest others as per IS code IS:5901-1970.

4.1.4 Ordinary Raingauge - as per IS:5225-1992

- The ordinary raingauge shall have a collector area of 200 sq. cm.
- It should be capable of measuring about 20 cm of rainfall.
- The material for base and collector shall be fiber glass-reinforced polyester and gun metal or aluminum alloy for rim of collector.
- The material for measuring cylinder shall be colorless and transparent glass.
- The installation of raingauge, construction of base etc. shall be as per IS:5225-1992.

4.1.5 Self-recording raingauge- as per IS:5235-1992

- Natural siphon type recording raingauge as per IS 5235-1992 is required.
- Size : Internal diameter of the gunmetal rim is 203.4 mm
- Height : 675 ±3 mm
- Recording range : 0 to 10 mm
- Diameter of clock drum: 93.3 mm
- The self-recording rain gauges shall have a recording mechanism of the natural siphon type, and the design shall be such that the water in the float chamber is emptied immediately and rapidly by the siphon as soon as a specified amount of water is collected.
- Recording raingauges shall have a clockwork mechanism conforming to IS 5924:1988 and capable of running for eight days on one winding.
- The charts used will conform to IS 5947:1970.
- The collector and base of recording raingauge shall conform to IS:5235-1992.

4.1.6 Anemometer- as per IS:5912-1997

The instrument should have a cup wheel consisting of three conical cups with beaded edges, free to rotate in a horizontal plane. The cup wheel spindle should be connected by worm gearing to a revolution counter mounted inside a waterproof housing. The gear ratio between the cup and counter spindles is so chosen that the run of the wind is shown directly in kilometres.

Material:

- Cups – Copper or aluminum sheets 0.71 mm thickness
- Centre spindle – Stainless steel rod
- Worm on a center spindle – Cut from manganese bronze alloy
- Worm wheel – Hard brass
- The general arrangement and dimensions of the cup counter anemometer shall be as per IS: 5912-1997.

- Counter: Any suitable non-reset direct-drive revolution counter adding one count for each one-tenth revolution of the drive shaft in one direction or ten units for each complete revolution shall be used.
- Accuracy: Below 10 km/h: ± 1 kmph and above 10 km/h $\pm 10\%$.

4.1.7 Wind vane: as per IS:5799-1970

Wind vane should meet the following requirements:

- Wind direction should be reported to the nearest ten degrees.
- Wind direction is defined as the direction from which the wind blows and is measured clockwise from the geographical north.
- The wind vane consists of a metal sheet of rectangular form fastened to a metal rod, pivoted and capable of rotating around a vertical axis with a minimum of friction. The weight of the metal sheet is balanced by a metal counterweight at the other end of the rod.
- The material used for the fabrication of the wind instrument shall be such that it may withstand permanent exposure in the open and have a long life extending over a number of years. Suitable materials for the various components of the instrument are given below:
 - o Aluminum: Base, mounting ring for direction arms, collar, arm support and horizontal arm.
 - o Aluminum alloy: Fin and bearing housing cap
 - o Aluminum casting: Support tube
 - o Brass: Spindle and cap nut
 - o Galvanized steel: Main support and direction letter
 - o Mild steel: Balance weight and direction letter
 - o Tin bronze: Bearing brush
- Dimensions: as per IS:5799-1970
- Accuracy: as per IS:5799-1970

4.1.8 Stevenson screen: as per IS: 5948-1970

Large Stevenson screen to house four thermometers, hygograph, and thermograph.

- Size: 1325mm Length x 315 mm Breath x 412mm Height. (All dimensions within $\pm 5\%$)
- The screen should be constructed with seasoned teak or deodar wood and painted with non-hygroscopic zinc oxide paint.
- Frame and legs: as per IS:5799-1970

5. CERTIFICATION

Development of a Flood Forecasting System for Tapovan Vishnugad Hydro Power Project (TVHPP)

- All the sensors and components of one randomly selected Automatic Weather station should be certified by IMD before the installation.
- Gauge and Discharge sensors should be laboratory tested by CWPRS, Pune. The sensors should carry the certification before installation.

Preferred brand name for different hydro-meteorological instruments

S. No.	AWS	AG&D (Radar Based)	Data logger	AWLR
1	Campbell Scientific	Campbell Scientific	Campbell Scientific	Campbell Scientific
2	OTT	OTT	OTT (Sutron)	OTT
3	GILL Instruments	Sommer	Vaisala Siemens	Sommer
4	Vaisala	Vega		Vega
5		Geolux		Geolux

- * The selected representative instruments shall require testing under lab and field conditions.
- * Wherever specifically not mentioned, the equipment considered shall have the ability to function under extreme weather conditions (-20°C or lower)
- * All material (both Hardware & Software) being offered under this package shall be from reputed manufacturers and their successful trouble-free operation shall have been proven in similar applications for at least One (1) year prior to the date of Techno-commercial Bid opening. Necessary documents like end-user certificates substantiating the provenness of major components like Sensors, Communication, systems (VSAT & Cellular), and Power supply systems (Solar PV, Batteries & inverter) shall be submitted along with the Bid.
- * All the sensors/Equipment should have compatibility with the already existing Central Receiving station for the flood warning system.
- * In case the brand of the equipment is other than the preferred brands mentioned in section 3- Technical specifications, the interested firms who are participating in this tender will be required to demonstrate the functioning of their equipment with complete integration of one AWS/ one G&D equipment or both (as decided by EIC) in the remote station and server at Tapovan, Joshimath for two weeks.

Note: The majority part of the document is based on the Standard Operating Procedure for Early Warning Systems for Hydro projects by Central Electricity Authority, June 2024.

Annexure-I

Certificate of Country of Origin

Annexure-II

Certificate of After Sales Service by Manufacturer for Main Components

Form of Equipment Details

Annexure-IV

Performa for Performance Statement for Bidder

ANNEXURE – V

S. No.	List of Deliverables	Unit	Qty.
A	B	C	D
1	Category-I: Establishment of Automatic Weather Stations (AWS) along with a data logger having an extra port/slot for integration, processing and display of additional data received from items under other categories established in its vicinity in BOQ as per requirement and instruction of EIC		
1.1	Consists of temperature, humidity, atmospheric pressure, wind speed & direction, rainfall and solar radiation sensors with data logger, Cellular modem for data communications, high gain antenna, solar power, intrusion alarm and cabling with waterproof enclosure and all other accessories required for data transmission as per the Specifications given in Section-3 or better specifications (Including 3 meters lattice mast and mounting accessories and installation at site)	Nos.	07
1.2	Consists of temperature, humidity, atmospheric pressure, wind speed & direction, rainfall and solar radiation sensors with data logger, Cellular and VSAT modem for data communications, high gain antenna, solar power, intrusion alarm and cabling with waterproof enclosure and all other accessories required for data transmission as per the Specifications given in Section-3 or better specifications (Including 3 meters lattice mast and mounting accessories, installation at the site)	Nos.	03
2	Category-II: Establishment of additional water level and discharge sensors along with its data to be integrated with the data logger of Automatic Weather Station (AWS) to be established under category-I as per the Specifications given in Section-3 or better specifications		
2.1	Consists of automatic water level and discharge sensors as per the Specifications given in Section 3 or better specifications, including installation and testing at site	Nos.	02
2.2	Field calibration and validation for 15 days at each site during the monsoon period using ADCP or current meter using CWC method three times a day	Nos.	02
2.3	Manual G&D for calibration and verification of existing Automatic G&D Stations for four months	Nos.	05
3	Category- III: Establishment of additional snow gauge sensor along with its data to be integrated with data logger of Automatic Weather Station (AWS) to be established under Category-I		
3.1	Consists of snow gauge sensor as per the Specifications given in Section-3 or better specifications	Nos.	05
4	Category- IV: Establishment of Water level recorder at Dam		
4.1	Consists of water level recorder as per the Specifications given in Section-3 or better specifications or better specifications, including installation and testing at the site	No.	01
5	Category- V: Establishment of conventional meteorological stations- as per IMD specifications		

5.1	Consists of 4 thermometers Minimum, Maximum, dry bulb, wet bulb), hygrograph, thermograph, evaporation pan, ordinary raingauge, self-recording rain gauge, anemometer, wind vane, and Stevenson screen and installation at the site with charts Note: Thermometers, hygrographs and thermographs shall be housed in a standard Stevenson screen as per IMD specifications	Nos.	03
6	Website Development for the System		
6.1	Design and Development of a website for the system as per the IITR requirement	No.	01
7	Earthing & Lightning Protection for all Sensor Stations	LOT	01
8	CAMC		
8.1	Comprehensive Annual Maintenance Cost for 3 rd year	Per year	01
8.2	Comprehensive Annual Maintenance Cost for 4 th year	Per year	01
8.3	Comprehensive Annual Maintenance Cost for 5 th year	Per year	01
9	System Integration charges	LS	01
10	Radar Guns	Nos.	04

NTPC LIMITED
(A Government of India Enterprise)



BIDDING DOCUMENTS
FOR

Development of a Flood Forecasting System & its Integration with
existing Automatic Flood Warning System for TVHEP (4x130MW)

SECTION – VII
(FORMS AND PROCEDURES)
BOOK 1 OF 2

BIDDING DOCUMENT NO. : 9900325428

(This document is meant for the exclusive purpose of bidding against this Bid Document No. / Specification and shall not be reproduced or otherwise used for purposes other than that for which it is specifically issued).

BIDDER MAY TAKE NOTE OF THE FOLLOWING POINTS WHILE SUBMITTING ITS BID

- * BIDDERS ARE REQUIRED TO FURNISH REQUISITE DETAILS IN THE FORMATS SPECIFIED IN THE BIDDING DOCUMENTS FOR MEETING THE STIPULATED QUALIFYING REQUIREMENTS (QR) ALONG WITH ALL SUPPORTING DOCUMENTS LIKE COPIES OF CLIENT'S CERTIFICATES, WORK ORDER AND CONTRACT AGREEMENTS ETC. DULY CERTIFIED AND VERIFIED FOR AUTHENTICITY FROM INDEPENDENT STATUTORY AUDITOR OF THEIR COMPANY OR SPECIFIED THIRD-PARTY INSPECTION AGENCY.

IF ANY OF THE REFERENCE WORKS FURNISHED BY BIDDER PERTAINS TO THE CONTRACT(S)/WORKS EXECUTED BY BIDDER FOR NTPC IN THE PAST THEN IN RESPECT OF SUCH CONTRACT(S)/WORKS, BIDDER IS NOT REQUIRED TO ENCLOSE CLIENT'S CERTIFICATE(S) ALONG WITH ITS BID.
- * IN CASE OF EXTENSION OF TECHNO-COMMERCIAL BID OPENING DATE, BIDDER TO FURNISH AUDITED ANNUAL REPORTS ALONG WITH ITS BID AS PER EXTENDED DATE OF TECHNO-COMMERCIAL BID OPENING TO MEET THE STIPULATED FINANCIAL QR CRITERIA.
- * POWER OF ATTORNEY DULY NOTARIZED BY A NOTARY PUBLIC INDICATING THAT THE PERSON(S) SIGNING THE BID HAS/HAVE THE AUTHORITY TO SIGN THE BID AND THE BID IS BINDING UPON THE BIDDER DURING THE FULL PERIOD OF ITS VALIDITY BACKED BY A COPY OF BOARD RESOLUTION/OTHER RELEVANT DOCUMENTS TO DEMONSTRATE THE AUTHORITY OF THE PERSON ISSUING THE POWER OF ATTORNEY TO BE FURNISHED ALONG WITH THE BID.
- * POWER OF ATTORNEY TO THE AUTHORISED SIGNATORY OF THE BIDDER FOR SIGNING OF BID AND DJU/JV AGREEMENT ETC., WHEREVER APPLICABLE, TO BE SUBMITTED ALONG WITH BID AND SHOULD BE DATED NOT LATER THAN THE DATE OF SIGNING THE BID/ DJU/JV AGREEMENT AS APPLICABLE
- * BIDDER TO ENSURE THAT BID SECURITY//DJU/JV AGREEMENT/CONSORTIUM AGREEMENT (AS APPLICABLE) TO BE SUBMITTED IN ORIGINAL STRICTLY AS PER SPECIFIED FORMATS DULY SIGNED IN ORIGINAL BY AUTHORIZED SIGNATORY AND STAMPED ON EACH PAGE. SCANNED /PHOTOCOPY OF THESE ORIGINAL DOCUMENTS WITHOUT SIGNATURE IN ORIGINAL SHALL NOT BE ACCEPTABLE AND SHALL BE SUMMARILY REJECTED.
- * DATE OF PURCHASE OF STAMP PAPER OF INSTRUMENTS LIKE BID SECURITY, DEED OF JOINT UNDERTAKING ETC SHOULD BE ON OR BEFORE THE DATE OF EXECUTION OF SUCH INSTRUMENTS. IN CASE SUCH INSTRUMENTS HAVE BEEN EXECUTED OUTSIDE INDIA, THE SAME SHOULD BE PROPERLY ADJUDICATED AS PER SECTION 18 OF STAMP ACT.

BID FORM

BID FORM (ENVELOPE-1 (TECHNO-COMMERCIAL) & ENVELOPE-2 (PRICE))

Date:

Name of Package : DEVELOPMENT OF A FLOOD FORECASTING SYSTEM & ITS
INTEGRATION WITH EXISTING AUTOMATIC FLOOD WARNING SYSTEM
FOR TVHEP (4X130MW),

Bidding Document No.: 9900325428

To

NTPC Limited,
Project CC&M
5th Floor, EOC Office building, Kavadi guda
Secunderabad - 500020

1.0 Having examined the Bidding Documents including subsequent Amendment(s)/ Clarification(s)/ Addenda/ Errata (if any), the receipt of which is hereby acknowledged, we, the undersigned, offer to design, engineer, manufacture, test, deliver, install and commission (including carrying out Guarantee Test) the facilities under the above-named Package in full conformity with the said Bidding Documents for the sum as mentioned in the Bill of Quantity (BOQ in excel sheet) of Bid Invitation at e-Tender Portal in accordance with the terms and conditions of the Contract.

1.1 We further understand that discount letter, if any, separately uploaded online or submitted in physical form shall not be considered for the purpose of evaluation.

2.0 COMPLIANCE TO THE PROVISIONS OF THE BIDDING DOCUMENTS

2.1 We have read all the provisions of the Bidding Documents and confirm that notwithstanding anything stated elsewhere in our bid to the contrary, the provisions of the Bidding Documents, are acceptable to us and we further confirm that we have not taken any deviation to the provisions of the Bidding Documents anywhere in our bid.

Any deviation, variation or additional condition etc. or any mention, contrary to the provisions of Bidding Documents and its subsequent Amendment(s)/ Clarification(s)/Addenda/Errata (if any) found anywhere in our bid proposal, implicit or explicit shall stand unconditionally withdrawn, without any cost implication whatsoever to the Employer, failing which our bid shall be rejected and our Bid Security shall be forfeited.

2.2 We further declare that additional conditions, variations, deviations, if any, found anywhere in the proposal, shall not be given effect to.

3.1 We are aware that the BOQ/Price Schedules do not generally give a full description of the work to be performed under each item and we shall be deemed to have read the Technical Specifications, Drawings and other Sections of the Bidding Documents to ascertain the full scope of work included in each item while filling in the rates and prices. We agree that the entered rates and prices shall be deemed to include the full scope as aforesaid, including overheads and profit.

3.2 We declare that prices left blank in the BOQ (excel sheet) will be deemed to have been included in the prices of other items. The TOTAL for each Schedule/item and the Grand

TOTAL as mentioned in BOQ (excel sheet) shall be deemed to be the total price for executing the Facilities in complete accordance with the Contract, whether or not each individual item has been priced.

- 4.0 We undertake, if our bid is accepted, to commence work on the Facilities immediately upon your Notification of Award to us and to achieve Completion of Facilities and conduct Guarantee Test (as applicable) within the time specified in the Bidding Documents.
- 5.0 If our bid is accepted, we undertake to provide Advance Payment Security, Contract Performance Securities and securities for Deed(s) of Joint Undertaking (as applicable) in the form and amounts and within the times specified in the Bidding Documents.
- 6.0 Until a formal Contract is prepared and executed between us, this bid, together with your written acceptance thereof in the form of your Notification of Award shall constitute the formation of the contract between us.
- 7.0 We understand that you are not bound to accept our bid or any other bid you may receive.
- 8.0 We, hereby, declare that only the persons or firms interested in this proposal as principals are named here and that no other persons or firms other than those mentioned herein have any interest in this proposal or in the Contract to be entered into, if the award is made on us, that this proposal is made without any connection with any other person, firm or party likewise submitting a proposal, is in all respects for and in good faith, without collusion or fraud.
- 9.0 We have read the ITB clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on subcontracting to contractors from such countries. We certify that we/our Collaborator/JV Partner/Consortium member/Assignee are/is not from such a country or, if from such a country, have/has been registered with the Competent Authority and we will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority.

*Further, we certify that we do not have any TOT arrangement requiring registration with the competent authority.

Or

*Further, we certify that we have valid registration in respect of TOT arrangement with the competent authority to participate in this procurement.

We hereby certify that we fulfill all requirements in this regard and are eligible to be considered.

***We further confirm that evidence of valid registration by the Competent Authority for us/our Collaborator/JV Partner/Consortium member/Assignee, as applicable, is enclosed as Annexure... **to Bid.**

*** Bidder to strike-off, whichever is not applicable.**

**** Bidder to mention the Annexure no.**

10.0 *(i) We confirm that we fulfill the requirements of Local content for Class-I local supplier.

OR

*(i) We confirm that we fulfill the requirements of Local content for Class-II local supplier.

The details of the location(s) at which the local value addition is made are as under:

Sl.No.	Description of Goods & Services	Details of the location(s) at which the local value addition is made

(ii) We confirm that we fulfill the requirements of Local content for Class-I local supplier for Item(s) mentioned in Technical Specifications. We further confirm that in case such item(s) are bought-out for us, we shall source the same from Class-I local supplier only.

We further confirm that we are presently not debarred / banned by any other procuring entity for violation of 'Public Procurement (Preference to Make in India), Order 2017' (PPP-MII Order) dated 15.06.2017 and its subsequent revisions / amendments issued by Department of Industrial Policy and Promotion (DIPP)."

***Bidder to strike-off whichever is not applicable**

In case a Bidder has been banned/debarred by any other procuring entity for violation of 'Public Procurement (Preference to Make in India), Order 2017' (PPP- MII Order) dated 15.06.2017 and its subsequent revisions / amendments issued by Department of Industrial Policy and Promotion (DIPP), the same may be declared by Bidder by striking off para above and declaring the details of banning using additional sheets.

Bidder may also enclose additional sheets in similar format (if required), for providing details pertaining to local value addition.

.

Dated this.....day of. 20.....

Thanking you, we remain,

Your faithfully,

Date : (Signature).....

Place : (Printed Name).....

(Designation).....

(Company Seal).....

Business Address: _

Country of Incorporation (Province also to be indicated): _

Phone No. : _

Email ID :

Note: 1. Bidders may note that no prescribed proforma has been enclosed for:

- (a) Attachment 2 (Power of Attorney)
- (b) Attachment 4, (For documentary evidence establishing that the facilities offered are eligible facility and conform to bidding documents.)

For Attachments 2 and 4, Bidders may use their own proforma for furnishing the required information with the Bid.

Development of a Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP (4x130MW)

Bidding Document No. : 9900325428

BID SECURITY

**BIDDER TO FURNISH BID SECURITY IN LINE WITH
ITB CLAUSE 12.0 AND AS PER FORMAT GIVEN AT
SL. NO. 2 OF SECTION VII (FORMS & PROCEDURES)**

**Development of a Flood Forecasting System & its Integration with existing Automatic
Flood Warning System for TVHEP (4x130MW)**

Bidding Document No. : 9900325428

TENDER FEE – Not applicable

**BIDDER TO FURNISH TENDER FEE
IN LINE WITH
ITB CLAUSE 8.0**

**Development of a Flood Forecasting System & its Integration with existing
Automatic Flood Warning System for TVHEP (4x130MW)**

Bidding Document No. : 9900325428

POWER OF ATTORNEY to be attached by bidder

{To be enclosed as per ITB Clause 8.1.1 (b) }

**BIDDER TO ATTACH THE POWER OF ATTORNEY INDICATING THAT THE
PERSON(S) SIGNING THE BID HAS/HAVE THE AUTHORITY TO SIGN BOTH THE BID
[TECHNO-COMMERCIAL BID AND PRICE BID] AND THAT THE BID IS BINDING
UPON THE BIDDER DURING THE FULL PERIOD OF ITS VALIDITY IN ACCORDANCE
WITH ITB CLAUSE 13**

*Development of a Flood Forecasting System & its Integration with existing Automatic Flood Warning System for
TVHEP (4x130MW)*

Bidding Document No. : 9900325428

(Qualification Data)

Bidder's Name and Address :

To
NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-500020

Dear Sirs,

We seek qualification under Clause 8.1.2 (a) of Section ITB and Item No. 4.0 of Bid Data Sheets and our qualification data in support thereof is enclosed vide following Attachments:

1. Attachment 3A1 to 3A2: Experience Details of Bidder, and Certificate of Compliance on Qualifying Requirements
2. Attachment 3B : Details of Financial Capacity Status
3. Attachment 3C : Details of Design, Engineering, Manufacturing and Testing Capabilities
4. Attachment 3D : Details of Manufacturing Capacities & Plant Loading
5. Attachment 3E : Present Order Book Position
6. Attachment 3F : Past Performance Data
7. Attachment 3G : Data regarding Key Construction Personnel
8. Attachment 3H : Manpower Loading Data
9. Attachment 3I : Deed(s) of Joint Undertaking
10. Attachment 3J : Details regarding Project Management Organization
11. ~~Attachment 3K : Provenness criteria [if applicable]~~
12. Attachment 3L : Declaration regarding Insolvency, Bankruptcy and Liquidation

We further understand and agree that any misleading or false information furnished by us may result in summary rejection of our bid.

Date : (Signature).....
Place : (Printed name).....
(Designation).....
(Company Seal).....

Note: i) The Bidder shall enclose relevant documents like copies of authentic purchase orders, completion certificates, agreements, etc. supporting the details/data provided in Attachment-3A1 to 3L.

ii) Strike out whichever is not applicable.

(Details pertaining to Technical Qualification as per Appendix-I to IFB)

Bidder's Qualifications
(To be uploaded in Pre-Qual/Technical Cover/Envelope)

(A) To Satisfy the requirements specified in Clause 1.1.1 of the QR, we give below the following details:

We, M/s.(Name of Bidder), **a registered Indian company**, are seeking qualification through clause 1.1.1 of the QR. The details are as follows:

- 1.0** We confirm that we have designed, supplied, installed and commissioned Flood Warning System/Flood Forecasting system/Early Flood Warning System in at least one Hydro Electric Project comprising of automatic weather station/river water level /river flow measurement, Command and Control System/SCADA and communication either via VSAT or point to point wireless communication system either in India or abroad, which is in successful operation for a period of not less than one (1) year, prior to the date of opening of Techno-Commercial bid, as per clause 1.1.1 of Appendix-I to IFB.

The details are given below:

S. No.	Item Description	Work 1	Work2	Work3
1.0	Description & Name of the work			
1.1	Name of the Client with full address and Tel No.			
1.2	Details of contact persons in client's organization responsible for aforesaid work along with Fax No., Tel. No. and e-mail id			
1.3	Purchase Orders / Contract No. / LOA Nos. and date			
1.4	Description of Work			
1.5	Actual Date of commencement of work			
1.5a	Scheduled date of Completion			
1.5b	Actual date of Completion			
1.6a	Date of commencement of successful operation			
1.6b	Scope of work executed by us as detailed below: a) Designed b) Supplied c) Installed d) Commissioned	YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO*

1.7	Whether the scope of work included : i. Flood Warning System/Flood Forecasting system/Early Flood Warning System ii. automatic weather station/river water level /river flow measurement iii. Command and Control System/SCADA iv. communication via VSAT v. point to point wireless communication system	YES*	YES*	YES*
		/NO*	/NO*	/NO*
		YES*	YES*	YES*
		/NO*	/NO*	/NO*
		YES*	YES*	YES*
		/NO*	/NO*	/NO*
1.8	Documentary evidence in support of Sl. No.1.3 to 1.7 enclosed at Annexure..... to this Attachment	YES*	YES*	YES*
		/NO*	/NO*	/NO*

We further confirm that notwithstanding anything stated above, the Employer reserves the right to undertake a physical assessment of the capacity and capabilities including financial capacity and capability of the Bidder / his Collaborator(s) / Associate(s) / Subsidiary(ies) / Group Company(ies) to perform the Contract, should the circumstances warrant such assessment in the overall interest of the Employer.

Date:

Place:

(Signature).....

(Printed Name of Authorised person
having Power of attorney.....

(Designation).....

(Company seal).....

Note:

1. Command and control System mean Command and Control Centre/ Master Control Centre/Central Control Room which includes integration, monitoring & control of subsystems as indicated in above routes over an Information and Communication Technology (ICT) platform.
2. Point to Point Wireless Communication means RF based communication or GSM / GPRS or Private LTE or Lora WAN.
3. Continuation Sheets of like size and format may be used as per Bidder Requirement and shall be annexed to this attachment.
4. The reference plants / installations whose details have been declared as per the specified format in this Attachment 3A1 above shall only be considered to ascertain the bidder's compliance to Qualifying Requirement (QR). **Bidders are not permitted to quote more than three (03) times the numbers of works specified in QR for this purpose.**

5. The Employer at its discretion may seek clarification and / or documentary evidence only for the reference plants / installations as mentioned above. However, no change or substitution of the reference plants by new / additional plant for conforming to the specified Qualifying Requirement shall be sought, offered or permitted.
6. Bidder to ensure that certificate issued by the client covers / includes all parameters of QR.
7. Bidder to enclose and mention the relevant Annexure No. as indicated in item description.
8. * Bidder to strike-off, whichever is not applicable.

OR

(B) To Satisfy the requirements specified in Clause 1.1.2 of the QR, we give below the following details:

We, M/s.....(Name of Bidder), **a registered Indian company**, are seeking qualification through clause 1.1.2 of the QR. We partially meet the requirements as stipulated at Clause no. 1.1.1 above.

The details are given below:

S. No.	Item Description	Work 1	Work2	Work3
1.0	Description & Name of the work			
1.1	Name of the Client with full address and Tel No.			
1.2	Details of contact persons in client's organization responsible for aforesaid work along with Fax No., Tel. No. and e-mail id			
1.3	Purchase Orders / Contract No. / LOA Nos. and date			
1.4	Description of Work			
1.5	Actual Date of commencement of work			
1.5a	Scheduled date of Completion			
1.5b	Actual date of Completion			
1.6a	Date of commencement of successful operation			
1.6b	Scope of work executed by us as detailed below: a) Designed b) Supplied c) Installed d) Commissioned	YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO*

1.7	Whether the scope of work included : i. Flood Warning System/Flood Forecasting system/Early Flood Warning System ii. automatic weather station/river water level /river flow measurement iii. Command and Control System/SCADA iv. communication via VSAT v. point to point wireless communication system	YES* /NO* YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO* YES* /NO*
1.8	Documentary evidence in support of Sl. No.1.3 to 1.7 enclosed at Annexure..... to this Attachment	YES* /NO*	YES* /NO*	YES* /NO*

*** Bidder to strike-off, whichever is not applicable.**

We confirm that we have associated with M/s(name of associate/collaborator) as per the requirement of Clause 1.1.2 of the QR.

We confirm that our associate/collaborator have designed, supplied, installed and commissioned Flood Warning System/Flood Forecasting system/Early Flood Warning System in at least one Hydro Electric Project comprising of automatic weather station/river water level /river flow measurement, Command and Control System/SCADA and communication either via VSAT or point to point wireless communication system either in India or abroad, which is in successful operation for a period of not less than one (1) year, prior to the date of opening of Techno-Commercial bid, as per clause 1.1.2 of Appendix-I to IFB.

The details are given below:

S. No.	Item Description	Work 1	Work2	Work3
1.0	Description & Name of the work			
1.1	Name of the Client with full address and Tel No.			
1.2	Details of contact persons in client's organization responsible for aforesaid work along with Fax No., Tel. No. and e-mail id			
1.3	Purchase Orders / Contract No. / LOA Nos. and date			
1.4	Description of Work			
1.5	Actual Date of commencement of work			
1.5a	Scheduled date of Completion			

1.5b	Actual date of Completion			
1.6a	Date of commencement of successful operation			
1.6b	Scope of work executed by us as detailed below: a) Designed b) Supplied c) Installed d) Commissioned	YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO*
1.7	Whether the scope of work included : i. Flood Warning System/Flood Forecasting system/Early Flood Warning System ii. automatic weather station/river water level /river flow measurement iii. Command and Control System/SCADA iv. communication via VSAT v. point to point wireless communication system	YES* /NO* YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO* YES* /NO*	YES* /NO* YES* /NO* YES* /NO* YES* /NO* YES* /NO*
1.8	Documentary evidence in support of Sl. No.1.3 to 1.7 enclosed	YES* /NO*	YES* /NO*	YES* /NO*
1.9	*Whether the Deed of Joint Undertaking is enclosed with the bid at Annexure..... to this Attachment-3A1	YES* /NO*	YES* /NO*	YES* /NO*

*Bidder and the associate/collaborator shall furnish, along with the bid, an undertaking jointly executed by him and the associate/collaborator for the successful performance of the contract jointly and severally as per the format enclosed in the bidding documents. This Deed of Joint Undertaking (DJU) shall be submitted along with the bid, failing which the bidder shall be disqualified and his bid shall be rejected. Further, in case of award, the associate will be required to furnish an On-demand bank guarantee of value for 3% (three percent) of total Contract Price in addition to contract performance security to be provided by the bidder as per Employer's format

We further confirm that notwithstanding anything stated above, the Employer reserves the right to undertake a physical assessment of the capacity and capabilities including financial capacity and capability of the Bidder / his Collaborator(s) / Associate(s) / Subsidiary(ies) / Group Company(ies) to perform the Contract, should the circumstances warrant such assessment in the overall interest of the Employer.

Date:

Place:

(Signature).....

(Printed Name of Authorised person
having Power of attorney.....

(Designation).....

(Company seal).....

Note:

1. Command and control System mean Command and Control Centre/ Master Control Centre/Central Control Room which includes integration, monitoring & control of subsystems as indicated in above routes over an Information and Communication Technology (ICT) platform.
2. Point to Point Wireless Communication means RF based communication or GSM / GPRS or Private LTE or Lora WAN.
3. Continuation Sheets of like size and format may be used as per Bidder Requirement and shall be annexed to this attachment.
4. The reference plants / installations whose details have been declared as per the specified format in this Attachment 3A1 above shall only be considered to ascertain the bidder's compliance to Qualifying Requirement (QR). **Bidders are not permitted to quote more than three (03) times the numbers of works specified in QR for this purpose.**
5. The Employer at its discretion may seek clarification and / or documentary evidence only for the reference plants / installations as mentioned above. However, no change or substitution of the reference plants by new / additional plant for conforming to the specified Qualifying Requirement shall be sought, offered or permitted.
6. Bidder to ensure that certificate issued by the client covers / includes all parameters of QR.
7. Bidder to enclose and mention the relevant Annexure No. as indicated in item description.
8. * Bidder to strike-off, whichever is not applicable.

Appendix-B to Attachment-3A1

Undertaking from Independent Statutory Auditor

(On letter head digitally signed by a person duly authorized to Sign on behalf of the Statutory Auditor)

Bid Ref. No:

Date:

To,
NTPC Ltd.
.....

Subject: Authentication of veracity of documents submitted by M/s..... in support of meeting the Qualifying Requirements

Ref: IFB/Tender no.

Name of the Package/ Tender:

Dear Sir,

M/s. (hereinafter called Bidder) having Registered office at intend to participate in above referred tender of NTPC Ltd. We, M/s have been appointed as Statutory Auditor for the Bidder i.e. M/s (Relevant documents on our appointment attached)

The tender condition stipulates that the bidder shall submit supporting Documents pertaining to Technical Qualifying Requirement duly verified and certified by Statutory Auditor. In this regard, it is hereby confirmed that we have examined the following documents, which are also attached with this letter. The same has been verified from the Original Documents and/ or Client for authenticity.

We hereby confirm that the following documents are found to be genuine and authentic.

1. Doc ref. no. dated (name of Documents)
2. Doc ref. no. dated (name of Documents) 3.

All the aforesaid documents have been digitally signed by us as a certificate of authenticity.

*Further, we have examined the books of accounts, records, and other relevant documents, along with other necessary information and explanations furnished by M/s. (bidder) and hereby certify following:

.....
This certificate is issued at the request of M/s..... (Bidder) for the purpose of participating in tender/s.

Thanking you,

.....

** Strike off, whichever is not applicable.*

**Undertaking from Third Party Inspection Agency
(on letter head digitally signed by a person duly authorized to Sign on behalf of the TPIA)**

Bid Ref. No:

Date:

To,
NTPC Ltd.

**Subject: Authentication of veracity of documents submitted by M/s in support of meeting
the Qualifying Requirements**

Dear Sir,

M/s. (hereinafter called Bidder) having Registered office at intend to participate in above referred tender of NTPC Ltd.

The tender condition stipulates that the bidder shall submit supporting Documents pertaining to Qualifying Requirement duly verified and certified by a specified independent Third Party Inspection Agency as per the list mentioned in the bidding documents.

In this regard, it is hereby confirmed that we have examined the following documents, which are also attached with this letter. The same has been verified from the Original Documents and / or Client for authenticity.

We hereby confirm that the following documents are found to be genuine and authentic.

1. Doc ref. no. dated (name of Documents)
2. Doc ref. no. dated (name of Documents)
3.

All the aforesaid documents have been digitally signed by us as a certificate of authenticity.

We further confirm that we neither have any vested interest in aforesaid tender nor have any conflict of interest in respect of above tender.

This certificate is issued at the request of M/s..... (Bidder) for the purpose of participating in the subject tender/s.

Thanking you,

.....

** Strike off, whichever is not applicable.*

ATTACHMENT - 3A2**(Details pertaining to Financial Qualification
as per Appendix-I to IFB)****Bidder's Qualifications**

(To be uploaded in Pre-Qual/Technical Cover/Envelope)

Bidder's Name and Address :

To
NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-500020

Dear Sirs,

A) Bidder's Qualification Data regarding subject package as per Clause 1.2 of the QR

- a) In terms of Clause No. **1.2** of QR , we M/s_____ (Name of Bidder) confirm that our Average annual turnover during the preceding three(3) completed financial years as on date of Techno- commercial bid opening is not be less than INR 3,12,00,000/- () i.e. INR 312 lakhs or in equivalent foreign currency.

In support of above, we are enclosing Audited Financial Statements.

Sl. No	Financial Year	Amount
1.	2022- 23	
2.	2023- 24	
3.	2024- 25	
4.	Average Annual Turnover for the preceding three (3) Financial Years as on date of Techno- Commercial Bid Opening.	
5.	We have enclosed Audited financial statements for the last 3 financial years at	Annexure to this Attachment
6.	Since we are not able to furnish our audited financial statements, on stand alone entity basis, we are submitting the following documents for substantiation of our Qualification : (a) Copies of unaudited unconsolidated financial statements of the bidder along with copies of the audited consolidated financial statements of our Holding Company for the last 3 years enclosed at Annexure..... to this Attachment.	

	(b) Certificate from the CEO/CFO of the Holding company stating that the unaudited unconsolidated financial statements form part of the consolidated Annual Report of the Holding Company, is enclosed as per the format at Appendix-A to this Attachment.	Enclosed at Annexure
7.	Audited results for the last financial year as on the date of Techno-Commercial bid opening enclosed In case not enclosed, financial results certified by a practicing chartered accountant enclosed In case financial results certified by a practicing chartered accountant not enclosed, then Audited financial statements for FY 2024-25 also enclosed. Further, a Certificate from the CEO/CFO of the Bidder stating that the “Financial results of company are under audit as on the date of Techno-Commercial Bid Opening and the certificate from the practicing chartered accountant certifying the financial parameters is not available”, is enclosed Annexure as per the format at Appendix-C to this Attachment.	YES*/NO* YES*/NO* Enclosed at Annexure YES*/NO* Enclosed at Annexure

b) Since we do not satisfy the Financial Criteria stipulated at Clause No. 2.1 of Appendix-I to IFB, on our Own, we give below the following details of our **Holding Company** :

1. Name and Address of the Holding Company:
2. Turnover of the Holding Company with following details:

S.No	Financial Year	Amount
a)	2022- 23	.....
b)	2023- 24	.....
c)	2024- 25	.....
d)	Average Annual Turnover for the preceding three (3) Financial Years as on date of Techno-Commercial Bid Opening.	.....
e)	We have enclosed audited Financial Statements for the preceding three (3) Financial years	Annexure.....to this Attachment

Sl. No	Description	As on last day of the preceding financial year
3.	A Letter of Undertaking from the Holding Company, supported by Board Resolution of the Holding Company, pledging unconditional and irrevocable financial support for execution of the contract by the bidder in case of award is enclosed as per the format at Appendix-B to this Attachment. A power of attorney of the person signing on behalf of holding company is also enclosed at Annexure.....to this Attachment.	
4.	Documentary evidence like Annual Report/Audited financial statements together with relevant schedules for the preceding financial year/ certification of financial statements from a practicing Chartered Accountant etc. in respect of holding company in support of above is enclosed at Annexure..... to this Attachment.	
5.	Audited results for the last financial year as on the date of Techno-Commercial bid opening enclosed In case not enclosed, financial results certified by a practicing chartered accountant enclosed In case financial results certified by a practicing chartered accountant not enclosed, then Audited financial statements for 4th last FY also enclosed. Further, a Certificate from the CEO/CFO of the Holding Company stating that the "Financial results of company are under audit as on the date of Techno-Commercial Bid Opening and the certificate from the practicing chartered accountant certifying the financial parameters is not available", is enclosed Annexure as per the format at Appendix-C to this Attachment.	YES*/NO* YES*/NO* Enclosed at Annexure YES*/NO* Enclosed at Annexure

B) To satisfy the requirements specified in Clause 2.2 of QR, We give below the following details:

- a) We hereby confirm that net worth of our company as on the last day of the preceding financial year is not less than 100% of its paid-up share capital.
The Details are as under:

Sl. No	Description	As on last day of the preceding financial year
1.	Paid-up Share Capital	
2.	Net Worth	

3.	%age of Net worth to Paid-up Share Capital	
4.	Documentary evidence like Audited financial statements for the preceding financial year in support of above is enclosed at Annexure.....to this Attachment.	
5.	Since we are not able to furnish our audited financial statements, on stand alone entity basis, we are submitting the following documents for substantiation of our Qualification : (a) Copies of unaudited unconsolidated financial statements of the bidder along with copies of the audited consolidated financial statements of our Holding Company for the last 3 years enclosed at Annexure..... to this Attachment. (b) Certificate from the CEO/CFO of the Holding company stating that the unaudited unconsolidated financial statements form part of the consolidated Annual Report of the Holding Company, is enclosed as per the format at Appendix-A to this Attachment.	Enclosed at Annexure
6.	Audited results for the last financial year as on the date of Techno-Commercial bid opening enclosed In case not enclosed, financial results certified by a practicing chartered accountant enclosed In case financial results certified by a practicing chartered accountant not enclosed, then Audited financial statements for 4th last FY enclosed. Further, a Certificate from the CEO/CFO of the Bidder stating that the "Financial results of company are under audit as on the date of Techno-Commercial Bid Opening and the certificate from the practicing chartered accountant certifying the financial is not available", is enclosed Annexure.....as per the format at Appendix-C to this Attachment.	YES*/NO* YES*/NO* Enclosed at Annexure YES*/NO* Enclosed at Annexure

b) Since we do not satisfy the Financial Criteria stipulated at Clause No.2.2 of QR, on our Own, we give below the following details of our **Holding Company and/or our subsidiary(ies) and/or subsidiaries of our Holding Company**:

1. Name and Address of the Group Companies:

- 1.
- 2.
- 3.
-

Sl. No	Description	As on last day of the preceding financial year
2.	Paid-up Share Capital of Group Companies Y1 Y2 Y3	
3.	Net Worth of the Group Companies X1 X2 X3	
4.	%age of Net worth to Paid-up Share Capital of the Group Companies X1/Y1 x100 X2/Y2 x100 X3/Y3 x100	
5.	Net worth (Combined) (X1+X2+X3+.....)/ (Y1+Y2+Y3+.....) X 100	
6.	Audited financial statements of Group Companies for the preceding financial year in support of above is enclosed at Annexure to this Attachment. In case not enclosed, financial results certified by a practicing chartered accountant enclosed	YES*/NO* YES*/NO* Enclosed at Annexure
7.	In case financial results certified by a practicing chartered accountant not enclosed, then Audited financial statements for 4 th last FY enclosed. Further, a Certificate from the CEO/CFO of the Company stating that “the Financial results of company are under audit as on the date of Techno-Commercial Bid Opening and the certificate from the practicing chartered accountant certifying the financial is not available”, is enclosed Annexure as per the format at Appendix-C to this Attachment.	YES*/NO* Enclosed at Annexure YES*/NO*

- (i) Net worth means the sum total of the paid up share capital and free reserves. Free reserve means all reserves credited out of the profits and share premium account but does not include reserves credited out of the revaluation of the assets, write back of depreciation provision and amalgamation. Further any debit balance of Profit and Loss account and

miscellaneous expenses to the extent not adjusted or written off, if any, shall be reduced from reserves and surplus.

- (ii) Other income shall not be considered for arriving at annual turnover.
- (iii) "Holding Company" and "Subsidiary Company" shall have the meaning ascribed to them as per Companies Act of India.
- (iv) For annual Turnover indicated in foreign currency, the exchange rate as on seven (7) days prior to the date of Techno-Commercial bid opening shall be used.

**APPENDIX-A
TO ATTACHMENT – 3A2**

**PROFORMA OF CERTIFICATE FROM THE CEO/CFO OF THE HOLDING
COMPANY IN ACCORDANCE WITH CLAUSE 2.3 OF Appendix-I to IFB**

(To be submitted by Bidder alongwith the Techno-Commercial Bid)

Ref. :

Date :

To
Contract Services NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-500020

Dear Sirs,

1.0 I, Mr (CEO of the Company / CFO of the Company)* declare that M/s.
..... (Name of the Holding Company) is the Holding Company of M/s.
..... (Name of the Bidder).

2.0 I hereby confirm and undertake that the unaudited unconsolidated financial statements
submitted in respect of the bidder as part of the bid reference no dated
..... have been considered for the purposes of the finalisation of Consolidated Financial
Statements of the Holding Company as part of the Annual Reports.

3.0 I further, certify that the figures in the unaudited unconsolidated financial statements are true
and correct and same have been duly reflected in the audited consolidated financial statements and
/ or Annual Report of the Holding Company.

Yours faithfully

(Signature)

Date : (Name & Designation).....

Place : (Name of the Holding Company)

(Seal of Holding Company)

Note : *Strike off whichever is not applicable.

PROFORMA OF LETTER OF UNDERTAKING

(TO BE FURNISHED ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)

**(To be executed by the Holding Company Supported by
Board Resolution and submitted by the Bidder alongwith the Techno-Commercial Bid,
Applicable to the Bidder for meeting the stipulated Financial Qualifying
Requirement as per Clause 2.0 of Appendix-I to IFB)**

Ref. :

Date :

To
NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-500020

Dear Sirs,

1.0 We, M/s..... declare that we are the holding company of M/s
..... (Name of the Bidder) and have controlling interest therein.

M/s. (Name of the Bidder) proposes to submit the bid for the package
..... (Name of the package) for (Name of the Project) under bid
reference no. dated and have sought financial strength and support
from us for meeting the stipulated Financial Qualifying Requirement as per Clause 1.2 of Appendix-
I to IFB.

2.0 We hereby undertake that we hereby pledge our unconditional & irrevocable financial support for
the execution of the said package to M/s.....(Name of the Bidder), in case they
are awarded the Contract for the said package, at the end of the bidding process. We further agree
that this undertaking shall be without prejudice to the various liabilities that M/s
..... (Name of Bidder) would be required to undertake in terms of the Contract
including the Performance Security as well as other obligations of the Bidder/Contractor.

3.0 This undertaking is irrevocable and unconditional, and shall remain in force till the successful
execution and performance of the entire contract and/or till it is discharged by Employer.

4.0 We are herewith enclosing a copy of the Board Resolution in support of this undertaking.

Yours faithfully

(Signature of Authorised Signatory
on behalf of the Holding Company)

Witness :

(1)

(Name & Designation).....

(Name of the Holding Company).....

(2)

(Seal of the Holding Company).....

Date:

Place:

**APPENDIX-C TO
ATTACHMENT – 3A2**

**PROFORMA OF CERTIFICATE FROM THE CEO/CFO OF
THE COMPANY IN ACCORDANCE WITH CLAUSE 2.0 OF
Appendix-I to IFB**

(To be submitted by Bidder alongwith the Techno-Commercial Bid)

Ref. :

Date :

To
NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-500020

Dear Sirs,

1.0 I, Mr. (CEO of the Company / CFO of the Company)* confirm and undertake that the Financial results of the company for the preceding financial year to be submitted in respect of the bidder as part of the bid reference no. dated are under audit as on the date of Techno-Commercial Bid Opening for Package for and the certificate from the practicing chartered accountant certifying the financial parameters for the preceding financial year is not available.

Yours

faithfully (Signature)

Date : (Name & Designation).....

Place : (Name of the Company)

(Seal of Company)

Note : *Strike off whichever is not applicable.

ATTACHMENT - 3B

Development of a Flood Forecasting System & its Integration with existing
Automatic Flood Warning System for TVHEP (4x130MW)

Bidding Document No.: 9900325428

(Financial Capacity Status of Bidder and/or wherever
applicable, his Associate(s)/Collaborator(s)
// Consortium Partner(s))

Bidder's Name and Address :

To
NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-
500020

-
- A) Orders in Hand
- i) Total value of Contracts
- ii) Value of work completed
out of above value
up to March' 2025
- iii) Value of anticipated
work to be done
in the following
Financial Years :

2025 – 2026

2026– 2027

2027– 2028

2028– 2029

2029-2030

B) Bidder's assessment of maximum negative cash flow (fund requirement) at any point of time between Notification of Award and completion of Contract based on specified terms of payment and this expenditure plan for equipment being offered by bidder for this package.

C)	Arrangement to meet the above fund requirement	Own Funds	Credit	Others	Total

D) Gross Turnover of Company during :

Year ending - March 2021

Year ending - March 2022

Year ending - March 2023

Year ending - March 2024

Year ending - March 2025

E) Balance Sheet & Profit and Loss Account duly certified by a Chartered Accountant for the last 3 years is to be submitted

Enclosed at Annexure:-----
to this Attachment-3B

F) Declaration by Bankers or the Chartered Accountant regarding:

i)	Line of Credit	Enclosed at Annexure:----- to this Attachment-3B
ii)	Deferred payment limits	Enclosed at Annexure:----- to this Attachment-3B
iii)	Fixed Deposits	Enclosed at Annexure:----- to this Attachment-3B
iv)	Movable Property Hypothecation. (Please state the present utilization status also)	Enclosed at Annexure:----- to this Attachment-3B

G)	Information regarding any current litigation in which the Bidder is involved, the parties concerned, the disputes and the disputed amount if any.	Enclosed at Annexure:----- to this Attachment-3B

Date :	(Signature).....

Place :	(Printed Name).....

	(Designation).....

	(Company Seal).....

Note : 1. The above Attachment shall be filled up by the bidder for **himself** and each **Associate/Collaborator/** , as applicable, being proposed by the bidder in his bid and relevant details shall be furnished.

2. Continuation sheets of like size and format, may be used and annexed to this schedule if required.

~~The financial details to be furnished by the bidder in this Attachment 3B shall be same as details furnished in Attachment-3A4.~~

Development of a Flood Forecasting System & its Integration with existing Automatic Flood
Warning System for TVHEP (4x130MW)

Bidding Document No.: 9900325428

**(Details of Design, Engineering, Manufacturing and Testing Capabilities of
Bidder and/or wherever applicable, his Associate(s)/Collaborator(s)//
Consortium Partner(s))**

Bidder's Name and Address :

To
NTPC Limited, (CS)
6th Floor, Engineering Office
Complex, Plot A-8A, Sector 24,
Noida-201301, Distt. Gautam Budh
Nagar, State of U.P., India

- (1) We hereby confirm that we do not anticipate any change in ownership during the proposed period of execution of work (if such a change is anticipated, the scope and effect thereof shall be defined). The relevant document for same is enclosed at Annexure----- to the Attachment-3C.

*It is clearly understood that the bid is submitted for consideration of award on the strength of the credential/experience of the bidder/ Consortium Partner(s) and executants of *Deed of Joint Undertakings / *Letter of Undertakings/ * Consortium Agreement as specified in the Qualifying Requirements of the subject tender.*

We confirm that in case of any change in our ownership, the new/successor entity shall honour all our obligations under the Contract for the subject package.

NOTE: The above shall be filled up and signed separately by the bidder itself and each of the Associate/Collaborator// Consortium Partner(s) and entities who have signed Letter of Undertakings.

- (2) Furnish adequate detailed write up on

(i)	Design and Engineering Organization and Facilities/ Capabilities.	:	Enclosed at Annexure to this Attachment-3C
(ii)	Manufacturing & Testing Organization and Facilities available.	:	Enclosed at Annexure to this Attachment-3C

(iii)	Field Organization and resources for Erection, Civil and Structural works, Testing & Commissioning, etc.	:	Enclosed at Annexure to this Attachment-3C
(iv)	Quality Assurance Organisation and Capabilities for Construction, Engg., Manufacturing & Field Installation	:	Enclosed at Annexure to this Attachment-3C
(v)	Established Project Management	:	Enclosed at Annexure to this Attachment-3C
(vi)	Details of Man power / Division of Company	:	Enclosed at Annexure to this Attachment-3C

----- Date :

(Signature).....

Place :

(Printed Name).....

(Designation).....

(Company Seal).....

- Note : 1 The above Attachment shall be filled up by the bidder for **himself** and each **Associate/Collaborator//** Consortium Partner(s), as applicable, being proposed by the bidder in his bid and relevant details shall be furnished.
2. Continuation sheets of same size and format shall be added by the Bidder.

3. Strike off whichever not aplicable

Bidding Document No.: 9900325428

**(Details of Manufacturing Capacities and Plant Loading
of the Bidder and Associate/Collaborator// Consortium Partner(s)
wherever applicable)**

Bidder's Name and Address :
To
NTPC Limited, (CS)

We hereby furnish below the details of our installed manufacturing capacities (in MW/MT) and work in hand to establish spare capacity for completion of work under this Package.

Item	2025-2026			2026-2027			2027-2028			2028-2029			2029-2030		
	Bidder's Shop	Collabo- rator/ Asso- ciate's Shop	Sub- trac- tor's Shop	Bidder's Shop	Collabo- rator/ Asso- ciate's Shop	Sub- trac- tor's Shop	Bidder's Shop	Collabo- rator/ Asso- ciate's Shop	Sub- trac- tor's Shop	Bidder's Shop	Collabo- rator/ Asso- ciate's Shop	Sub- trac- tor's Shop	Bidder's Shop	Collabo- rator/ Asso- ciate's Shop	Sub- trac- tor's Shop

- A. Production Capacity as installed for**
- B Firm Orders in Hand Upto**

Item	2025-2026			2026-2027			2027-2028			2028-2029			2029-2030		
	Bidder's Shop	Collaborator/Associate's Shop	Sub-Contractor's Shop	Bidder's Shop	Collaborator/Associate's Shop	Sub-Contractor's Shop	Bidder's Shop	Collaborator/Associate's Shop	Sub-Contractor's Shop	Bidder's Shop	Collaborator/Associate's Shop	Sub-Contractor's Shop	Bidder's Shop	Collaborator/Associate's Shop	Sub-Contractor's Shop

C. Balance Capacity Available

D. Orders Expected

E. Work Load Expected for this contract

F. Shortfall, if any

G. Alternative arrangements to make up for this short fall

Date :
Place :

(Signature).....
(Printed Name).....
(Designation).....
(Company Seal).....

Note : Continuation sheets of like size and format may be used as per Bidder's requirement and shall be annexed to this Attachment.

Bidding Document No.: 9900325428

(Present Order Book Position)

Bidder's Name and Address :

To
NTPC Limited, (CS)

Sl. No.	Client	Order Value	No. of Units & Unit size	Date of Order	Present Status		% work completed Engg./ Manufacturing/ Erection/ Structural/ Civil	Completion of Supply		Completion of Erection, Testing & Commissioning		Reasons for Delay (if any)
					Sch- edule	Actual/ Expec- ted		Sch- edule	Actual/ Expec- ted	Sch- edule	Actual/ Expected	

Date :
Place :

(Signature).....
(Printed Name).....
(Designation).....
(Company Seal).....

- Note :** 1. The above attachment shall be filled up by the bidder separately for **himself** and for each **Associate/Collaborator**, as applicable, being proposed by the bidder in his bid.
2. Continuation sheets of like size and format may be used as per Bidder's requirement and shall be annexed to this attachment.

(Past Performance Data)

Bidder's Name and Address :

To
NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-500020

Details of Similar Units Supplied/Commissioned in last ten years

Sl. No.	Client Name & Address	Date of Order	Unit Size & No. of Units	Date of Completion of Supply		Date of Completion of Erection, Testing & Commissioning		Order Value	Reasons for Delay (if applicable)
				Sche- dule	Actual	Schedule	Actual		

Date :

Place :

(Signature).....

(Printed Name).....

(Designation).....

(Company Seal).....

- Note : 1. The above Attachment shall be filled up by the bidder for **himself** and for each **Associate/Collaborator**, as applicable, being proposed by the bidder in his bid.
2. Continuation sheets of like size & format may be used if required and annexed to this Attachment

(Data regarding Key Construction Personnel)

Bidder's Name and Address :

To
NTPC Limited

The qualification and experience of key constructional personnel proposed for administration and execution of the Contract at site are as follows:

Sl.No.	Name	Qualification	Position/Designation	Experience

--- Date :

(Signature).....

Place : (Printed Name).....

(Designation).....

(Common Seal).....

- Note : 1. The above Attachment shall be filled up by the bidder separately for himself and Qualified Steam Generator Manufacturer, Qualified Steam Turbine Generator Manufacturer, Promoters of Indian Subsidiary Company/Promoters of Indian Joint Venture (JV) Company, as applicable, in his bid.
2. Continuation sheets of like size & format may be used if required and annexed to this Attachment

(Manpower Loading Data)

Bidder's Name and Address :

To
NTPC Limited

We declare that our manpower loading during execution of the Contract will be as follows :

No. of months from the date of Notification of Award	1	2	3	4	5	6	7	8	9	10..... 52

Labour (Category)

--- Date :

(Signature).....

Place :

(Printed Name).....

(Designation).....

(Common Seal).....

- Note :
1. The above Attachment shall be filled up by the bidder separately for himself and Qualified Steam Generator Manufacturer, Qualified Steam Turbine Generator Manufacturer, Promoters of Indian Subsidiary Company/Promoters of Indian Joint Venture (JV) Company, as applicable, in his bid.
 2. Continuation sheets of like size & format may be used if required and annexed to this Attachment
 3. List of Category of Labour will be given by the Bidder.

**DEED OF JOINT UNDERTAKING
(ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)
DEED OF JOINT UNDERTAKING TO BE EXECUTED BY THE
COLLABORATOR / ASSOCIATE ALONGWITH THE CONTRACTOR FOR
DEVELOPMENT OF A FLOOD FORECASTING SYSTEM & ITS INTEGRATION WITH EXISTING AUTOMATIC FLOOD WARNING SYSTEM FOR
TVHEP (4X130MW)
(AS PER CLAUSE 1.1.2 IN APPENDIX-I TO IFB)**

REFER TO FORM-13

**Development of a Flood Forecasting System & its Integration with existing Automatic Flood Warning
System for TVHEP (4x130MW)**

+

**BIDDING DOCUMENT NO. : 9900325428
(DETAILS REGARDING PROJECT MANAGEMENT ORGANISATION)**

Bidder's Name and Address :

To

NTPC Limited,

Dear Sirs,

1.0 In line with Clause No. ITB 8.1.2 (a), we furnish below the brief write up in support of our established project management organization.

----- Date : (Signature).....

Place : (Printed Name).....

(Designation).....

(Common Seal).....

* Bidder to use their own format for above details.

Attachment-3L

Development of a Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP
(4x130MW)

Bidding Document No.: 9900325428

Declaration regarding Insolvency, Bankruptcy and Liquidation

Bidder to submit Declaration regarding Insolvency, Bankruptcy and Liquidation for themselves and their Parent/ Holding/ Subsidiary Company, Associate or Collaborator/ Technology provider company (as applicable) as per following attachments:

- i. **Attachment-3L(i)**
- ii. **Attachment-3L(ii)/ Attachment-3L(iii)**

Development of a Flood Forecasting System & its Integration with existing
Automatic Flood Warning System for TVHEP (4x130MW)

Bidding Document No.: 9900325428

**Format for Declaration regarding Insolvency, Bankruptcy and
Liquidation by the Bidder**

I/ We, M/s _____ (Name of
Bidder) hereby certify that no proceedings for insolvency or liquidation under the
Insolvency and Bankruptcy Code, 2016, or any other bankruptcy proceedings
under any other applicable laws (in cases where IBC, 2016 is not applicable)
have been admitted or is pending against us and/or our
Parent/Holding/Subsidiary Company, Associate or Collaborator or
Technology Provider
_____ (Name of
Parent/ Holding/ Subsidiary Company, Associate or Collaborator/ Technology
provider company) from whom we have taken or intend to take technical and/ or
financial support for qualification of bid.

It is understood that if any part of this declaration is found to be false, the Employer
shall have the right to unconditionally, immediately and outrightly reject my/our bid
and forfeit the Bid Security/ EMD.

Further, in case the bid has already culminated into a Contract, the Employer
shall be entitled to terminate the Contract, without prejudice to any other rights
or remedies available to the Employer.

(Seal & Signature of
Bidder)

Note: 1. This 'Declaration' should be on the letterhead of Bidder

2. The declaration shall be submitted separately as per
Attachment-3L(ii)/ Attachment-3L(iii) (as applicable) by the
Parent/Holding/ Subsidiary Company, Associate, Collaborator and
Technology provider from whom the Bidder has taken or intends to
take technical and/or financial support for qualification of bid.
3. Strike off whichever is not applicable

Attachment-3L (ii)

Development of a Flood Forecasting System & its Integration with existing Automatic
Flood Warning System for TVHEP (4x130MW)
Bidding Document No.: 9900325428

**Format for Declaration regarding Insolvency, Bankruptcy and
Liquidation by the Bidder's Parent/Holding/Subsidiary
Company, Associate or Collaborator/ Technology Provider
from whom the Bidder has taken or intends to take technical
and/ or financial support for qualification of bid**

“Self-declaration by the Parent/Holding/Subsidiary Company, Associate
or Collaborator/ Technology Provider”

I/ We, M/s _____ (Name of
Parent/Holding/Subsidiary Company, Associate or Collaborator/ Technology
Provider) from whom the Bidder has taken or intends to take technical and/ or
financial support for qualification of bid, hereby certify that no proceedings for
insolvency or liquidation under the Insolvency and Bankruptcy Code, 2016, or
any other bankruptcy proceedings under any other applicable laws (in cases
where IBC, 2016 is not applicable) have been admitted or is pending against
us.

It is understood that if any part of this declaration is found to be false, the Employer
shall have the right to unconditionally, immediately and outrightly reject the bid and
forfeit the Bid Security/ EMD.

Further, in case the bid has already culminated into a Contract, the Employer
shall be entitled to terminate the Contract, without prejudice to any other rights
or remedies available to the Employer.

(Seal & Signature of
Parent/Holding/ Subsidiary
Company, Associate or
Collaborator, Technology provider)

Note: 1. The 'Declaration' shall be on the letterhead of Parent/Holding/Subsidiary
Company, Associate or Collaborator/ Technology Provider

2. Strike off whichever is not applicable

Attachment-3L (iii)

Development of a Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP (4x130MW)

Bidding Document No.: 9900325428

Format for Declaration regarding Insolvency, Bankruptcy and Liquidation by the Bidder's Foreign Parent/Holding/Subsidiary Company, Associate or Collaborator/ Technology Provider from whom the Bidder has taken or intends to take technical and/ or financial support for qualification of bid

“Self-declaration by the Parent/Holding/Subsidiary Company, Associate or Collaborator/ Technology Provider”

I/ We, M/s _____ (Name of Parent/Holding/Subsidiary Company, Associate or Collaborator/ Technology Provider) from whom the Bidder has taken or intend to take technical and/ or financial support for qualification of bid, hereby certify that no proceedings for insolvency or liquidation or any other bankruptcy proceedings under the applicable laws, have been admitted or is pending against us.

It is understood that if any part of this declaration is found to be false, the Employer shall have the right to unconditionally, immediately and outrightly reject the bid and forfeit the Bid Security/ EMD.

Further, in case the bid has already culminated into a Contract, the Employer shall be entitled to terminate the Contract, without prejudice to any other rights or remedies available to the Employer.

(Seal & Signature of Parent/Holding/ Subsidiary Company, Associate or Collaborator, Technology provider)

- Note: 1. The 'Declaration' shall be on the letterhead of Parent/Holding/Subsidiary Company, Associate or Collaborator/ Technology Provider
2. Strike off whichever is not applicable

Development of a Flood Forecasting System & its Integration with
existing Automatic Flood Warning System for TVHEP (4x130MW)
Bidding Document No.: 9900325428

(Eligibility and Conformity of the Facilities)

Bidder's Name and Address :
To
NTPC Limited, (CS)

Bidder to attach documentary evidence establishing in accordance with Clause No. 8.1.2 (b) of ITB that the Facilities offered are eligible Facilities and conform to the Bidding Documents.

Date : (Signature).....
Place : (Printed Name).....
(Designation).....
(Company Seal).....

Development of a Flood Forecasting System & its Integration with existing
Automatic Flood Warning System for TVHEP (4x130MW)

Bidding Document No.: 9900325428

BIDDING DOCUMENT NO.: CS-8014-162(R)-9
(List of Special Maintenance Tools & Tackles)

Bidder's Name and Address :

To
NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-
500020

Dear Sir,

We are furnishing below the list of special maintenance tools & tackles for various equipment under the subject package. The prices for these tools & tackles are already included in the lump-sum bid price. We further confirm that this list of special maintenance tools & tackles includes all the items specifically identified in your documents as brought out below.

Notwithstanding what is stated above we further confirm that any additional special maintenance tools and tackles required for the equipment supplied under this package shall be furnished by us at no extra cost to the Employer.

S.No.	Description of each System/Equipment	Description of Tools & Tackles	Unit	Qty.

Date : (Signature).....

Place : (Printed Name).....

(Designation).....

(Company Seal).....

Note : Continuation sheets of like size and format may be used as per Bidder's requirement and shall be annexed to this Attachment.

(Details of Proposed Sub-contractors/Sub-Vendors)

Bidder's Name and Address :

To
NTPC Limited, Project-CC&M
5TH Floor, EOC Secunderabad-
500020

Dear Sirs,

The details of all items of services or supply which we propose subletting giving details of the name and nationality of the proposed Sub-Contractor/Sub Vendor for each item (system-wise) are given below:

S.No.	Supply/Service Item-wise (for each system)	Unit	Qty.	Name, Address & Nationality of proposed Sub-Contractor/ Sub-Vendor

Date : (Signature).....

Place : (Printed Name).....

(Designation).....

(Company Seal)

Note : **Any sub-contractor/ system supplier/ sub-vendor/ system integrator (as mentioned here, in addition to Indicative Vendor List (as per, Part-B (Quality Assurance), Section-VI part of the bid document) by the bidder except sub-contractor/ system supplier/ sub- vendor/ system integrator from land border sharing countries shall be treated under DR (Details Required) category. Bidder may refer Section-VI (Technical Specifications) of bidding documents, while filling the details in respect of Sub-Contractors/ Sub-Vendors/ Sub-Suppliers**

Continuation sheets of like size and format may be used as per Bidder's requirement and shall be annexed to this Attachment.

ANNEXURE II to ATTACHMENT-5

LIST OF TOOLS & PLANT TO BE DEPLOYED BY THE CONTRACTOR

Sl. No.	Description of T&P	Qty. to be deployed (nos.)

Contractor to deploy tools & plant as per requirement for execution of the contract and in consultation and direction of EIC.

**Development of a Flood Forecasting System & its Integration with
existing Automatic Flood Warning System for TVHEP (4x130MW)
Bidding Document No.: 9900325428**

INTEGRITY PACT

Not Applicable

**(Schedule of Erection Tools & Plant and Safety Equipment &
Safety Personal Protective Equipment)**

I. ERECTION TOOLS & EQUIPMENTS

We indicate herein below the erection tools & plant we have in our possession and the equipment we propose to bring to the Site, in case the contract is awarded to us.

Sl. No.	Type and Description of the Equipment	Number the Bidder has in Possession	Number the Bidder proposes to bring to the site
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

We hereby confirm that the quantity and type of Certain tools and equipment, we will employ for construction/erection, will not be less than those listed above and agree to bring more equipment, if so warranted, in the opinion of the Project Manager. Our proposed construction/erection equipment utilization plan indicating utilization dates and time duration of all major erection and construction equipment placed on site is enclosed at Annexure... to this attachment.

Note : Continuation sheets of like size and format may be used as per Bidder's requirement and shall be annexed to this Attachment.

II. Safety Equipments & Safety Personal Protective Equipments

The list of minimum suggestive **Safety Equipments & Safety Personal Protective Equipments** we propose to bring to the Site, in case the contract is awarded to us is indicated below:

Sl. No.	Minimum Suggested List of Safety Equipments and Safety Personal Protective Equipments	Minimum Quantity

We hereby confirm that the quantity and type of equipments, we will employ for construction/erection, will not be less than those listed above and agree to bring more equipment, if so warranted, in the opinion of the Project Manager.

Note: Continuation sheets of like size and format may be used as per Bidder's requirements and

shall be annexed to this Attachment.

Date :

Place :

(Signature)

(Printed Name)

(Designation)

(Common Seal)

(List of Commissioning / Start-up Spares)

Dear Sir,

We indicate herein below the list of Commissioning/ Start-up Spares required for the subject package:

Sl. No.	Item Description	Unit	Quantity

We note that the above list is subject to your approval and we shall ensure the availability of the required quantity of Commissioning spares as approved by you without any additional cost to you before start-up/initial operation.

Note : Continuation sheets of like size and format to be furnished and shall be annexed to this Attachment.

(Technical Data Sheet)

Bought Out Items

(Information regarding Quality Assurance Program)

Dear Sirs,

We hereby provide the necessary information on Quality Assurance Program containing the overall Quality Management and procedures, which we propose to follow during various phases of execution of the Contract.

Note : Continuation sheets of like size and format, may be used as per Bidder's requirement and shall be annexed to this Attachment.

[Additional Information]

Dear Sirs,

We wish to provide the following additional information in our Bid. We confirm that no price component has been included in the additional information.

Sl. No.	Description of Information	Reference to Bidding Documents	Reference to bid Proposal

Note : Continuation sheets of like size and format may be used as per Bidder's requirements and annexed to this Attachment.

(Detailed work schedule (L2 Schedule))

DETAILED WORK SCHEDULE (L2 SCHEDULE)

**(TO BE ENCLOSED AS PER CLAUSE 8.1.2 (m) OF SEC-II (ITB) OF BIDDING
DOCUMENTS)**

Development of a Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP (4x130MW)

Bidding Document No.: 9900325428

(Details of Foreign Principals of Indian Bidders)

Bidder's Name and Address :

To
NTPC Limited, (CS)
6th Floor, Engineering Office Complex,
Plot A-8A, Sector 24, Noida-201301,
Distt. Gautam Budh Nagar, State of
U.P., India

Dear Sirs,

We here by declare the details of our foreign principals as below:

<i>Sl. No.</i>	<i>Name</i>	<i>Detailed Address</i>	<i>Relationship with Bidder</i>
1.			
2.			
3.			
4.			
5.			

Date :

(Signature).....

Place :

(Printed Name).....

(Designation).....

(Company Seal).....

(CHECKLIST FOR TECHNO-COMMERCIAL BID)

Bidder's Name and Address :

To
Contract Services
NTPC Ltd.,
Noida - 201301

Dear Sirs,

Check List of documents to be submitted for Envelop-I (Techno-Commercial) Bid.

Sl.	Details of Checks	Enclosed : Yes / No
1.	BID FORM (TECHNO-COMMERCIAL BID)	.....
2.	ATTACHMENT-1	
3.	ATTACHMENT-2	
4.	ATTACHMENT-3	
5.	ATTACHMENT-4 AND ATTACHMENT-4A	.....
6.	ATTACHMENT-5	.....
7.	ATTACHMENT-6	.....
8.	ATTACHMENT-7	.....
9.	ATTACHMENT-8	.....
10.	ATTACHMENT-9	.....
11.	ATTACHMENT-10	.....
12.	ATTACHMENT-11	.....
13.	ATTACHMENT-12	.....
14.	ATTACHMENT-13	.....
15.	ATTACHMENT-14	.....
16.	ATTACHMENT-18	.....
17.*	IF ANY.....	.....

Date :

(Signature).....

Place :

(Printed Name).....

(Designation).....

**ATTACHMENTS FOR
ENVELOPE-2 (PRICE)**

Development of a Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP (4x130MW)
9900325428

Bidding Document No.:

(Declaration regarding Import Content)

Bidder's Name and Address:

To
Corporate Contracts,
NTPC Limited,
6th Floor, Engineering Office Complex,
Plot A-8A, Sector 24, Noida-201301,
Distt. Gautam Budh Nagar, State of U.P.,
India

Dear Sir,

1. We confirm that we have read and understood Clause No. 10.6 of ITB, Sec-II of Bidding Document and we are submitting our bid including price schedules accordingly.

2. The details of Import Content included in Schedule-2 of our bid price are as follows:

Sl. No	Description of Items	Quantity	*Value (including in our Bid)

These details are furnished for the purpose of issuance of the Required Certificate as per ITB Clause 10.6. We further confirm that we shall be solely responsible for availing benefits (If Available).

Note: Bidder may apprise themselves of provisions of bidding documents regarding "Preference to Make in India and Eligibility for Participation/ granting of Purchase Preference to Class-I local suppliers" before submission of bid.

*Please state the currency and fill in the amount in figures and words.

Date : (Signature).....

Place : (Printed Name).....

(Designation).....

(Company Seal).....

NTPC LIMITED
(A Government of India Enterprise)



**BIDDING DOCUMENTS
FOR**

**Development of a Flood Forecasting System & its Integration with
existing Automatic Flood Warning System for TVHEP (4x130MW)**

**SECTION – VII
(FORMS AND PROCEDURES)
BOOK 2 OF 2**

BIDDING DOCUMENT NO. : 9900325428

NTPC LIMITED
(A Government of India Enterprise)



**BIDDING DOCUMENTS
FOR**

**Development of a Flood Forecasting System & its Integration with
existing Automatic Flood Warning System for TVHEP (4x130MW)**

**SECTION - VII
BOOK 2 OF 2**

BIDDING DOCUMENT NO.: 9900325428

(This document is meant for the exclusive purpose of bidding against this Bid Document No. / Specification and shall not be reproduced or otherwise used for purposes other than that for which it is specifically issued).

TABLE OF FORMS AND PROCEDURES

Sl.No.	Description
	(i) Bid Form (Techno-Commercial Bid & Price Bid) along with Attachments [enclosed as Section-VII, Book 1 of 2]
	(ii) Forms and Procedures [enclosed as Section-VII, Book 2 of 2]
	Book 2 of 2 consisting of the following:
1.	Bid Security Form - Bank Guarantee
2A.	Bid Security Form – Insurance Surety Bond
2.	(a) Form of Notification by the Employer to the Bidder – Not Applicable (b) Form of Sight Draft- Not Applicable
3.	Forms of Notification of Award
4.	Form of Contract Agreement
5.	Performance Security Forms
6A.	Form of Insurance Surety Bond towards Performance Security
6B to 6E	~~Performance Security Forms and Form of Insurance Surety Bond towards Performance Security for Consortium Route~~
6.	(i) Bank Guarantee Form for Advance Payment (Supply-Ex-works)
7.	(ii) Bank Guarantee Form for Advance Payment (Installation Services / Civil / Structural Works)
8.	Form of Completion Certificate
9.	Form of Operational Acceptance Certificate
10.	Form of Trust Receipt
11.	Forms of Indemnity-Cum-Undertaking Agreement (2 Nos.)
12.	Form of Authorization Letter
13.	Forms of Deed of Joint Undertaking (DJU)
13A	~~Consortium Agreement~~
13B.	~~Letter of support from collaborator/ associates for successful performance of the relevant system under clause 1.2~~
13C.	~~Letter of support from design agency for successful performance of the relevant system under clause 1.2~~
13D.	~~Letter of Support/Technology Transfer/Licensing agreement to be executed by the Bidder/Contractor, and Collaborator & Technology Provider/Licenser meeting the requirement of clause 1.3~~
14.	Form of Bank Guarantee/Insurance Surety Bond towards Security by Executants of DJUs other than Contractor
15.	Form of Bank Guarantee/ Insurance Surety Bond Verification Check List

16. Form of Validity Extension of Bank Guarantee/ Insurance Surety Bond
17. Form of Indemnity -cum-Undertaking Agreement (for Removal of Surplus Material and Scraps)
18. Form of Contract Closing Certificate
19. Electronic Fund Transfer Form
20. Declaration of Absence of Conflict of Interest With Conciliation Committees Of Independent Experts (CCIE)
21. Declaration of Absence of Conflict of Interest with INDEPENDENT ENGINEER (IE)
22. BG forwarding letter from Bank to Unified Treasury in Bank's letterhead
23. Form of certificate regarding Bank Guarantee charges

2. BID SECURITY FORM

2. Bid Security Form

Bank Guarantee

(To be stamped in accordance with Stamp Act
of India)

Bank Guarantee No.

Date.....

To:

NTPC Limited
NTPC Bhawan,
SCOPE Complex, Institutional Area, Lodhi Road,
New Delhi – 110003

Dear Sirs,

In accordance with Invitation for Bids under your Bid Document No. **9900325428**,
M/s..... having its Registered/Head
Office at (hereafter called the 'Bidder') wish to
participate in the said bid for *[Name of Contract Package]*

As an irrevocable Bank Guarantee against Bid Security for an amount of..... (*)
valid for 225 days from (**)..... is
required to be submitted by the Bidder as a condition precedent for participation in the said bid
which amount is liable to be forfeited on the happening of any contingencies mentioned in the Bidding
Documents.

We, the*[Name & address of the Bank]*
..... having our Head Office
at.....(##)..... guarantee and undertake to pay
immediately on demand by NTPC Limited (hereafter called the 'Employer') the amount of
.....(*).....without any reservation, protest, demand,
demur and recourse. Any such demand made by the 'Employer' shall be conclusive and binding on
us irrespective of any dispute or difference raised by the Bidder.

This Guarantee shall be irrevocable and shall remain valid up to(@).....If any further
extension of this Guarantee is required, the same shall be extended to such required period (not
exceeding one year) on receiving instructions from M/s *[Bidder's*
Name].....on whose behalf this Guarantee is issued.

In witness whereof the Bank, through its authorised officer, has set its hand and stamp on
this.....day of.....20.....at.....

.....
(Signature)

.....
(Name)

.....
(Designation with
Bank Stamp)

Authorised Vide
Power of Attorney No.....
Date.....

- NOTE :
1. (*) The amount shall be as specified in the Bid Data Sheets.
(**) This shall be the date of scheduled submission of Techno-commercial bids.
(#) Complete mailing address of the Head Office of the Bank to be given.
(@) This date shall be forty five (45) days after the last date for which the bid is valid.
 2. The Bank Guarantee shall be from a Bank as per provisions of ITB Sub-Clause 12.2 of the Bidding Documents.
 3. The BG shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). The Stamp Paper/e-Stamp paper shall be purchased in the name of Bidder/Bank issuing the guarantee.
 4. While getting the Bank Guarantee issued, Bidders are required to ensure compliance to the points mentioned in Form 15-Form of Bank Guarantee Verification Check List enclosed in Section-VII of Bidding Documents. Further, Bidders are required to fill up this Form 15 and enclose the same with the Bank Guarantee.
 5. In case, Bank Guarantee is getting issued from State Bank of India, Bidder to take note of NTPC letter ref. NTPC/FC/CS/BG/01 dated 03.09.2014 and SBI letter ref. CAG-I/AMT-1/2014-15/370 dated 04.09.2014 (attached with Section-III of Bidding Documents).
 6. Write the name and address of all the consortium Partners in case the bid is submitted by Consortium in terms of Qualifying Requirement.

2A. Form of Insurance Surety Bond towards Bid Security

(To be stamped in accordance with Stamp Act of India)

Insurance Surety Bond No.

Date.....

To

NTPC Limited
NTPC Bhawan,
SCOPE Complex, Institutional Area, Lodhi Road,
New Delhi – 110003

Dear Sirs,

In accordance with Invitation for Bids under your Bid Document No. **9900325428**, M/s..... having its Registered/Head Office at (hereafter called the 'Bidder') wish to participate in the said bid for *[Name of Contract Package]*

As an irrevocable Insurance Surety Bond against Bid Security for an amount of.....(*).....valid for 225 days from(**)..... required to be submitted by the Bidder as a condition precedent for participation in the said bid which amount is liable to be forfeited on the happening of any contingencies as mentioned under the Bidding Documents.

We, the *[Name & address of the Insurer]* having our Head Office at (#) guarantee and undertake to pay immediately on demand by NTPC Limited (hereafter called the 'Employer') the amount of(*)..... without any reservation, protest, demand and recourse. Any such demand made by the 'Employer' shall be conclusive and binding on us irrespective of any dispute or difference raised by the Bidder and/or any right/remedy available to the bidder in terms thereof.

This Insurance Surety Bond shall be unconditional as well as irrevocable and shall remain valid upto(@).....If any further extension of this Insurance Surety Bond is required, the same shall be extended to such required period (not exceeding one year) on receiving instructions from M/s*[Bidder's Name]*..... on whose behalf this Insurance Surety Bond is issued.

In witness where of the Insurer, through its authorised officer, has set its hand and stamp on this.....day of.....20.....at.....

.....
(Signature)

.....
(Name)

.....
(Designation with Insurer
Stamp)

Authorised Vide
Power of Attorney No.....

Date.....

NOTE : 1. (*) The amount shall be as specified in the Bid Data Sheets.

(**) This shall be the date of scheduled submission of Techno-
commercial bids.

(#) Complete mailing address of the Head Office of the Insurer to be given.

(@) This date shall be forty five (45) days after the last date for which the bid is valid.

2. The Insurance Surety Bond shall be from an Insurer as per guidelines issued by Insurance Regulatory and Development Authority of India (IRDAI) as amended from time to time.
3. The Employer shall be the Creditor, the Bidder shall be the Principal debtor and the Insurance company/Insurer shall be the Surety in respect of the Insurance Surety Bond to be issued by the Insurer.
4. The Insurance Surety Bond shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). The Stamp Paper/e-Stamp paper shall be purchased in the name of Bidder/Insurer issuing the guarantee.
5. While getting the Insurance Surety Bond issued, Bidders are required to ensure compliance to the points mentioned in Form of Bank Guarantee/Insurance Surety Bond Verification Check List enclosed in this Section of Bidding Documents. Further, Bidders are required to fill up this Form and enclose the same with the Insurance Surety Bond.
6. Write the name and address of all the consortium Partners in case the bid is submitted by Consortium in terms of Qualifying Requirement.

**3. (a) FORM OF NOTIFICATION BY THE
EMPLOYER TO BIDDER**

(b) FORM OF SIGHT DRAFT

Not Applicable

4. FORM OF CONTRACT AGREEMENT

5. Form of Contract Agreement

THIS CONTRACT AGREEMENT is made the _____ day of _____, 20____.

BETWEEN

(1) *[Name of Employer]*, a corporation incorporated under the laws of *[country of Employer]* and having its principal place of business at *[address of Employer]* (hereinafter called "the Employer"), and

(2) *[name of Contractor]*, a corporation incorporated under the laws of *[country of Contractor]* and having its principal place of business at *[address of Contractor]* (hereinafter called "the Contractor")

WHEREAS the Employer desires to engage the Contractor to design, manufacture, test, deliver, install, complete and commission certain Facilities, viz. *[list of facilities]* ("the Facilities") and the Contractor have agreed to such engagement upon and subject to the terms and conditions hereinafter appearing.

NOW IT IS HEREBY AGREED as follows:

Article 1. Contract Documents

1.1 Contract Documents (Reference GCC Clause 2)

The following documents shall constitute the Contract between the Employer and the Contractor, and each shall be read and construed as an integral part of the Contract:

- (a) This Contract Agreement and the Appendices hereto
- (b) Notification of Award
- (c) Special Conditions of Contract
- (d) General Conditions of Contract
- (e) Technical Specifications and Drawings
- (f) The Bid and Price Schedules submitted by the Contractor
- (g) Procedures (as listed)
- (h) Integrity Pact (IP) signed between the Employer and the Bidder/Contractor

1.2 Order of Precedence (Reference GCC Clause 2)

In the event of any ambiguity or conflict between the Contract Documents listed above, the order of precedence shall be the order in which the Contract Documents are listed in Article 1.1 (Contract Documents) above.

1.3 Definitions (Reference GCC Clause 1)

Capitalized words and phrases used herein shall have the same meanings as are ascribed to them in the General Conditions of Contract.

Article 2. Contract Price and Terms of Payment

2.1 Contract Price (Reference GCC Clause 11)

The Employer hereby agrees to pay to the Contractor the Contract Price in consideration of the performance by the Contractor of its obligations hereunder. The Contract Price shall be the aggregate of: *[amount of foreign currency in words]*, *[amount in figures]*, and *[amount of local currency in words]*, *[amount in figures]*, or such other sums as may be determined in accordance with the terms and conditions of the Contract.

2.2 Terms of Payment (Reference GCC Clause 12)

The terms and procedures of payment according to which the Employer will reimburse the Contractor are given in Appendix 1 (Terms and Procedures of Payment) hereto.

Article 3. Effective Date for Determining Time for Completion

Effective Date (Reference GCC Clause 1)

The Time of Completion of the Facilities shall be determined from the date of Notification of Award provided all of the following conditions have been fulfilled within a period of two (2) months from the date of said Notification of Award :

- (a) This Contract Agreement has been duly executed for and on behalf of the Employer and the Contractor;
- (b) The Contractor has submitted to the Employer the Performance Security, Security towards faithful performance of the Deed(s) of Joint Undertaking (if applicable) and the Advance Payment Security.
- (c) The Employer has paid the Contractor the Advance Payment.

Each party shall use its best efforts to fulfill the above conditions for which it is responsible as soon as practicable.

3.2 If the conditions listed under 3.1 are not fulfilled within two (2) months from the date of Notification of Award because of reasons attributable to the Employer, the Contract would become effective only from the date of fulfillment of all the above mentioned conditions and, the parties shall discuss and agree on an equitable adjustment to the Contract Price and the Time for Completion and/or other relevant conditions of the Contract.

3.3 However, if any of the conditions listed under 3.1 above are not fulfilled within two (2) months from the date of Notification of Award because of the reasons attributable to the contractor, the contract will become effective from the date of Notification of Award. In this case, Contract Price and/or time of completion shall not be adjusted.

Article 4.

It is expressly understood and agreed by and between the Contractor and the Employer that the Employer is entering into this Agreement solely on its own behalf and not on behalf of any other person or entity. In particular it is expressly understood and agreed that the Government of India is not a party to this Agreement and has no liabilities, obligations or rights hereunder. It is expressly understood and agreed that the Employer is an Independent legal entity with power and authority to enter into contracts solely on its own behalf under the applicable laws of India and the general principles of Contract Law. The Contractor expressly agrees, acknowledges and understands that the Employer is not an Agent, Representative or Delegate of the Govt. of India. It is further understood and agreed that the Government of India is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the Contract. Accordingly, the Contractor expressly waives, releases and foregoes any and all actions or claims, including cross claims, impleader claims or counter claims against the

Government of India arising out of this Contract and covenants not to sue the Government of India as to any manner, claim, cause of action or thing whatsoever arising of or under this Agreement.

Article 5. Appendices

The Appendices listed in the attached list of Appendices shall be deemed to form an integral part of this Contract Agreement.

Reference in the Contract to any Appendix shall mean the Appendices attached hereto, and the Contract shall be read and construed accordingly.

IN WITNESS WHEREOF the Employer and the Contractor have caused this Agreement to be duly executed by their duly authorized representatives the day and year first above written.

Signed by for and on behalf of the Employer

[Signature]

[Title]

in the presence of _____

Signed by for and on behalf of the Contractor

[Signature]

[Title]

in the presence of _____

CONTRACT AGREEMENT

dated the _____ day of _____, 20_____

BETWEEN

[“the Employer”]

and

[“the Contractor”]

APPENDICES

Appendix 1 Terms and Procedures of Payment

Appendix 2 Price Adjustment-**Not Applicable as The Contract Price is on FIRM PRICE BASIS**

Appendix 3 Insurance Requirements

Appendix 4 Time Schedule

Appendix 5 List of Approved Subcontractors--**Not Applicable**

Appendix 6 Scope of Works and Supply by the Employer

Appendix 7 List of Documents for Approval or Review Appendix : **Not Applicable**

Appendix 8 Functional Guarantees-**Not Applicable**

TERMS AND PROCEDURES OF PAYMENT

In accordance with the provisions of GCC Clause 12 (Terms of Payment), the Employer shall pay the Contractor in the following manner and at the following times, on the basis of the Price Break down given in the Section on Price Schedules. Payments will be made in the currencies quoted by the Bidder unless otherwise agreed between the parties. Application for payment in respect of part deliveries may be made by the Contractor as work proceeds.

TERMS OF PAYMENT

A. Payment Terms shall be as per Sec VI-Technical Specification of Bidding document.

Note:

- (a) The basis for pro-rata payment above shall be the billing break-up, to be mutually discussed and agreed upon.

B. Payment Terms for Taxes & Duties

100% of applicable Taxes and Duties which are payable by the Employer under the Contract shall be paid/reimbursed to the Contractor upon receipt of equipment/spares/services and on production of satisfactory documentary evidence by the Contractor. ~~However, GST as applicable on Advance payment shall be paid to the Contractor along with the Advance sanctioned. The GST paid along with advance shall be adjusted prorata against the tax due upon supply of goods/services, based on the value of the respective goods/services.~~

G. Amount linked to Safety Aspects/ compliance to Safety Rules

- I. The amount linked to Safety Aspects/ compliance to Safety Rules shall be paid in two parts, viz,**
- A) 10% amount (calculated as 0.1 Y of the service portion amount of RA bill) shall be linked to Fatal/Major Accidents, and
- B) 90% amount (calculated as 0.9 Y of the service portion amount of RA bill) shall be linked to various Safety Aspects specified in Safety Rules of NTPC.

NOTE:

Amount linked to Safety Aspects/ Compliance to Safety Rules specified in Price Schedule

Y = ----- 100

Total amount for Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works

- II.** While raising each RA Bill, Contractor shall claim Amount linked to Safety Aspects/ Compliance to Safety Rules in such a manner that amount claimed is equal to Y% of the service portion (Civil + Installation/ Erection + Structural Works) of RA Bill.

- III. The amount as elaborated at para G. I. shall be withheld from first and second monthly RA bill of the respective quarter/three month period and shall be released in part or full based on safety compliance duly certified by Project Manager and Safety-in-charge on quarterly basis. The amount for the entire quarter (i.e. RA bills raised during a 3 month period) shall be paid to the Contractors at the end of that three months period along with 3rd/last RA Bill for the quarter/three months period upon complying the following conditions:

A) **Amount of RA Bill linked to Fatal/ Major Accidents (0.1Y as elaborated above at para G.I.A)**

Aforesaid amount (on quarterly basis) shall be payable to Contractor only in case, there is

- i) No fatal injury or accident causing death in that three months period
and
- ii) No Major injury or accident causing 25% or more permanent disablement to workmen or employees in that three months period. Permanent disablement shall have the same meaning as indicated in The Workmen's Compensation Act' 1923.

In case of any fatal injury or accident as elaborated above occurs during that three month period, the stipulated amount (0.1Y) subject to minimum of **Rs 10 Lakh per fatality** shall be forfeited and shall not be payable to the Contractor under the contract. In case, the amount to be deducted/forfeited exceeds the amount linked to Fatal/ Major Accidents, the same shall be recovered from remaining Amount (0.9Y) linked to Compliance of Safety Rules and/or any other payments immediately due to the Contractor under the Contract.

In case of any Major injury or accident causing 25% or more permanent disablement to workmen or employees occurs during that three month period, **Rs 4 lakh per Major injury** shall be deducted from the amount (0.1Y) linked to Fatal/ Major Accidents and shall not be payable to the Contractor under the contract. In case, the amount to be deducted/forfeited exceeds the amount linked to Fatal/ Major Accidents, the same shall be recovered from remaining Amount (0.9Y) linked to Compliance of Safety Rules and/or any other payments immediately due to the Contractor under the Contract.

Further, in case, Contractor doesn't raise RA Bills in any three month period/quarter and if any fatal injury and/or major accident takes place in that period, Project Manager shall deduct the amount [Rs 10 Lakh per fatality and Rs 4 lakh per Major injury] pertaining to this particular quarter from his next RA bill/due payment. In case, the amount to be deducted/forfeited exceeds the amount linked to Safety, the same shall be recovered from any other payments immediately due to the Contractor under the Contract.

The amount deducted/forfeited as mentioned above shall be in addition to the compensation payable to the workmen / employees under the relevant provisions of the Workmen's Compensation Act' 1923 and rules framed there under or any other applicable laws as applicable from time to time.

B) **Amount of RA Bill linked to Compliance of Safety Rules (0.9Y i.e. 90% of amount as elaborated above at para G.I.B)**

Aforesaid amount (on quarterly basis) shall be payable to Contractor in five equal parts under five heads as under:

(i) Amount payable on deployment of required Safety Personnel

One fifth of the amount specified at G.III.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Project Manager in consultation with Safety dept. that required number of Safety personnel as per Clause 2.3 of 'NTPC Safety Rules for Construction and Erection of Power Plants' [as enclosed with GCC/SCC] have been deployed. The aforesaid amount linked to deployment of requisite safety personnel shall be paid as under:

- a) 50% of the amount referred at G.III.B.(i), for deployment of Safety Supervisors shall be paid on pro-rata basis depending upon the actual no. of Safety Supervisors deployed vis-à-vis actual requirement :

Amount to be paid = $0.09Y \times \text{Service portion of RA bill amount} \times (a/b)$

Where 'a' is actual no. of Safety supervisors deployed

and

'b' is required no. of Safety supervisors as per Safety Rules.

In case, actual no. of Safety supervisors deployed is more than requisite number (i.e. a/b is more than 1), the amount to be paid shall be restricted to 0.09Y.

- b) 50% of the amount referred at G.III.B.(i), for deployment of Safety Officers shall be paid on pro-rata basis depending upon the actual no. of Safety Officers deployed vis-à-vis actual requirement :

Amount to be paid = $0.09Y \times \text{Service portion of RA bill amount} \times (a/b)$

Where 'a' is actual no. of Safety Officers deployed

and

'b' is required no. of Safety Officers as per Safety Rules.

In case, actual no. of Safety Officers deployed is more than requisite number (i.e. a/b is more than 1), the amount to be paid shall be restricted to 0.09Y.

- c) In case aforesaid requisite no. of Safety personnel are not deployed by Contractor, amount not to be paid as calculated above for that particular quarter/three month period shall be forfeited and shall not be payable to the Contractor under the contract.

(ii) Amount payable on providing requisite Personal Protective Equipment & Safety Equipment

One fifth of the amount specified at G.III.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Project Manager in consultation with Safety dept. that Contractor has

APPENDIX – 1

adhered to the requirements of Clause 4 (Personal Protective Equipment) of 'NTPC Safety Rules for Construction and Erection of Power Plants' and the provisions of the Bidding Documents with regards to number of Safety Equipment/PPEs to be provided by the Contractor.

In case of non-compliance by Contractor, warning letter/Non-compliance shall be issued by Project Manager /Safety Officer of NTPC as per clause 22.3.3 (ii) of GCC. Further, if more than two such warning letters/Non Compliance Memos are issued in a quarter/three monthly period, above mentioned amount for that particular quarter/three month period shall be forfeited and shall not be payable to the Contractor under the contract.

(iii) Amount payable on providing requisite Safety Induction and Training

One fifth of the amount specified at G.III.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Project Manager in consultation with Safety dept. that Contractor has adhered to the requirements of imparting Safety training as per Clause 8.0 (Safety Induction and Training) of 'NTPC Safety Rules for Construction and Erection of Power Plants' to at least 90% of its employees/workmen (who have not been previously provided with requisite training) in a quarter/ three months period.

In case Contractor fails in meeting the aforesaid requirement, above mentioned amount for that particular quarter/three month period shall be forfeited and shall not be payable to the Contractor under the contract.

(iv) Amount payable on providing requisite Medical and First Aid Amenities

One fifth of the amount specified at G.III.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Project Manager in consultation with Safety dept. that Contractor has adhered to the requirements of Clause 13 (Medical and First Aid Amenities) of 'NTPC Safety Rules for Construction and Erection of Power Plants'.

In case Contractor fails to provide Medical and first aid amenities as per requirement of aforesaid Clause 13 even on one incidence in any quarter/three month period, above mentioned amount for that particular quarter/three month period shall be forfeited and shall not be payable to the Contractor under the contract.

(v) Amount payable on compliance to Work Permit System

One fifth of the amount specified at G.III.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Project Manager in consultation with Safety dept. that Contractor has adhered to the requirements of Clause 17 (Work Permit System) of 'NTPC Safety Rules for Construction and Erection of Power Plants'.

In case of non-compliance by Contractor, warning letters/Non Compliance Memos shall be issued by Project Manager /Safety Officer of NTPC as per clause 22.3.3 (v) of GCC. In case of issuance of more than two such warning letters/Non Compliance Memos in a quarter/three monthly period, above mentioned amount for that particular quarter/three month period shall be forfeited and shall not be payable to the Contractor under the contract.

(vi) In case 'Amount linked to Safety Aspects / compliance to Safety Rules' is less

APPENDIX – 1

than **2%** of the cumulative total of Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works, the amount by which it is lower shall be retained proportionately from the other components of Schedule-4 of the Contract price while releasing payments of each RA bill. No interest shall be payable on the amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount. The amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount shall be payable in part or full based on safety compliance duly certified by Project Manager and Safety-in-charge on quarterly basis.

~~H~~ — ~~Payment terms for Price Adjustment Amount~~

~~I.~~ — ~~Schedule – 7: Payment Terms for Taxes & Duties~~

~~J.~~ — ~~Schedule – 8B Payment Terms for Type Test Charge:~~

PAYMENT PROCEDURES

The Procedures to be followed in making application for, certifying and making payments shall be as follows:

1. **Payment Schedule/~~Price Break-up for Payments~~**
2. **Currency of Payment**
 - 2.1 The Contract Price shall be paid in Indian currency only.
3. **Application for Payment**
 - 3.1 The Contractor shall submit application for the payment in the proforma enclosed.
 - 3.2 Every interim payment certificate shall certify the Contract Value of the Facilities executed up to the date mentioned in the application for the payment certificate, provided that no sum shall be included in any interim payment certificate in respect of the Facilities that according to the decision of the Project Manager, does not comply with the Contract, or has been performed, at the date of certificate prematurely.
 - 3.3* The Employer has established a Vendor Payment portal where Vendor/Contractor shall submit their digital bill/invoice and may track its status. The Application for Payment along with all the supporting documents (for direct payment cases as mentioned in Para 5.2 below) shall be submitted by the Vendor/Contractor in digital form i.e. digitally signed with Class-2/3 digital Signature and must be uploaded in the Employer's Vendor Payment Portal. No hard/physical copy of such documents will be accepted by the Employer unless otherwise asked for in the PO or instructed by Employer.
 - 3.4 FAQ (Frequently asked questions with answers) regarding Invoice submission in digital mode is available at https://pradip.ntpc.co.in/VendorFinal/FAQ_VPP.pdf.

NTPC VENDOR PAYMENT PORTAL & PAYMENT PROCEDURE

1. For all the cases where payment documents are to be directly submitted to NTPC (excluding Payment through Bank cases), the Invoice and supporting document(s) as required in the Purchase Order have to be Digitally Signed with class III digital signature and uploaded in the NTPC Vendor Payment Portal <https://pradip.ntpc.co.in/VendorFinal/Login.jsp>.

In such cases, there will be no requirement of physical copy of invoice & documents except for Lorry Receipts (LRs)/ Delivery Challan, which are normally sent along with the material/ transporter. Bank Guarantees to be sent in original wherever applicable.

2. From 15.5.2020, NTPC will accept only digitally signed Invoice & supporting documents from Vendors for direct payment cases. Submission of documents in physical form shall not be accepted by NTPC unless otherwise asked for in the PO.

For such cases of physical submission, Vendors are required to send complete set of documents including invoice etc. addressed to the "Invoice Receipt Center" of the Delivery/ Invoicing Address as mentioned in the Purchase Order Annexure 1/ BOQ Sheet.

While submitting the Invoice/ Bills & related documents in physical form, Vendors are required to mention the following details on the top of the envelope:

- a. Invoice/Bill reference No.
- b. NTPC PO No./ Package no.
- c. NTPC Vendor Code as per PO

In addition to above, vendors are requested to mention their correspondence E-mail & Mobile No.in the Covering Letter, through which invoice processing related information/clarification request may be sent.

3. Vendors can track / monitor the status of payments from the Vendor payment portal. Help documents are available in the portal. Vendors are requested to make full use of the Vendor Payment Portal.

4. A toll-free helpline (1800 102 5970, operating times 9am to 6 pm to Mon to Sat except Holidays) is also available for help on digital invoice uploading & payment tracking.

5. For payment cases through bank, all original documents are to be submitted in bank as per terms of PO.

4. Due Dates for Payment

4.1 ~~The advance payment amount shall be payable after fulfillment of all the conditions laid down in the Terms of Payment (Appendix 1 to the Contract Agreement) and receipt of the Contractor's invoice along with all necessary supporting documents for such advance payment.~~ Employer will make progressive payment as and when the payment is due as per the Terms of Payment set forth in Appendix 1 to the Contract Agreement. Progressive payment other than that under the letter of credit will become due and payable by the Project Manager/EIC within thirty (30) days from the date of receipt of Contractor's bill/invoice/debit note by the Employer, provided the documents submitted are complete in all respects.

4.2 In cases of any discrepancy observed by the Employer in Contractor's bill, clarifications shall be sought in writing by the Employer within ten (10) days from the date of receipt of Contractor's bill/invoice/debit note by the Employer. The Contractor shall be required to submit the requisite clarifications within ten (10) days from the date of issuance of queries by the Employer. In case, no mutual agreement is reached between the Employer and the Contractor on any part of the bill/invoice, within ten (10) days of submission of clarification by the Contractor, the Contractor shall issue a revised bill/invoice to avoid mismatch in GST returns of the Employer and the Contractor. Payment against agreed and admissible part shall be processed as per payment procedure within ten (10) days after receipt of the revised bill/invoice. The bill/invoice for the balance amount under question may be separately submitted for consideration of the Employer after resolution of issues of payment by the Employer. In case of non-submission of satisfactory clarification by the Contractor within the stipulated period, NTPC shall not be liable for the delay in making payment. If the bill submitted by Contractor is incorrect and has gross discrepancies, the bill shall be summarily rejected and returned to the Contractor. In the event of dispute, the same shall be settled as per GCC Clause (Settlement of Disputes).

4.3 Vendor/Contractor can track the status of their digitally submitted Bill/Invoice in the NTPC Vendor Payment Portal.

5. **Mode of Payment**

5.3 **Alternate Mode of Payment for Micro Small & Medium Enterprises (MSMEs):**

Trade Receivables e-Discounting System (TReDS) is a regulatory framework put in place by the Reserve Bank of India under the Payment and Settlement Systems Act 2007 (PSS Act) to facilitate the financing of trade receivables (invoices) of MSMEs through invoice financing by multiple financiers.

The Reserve Bank of India has granted approval to (i) Mynd Solutions Pvt Limited, (ii) A.TReDS Ltd. and (iii) Receivables Exchange of India Ltd to set up and operate TReDS platform. The name of respective TReDS platform of the above-mentioned entities are M1xchange, Invoicemart and RXIL.

Presently, NTPC Limited is transacting with M1xchange and RXIL TReDS platforms. MSME Vendors may choose from the aforesaid TReDS platforms as an alternate payment mechanism.

For queries/ details, the vendor may directly contact M1xchange or RXIL at:-

- (i) M1XCHANGE:- URL: <https://m1xchange.com> Toll free No.: 1800-103-7261
- (ii) RXIL:- URL: <https://www.rxil.in/Home/Index> Phone: 022-40771424, 40771426
Toll free No.: 1800 1038 311

The aforesaid provision at 5.3 above shall not be applicable for payments envisaged through “Letter of Credit (LC)” or “Escrow Account” or “A separate account with a Scheduled Bank at Site”

FORM OF APPLICATION FOR PAYMENTS

Project	:		
Equipment Package	:	Date	:
Name of Contractor	:	Contract No.	:
Contract Value	:	Contact Name	:
Unit Reference	:	Application Serial Number	:

To

.....*

(Name of Employer)

Dear sir

APPLICATION FOR PAYMENT #

1. Pursuant to the above referred Contract Agreement dated the undersigned hereby applies for payment of the sum of (Specify amount and currency in which claim is made).

2. The above amount is on account of : (check whichever applicable)

Advance Payment (Schedule **)

Interim Payment as Advance (Schedule **)

Progressive Payment against despatch of equipment (Schedule **)

Progressive Payment against receipt of equipment (Schedule **)

Progressive Payment against Installation (Schedule **)

Ocean Freight & Marine Insurance (Schedule **)

Inland Transportation (Schedule **)

Inland Insurance

Price Adjustment

Extra Work not specified in Contract
(Ref. Contract Change Order No.....)

Others (specify)

Final Payment (Schedule **)

as detailed in the attached schedule(s) which form an integral part of this application.

3. The payment claimed is as per item(s) No (s) of the payment schedule annexed to the above mentioned Contract.

4. The application consists of this page, a summary of claim statement (Schedule **), and the following signed schedules

1 -----

2 -----

3 -----

The following documents are also enclosed :

1 -----

2 -----

3 -----

Signature of Contractor/
authorised Signatory

* Application for payment will be made to 'Project Manager' as to be designated for this purpose at the time of Notification of Award.

Prepare separate application for claims in different currencies.

** Proforma for the Schedules will be mutually discussed and agreed to during the finalisation of the Contract Agreement.

Annexure-1 to APPENDIX-1

NOT APPLICABLE

Format of Billing Break-up for Mandatory Spares:

PROJECT:.....	CLIENT:.....
PACKAGE:	
TITLE: BILLING BREAK-UP FOR MANDATORY SPARES	CONTRACTOR:.....
NOA REF. ;.....	
BILLING BREAK-UP NO.....	

[illegible]

NOT APPLICABLE

Proforma for details to be furnished by the Contractor by 15th April of every financial year of supplies sourced from MSEs dispatched during the preceding financial year.

Package Name:

Project Name:

Name of the Contractor:

COA No.:

Details of BBU value of supplies dispatched during the preceding financial year are furnished here below:

BBU value of total supplies dispatched (A) (in eqvt INR)	Out of the total supplies dispatched, BBU value of supplies sourced from MSEs (B) (in eqvt INR)	Percentage of supplies sourced from MSEs wrt total supplies dispatched (C = B*100/A) (%)
.....		

In case of no supplies sourced from MSEs, mention 'NIL'.

I, on behalf of M/s.....(Contractor) hereby declare that the information furnished above is correct.

Signature
Name
Designation and Seal

PRICE ADJUSTMENT

**Not Applicable as The Contract Price shall be on FIRM
PRICE BASIS**

INSURANCE REQUIREMENTS

(1) Insurance to be taken by the Contractor :

In accordance with the provisions of GCC Clause 34, the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintain in effect, during the performance of the Contract, the insurances set forth below in sums and with the deductibles and other conditions specified. The identity of the insurers and the form of the policies shall be subject to the approval of the Employer, such approval not to be unreasonably withheld.

Insurance	Amount insured	Deductible	Conditions
A. Marine Cargo	(i) 110% of CIF Value in case of Plant and Equipments including all spare parts and Type Tests Charges to be supplied from abroad and/or Not applicable 110% of Ex-Works Value in case of Plant & Equipments and Type Tests Charges including all spare parts manufactured within the Employer's Country. (ii) Applicable Taxes and Duties (iii) Escalation 5% on (i) & (ii)		(i) Employer to be named as coinsured (ii) Open Policy (iii) All Risk Institute Cargo Clause 'A' (iv) War, SRCC, Terrorism. (v) Institute Replacement Clause, Special Replacement Clause (Air Duty) and Deferred Unpacking Clause (vi) Insurers right of subrogation against all parties (excluding carrier) waived. (vii) Warehouse to Warehouse basis.
B. Installation all Risk	(i) 110% of CIF Value plus 110% of Ex-Works Value of Plant & Equipments (ii) Applicable Taxes and Duties (iii) Cost of free issue materials, if any. (iv) Cost of Erection Works (v) Cost of Civil, Structural & Allied Works (vi) 10% Escalation on (i),(ii),(iii),(iv) & (v)	Minimum as per Insurance Policy	(i) Installation Risk, RSMTD, (ii) Air Freight Cover. (iii) Extra Charge Cover. (iv) Maintenance Cover (v) Contractor's Plant & Machinery - Rs. 100 Lakhs. (vi) Cross Liability. (vii) Additional Customs Duty for Imported Machine (if any) for adequate value. (viii) Employer & Contractor's Sub-Contractor to be named as co-insured.
C. Third Party Liability (Extension of MCE/EAR Policy)	For any one occurrence Rs. 50.00 Lakhs	Nil	(i) Contractors, sub-contractors to be named as co-insured.
A. Automobile Liability			
(i) M.V. Policy for Motor Vehicles, Private Cars & Commercial Vehicles		-----	As per local M.V. Act.
(ii) CPM Policy for Heavy Construction Equipment	Anything above Rs.100 Lakhs covered under Erection all Risk Policy		

Insurance	Amount insured	Deductible	Conditions
B. Workmen's Compensation	_____	As per statute _____	
C. Employer's Liability	_____	As per statute _____	Cumulative to workmen's compensation to cover liability not covered thereby.
D. Group Personal Insurance, for Contractor's & Sub-contractor's Employees			

Note :

1. The Employer shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GCC 34.1 except for Third Party Liability, Workman's Compensation and Employer's Liability Insurances and the Contractor's Sub-Contractors shall be named as co-insured under all insurances policies taken out by the Contractor pursuant to GCC 34.1, except for the Cargo Insurance during Transport, Workman's Compensation and Employer's Liability Insurances. All insurers rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies.
2. Notwithstanding the insurance requirements mentioned above, it would be the Contractor's responsibility to take adequate insurance cover as may be pertinent to protect his interest and interest of the Employer. If at any point of time during execution of the Contract, the insurance policies are found to be inadequate, the Contractor shall take fresh insurance policies meeting aforesaid requirements. The Employer reserves the right to make suitable recovery from the Contractor, if any.
3. Any loss or damage to the plant and equipments during handling, transportation, storage, installation, commissioning, and all activities to be performed till the "Completion of Facilities" shall be to the account of the contractor. The contractor shall be responsible for preference of all claims and make good the damages or loss by way of repairs and/or replacement of plant and equipments damaged or lost. Notwithstanding the extent of insurances cover and the amount of claim available from the underwriter, the contractor shall be liable to make good the full replacement/rectification of all the equipments/materials and to ensure their availability as per project requirement without additional financial liability to the Employer.

The insurance should be in freely convertible currency and insurance policy to be taken should be on replacement value basis and/or incorporating appropriate insurance clause.

The Contractor shall follow local acts and laws as may be prevalent for insurance.

4. Upon grant of extension of time for completion by Employer, the contractor shall promptly furnish documentary evidence to project Manager towards extension of insurance policies for the period of extension.

II) Insurances to be taken by the Employer.

The Employer shall take the insurance for its own employees, its stores and its machinery.

TIME SCHEDULE

As Specified in Sec VI-Technical Specification of Bidding document.

LIST OF SUB-CONTRACTORS

Not Applicable

SCOPE OF WORKS AND SUPPLY BY THE EMPLOYER

As Specified in Sec VI-Technical Specification of Bidding document.

Not Applicable

FUNCTIONAL GUARANTEES

Not Applicable

6. PERFORMANCE SECURITY FORM

6. Performance Security Form

(To be stamped in accordance with Stamp Act
of India)

Bank Guarantee No.....
Date.....

To,
NTPC Limited
NTPC Bhawan,
SCOPE Complex,
Institutional Area, Lodhi
Road,
New Delhi - 110003

Dear Sirs,

In consideration of the[*Employer's Name*]..... (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) having awarded to M/s[*Contractor's Name*]..... with its Registered /Head Office at..... (hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of Employer's Notification of Award No. dated..... and the same having been unequivocally accepted by the contractor, resulting into a Contract bearing No..... dated valued at for and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to(*).....% (.....percent) of the said value of the Contract to the Employer.

We[*Name & Address of the Bank*].....having its Head Office at. (hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, on demand any and all monies payable by the Contractor to the extent of(*)..... as aforesaid at any time upto(@)..... [*days/month/year*] without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor. Any such demand made by the Employer on the Bank shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantee herein contained shall be enforceable till ninety (90) days after expiry of its validity.

The Employer shall have the fullest liberty, without affecting in any way the liability of the Bank under this guarantee, from time to time to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The Bank shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of

the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving the Bank.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove our liability under this guarantee is restricted to(*)..... and it shall remain in force upto and including(@)..... and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s[Contractor's Name]..... on whose behalf this guarantee has been given.

Dated this day of 20..... at.....

(Signature).....
(Name).....
.....
(Designation with Bank Stamp)

Attorney as per Power
of Attorney No.....
Dated.....

Notes :1. (*) This sum shall be ten percent (10%) of the Contract Price.

(@) This date will be ninety (90) days beyond the Defects liability period as specified in the Contract.

2. The Bank Guarantee shall be from a Bank as per provisions of the Bidding Documents.
3. The BG shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). The Stamp Paper/e-Stamp paper shall be purchased in the name of Bidder/Bank issuing the guarantee.
4. While getting the Bank Guarantee issued, the Contractor is required to ensure compliance to the points mentioned in Form of Bank Guarantee Verification Check List. Further, the Contractor is required to fill up this Form and enclose the same with the Bank Guarantee.
5. In case, Bank Guarantee is getting issued from State Bank of India, Bidder to take note of NTPC letter ref. NTPC/FC/CS/BG/01 dated 03.09.2014 and SBI letter ref. CAG-I/AMT-1/2014-15/370 dated 04.09.2014 (attached with Section-III of Bidding Docume

**6A. Form of Insurance Surety Bond towards Performance Security
(To be stamped in accordance with Stamp Act of India)**

Insurance Surety Bond No.

Date.....

To,
NTPC Limited
NTPC Bhawan,
SCOPE Complex, Institutional Area, Lodhi Road,
New Delhi - 110003

Dear Sirs,

In consideration of the *[Employer's Name]* (Hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) having awarded to M/s..... *[Contractor's Name]*..... with its Registered /Head Office at (Hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors administrators, executors and assigns), a Contract by issue of Employer's Notification of Award No. dated..... and the same having been unequivocally accepted by the contractor, resulting into a Contract bearing No..... dated, valued at for and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to(*).....% (. percent) of the said value of the Contract to the Employer.

We*[Name & Address of the Insurer]*.....having its Head Office at (hereinafter referred to as the 'Insurer', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, on demand any and all amount payable by the Contractor to the extent of(*)..... as aforesaid at any time up to(@)..... *[days/month/year]* without any condition, demur, reservation, contest, recourse or protest and/or without any reference to the Contractor. Any such demand made by the Employer on the Insurer shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Insurer undertakes not to revoke this Insurance Surety Bond during its currency and or any period extended under the contract, without prior consent of the Employer and further agrees that the guarantee herein contained shall be enforceable till ninety (90) days after expiry of its validity.

The Employer shall have the fullest liberty, without affecting in any way the liability of the Insurer under this Insurance Surety Bond, from time to time to extend the performance of the Contract by the Contractor for the purpose of which, the Insurer shall be liable to extend the validity of the present Insurance Surety Bond without any demur, condition, protest and the Insurer shall at no point in time have an option of revoking the same, The Employer shall have the fullest liberty, without affecting this Insurance Surety Bond, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The Insurer shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission

on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving the Insurer.

The Insurer also agrees and undertakes that the Employer at its option shall be entitled to enforce this Insurance Surety Bond against the Insurer as a Surety, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove our liability under this Insurance Surety Bond is restricted to(*)..... and it shall remain in force upto and including(@)..... and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s[Contractor's Name} on whose behalf this Insurance Surety Bond has been given.

Dated this.....day of 20..... at.....

(Signature).....

(Name).....

.....

(Designation with Insurer Stamp)

Authorised Vide Power

of Attorney No.....

Dated.....

Notes : 1. (*) This sum shall be ten percent (10%) of the Contract Price.

(@) This date will be ninety (90) days beyond the Defect liability period as specified in the Contract.

2. The Insurance Surety Bond shall be from an Insurer as per guidelines issued by Insurance Regulatory and Development Authority of India (IRDAI).
3. The Employer shall be the Creditor, the Contractor shall be the Principal debtor and the Insurance company/Insurer shall be the Surety in respect of the Insurance Surety Bond to be issued by the Insurer.
4. The Insurance Surety Bond shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). The Stamp Paper/e-Stamp paper shall be purchased in the name of Bidder/Insurer issuing the guarantee.
5. While getting the Insurance Surety Bond issued, the Contractor is required to ensure compliance to the points mentioned in Form of Bank Guarantee/ Insurance Surety Bond Verification Check List. Further, the Contractor is required to fill up this Form and enclose the same with the Insurance Surety Bond.

**7. BANK GUARANTEE FORM
FOR ADVANCE PAYMENT**

**7(i). Bank Guarantee Form for Advance Payment
(Supply Ex-Works)**

(To be stamped in accordance with Stamp Act of India)

Bank Guarantee

No.....

Date.....

To,
[Employer's Name & Address]

Dear Sir,

In consideration of[Employer's Name].....
(hereinafter referred to as the 'Employer', which expression shall, unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s.....[Contractor's Name]..... with its Registered/Head Office at (hereinafter referred to as the 'Contractor' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract, by issue of Employer's Notification of Award No. dated and the same having been unequivocally accepted by the Contractor, resulting into a Contract bearing No. dated valued at for [Name of Contract]..... (hereinafter called the 'Contract') and the Employer having agreed to make an advance payment to the Contractor for performance of the above Contract amounting..... (in words and figures) as an Advance against Bank Guarantee to be furnished by the Contractor.

We.....[Name and address of the Bank]..... having its Head Office at (hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, immediately on demand any or, all monies payable by the Contractor to the extent of[advance amount]..... as aforesaid at any time upto(@)..... without any demur, reservation, contest, recourse or protest and/ or without any reference to the Contractor. Any such demand made by the Employer on the Bank shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantee herein contained shall be enforceable till ninety (90) days after expiry of its validity.

The Employer shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee, from time to time to vary the advance or to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The Bank shall not be

released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would but for this provision, have the effect of relieving the Bank.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove our liability under this guarantee is limited to[advance amount]..... and it shall remain in force upto and including(@).....and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s.....[Contractor's Name] on whose behalf this guarantee has been given.

Dated this day of 20 at

WITNESS :

1.	 (Signature)	(Signature)
	 (Name)	(Name)
	 (Official Address)	(Designation
with		Bank Stamp)
		Authorised Vide Power of Attorney

No.....

2. Date.....
.....
 (Signature)
.....
 (Name)
.....
 (Official Address)

- NOTE :
1. (@) This date shall be ninety (90) days beyond the date of Completion of the Facilities.
 2. The Bank Guarantee shall be from a Bank as per provisions of Section-V (SCC) of the Bidding Documents.

3. The BG shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). The Stamp Paper/e-Stamp paper shall be purchased in the name of Bidder/Bank issuing the guarantee..
4. While getting the Bank Guarantee issued, Bidders are required to ensure compliance to the points mentioned in Form 16-Form of Bank Guarantee Verification Check List. Further, the Contractor is required to fill up this Form 16 and enclose the same with the Bank Guarantee.
5. The Bank Guarantee (BG) shall be accompanied with the BG forwarding letter in the format attached as (Form no. 23) in the bidding documents.
6. In case, Bank Guarantee is getting issued from State Bank of India, Bidder to take note of NTPC letter ref. NTPC/FC/CS/BG/01 dated 03.09.2014 and SBI letter ref. CAG-I/AMT-1/2014-15/370 dated 04.09.2014 (attached with Section-V of Bidding Documents).

**7(ii). Bank Guarantee Form for Advance Payment
(Installation/Civil/Site Fabricated Structural works)**

(To be stamped in accordance with Stamp Act of India)

Bank Guarantee

No.....

Date.....

To,
[Employer's Name & Address]

Dear Sir,

In consideration of[Employer's Name].....
(hereinafter referred to as the 'Employer', which expression shall, unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s.....[Contractor's Name]..... with its Registered/Head Office at (hereinafter referred to as the 'Contractor' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract, by issue of Employer's Notification of Award No. dated and the same having been unequivocally accepted by the Contractor, resulting into a Contract bearing No. dated valued at for[Name of Contract]..... (hereinafter called the 'Contract') and the Employer having agreed to make an advance payment to the Contractor for performance of the above Contract amounting.....(in words and figures) as an Advance against Bank Guarantee to be furnished by the Contractor.

We.....[Name and address of the Bank]..... having its Head Office at..... (hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, immediately on demand any or, all monies payable by the Contractor to the extent of[110% of advance amount] as aforesaid along with interest @ ##% on the advance amount released by the Employer calculated from the date of release of the said advance by the Employer to the Contractor, at any time up to(#)..... without any demur, reservation, contest, recourse or protest and/ or without any reference to the Contractor. Any such demand made by the Employer on the Bank shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantee herein contained shall be enforceable till ninety (90) days after expiry of its validity.

The Employer shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee, from time to time to vary the advance or to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise

the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The Bank shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would but for this provision, have the effect of relieving the Bank.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove our liability under this guarantee is limited to[110% of advance amount]..... along with interest therein as aforesaid and it shall remain in force up to and including(@)..... and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s.....[Contractor's Name]..... on whose behalf this guarantee has been given.

Dated this day of 20 at

WITNESS :

1.
.....
(Signature)

.....
.....
(Name)

(Name)

.....
.....
(Official Address)

(Designation

with

Bank Stamp)

Authorised Vide Power of
Attorney

No.....

Date.....

2.
(Signature)

.....
(Name)

.....
(Official Address)

- Notes:**
1. (#) This date shall be ninety (90) days beyond the date of Completion of the Facilities.
(##%) “[SBI 1-year MCLR as on 01st April of applicable year + 100 bps] per annum”
 2. The Bank Guarantee (BG) shall be from a Bank as per provisions of the Bidding Documents.
 3. The BG shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). The Stamp Paper/e-Stamp paper shall be purchased in the name of Bidder/Bank issuing the guarantee.
 4. While getting the Bank Guarantee issued, Bidders are required to ensure compliance to the points mentioned in Bank Guarantee Verification Check List in the Bidding Documents. Bidders are required to fill up this Check List and enclose the same along with the Bank Guarantee.
 5. The Bank Guarantee (BG) shall be accompanied with the BG forwarding letter in the format attached as (Form no. 23) in the bidding documents.
 6. In case, Bank Guarantee is getting issued from State Bank of India, Bidder to take note of NTPC letter ref. NTPC/FC/CS/BG/01 dated 03.09.2014 and SBI letter ref. CAG-I/AMT-1/2014-15/370 dated 04.09.2014 (attached with Section-V of Bidding Documents).

8. FORM OF COMPLETION CERTIFICATE

8. Form of Completion Certificate

Date:

Contract Ref.No.....

[Name of Contract]

To: [Name and address of Contractor]

Dear Sirs,

Pursuant to GCC Clause 24 (Completion of the Facilities) of the General Conditions of the Contract entered into between yourselves and the Employer dated [date], relating to the [brief description of the facilities], we hereby notify you that the following part(s) of the Facilities was (were) complete on the date specified below, and that, in accordance with the terms of the Contract, the Employer hereby takes over the said part(s) of the Facilities, together with the responsibility for care and custody and the risk of loss thereof on the date mentioned below.

1. Description of the Facilities or part thereof: [description]
2. Date of Completion: [date]

However, you are required to complete the outstanding items listed in the attachment hereto as soon as practicable.

This letter does not relieve you of your obligation to complete the execution of the Facilities including Guarantee Test(s) in accordance with the Contract nor of your obligations during the Defects Liability Period.

Very truly yours,

**9. FORM OF
OPERATIONAL
ACCEPTANCE CERTIFICATE**

9. Form of Operational Acceptance Certificate

Date:

Contract Ref. No.

[Name of Contract]

To: *[Name and address of Contractor]*

Dear Sirs,

Pursuant to GCC Sub-Clause 25.3 (Operational Acceptance) of the General Conditions of the Contract entered into between yourselves and the Employer dated *[date]*, relating to the *[brief description of the facilities]*, we hereby notify you that the Functional Guarantees of the following part(s) of the Facilities were satisfactorily attained on the date specified below.

1. Description of the Facilities or part thereof: *[description]*
2. Date of Operational Acceptance: *[date]*

This letter does not relieve you of your obligation to complete the execution of the Facilities in accordance with the Contract nor of your obligations during the Defects Liability Period.

Very truly yours,

Title
(Project Manager)

10. FORM OF TRUST RECEIPT

**10. FORM OF TRUST RECEIPT FOR PLANT,
EQUIPMENT AND MATERIALS RECEIVED**

We M/s *(Contractor's Name)* having our
Principal place of business at having been awarded a Contract
No..... dated for *(Contract Name)* by
(Name of Employer)

We do hereby acknowledge the receipt of the Plant, Equipment and Materials as are fully described and mentioned under Documents of Title/RR/LR etc. and in the schedule annexed hereto, which shall form an integral part of this receipt as "Trustee" of.....*(Name of Employer)*. The aforesaid materials etc. so received by us shall be exclusively used in the successful performance of the aforesaid Contract and for no other purpose whatsoever. We undertake not to create any charge, lien or encumbrance over the aforesaid materials etc, in favour of any other person/institution(s)/Banks.

For M/s
(Contractor's Name)

Dated :

(AUTHORISED SIGNATORY)

**11. FORM OF INDEMNITY-CUM-UNDERTAKING
AGREEMENT**

**11a. FORM OF INDEMNITY-CUM-UNDERTAKING AGREEMENT
FOR THE EQUIPMENTS
HANDED OVER BY THE EMPLOYER
FOR PERFORMANCE OF CONTRACT
(Entire Equipment Consignment in one lot)**

(On Non-Judicial Stamp Paper of appropriate value)

INDEMNITY-CUM-UNDERTAKING AGREEMENT

THIS INDEMNITY-CUM-UNDERTAKING AGREEMENT is made this day of..... 20 by(Contractor's Name) a Company registered under the Companies Act, 1956/Partnership Firm/Proprietary Concern having its Registered Office at (hereinafter called as 'Contractor' or "Obligor" which expression shall include its successors and permitted assigns) in favour of (Name of Employer), a Company incorporated under the Companies Act, 1956 having its Registered Office at and its project at (hereinafter called "....." {Abbreviated name of the Employer}) which expression shall include its successors and assigns) :

WHEREAS@..... has awarded to the Contractor a Contract for vide its Notification of Award/Contract No..... dated and its Amendment No. and Amendment No....., (*applicable when amendments have been issued*) (hereinafter called the "Contract") in terms of which@..... is required to hand over various Equipments to the Contractor for execution of the Contract.

And WHEREAS by virtue of Clause No. of the said Contract, the Contractor is required to execute an INDEMNITY-CUM-UNDERTAKING AGREEMENT in favour of.....@..... for the Equipments handed over to it by@..... for the purpose of performance of the Contract/Erection Portion of the Contract (hereinafter called the "Equipments")

AND THEREFORE, This INDEMNITY-CUM-UNDERTAKING AGREEMENT witnesseth as follows:

1. That in consideration of various Equipments as mentioned in the Contract, valued at (*Currency and amount in Figures*)..... (*Currency and amount in words*) handed over to the Contractor for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep@..... indemnified, for the full value of the Equipments. The Contractor hereby acknowledges actual receipt of the Equipments, etc. as per despatch title documents handed over to the Contractor as detailed in the Schedule appended hereto. The Contractor shall hold such Equipments, etc. in trust as a "Trustee" for and on behalf of@..... .

@ Fill in abbreviated name of Employer.

2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit/protection and custody of the Equipments at@..... project site against all risks whatsoever till the Equipments are duly used/erected in accordance with the terms of the Contract and the plant/package duly erected and commissioned in accordance with the terms of the Contract is taken over by@..... . The Contractor undertakes to keep@..... harmless against any loss or damage that may be caused to the Equipments.
3. The Contractor undertakes that the Equipments shall be used exclusively for the performance/execution of the Contract strictly in accordance with its terms and conditions and no part of the Equipments shall be utilised for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this INDEMNITY-CUM-UNDERTAKING AGREEMENT by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purpose including legal/penal consequences.
4. That@..... is and shall remain the exclusive owner of the Equipments free from all encumbrances, charges or liens of any kind, whatsoever. The Equipments shall at all times be open to inspection and checking by the Project Manager or other employees/agents authorised by him in this regard. Further, ...@..... shall always be free at all times to take possession of the Equipments in whatever form the Equipments may be, if in its opinion, the Equipments are likely to be endangered, misutilised or converted to uses other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the Contractor binds himself and undertakes to comply with the directions of demand of@..... to return the Equipments without any demur or reservation.
5. That this INDEMNITY-CUM-UNDERTAKING AGREEMENT is irrevocable. If at any time any loss or damage occurs to the Equipments or the same or any part thereof is mis-utilised in any manner whatsoever, then the Contractor hereby agrees that the decision of the Project Manager of@..... as to assessment of loss or damage to the Equipments shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged Equipments at its own cost and/or shall pay the amount of loss to@..... without any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to@..... against the Contractor under the Contract and under this INDEMNITY-CUM- UNDERTAKING AGREEMENT.
6. NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with the terms and conditions of this Bond to the satisfaction of@....., THEN, the above Bond shall be void, but otherwise, it shall remain in full force and virtue.

@ Fill in abbreviated name of Employer.

IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its authorised representative under the common seal of the Company, the day, month and year first above mentioned.

SCHEDULE

Particulars of the Equipments handed over	Quantity	Particulars of Despatch Title Documents	Value of the Equip- ments	Signature of Attorney in token of receipt
		RR/GR/Bill of Lading No & Date	Carrier	

For and on behalf of

.....
(Contractor's Name)

WITNESS :

1.	1.	Signature	Signature
	2.	Name	Name
	3.	Address	Designation of Authorised representative *
2.	1.	Signature	(Common Seal)
	2.	Name	(In case of Company)
	3.	Address	

* INDEMNITY-CUM-UNDERTAKING AGREEMENT are to be executed by the authorised person and (i) in case of contracting Company under common seal of the Company or (ii) having the Power of Attorney issued under common seal of the company with authority to execute INDEMNITY-CUM-UNDERTAKING AGREEMENT, (iii) In case of (ii), the original Power of Attorney if it is specifically for this Contract or a photostat copy of the Power of Attorney if it is General Power of Attorney and such documents should be attached to INDEMNITY-CUM-UNDERTAKING AGREEMENT.

**11b. FORM OF INDEMNITY-CUM-UNDERTAKING AGREEMENT TO BE EXECUTED
BY THE CONTRACTOR FOR THE EQUIPMENTS
HANDED OVER IN INSTALMENTS BY THE
EMPLOYER FOR PERFORMANCE OF ITS CONTRACT**

(On Non-Judicial Stamp Paper of appropriate value)

INDEMNITY-CUM-UNDERTAKING AGREEMENT

THIS INDEMNITY-CUM-UNDERTAKING AGREEMENT is made this day of..... 20 by(Contractor's Name) a Company registered under the Companies Act, 1956/Partnership Firm/Proprietary Concern having its Registered Office at (hereinafter called as 'Contractor' or "Obligor" which expression shall include its successors and permitted assigns) in favour of(Name of Employer), a Company incorporated under the Companies Act, 1956 having its Registered Office at and its project at (hereinafter called "....."{Abbreviated name of the Employer}") which expression shall include its successors and assigns) :

WHEREAS@..... has awarded to the Contractor a Contract for.....vide its Notification of Award/Contract No.....dated and its Amendment No. and Amendment No., (applicable when amendments have been issued) (hereinafter called the "Contract") in terms of which@..... is required to hand over various Equipments to the Contractor for execution of the Contract.

And WHEREAS by virtue of Clause No. of the said Contract, the Contractor is required to execute an INDEMNITY-CUM-UNDERTAKING AGREEMENT in favour in@..... for the Equipments handed over to it by@..... for the purpose of performance of the Contract/Erection Portion of the Contract (hereinafter called the "Equipments")

NOW THEREFORE, This INDEMNITY-CUM-UNDERTAKING AGREEMENT witnesseth as follows :

1. That in consideration of various Equipments as mentioned in the Contract, valued at (Currency and amount in figures)(Currency and amount in words) to be handed over to the Contractor in instalments from time to time for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep@..... indemnified, for the full value of the Equipments. The Contractor hereby acknowledges actual receipt of the initial instalment of the Equipments, etc. as per details in the Schedule appended hereto. Further, the Contractor agrees to acknowledge actual receipt of the subsequent instalments of the Equipments, etc. as required by@..... in the form of Schedules consecutively numbered which shall be attached to this INDEMNITY-CUM- UNDERTAKING AGREEMENT so as to form integral parts of this Bond. The Contractor shall hold such Equipments, etc. in trust as a "Trustee" for and on behalf of@.....

@ Fill in abbreviated name of Employer.

2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit/protection and custody of the Equipments at@..... project site against all risks whatsoever till the Equipments are duly used/erected in accordance with the terms of the Contract and the plant/package duly erected and commissioned in accordance with the terms of the Contract, is taken over by@..... . The Contractor undertakes to keep@..... harmless against any loss or damage that may be caused to the Equipments.
3. The Contractor undertakes that the Equipments shall be used exclusively for the performance/execution of the Contract strictly in accordance with its terms and conditions and no part of the Equipments shall be utilised for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this INDEMNITY-CUM-UNDERTAKING AGREEMENT by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purpose including legal/penal consequences.
4. That@..... is and shall remain the exclusive owner of the Equipments free from all encumbrances, charges or liens of any kind, whatsoever. The Equipments shall at all times be open to inspection and checking by the Project Manager or other employees/agents authorised by him in this regard. Further, ...@..... shall always be free at all times to take possession of the Equipments in whatever form the Equipments may be, if in its opinion, the Equipments are likely to be endangered, misutilised or converted to uses other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the Contractor binds himself and undertakes to comply with the directions of demand of@..... to return the Equipments without any demur or reservation.
5. That this INDEMNITY-CUM-UNDERTAKING AGREEMENT is irrevocable. If at any time any loss or damage occurs to the Equipments or the same or any part thereof is mis-utilised in any manner whatsoever, then the Contractor hereby agrees that the decision of the Project Manager of@..... as to assessment of loss or damage to the Equipments shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged Equipments at its own cost and/or shall pay the amount of loss to@..... without any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to@..... against the Contractor under the Contract and under this INDEMNITY-CUM- UNDERTAKING AGREEMENT.
6. NOW THE CONDITION of this Bond is that if the Contractor shall duly and punctually comply with the terms and conditions of this Bond to the satisfaction of@....., THEN, the above Bond shall be void, but otherwise, it shall remain in full force and virtue.

@ Fill in abbreviated name of Employer.

IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its authorised representative under the common seal of the Company, the day, month and year first above mentioned.

SCHEDULE No.1

Particulars of the Equipments handed over	Quantity Signature of	Particulars of Despatch Title Documents RR/GR/Bill of Lading No & Date	Carrier	Value of the Equip- ments Attorney in token of receipt

(Please number subsequent schedules)

For and on behalf of

.....
(Contractor's Name)

WITNESS

1.	1.	Signature	Signature
	2.	Name	Name
	3.	Address	Designation of Authorised representative *
2.	1.	Signature	(Common Seal) (In case of Company)
	2.	Name	
	3.	Address	

* INDEMNITY-CUM-UNDERTAKING AGREEMENT are to be executed by the authorised person and (i) in case of contracting Company under common seal of the Company or (ii) having the Power of Attorney issued under common seal of the company with authority to execute INDEMNITY-CUM-UNDERTAKING AGREEMENT, (iii) In case of (ii), the original Power of Attorney if it is specifically for this Contract or a photostat copy of the Power of Attorney if it is General Power of Attorney and such documents should be attached to INDEMNITY-CUM-UNDERTAKING AGREEMENT.

12. FORM OF AUTHORISATION LETTER

12. FORM OF AUTHORISATION LETTER

(NAME OF EMPLOYER)

(PROJECT)

REF. NO. :

DATE :

To,

M/s (*Contractor's Name*).....

Ref : Contract No..... Dated

for awarded by (*Name of Employer*)

Dear Sirs,

Kindly refer to Contract No..... Dated for(*Contract Name*)
You are hereby authorised on behalf of.....(*Name of Employer*) having its registered
office at and its Project at to take
physical delivery of materials/equipments covered under despatch Document/ Consignment Note
no..... * dated and as detailed in the
enclosed Schedule for the sole purpose of successful performance of the aforesaid contract and
for no other purposes, whatsoever.

(Signature of Project Authority)

(Designation :

Date

ENCL : as above

* Mention LR/RR No.

**SCHEDULE OF MATERIAL/EQUIPMENT COVERED UNDER
DESPATCH TITLE DOCUMENT (RR NO./ LR NO.....)**

Sl. No.	Contract Name	NOA No./ Contract Agreement No.	Description of Materials/ Equipments	Spec. No.	Qty.	Value	Remarks

(SIGNATURE OF THE PROJECT AUTHORITY)

Designation).....

(Date).....

13. DEED OF JOINT UNDERTAKING

**13. FORM OF DEED OF JOINT UNDERTAKING
(ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)
DEED OF JOINT UNDERTAKING TO BE EXECUTED BY THE
COLLABORATOR / ASSOCIATE ALONGWITH THE CONTRACTOR FOR
DEVELOPMENT OF A FLOOD FORECASTING SYSTEM & ITS INTEGRATION WITH EXISTING
AUTOMATIC FLOOD WARNING SYSTEM FOR TVHEP (4X130MW)**

(AS PER CLAUSE 1.1.2 IN APPENDIX-I TO IFB)

This DEED of UNDERTAKING executed this..... day of Two thousand by M/s a Company incorporated under having its Registered Office at..... (hereinafter called the "Collaborator"/"Associate", which expression shall include its successors, administrators, executors and permitted assigns) and M/s..... a company registered under the having its registered office at.....(hereinafter called the Bidder/Contractor, which expression shall include its successors, administrators, executors and permitted assigns) in favour of NTPC Limited having its registered office at NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodi Road, New Delhi-110003, India (hereinafter called "NTPC" or "Employer" which expression shall include its successors, administrators, executors and assigns).

WHEREAS, the Employer invited Bids for Installation and Commissioning of Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP (4x130MW) (hereinafter referred to as "Plant") as specified in its Bidding Document No. **9900325428**.

AND WHEREAS Clause 1.1.2 of Appendix-1 to IFB of Bidding Documents stipulates that bidding is open to a bidder who partially meets the requirements stipulated in Clause 1.1.1 Appendix-1 to IFB and collaborates/associates with a firm who in turn fully meets the stipulated requirements as per Clause 1.1.2 of Appendix-1 to IFB of Bidding Documents.

AND WHEREAS M/s..... (Bidder) himself partially meets the requirements of clause no. 1.1.1, Appendix-1 to IFB of Bidding Documents and hence desires to Collaborate/Associate with M/s.....(hereinafter referred to as Collaborator/Associate) who has designed, supplied, installed and commissioned Flood Warning System/Flood Forecasting system/Early Flood Warning System in at least one Hydro Electric Project comprising of automatic weather station/river water level /river flow measurement, Command and Control System/SCADA and communication either via VSAT or point to point wireless communication system either in India or abroad, which is in successful operation for a period of not less than one (1) year, prior to the date of opening of Techno-Commercial bid and as a pre condition for submitting the bid, the bidder and the Collaborator/Associate are required to jointly execute and furnish along with the bid an irrevocable Deed of Joint Undertaking that they shall be held jointly and severally responsible and bound unto the Employer for successful performance of the system to be designed, supplied, installed and commissioned under the **Installation and commissioning of Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP (4x130MW)** fully meeting the parameters guaranteed as per the Bidding Documents, in the event the Bid is accepted by the Employer resulting in a Contract (hereinafter called the "Contract").

WHEREAS M/s is submitting its proposal in response to the aforesaid Invitation for Bid by the Employer bearing proposal No.....dated.....for **Installation and commissioning of Flood Forecasting System & its Integration with existing Automatic Flood Warning System for TVHEP (4x130MW)** against the Employer's Bidding Documents.

NOW THEREFORE, THIS UNDERTAKING WITNESSETH AS UNDER:

1. That in consideration of the Award of the Contract by the Employer to the Contractor, we, the aforesaid Associate and the Contractor, do hereby declare and undertake that we shall be jointly and severally responsible to the Employer for the successful performance of Installation and commissioning of Flood Forecasting System & its Integration with existing Automatic Flood Warning System and perform all the contractual obligations including the technical guarantees for the system and the associated auxiliary equipment.
2. In case of any breach of the Contract committed by the Contractor, we, the Collaborator/Associate, do hereby undertake, declare and confirm that we shall be fully responsible for the successful performance of the Installation and commissioning of Flood Forecasting System & its Integration with existing Automatic Flood Warning System and undertake to carry out all the obligations and responsibilities under the contract in order to discharge the Contractor's obligations and responsibilities stipulated in the Contract. Further, if the Employer sustains any loss or damage on account of any breach of the Contract, we, the Associate and Contractor, jointly and severally undertake to promptly indemnify, and pay such losses/damages caused to the Employer on its written demand without any demur, reservation, contest or protest in any manner whatsoever.

This is without prejudice to any rights of the Employer against the Contractor under the Contract and/or guarantees. It shall not be necessary or obligatory for the Employer to first proceed against the Contractor before proceeding against the Associate, nor any extension of time or any relaxation given by the Employer to the Contractor would prejudice to any rights of the Employer under this Deed of Joint Undertaking to proceed against the Associate/Collaborator.

3. Without prejudice to the generality of the undertaking in paragraph 1 above, the manner of achieving the objectives set forth in paragraph 1 above shall be as follows:

- (a) We the Collaborator/Associate shall be fully responsible for design, installation & commissioning and extending all necessary support for carrying out guarantee tests, if applicable, for the System to the satisfaction of the Employer.

Further, the Collaborator/Associate shall depute their technical experts from time to time to the Contractor's works/Employer's project site as required by the Employer and agreed to by Contractor and the Collaborator/Associate to facilitate the successful performance of the Systems as stipulated in the Contract(s).

Further, the Collaborator/Associate shall provide support to Contractor to ensure proper design, manufacture, supply, installation, testing, Commissioning and successful performance of the Systems covered under the said Contract(s) in accordance with stipulations of Bidding Documents and if necessary, the Collaborator/Associate shall advise the Contractor suitable modifications of design and implement necessary corrective measures to discharge the obligations under the Contract(s).

- (b) In the event the Collaborator/Associate and the Contractor fail to demonstrate successful performance of the Systems as set forth in paragraph 1 above, the Collaborator/Associate and the Contractor shall promptly carry out all the corrective measures at their own expense and shall promptly provide corrected design to the Employer.

- (c) Implementation of the corrected design and all other necessary repairs, replacements, rectifications or modifications to the Systems and payment of financial liabilities, penalties and

any other obligations as provided under the Contract shall be the joint and several responsibilities of the Contractor and the Collaborator/Associate .

- (d) The Collaborator/Associate will be fully responsible to extend the support to ensure the quality of all the equipment/main assemblies/components manufactured at their works and/or at their Vendors' works and/or at Contractor's works and/or fabricated/constructed at site, and their repair, as applicable.
4. We, the Contractor and Collaborator/Associate do hereby undertake and confirm that the Undertaking shall be irrevocable and shall not be revoked till the expiry of defect liability period of the Plant under the Contract and further stipulate that the Undertaking herein contained shall terminate after 90 days of satisfactory completion of such defect liability period. In case of delay in completion of defect liability period, the validity of this Deed of Joint Undertaking shall be extended by such period of delay. We further agree that this undertaking shall be without any prejudice to the various liabilities of the Contractor, including the Contract Performance Security as well as other obligations of the Contractor in terms of the Contract.
5. In case of Award, in addition to the Contract Performance Security furnished by the Bidder, the Collaborator/Associate shall furnish "as Security" an on demand Performance Bank Guarantee in favour of the Employer in a form acceptable to Employer as per provisions of the Bidding Documents. The value of such Bank Guarantee shall be equal to **3% (Three percent)** of the total contract price of the Contract awarded by the Employer to the Contractor and it shall be guarantee towards the faithful performance/compliance of this Deed of Joint Undertaking in accordance with the terms and conditions specified herein.

The Bank Guarantee shall be unconditional, irrevocable and valid for entire period of Contract, i.e. till ninety (90) days beyond the end of the Defect Liability period of the Installation and commissioning of Flood Forecasting System & its Integration with existing Automatic Flood Warning System Package under the Contract. In case of delay in completion of the defect liability period, the validity of this Bank Guarantee shall be extended by the period of such delay. The Bank Guarantee amount shall be promptly paid to the Employer on demand without any demur, reservation, protest or contest.
6. Any dispute that may arise in connection with this Deed of Joint Undertaking shall be settled as per arbitration procedure/rules mentioned in the Contract Document. This Deed of Undertaking shall be construed and interpreted in accordance with the Laws of India and the Courts of Delhi shall have exclusive jurisdiction.
7. We, the Collaborator/Associate and the Contractor agree that this Undertaking shall be irrevocable and shall form an integral part of the Contracts. We further agree that this Undertaking shall continue to be enforceable till the successful completion of Contract and till the Employer discharge it.
8. That this Deed shall be operative from the effective date of the Contract.

IN WITNESS WHEREOF, the Collaborator/Associate and the Contractor, through their authorised representatives, have executed these present and affixed common seals of their respective companies on the Day, Month and Year first mentioned above.

For M/s

(Collaborator/Associate)

Witness:

1.
(Signatures)

.....
(Signature of the authorised representative)

.....
(Name & Official Address)

Name:

Designation:

(Common Seal of the Company)

.....

For M/s
(Bidder)

Witness:

1.
(Signatures)
(Signature of the authorised representative)

.....
(Name & Official Address) Name:
Designation:
(Common Seal of the Company)
.....

Note:

- (i) **Power of Attorney of the persons signing on behalf of each of the executants is to be furnished by the bidder and attached along with the signed Deed of Joint Undertaking.**
- (ii) **The Bank Guarantee shall be from a Bank as per provisions of Section-V (SCC) of the Bidding Documents.**

**14. FORM OF BANK GUARANTEE/INSURANCE
SURETY BOND
BY ALL EXECUTANTS OF DEED OF JOINT
UNDERTAKING OTHER THEN CONTRACTOR**

14. PROFORMA FOR BANK GUARANTEE TO BE FURNISHED BY THE ASSOCIATE/ COLLABORATOR

(To be stamped in accordance with the Stamp Act, if any, of the Country of the issuing Bank) :

Bank Guarantee No.....

Date

In consideration of NTPC Ltd., (hereinafter referred to as "Employer" which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to with its Registered Head Office at..... (herein-after referred to as.....or "Contractor") a Contract for Package for its(Name of Project) vide Contract No. dated..... and the same having been unequivocally accepted by the Contractor resulting in a "Contract", which award is on the strength of Deed of Joint Undertaking dated..... (hereinafter referred to as "Undertaking") given by M/s..... * (Contractor) and by (Associate/Collaborator) having its registered office at..... (hereinafter called or Associate/ Collaborator), and the Contractor having further executed with (Associate/Collaborator) a Sub-Contract dated and the same having been unequivocally accepted by the Associate/Collaborator resulting in a Sub-Contract Agreement valued at.....for (hereinafter called "Sub Contract Agreement") and (Associate/Collaborator) having agreed to provide a Performance Guarantee amounting to to the Employer on the terms and conditions specified in the "Undertaking".

We..... Bank, having its Head Office at (herein-after referred to as the "Bank", which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay to the Employer on demand any and all monies to the extent of.....(Specify currency and amount in words and figures) only as aforesaid at any time upto.....@.....without any demur, reservation, context, recourse or protest and/or without any references to "Associate/Collaborator" or "Contractor". Any such demand made by the Employer on the Bank shall be conclusive and binding, notwithstanding any difference between the Employer and Contractor and/or between the Employer and Associate/Collaborator or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantee herein contained shall be enforceable till ninety (90) days after expiry of its validity.

The Employer shall have the fullest liberty, without affecting in any way the liability of the Bank under this guarantee, from time to time to extend the time for performance of the Contract or the Sub-Contract Agreement by the Associate/Collaborator. The Employer shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the * Brief name of the Contractor.

Associate/Collaborator and to exercise the same at any time, in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract or Undertaking or any other course or remedy or security available to the Employer. The Bank shall not be released of its obligations under these presents by any exercise of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would, but for this provision have the effect of relieving the Bank from its obligations.

The Bank also agrees that the Employer at is option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against Contractor or Associate/Collaborator and notwithstanding any security or other guarantee that the Employer may have in relation to Contractor's or Associate's/ Collaborator's liabilities.

Notwithstanding anything contained hereinabove our liability under this guarantee is restricted to and, it shall remain in force upto and including..... @ and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s (Associate/Collaborator) on whose behalf this guarantee has been given. Date this.....day of.....20.....at.....

WITNESS

(Signature).....(Signature).....

(Name).....(Name & Designation).....

(Official Address).....(Bank's Seal).....

Authorised vide Power of
Attorney No.....

Date.....

Notes :

1. The date shall be as specified in the corresponding format for the Deed of Joint Undertaking enclosed in the Section 'Forms and Procedures'.
2. The Bank Guarantee shall be from a Bank as per provisions of Section-V (SCC) of the Bidding Documents.
3. The BG shall be issued on Non-Judicial stamp paper/e-stamp paper of appropriate value as per applicable Stamp Act(s). The Stamp Paper/e-Stamp paper shall be purchased in the name of Bidder/Bank issuing the guarantee.
4. While getting the Bank Guarantee issued, Bidders are required to ensure compliance to the points mentioned in Bank Guarantee Verification Check List in the bidding documents. Bidders are required to fill up this Check List and enclose the same along with the Bank Guarantee.
5. The Value shall be as specified in the Qualifying Requirements stipulated in Appendix-I to IFB, Section I of Bidding Documents.
6. In case, Bank Guarantee is getting issued from State Bank of India, Bidder to take note of NTPC letter ref. NTPC/FC/CS/BG/01 dated 03.09.2014 and SBI letter ref. CAG-I/AMT-1/2014-15/370 dated 04.09.2014 (attached with Section-III of Bidding Documents).

**15. FORM OF BANK
GUARANTEE/ INSURANCE
SURETY BOND VERIFICATION
CHECK LIST**

BANK GUARANTEE/INSURANCE SURETY BOND VERIFICATION CHECKLIST

1. Bank Guarantee/Insurance Surety Bond No.
2. Issuing Bank/Insurer
3. Amount of BG/Insurance Surety Bond
4. Nature of BG/Insurance Surety Bond & No. of Pages
5. Validity of BG/Insurance Surety Bond
6. Package Description
7. Party & Contracts Ref. Name, Address, Tel, Fax,
e-mail, Contract No.
Package Name
8. Bank/Insurer Reference Name, Address, Tel. Fax, E-mail

CHECK LIST

S.No.	Details of Checks	Yes/No
a)	Is the BG/Insurance Surety Bond on non-judicial stamp paper / e-stamp paper of appropriate value, as per Stamp Act?	
b)	Whether date, purpose of purchase and name of the purchaser are indicated on the stamp paper? (The date of purchase of stamp paper should be of any date on or before the date of execution of BG/Insurance Surety Bond and the stamp paper should be purchased either in the name of the executing Bank/Insurer or the Party on whose behalf the BG/Insurance Surety Bond has been issued. The stamp paper (other than e-stamp paper) should be duly Signed by the Stamp Vendor)	
c)	Has the executing Officer of BG/Insurance Surety Bond indicated his name, designation and Power of Attorney No. / Signing Power No. etc. on the BG/Insurance Surety Bond?	
e)	Is each page of BG/Insurance Surety Bond duly signed/initiated by executant	

- f) and whether stamp of Bank/Insurer is affixed thereon? Whether the last page is signed with full particulars including two witnesses under seal of Bank/Insurer as required in the prescribed proforma?
- g) Does the Bank Guarantee/Insurance Surety Bond compare verbatim with the Proforma prescribed in the Bid Documents?
- h) Are the factual details such as Bid Document No., NOA / LOA / Contract No., Contract Price, Percentage of Advance, Amount of BG/Insurance Surety Bond and Validity of BG/Insurance Surety Bond correctly mentioned in the BG/ Insurance Surety Bond?
- i) Whether overwriting / cutting if any on the BG/ Insurance Surety Bond have been properly authenticated under signature & seal of executant?
- j) Whether the BG/Insurance Surety Bond has been issued by a Bank/Insurer in line with the provisions of Bid/Contract Documents?
- k) In case BG has been issued by a Bank other than those specified in Bid/Contract Document, is the BG confirmed by a Bank in India acceptable as per Bid/Contract Documents?

Date : Signature

Place : Printed Name

(Designation)

(Common Seal)

Note : Bidder / Contractor / Promoters / Collaborator is required to fill up this form and enclose along with the Bank Guarantee.

**16. FORM OF VALIDITY EXTENSION OF
BANK GUARANTEE/INSURANCE
SURETY BOND**

FORM OF EXTENSION OF BANK GUARANTEE/ INSURANCE SURETY BOND

(To be stamped in accordance with the Stamp Act,
if any, of the Country of the issuing Bank) :

Ref. No.:
@ _____

Date:

Dear Sirs,

Subject : Extension of Bank Guarantee/Insurance Surety Bond No. _____ dated _____
_____ for[indicate value of Bank
Guarantee/Insurance Surety Bond].....favouring ourselves expiring on _____on
account of M/s..... (Name of Bidder).....in respect of Contract for (Insert
Package name)_____ (Insert Project Name)
_____ project, Contract No.
_____ dated _____
_____ (hereinafter called original
Bank Guarantee/Insurance Surety Bond)

At the request of M/s _____ we _____ Bank/Insurer
branch office at _____ and having its Head office at
_____ do hereby extend our
liability under the above mentioned guarantee No. _____
_____ dated _____ for a further period of _____ year/months
from _____ to expire on _____.

Except as provided above, all other terms and conditions of original Bank
Guarantee/Insurance Surety Bond No. _____ dated _____ shall remain unaltered
and binding.

Please treat this as an integral part of the original guarantee to which it would be deemed to
have been attached.

.....(Signature)

.....(Name)

..... (Designation with
Bank/Insurer Stamp)

Authorised vide

Power of Attorney No..... Date.....

Dated _____

SEAL OF BANK/INSURANCE COMPANY

Note:

1. @ The extension of the Bank Guarantee/Insurance Surety Bond should be forwarded to the Unit/ Project/Corporate Centre, from where the extension has been sought.
2. The extension of BG/Insurance Surety Bond should be on Non-Judicial stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG/Insurance Surety Bond is submitted or is to be acted upon or the rate prevailing in the State where the BG is executed, whichever is higher. The Stamp Paper/e-Stamp paper shall be purchased in the name of Bidder/Bank issuing the guarantee.

**17. FORM OF INDEMNITY-CUM-UNDERTAKING
AGREEMENT [FOR REMOVAL / DISPOSAL OF SCRAP
/ SURPLUS MATERIAL]**

**1. FORM OF INDEMNITY-CUM-UNDERTAKING AGREEMENT WITH REGARD TO
REMOVAL/DISPOSAL OF SCRAP/SURPLUS MATERIAL**

(TO BE EXECUTED ON STAMP PAPER OF APPROPRIATE VALUE)

INDEMNITY-CUM-UNDERTAKING AGREEMENT

THIS INDEMNITY-CUM-UNDERTAKING AGREEMENT executed this.....day
of..... 20 between(Name of Company)
..... a Company /Partnership Firm / Proprietary Concern incorporated
under the laws of having its Registered Office(s) at
..... (Office Address) hereinafter called the 'Contractor'
(which expression shall, unless excluded by or repugnant to the context, be deemed to mean and
include its successors, administrators, executors and permitted assigns)

AND

M/s. having its registered office at
..... (hereinafter referred to as 'Employer').

1. 'Employer' has awarded the 'Contractor', contract for execution of work ("Scope of Work")
as mentioned in the contract agreement no..... dated
....., entered into between 'Employer' and 'Contractor', relating to
..... (Name & Address of Project/Station)
..... (hereinafter called 'the Project').
2. The 'Contractor' for the purpose of execution of its Scope of Work had from time to time
procured and stored (Details of Material) at the
Project Site.
3. After completion of the Scope of Work by 'Contractor', it has been identified that scrap
..... (Details of Scrap Material & its quantity).....and/or
surplus (Details of Surplus Material & its Quantity)
belonging to 'Contractor' is lying at the said Project Site.
4. Now, the scrap (Details of Scrap Material & its Quantity)
and/or surplus (Details of Surplus Material & its Quantity)
belonging to the 'Contractor', requires to be removed by 'Contractor' from the Project Site.

**NOW THEREFORE THIS INDEMNITY-CUM-UNDERTAKING AGREEMENT WITNESSETH
AS UNDER:**

1. That 'Contractor' by way of this Indemnity-cum-Undertaking Agreement requests
'Employer' to issue necessary exit gate pass(es) in favour of 'Contractor' for removal of

scrap..... (Details of Scrap Material & its Quantity) and/or
surplus (Details of Surplus Material & its Quantity)
belonging to 'Contractor', from the project.

2. That as per Employer's procedure, 'Contractor' shall ensure loading of trucks for clearing of its scrap (Details of Scrap Material & its Quantity) and/or surplus (Details of Surplus Material & its Quantity) by itself, as aforesaid, under the supervision of CISF personnel.
3. That 'Contractor' in consideration of the premises above, for itself and its respective, executors, administrators and assigns, jointly and severally agree and undertake from time to time and at all times hereafter to indemnify 'Employer' and keep 'Employer' indemnified from and against all claims, demands, actions, liabilities and expenses which may be made or taken against or incurred by 'Employer' by reason of the issue of necessary gate pass(es) by 'Employer' and permitting 'Contractor' to remove scrap (Details of Scrap Material & its Quantity) and/or surplus (Details of Surplus Material & its Quantity) belonging to 'Contractor', from the project.
4. That 'Contractor' undertakes to indemnify and keep 'Employer' harmless from any act of omission or negligence on the part of the 'Contractor' in following the statutory requirements with regard to removal/disposal of scrap and surplus belonging to 'Contractor', from the Project Site aforesaid, by the 'Contractor'. Further, in case the laws require 'Employer' to take prior permission of the relevant Authorities before handing over the scrap and/or surplus to the 'Contractor', the same shall be obtained by the 'Contractor' on behalf of 'Employer'.

IN WITNESS WHEREOF, the 'Contractor' and the 'Employer', through their authorized representative, have executed these presents on the Day, Month and Year first mentioned above at (Name of the Place)

For and on behalf of

.....
(Contractor's Name)

Signature
Name
Designation of
Authorised representative *

For and on behalf of

.....
(Employer's name)

Signature
Name
Designation of
Authorised representative *

WITNESS :

1. Signature
2. Name
3. Address

WITNESS :

1. Signature
2. Name
3. Address

-
- * Indemnity-cum-Undertaking Agreement are to be executed by the authorised person and (i) in case of contracting Company under common seal of the Company or (ii) having the Power of Attorney issued under common seal of the company with authority to execute Indemnity-cum-Undertaking Agreement , (iii) In case of (ii), the original Power of Attorney if it is specifically for this Contract or a photostat copy of the Power of Attorney if it is General Power of Attorney and such documents should be attached to Indemnity-cum-Undertaking Agreement. In case of Employer, by the authorized representative of the Employer.

18. FORM OF CONTRACT CLOSING CERTIFICATES

PROFORMA OF CERTIFICATE OF FINAL AMENDMENT TO THE CONTRACT

(TO BE ISSUED BY CORPORATE CONTRACT SERVICES)

CERTIFICATE NO. CCP - 01R

NAME OF PACKAGE:

LETTER OF AWARD/NOA/
CONTRACT NO . :

NAME OF CONTRACTOR:

DATED:

Project:

This is to certify that amendments have been issued to the aforesaid contract as per the details mentioned below:

	Amendment No.	Date
1.		
2.		
3.		
4.		
5.		

This is to certify further that Amendment No.----- dated is the last amendment issued.

Signature

Date
Place.....
.

Name.....
Designation

PROFORMA FOR DRAWING, QA DOCUMENTS AND O&M MANUALS RECEIPT CERTIFICATE

(TO BE ISSUED BY SITE ERECTION)

CERTIFICATE NO. CCP- 02R

NAME OF PACKAGE:

LETTER OF AWARD/
NOA/ CONTRACT NO. :

NAME OF CONTRACTOR:

DATED:

Project:

This is to certify that we have received all the drawings which were to be submitted by the Contractor in requisite number along with the reproducibles as detailed in Annexure enclosed herewith, as per provisions stipulated in the abovementioned LOA/Contract.

Further, this is to certify that the QA documents as per the list enclosed, in respect of the above-mentioned LOA/ Contract has been received in line with the provisions of the Contract.

Furthermore, this is to certify that we have received from the contractor all the necessary O&M Manuals in requisite number including the list of spare parts along with the names of vendors in respect of the above LOA/contract. The consolidated list of such manuals received is enclosed along with the distribution as marked on the list.

Signature

Date

Place... ..

Name... ..

Designation

PROFORM FOR SCOPE COMPLETION, MATERIAL RECONCILIATION, AND
COMPLETION OF WARRANTY PERIOD CERTIFICATE

(TO BE ISSUED BY SITE ERECTION)

CERTIFICATE NO. CCP- 03R

NAME OF PACKAGE:

LETTER OF AWARD/
NOA/CONTRACT NO.:

NAME OF CONTRACTOR:

DATED:

Project :

1. This is to certify that the scope of the above Contract has been completed in line with the contract read in conjunction with the following documents:
 1. Final Amendment No. _____ (As per CCP -01)
 2. Approved drawings including site run piping schemes, if any.
 3. Approved Bill of Materials
 4. Material Dispatch Clearance Certificate (s)
 5. Measurement Book
 6. As Built Drawings
 7. Any other documents (specify)
2. It is further certified that the following have been supplied, as per the details given in the Contract Documents and the same have been taken over by NTPC.
 1. Mandatory Spares
 2. Recommended Spares
 3. Special Tools & Tackles
3. Further, this is to certify that the materials issued to the contractor in respect of the abovementioned LOA/Contract have been reconciled with the stipulations under the contract documents and no other recovery of material is pending with the contractor.
4. Furthermore, this is to certify that the warranty period for the above-mentioned LOA/Contract has been completed in line with the provisions of the contract.

Signature

Date

Place.....

Name.....

Designation

To be countersigned by Materials
Management.

PROFORMA FOR LIQUIDATED DAMAGES FOR DELAY CERTIFICATE

(TO BE ISSUED BY SITE ERECTION/ REGIONAL OFFICE/
CORPORATE CONTRACT SERVICES)

CERTIFICATE NO. CCP- 04R

NAME OF PACKAGE:

LETTER OF AWARD/
NOA/ CONTRACT NO. :

NAME OF CONTRACTOR:

DATED:

Project:

This is to certify that the issue regarding liquidated damages for delay as per the provisions of clause _____ of the above contract/ LOA has been resolved with the approval of the Competent authority vide reference (Copy enclosed).

Signature

Date

Name.....

Place.....

Designation

Note: In respect of cases where LD for delay is settled by Corporate Contract Services (CS), this certificate will be issued by CS and where LD for delay is settled by the Site / Region, the same will be issued by the concerned Site/Regional Offices.

Form – 18.5

PROFORMA OF SHORTFALL IN EQUIPMENT PERFORMANCE CERTIFICATE

(TO BE ISSUED BY OS/SITE, AS APPLICABLE, FOR SITE
PERFORMANCE TEST AND BY CQA&I FOR SHOP TEST)

CERTIFICATE NO. CCP – 05R

NAME OF PACKAGE:

LETTER OF AWARD/
NOA/ CONTRACT NO.:

NAME OF CONTRACTOR:

DATED:

PROJECT:

This is to certify that the following shortfall in equipment performance as compared to the guaranteed parameters have been assessed and agreed to with the contractor in respect of the above mentioned LOA/ Contract.

S.No	Guaranteed Parameter	Guaranteed value	Assessed Value	Shortfall, if any.	liquidated damages Annual
1	2	3	4	5	6

Further, it is also confirmed that liquidated damages for shortfall in equipment performance in respect of above Items, have been recovered fully from the contractor and no other dues are outstanding for shortfall in equipment performance.

Signature

Date

Place... ..

....

Name... ..

Designation

To be counter signed by Site Accounts.

Signature

Date.....

Place... ..

Name... ..

Designation

PROPORMA OF "PAYMENT RECONCILIATION" CERTIFICATE
(TO BE ISSUED BY FINANCE-VPG IN CONSULTATION WITH IF WHEREVER
REQUIRED)

CERTIFICATE NO. CCP - 06R

NAME OF PACKAGE:

LETTER OF AWARD/ NOA/
CONTRACT NO. :

NAME OF CONTRACTOR::

DATED:

PROJECT:

This is to certify that all the payments released to the contractor in respect of the above mentioned LOA/Contract have been reconciled with the provisions of the contract documents and statement of Accounts and or other Certificates of Contractor. It is observed that there are no recoveries pending under any of the items listed overleaf.

No recoveries are pending from the Contractor under any of the items advised by Site Erection Department as listed overleaf

Signature

Date.....
Place.....

Name.....
Designation.....

To be countersigned by IF
wherever required.

Enclosure to CCP-06

The list of recoveries and claims as advised by site Erection Department should include all recoveries and claims on any account whatsoever, including the following:

1. Liquidated damages for delay.
2. Liquidated damages for shortfall in Performance as observed during shop-testing (by inspection deptt.)
3. Liquidated damages for shortfall in performance as observed during performance guarantee tests conducted at site and other site tests.
4. All recoveries /claims on account of variations/deviations to scope of contract permitted or otherwise taken place during execution of the contract as listed in certificate No. CCP.03 for contract closing (Certificate by site Erection for contract closing).
5. Recoveries on account of reconciliation of payments made under the contract.
6. All the claims against the contractor regarding clearance of materials from site and vacation of the premises allotted for site office, stores.
7. All claims in respect of Training/Transportation/Accommodation/Services provided by site in respect of above LOA/Contract.
8. Recoveries on account of settlement of insurance claims
9. Recoveries on account of reconciliation of materials issued to the Contractor.
10. All recoveries on account of demurrage, transportation, insurance premiums etc. and other recoveries as informed by T&CC group on account of port clearance, transportation etc.
11. All recoveries on account of wastage and scrap.
12. All recoveries/claims (if any) on account of maintenance of equipments.
13. All recoveries/claims(if any) on account of price variation.
14. All recoveries/claims (if any) on account of statutory dues paid on behalf of the Contractor by NTPC.
15. Royalty charges.
16. All recoveries/ claims (if any) on account of hiring out of NTPC's plant and equipment.
17. All recoveries/claims (if any) on account of water and electricity charges (if applicable).
18. Any other recoveries/claims against specific instructions.

PROFORMA OF "CUSTOMS RECONCILIATION" CERTIFICATE
[TO BE ISSUED BY ACCOUNTS DEPTT. OF T&CC OFFICE FOR
LOA/CONTRACT FOR CIF SUPPLIES]

CERTIFICATE NO-CCP 06AR

NAME OF PACKAGE:

LETTER OF AWARD/
NOA/ CONTRACT NO. :

NAME OF CONTRACTOR:

DATED:

PROJECT/ REGION:

This is to certify that:

- 1) All the payments released by this**..... T&CC Office in respect of the above mentioned LOA/ Contract have been debited to the Project/ Region as per details(***) enclosed for reconciliation/ settlement/ recovery by them.
- 2) All the payments released towards the payment of Customs Duty have been completely reconciled with the Customs Authorities by the Contractor. No amount is due to the Customs Authorities and no recoveries are pending from the Contractor under any of the items noticed.

(This is applicable for vendor clearance)

- 3) All documents required from the Contractor for reconciliation of the Customs Duty Payment with the Customs Authorities have since been received and those are in order. No recoveries are pending from the Contractor under any of the items noticed.

(This is applicable where the clearance is done by NTPC)

Signature

Date

Name... ..

Place... ..

Designation

** Name of T&CC Office from where payments have been released

*** The details will include amount, date when paid, reasons for payment and when debit was given to the concerned Project/Region together with reference thereof,

i f any.

Note : Strike out whichever is not applicable and initial.

PROFORMA OF CERTIFICATE REGARDING LABOUR PAYMENTS AND
STATUTORY REQUIREMENTS TO BE FURNISHED BY CONTRACTOR.

(TO BE ISSUED BY THE CONTRACTOR)

CERTIFICATE NO. CCP – 7R

NAME OF PACKAGE:

LETTER OF AWARD/
NOA/ CONTRACT NO. :

NAME OF CONTRACTOR:

DATED:

PROJECT:

This is to certify that we have made all labour payments including PF Liabilities in respect of the above mentioned LOA/ Contract and no other payments in this regard is pending from us.

Further we confirm that all Statutory requirements have been complied with by us and incase any default is reported against us, we shall be solely responsible for the same.

Signature

Date

Name... ..

... ..

Designation

Place... ..

... .

PROFORMA OF "NO DEMAND CERTIFICATE" BY CONTRACTOR
(TO BE ISSUED BY THE CONTRACTOR)

CERTIFICATE NO. CCP-8R

NAME OF PACKAGE:

LETTER OF AWARD/
NOA/ CONTRACT NO. :

NAME OF CONTRACTOR:

DATED:

PROJECT:

We, M/s.
(Contractor) do

hereby

acknowledge and confirm that we have received the full and final payment due and payable to us from NTPC Ltd. in respect of our aforesaid LOA/Contract No..... dated....

.....including amendments, if any, issued by NTPC Ltd., to our entire satisfaction and we further confirm that we have no claim whatsoever pending with NTPC Ltd. under the said Contract.

Notwithstanding any protest recorded by us in any correspondence, document, measurement books, and/or final bills etc., we waive all our rights to lodge any claim or protest in future under this contract.

We are issuing this "NO DEMAND CERTIFICATE" in favour of NTPC Ltd. with full knowledge and with our free consent without any undue influence, misrepresentation, coercion etc.

Signature

..

Date

...

Place... ..

....

Name... ..

Designation

(Company
Common Seal)

(This certificate shall be accompanied by the Power of attorney of the signatory)

Form 19
(ELECTRONIC FUND TRANSFER FORM)

Bidder's Name and Address:

To,
NTPC Limited, Contract
Services

Dear Sirs,

We, hereby authorize the Employer to make all our payments through Electronic Fund Transfer System. The details for facilitating the payments are given below:

(TO BE FILLED IN CAPITAL LETTERS)

1. **NAME OF THE BENEFICIARY:** _____
2. **ADDRESS:** _____
3. **TELEPHONE NO. (WITH STD CODE):** _____
4. **BANK PARTICULARS**
 - A. **Bank Name:** _____
 - B. **Bank Telephone NO. (with STD Code):** _____
 - C. **Branch Address:** _____
 - D. **Branch Code:** _____
 - E. **9 Digit MICR Code of the Bank Branch (Enclose copy of a cancelled cheque):** _____
 - F. **IFSC CODE:** _____
 - G. **BANK ACCOUNT NUMBER:** _____
 - H. **BANK ACCOUNT TYPE (TICK ONE):**

SAVING	CURRENT	LOAN	CASH CREDIT	OTHERS

IF OTHERS, SPECIFY: _____
5. **Permanent Account Number (PAN) (Enclose Copy):** _____
6. **E-mail address for intimation regarding release of payments:** _____

I/We hereby declare that the particulars given above are correct and complete. If the transaction is delayed or credit is not affected at all for reasons of incomplete or incorrect information, I/We would not hold the Employer responsible. We have enclosed document as mentioned at Sl. No. 4(E) and 5 above.

DATE:

SIGNATURE:

(AUTHORISED SIGNATORY)

Name:

Official Stamp:

BANK CERTIFICATION:

It is certified that above mentioned beneficiary holds a bank account no. with our branch and the Bank particulars mentioned above are correct.

DATE:

SIGNATURE:

(AUTHORISED SIGNATORY)

Authorization No.:

Name:

Official Stamp:

**DECLARATION OF ABSENCE OF CONFLICT OF INTEREST WITH
CONCILIATION COMMITTEES OF INDEPENDENT EXPERTS (CCIE)**

To :
[Employer's Name and
Address]

Dear Sirs,

- 1.0 We, M/s (Name of the Contractor) have been awarded the contract for (Name of the package) vide Notification (s) of Award No..... dated.....
- 2.0 As per the provisions of the contract, we hereby propose the following CCIEs, in priority order, as per the list enclosed in the Special Conditions of Contract, as amended from time to time by Ministry of Power, for finalization of CCIE by CEA:
- 1.....
2.....
3.....
- 3.0 We confirm that we do not have any conflict of interest with the aforesaid experts and they have not been engaged for providing any services to us in the last five years.
- 4.0 We confirm that in case of any form of conflict of interest (possible or actual) which may inadvertently emerge during the conciliation proceedings by CCIE, the same will be duly reported to you.
- 5.0 We understand that NTPC may withdraw from the conciliation proceedings, if any conflict of interest with us is found out which have been intentionally concealed, and the matter may be referred to Ministry of Power. Further, action may be taken against us in respect of Fraud Prevention Policy of NTPC.

---Date :

Signature.....

Place :
.....

Printed Name

(Designation)

(Common Seal)

**DECLARATION OF ABSENCE OF CONFLICT OF INTEREST WITH
INDEPENDENT ENGINEER (IE)**

To:
[Employer's Name and Address]

Dear Sirs,

1.0 We, M/s.....(Name of the Contractor) have been awarded the contract for (Name of the package) vide Notification (s) of Award No..... dated.....

2.0 As per the provisions of the contract, we hereby propose the following Experts from the 'Panel of Experts as Independent Engineer' enclosed in the Special Conditions of Contract, as amended from time to time by Ministry of Power, for appointment of one of them as 'Independent Engineer' for the Contract:

- 1.....
- 2.....
- 3.....
-

3.0 We confirm that we do not have any conflict of interest with the aforesaid experts and they have not been engaged for providing any services to us in the last three years.

4.0 We confirm that in case of any form of conflict of interest (possible or actual) which may inadvertently emerge during the tenure of Independent Engineer, the same will be duly reported to you.

5.0 We understand that the mechanism of Resolution of Dispute through Independent Engineer may be put in abeyance, if any conflict of interest with us is found out which have been intentionally concealed, and the matter may be referred to Ministry of Power. Further, action may be taken against us in respect of Fraud Prevention Policy of NTPC.

Date :

Signature.....

Place :
.....

Printed

Name

(Designation)

.....

(Common

Seal)

.....

BG forwarding letter from Bank to Unified Treasury in Bank's letterhead

To :
Unified Treasury (BG Group)
Administrative Building, NCPS, Dadri
NTPC Limited,
PO. Vidyut Nagar
Distt: Gautam Budh Nagar,
Uttar Pradesh- 201008.

Sub: Submission of Bank Guarantee No.

Bank Guarantee No.	
Date of Issue	dd.mm.yyyy
Guarantee Amount	<u>Currency Amount</u>
Date of Expiry of BG	dd.mm.yyyy
Last date of lodgement of claim	dd.mm.yyyy
<i>Name, Address and IFSC code of BG issuing Bank</i>	<i>Name:</i> <i>Address:</i> <i>IFSC code:</i>
Contract/Letter of Award/PO No.	
Name & Address of the Applicant / Contractor	<i>Name:</i> <i>Address:</i>

We confirm that SFMS has been sent to your beneficiary bank as below:

ICICI Bank Limited, Connaught Place Branch,
9A, Phelps Building, Inner Circle, New Delhi - 110001
IFSC Code: ICIC0000007

We also confirm the genuineness of the signatures appearing on the said guarantee/extension and further also confirm that the same has been signed by the competent authority of the bank.

Date : Signature.....

Place : Printed Name.....

(Designation)

(Common Seal)

Form of certificate regarding Bank Guarantee charges

TO WHOMSOEVER IT MAY CONCERN

This is to certify that we have issued/ extended/ amended Bank Guarantee (BG) Number..... amounting to(in number and words in Contract Currency) in favour of NTPC Limited on behalf of M/S (Contractor name) vide their request reference..... dated..... (DD/MM/YYYY) for the period (from)..... (to).....

We confirm that the bank commission (excluding Stamp paper, Out of Pocket Expenses (OPE) and GST on OPE) amounting to.....(amount and currency) for issuance/ extension/ amendment of the aforesaid BG have been recovered from M/s (Contractor name).

We further confirm that the commission charged on issuance/ extension/ amendment of the aforesaid BG is as per the prescribed rates of the Bank. Further the commission charged by the Bank as per card rates / sanctioned rates is customer/ borrower specific and is uniform for all BGs issued at the request of said customer/ borrower irrespective of beneficiary.

Chief Manager/Branch Manager SS

No: -

ABC Bank Ltd

New Delhi.

(With Seal of Bank Official)