Nepal Electricity Authority
(A Government of Nepal Undertaking)
Generation Directorate
Generation Operation & Maintenance Department

Bidding Document for
Supply, Delivery and Installation of Trash Rack Cleaning Machine

Credit No. 5246 NP
Project ID P132289

Kali Gandaki A (KGA) Hydropower Plant Rehabilitation Project
(Single Stage Bidding)

Issued on: _____________

ICB No: KGAHPPRP/G/ICB-4-R

Employer: Nepal Electricity Authority

Country: Nepal

December 2014
Nepal Electricity Authority (NEA)
Generation Directorate
Kalogandaki 'A' Hydro Power Plant Rehabilitation Project (KGAHPPRP)

Invitation for Bids

Date: 8th December, 2014
Name of Project: Kaligandaki 'A' Hydro Power Plant Rehabilitation Project (KGAHPPRP)
Credit No: 5246-NP

1. The Government of Nepal has received a credit from the World Bank’s International Development Association (IDA) in various currencies towards the cost of Kaligandaki 'A' Hydro Power Plant Rehabilitation Project (KGAHPPRP). It is intended that part of the proceeds of this credit will be applied to eligible payments under the contracts for following Package.

2. The Nepal Electricity Authority (NEA) now invites sealed bids for the following Package. International Competitive Bidding will be conducted in accordance with the Bank's “Single-Stage” Bidding Procedure.

<table>
<thead>
<tr>
<th>Package no.</th>
<th>Package</th>
<th>Contract ID</th>
<th>Minimum Bid Security Amount in NRs.</th>
<th>Bid Document Cost</th>
<th>Last Date of Purchase</th>
<th>Last Date of Submission</th>
<th>Contract Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Supply, Delivery and Installation of Trash Rack Cleaning Machine</td>
<td>KGAHPPRP/G/ICB–4-R</td>
<td>3,200,000</td>
<td>NRs. 20,000 or USD 210</td>
<td>22nd Jan, 2015</td>
<td>23rd Jan, 2015</td>
<td>18 Months</td>
</tr>
</tbody>
</table>

3. The evaluation and qualification criteria of the bidders, sub-vendors (manufacturers) and completion schedules are elaborately described in the bidding documents. The contract durations for each Package is as mentioned in Column G.

4. Interested eligible bidders may obtain further information and inspect the bidding documents at the address given below during office hours Sunday through Friday. Complete bidding documents are also posted on the NEA website www.nea.org.np.

5. A complete set of bidding documents may be purchased within office hours up to Last date of purchase mentioned in column (E), by interested bidders on the submission of a written application to the address below and upon payment of non-refundable fee of amount as mentioned in Column D deposited in the NEA, Generation A/c No. 1206101-001-012-524 at Nepal Rastra Bank, Thapathali, Kathmandu or in the form of draft drawn in favor of the “Kaligandaki 'A' Hydro Power Plant Rehabilitation Project (KGAHPPRP)”. The document will be handed over to the bidder upon production of evidence of payment of the fee.

Foreign Bidders, who wish to receive the bidding document by post/courier, may send a request to the Employer with a payment of additional fee of USD 300.00 for each Packages in a form of bank draft in favor of “Kaligandaki 'A' Hydro Power Plant Rehabilitation Project (KGAHPPRP)”. If so requested, NEA will send the document to the address requested by them. However, the Employer will not be responsible for delayed or non-delivery of the documents so sent.

7. Bids must be delivered to the address below on or before 12:00 Hrs Nepal Standard Time on last date of submission of bid as mentioned in Column F and must be accompanied by a bid bond of amount as mentioned in column C in the form of Bank Guarantee or an equivalent amount in freely convertible currency which shall be valid for 30 days beyond the bid validity period. The source of exchange rate shall be the exchange (selling) rates as published by the Nepal Rastra Bank (www.nrb.org.np) and the date for the exchange rate shall be the date 28 days prior to the bid opening. The bank guarantee shall be issued by a commercial bank in Nepal. If the Bank Guarantee is issued by a foreign bank, it shall be endorsed by a commercial bank in Nepal. Bids shall be valid for the period of 120 days from the date of bid submission deadline. Late bids will be rejected.

Bids will be opened in the presence of the bidder or bidders’ representatives who choose to attend at the address below at 12:30 hrs Nepal Standard Time on the last date of submission of Bids of corresponding Package.

If the specified date for last date of bid documents purchasing and bid submission/opening falls on a Government holiday then the same time on the next working day shall be considered for such events. However, the last date for bid submission and opening shall be the next working day after the last date of bid purchasing. In such case the validity of bid bond shall be considered from already specified last date for bid submission.

8. A pre-bid conference will be held at 11:00 noon on 29th December, 2014 at the Kaligandaki ‘A’ Hydro Power Plant Rehabilitation Project (KGAHPPRP) office at Kathmandu, Nepal to clarify to the bidders the exact scope of the work, the basic data available and other issues in accordance with relevant clause of the bidding documents. Further the Bidders are advised to visit the site to acquaint themselves with terrain conditions and associated details of the locations of the hydropower plant before the pre-bid conference.

9. The bidder shall bear all costs associated with the preparation and submission of its bid, and NEA will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

10. NEA 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(s) or any obligation to inform the affected bidder(s) of the grounds for NEA’s action.

The address referred to above is:

The Project Coordinator
Kaligandaki A Hydro Power Plant Rehabilitation Project (KGAHPPRP)
Generation Directorate
Nepal Electricity Authority
Durbarmarg, Kathmandu, Nepal
Telephone: +977 1 4153070
Facsimile number: +977 1 4153071
Electronic mail address: kgahpprp@nea.org.np
# Table of Contents

**PART 1 – Bidding Procedures** ............................................................................................... 1

- **Section I. Instructions to Bidders** .................................................................................. 5
- **Section II. Bid Data Sheet** ............................................................................................. 31
- **Section III. Evaluation and Qualification Criteria** ...................................................... 36
- **Section IV. Bidding Forms** .......................................................................................... 49
- **Section V. Eligible Countries** ....................................................................................... 82

**PART 2 – Employer’s Requirements** ............................................................................... 89

- **Section VI. Scope of Supply and Specification** ........................................................... 90

**PART 3 – Conditions of Contract and Contract Forms** ................................................. 171

- **Section VII. General Conditions (GC)** ...................................................................... 172
- **Section VIII. Particular Conditions** ............................................................................ 257
- **Section IX. - Contract Forms** ...................................................................................... 264
PART 1 – Bidding Procedures
Single Stage Bidding
# Section I. Instructions to Bidders

## Table of Clauses

<table>
<thead>
<tr>
<th>Clause</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. General</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Scope of Bid</td>
</tr>
<tr>
<td>2.</td>
<td>Source of Funds</td>
</tr>
<tr>
<td>3.</td>
<td>Fraud and Corruption</td>
</tr>
<tr>
<td>4.</td>
<td>Eligible Bidders</td>
</tr>
<tr>
<td>5.</td>
<td>Eligible Plant and Installation Services</td>
</tr>
<tr>
<td><strong>B. Contents of Bidding Document</strong></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Sections of Bidding Document</td>
</tr>
<tr>
<td>7.</td>
<td>Clarification of Bidding Document, Site Visit, Pre-Bid Meeting</td>
</tr>
<tr>
<td>8.</td>
<td>Amendment of Bidding Document</td>
</tr>
<tr>
<td><strong>C. Preparation of Bids</strong></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Cost of Bidding</td>
</tr>
<tr>
<td>10.</td>
<td>Language of Bid</td>
</tr>
<tr>
<td>11.</td>
<td>Documents Comprising the Bid</td>
</tr>
<tr>
<td>12.</td>
<td>Letter of Bid and Schedules</td>
</tr>
<tr>
<td>13.</td>
<td>Alternative Bids</td>
</tr>
<tr>
<td>14.</td>
<td>Documents Establishing the Eligibility of the Plant and Installation Services</td>
</tr>
<tr>
<td>15.</td>
<td>Documents Establishing the Eligibility and Qualifications of the Bidder</td>
</tr>
<tr>
<td>16.</td>
<td>Documents establishing conformity of the Plant and Installation Services</td>
</tr>
<tr>
<td>17.</td>
<td>Bid Prices and Discounts</td>
</tr>
<tr>
<td>18.</td>
<td>Currencies of Bid and Payment</td>
</tr>
<tr>
<td>19.</td>
<td>Period of Validity of Bids</td>
</tr>
<tr>
<td>20.</td>
<td>Bid Security</td>
</tr>
<tr>
<td>21.</td>
<td>Format and Signing of Bid</td>
</tr>
<tr>
<td><strong>D. Submission and Opening of Bids</strong></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Submission, Sealing and Marking of Bids</td>
</tr>
<tr>
<td>23.</td>
<td>Deadline for Submission of Bids</td>
</tr>
<tr>
<td>24.</td>
<td>Late Bids</td>
</tr>
<tr>
<td>25.</td>
<td>Withdrawal, Substitution, and Modification of Bids</td>
</tr>
<tr>
<td>26.</td>
<td>Bid Opening</td>
</tr>
<tr>
<td><strong>E. Evaluation and Comparison of Bids</strong></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Confidentiality</td>
</tr>
</tbody>
</table>
28. Clarification of Bids .......................................................... 23
29. Deviations, Reservations, and Omissions ......................................... 24
30. Determination of Responsiveness .................................................. 24
31. Nonmaterial Nonconformities .......................................................... 25
32. Correction of Arithmetical Errors ....................................................... 25
33. Conversion to Single Currency .......................................................... 26
34. Margin of Preference ......................................................................... 26
35. Evaluation of Bids .......................................................................... 26
36. Comparison of Bids ......................................................................... 28
37. Eligibility and Qualification of the Bidder ................................. 28
38. Employer’s Right to Accept Any Bid, and to Reject Any or All Bids .......... 28

F. Award of Contract ........................................................................ 28

39. Award Criteria .......................................................................... 29
40. Notification of Award .................................................................... 29
41. Signing of Contract ........................................................................ 29
42. Performance Security ..................................................................... 30
Section I. Instructions to Bidders

General

1. Scope of Bid

1.1 In connection with the Invitation for Bids indicated in the Bid Data Sheet (BDS), the Employer, as indicated in the BDS, issues this Bidding Document for the procurement of Plant and Installation Services as specified in Section VI, Employer’s Requirements. The name, identification, and number of lots (contracts) of the International Competitive Bidding (ICB) are provided in the BDS.

1.2 Unless otherwise stated, throughout this Bidding Document definitions and interpretations shall be as prescribed in the General Conditions, Section VII.

2. Source of Funds

2.1 The Borrower or Recipient (hereinafter called “Borrower”) has applied for or received financing (hereinafter called “funds”) from the World Bank (hereinafter called “the Bank”) toward the cost of the project named in the BDS. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued.

2.2 Payments by the Bank will be made only at the request of the Borrower and upon approval by the Bank in accordance with the terms and conditions of the financing agreement between the Borrower and the Bank (hereinafter called the Loan Agreement), and will be subject in all respects to the terms and conditions of that Loan Agreement. No party other than the Borrower shall derive any rights from the Loan Agreement or have any claim to the funds.

2.3 The Loan Agreement prohibits a withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of equipment, plant, or materials, if such payment or import is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations.

3. Fraud and Corruption

3.1 The Bank requires that Borrowers (including beneficiaries of Bank loans), as well as Bidders, Suppliers, Contractors and their agents (whether declared or not), personnel, subcontractors, sub-consultants, service providers and suppliers, under Bank-financed contracts, observe the highest standard of ethics during
the procurement and execution of such contracts. In pursuit of this policy, the Bank:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) “corrupt practice” is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) “obstructive practice” is

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or 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

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1 “Another party” refers to a public official acting in relation to the procurement process or contract execution. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

2 “Party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

3 “Parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non-competitive levels.

4 “Party” refers to a participant in the procurement process or contract execution.
(bb) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under sub-clause 3.1(c) below.

(b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question;

(c) will cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of the loan engaged in corrupt, fraudulent, collusive, or coercive practices during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to the Bank to remedy the situation; and

(d) will sanction a firm or an individual, at any time, in accordance with prevailing Bank’s sanctions procedures\(^a\), including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated\(^b\) sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract.

3.2 In further pursuance of this policy, Bidders shall permit the Bank to inspect any accounts and records and other documents relating to the Bid submission and contract performance, and to have them audited by auditors appointed by the Bank.

3.3 Furthermore, Bidders shall be aware of the provision stated in the General Conditions (GC 42.2.1(c)).

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\(^a\) A firm or an individual may be declared ineligible to be awarded a Bank-financed contract upon completion of the Bank’s sanctions proceedings as per its sanctions procedures, including inter alia: (i) temporary suspension in connection with an ongoing sanctions proceeding; (ii) cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks; and (iii) the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption.

\(^b\) A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which either has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that are accounted for in the evaluation of the bidder’s pre-qualification application or the bid; or (ii) appointed by the Borrower.
4. Eligible Bidders

4.1 A Bidder may be a private entity or a government-owned entity—subject to ITB 4.5—or any combination of such entities in the form of a joint venture, or association (JVA) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture or association:

(a) unless otherwise specified in the BDS, all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms, and

(b) the JVA shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the partners of the JVA during the bidding process and, in the event the JVA is awarded the Contract, during contract execution.

4.2 A Bidder, and all partners constituting the Bidder, shall have a nationality of an eligible country as defined in Guidelines: Procurement under IBRD Loans and IDA Credits, October 2006, (hereinafter referred to as the Guidelines), in accordance with Section V, Eligible Countries. A Bidder shall be deemed to have the nationality of a country if the Bidder is a national or is constituted, incorporated, or registered and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including related services.

4.3 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

(a) they have a controlling partner in common; or

(b) they receive or have received any direct or indirect subsidy from any of them; or

(c) they have the same legal representative for purposes of this bid; or

(d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or

(e) a Bidder submits more than one bid in this bidding process.
process, either individually or as a partner in a joint venture, except for alternative offers permitted under ITB Clause 13. This will result in the disqualification of all such bids. However, this does not limit the participation of a Bidder as a subcontractor in another bid or of a firm as a subcontractor in more than one bid.

(f) a Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the Plant and Installation Services that are the subject of the bid.

(g) a Bidder or any of its affiliates has been hired (or is proposed to be hired) by the Employer or the Borrower as Project Manager for the contract.

4.4 A Bidder that has been sanctioned by the Bank in accordance with the above ITB 3.1 (d), or in accordance with the Bank’s Guidelines on Preventing and Combating Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, shall be ineligible to be awarded a Bank-financed contract, or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall determine.

4.5 Government-owned entities in the Borrower’s country shall be eligible only if they can establish that they (i) are legally and financially autonomous, (ii) operate under the principles of commercial law, and (iii) are not dependent agencies of the Employer or the Borrower.

4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.

4.7 In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to prequalified Bidders.

4.8 Firms shall be excluded if:

(a) as a matter of law or official regulation, the Borrower’s country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or related services required; or

(b) by an act of compliance with a decision of the United
5. Eligible Plant and Installation Services

5.1 The Plant and Installation Services to be supplied under the Contract shall have their origin in eligible source countries as defined in ITB 4.2 above and all expenditures under the Contract will be limited to such Plant and Installation Services.

5.2 For purposes of ITB 5.1 above, “origin” means the place where the plant, or component parts thereof are mined, grown, produced or manufactured, and from which the services are provided. Plant components are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that is substantially in its basic characteristics or in purpose or utility from its components.

Contents of Bidding Document

6. Sections of Bidding Document

6.1 The Bidding Document consists of Parts 1, 2, and 3, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.

PART 1  Bidding Procedures

- Section I. Instructions to Bidders (ITB)
- Section II. Bid Data Sheet (BDS)
- Section III. Evaluation and Qualification Criteria
- Section IV. Bidding Forms
- Section V. Eligible Countries

PART 2  Employer’s Requirements

- Section VI. Employer’s Requirements

PART 3  Conditions of Contract and Contract Forms

- Section VII. General Conditions (GC)
- Section VIII. Particular Conditions (PC)
- Section IX. Contract Forms

6.2 The Invitation for Bids issued by the Employer is not part of
the Bidding Document.

6.3 The Employer is not responsible for the completeness of the Bidding Document and its addenda, if they were not obtained directly from the source stated by the Employer in the Invitation for Bids.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.

7. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting

7.1 A prospective Bidder requiring any clarification of the Bidding Document shall contact the Employer in writing at the Employer’s address indicated in the BDS or raise his enquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond to any request for clarification, provided that such request is received no later than twenty-eight (28) days prior to the deadline for submission of bids. The Employer’s response shall be in writing with copies to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 8 and ITB 23.2.

7.2 The Bidder is advised to visit and examine the site where the plant is to be installed 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 the provision of Plant and Installation Services. The costs of visiting the site shall be at the Bidder’s own expense.

7.3 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 visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the 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.

7.4 The Bidder’s designated representative is invited to attend a pre-bid meeting, if provided for in the BDS. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
7.5 The Bidder is requested, as far as possible, to submit any questions in writing, to reach the Employer not later than one week before the meeting.

7.6 Minutes of the pre-bid meeting, including the text of the questions raised without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting.

7.7 Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

8. Amendment of Bidding Document

8.1 At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Document by issuing addenda.

8.2 Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3.

8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 23.2

Preparation of Bids

9. Cost of Bidding

9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

10. Language of Bid

10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language specified in the BDS. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified in the BDS, in which case, for purposes of interpretation of the Bid, such translation shall govern.

11. Documents

11.1 The Bid submitted by the Bidder shall comprise the following:
Comprising the Bid  
(a) Letter of Bid  
(b) Completed schedules as required, including Price Schedules, in accordance with ITB 12 and 17;  
(c) Bid Security or Bid Securing Declaration, in accordance with ITB 20;  
(d) alternative bids, if permissible, in accordance with ITB 13;  
(e) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 21.2;  
(f) documentary evidence established in accordance with ITB 14.1 that the Plant and Installation Services offered by the Bidder in its bid or in any alternative bid, if permitted, are eligible;  
(g) documentary evidence in accordance with ITB 15 establishing the Bidder’s eligibility and qualifications to perform the contract if its Bid is accepted;  
(h) documentary evidence established in accordance with ITB 16 that the Plant and Installation Services offered by the Bidder conform to the Bidding Document;  
(i) in the case of a bid submitted by a JVA, JVA agreement, or letter of intent to enter into a JVA including a draft agreement, indicating at least the parts of the Plant to be executed by the respective partners;  
(j) List of subcontractors, in accordance with ITB 16.2; and  
(k) any other document required in the BDS.  

12. Letter of Bid and Schedules  
12.1 The Bidder shall complete the Letter of Bid, including the appropriate Price Schedules, using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed as instructed in each form.  

13. Alternative Bids  
13.1 The BDS indicates whether alternative bids are allowed. If they are allowed, the BDS will also indicate whether they are permitted in accordance with ITB 13.3, or invited in accordance with ITB 13.2 and/or ITB 13.4.  

13.2 When alternatives to the Time Schedule are explicitly invited, a statement to that effect will be included in the BDS, and the method of evaluating different time schedules will be described in Section III, Evaluation and Qualification Criteria.
13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the Employer’s requirements as described in the bidding document must also provide: (i) a price at which they are prepared to offer a plant meeting the Employer’s requirements; and (ii) all information necessary for a complete evaluation of the alternatives by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed installation methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.

13.4 When bidders are invited in the BDS to submit alternative technical solutions for specified parts of the facilities, such parts shall be described in Section VI, Employer’s Requirements. Technical alternatives that comply with the performance and technical criteria specified for the Plant and Installation Services shall be considered by the Employer on their own merits, pursuant to ITB 35.

14. Documents Establishing the Eligibility of the Plant and Installation Services

14.1 To establish the eligibility of the Plant and Installation Services in accordance with ITB Clause 5, Bidders shall complete the country of origin declarations in the Price Schedule Forms, included in Section IV, Bidding Forms.

15. Documents Establishing the Eligibility and Qualifications of the Bidder

15.1 To establish its eligibility and qualifications to perform the Contract in accordance with Section III, Evaluation and Qualification Criteria, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms.

15.2 Domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility as described in ITB 34.

16. Documents establishing conformity of the Plant and Installation Services

16.1 The Bidder shall furnish the information stipulated in Section IV, in sufficient detail to demonstrate substantial responsiveness of the Bidders’ proposal to the work requirements and the completion time.

16.2 For major items of Plant and Installation Services as listed by the Employer in Section III, Evaluation and Qualification Criteria, which the Bidder intends to purchase or subcontract, the Bidder shall give details of the name and nationality of the proposed Subcontractors, including manufacturers, for each of those items. In addition, the Bidder shall include in its bid
information establishing compliance with the requirements specified by the Employer for these items. Quoted rates and prices will be deemed to apply to whichever Subcontractor is appointed, and no adjustment of the rates and prices will be permitted.

16.3 The Bidder shall be responsible for ensuring that any Subcontractor proposed complies with the requirements of ITB 4, and that any plant, or services to be provided by the Subcontractor comply with the requirements of ITB 5 and ITB 15.1

17. **Bid Prices and Discounts**

17.1 Unless otherwise specified in the BDS, bidders shall quote for the entire Plant and Installation Services 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 document in respect of the design, manufacture, including procurement and subcontracting (if any), delivery, construction, installation and completion of the plant. This includes all requirements under the Contractor’s responsibilities for testing, pre-commissioning and commissioning of the plant and, where so required by the bidding document, 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 Document, all in accordance with the requirements of the General Conditions. Items against which no price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed to be covered by the prices for other items.

17.2 Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the bidding document.

17.3 Bidders shall give a breakdown of the prices in the manner and detail called for in the Price Schedules included in Section IV, Bidding Forms.

17.4 Depending on the scope of the Contract, the Price Schedules may comprise up to the six (6) schedules listed below. Separate numbered Schedules included in Section IV, Bidding Forms, from those numbered 1-4 below, shall be used for each of the elements of the Plant and Installation Services. The total amount from each Schedule corresponding to an element of the Plant and Installation Services shall be summarized in the schedule titled Grand Summary, (Schedule 5), giving the total bid price(s) to be entered in the Letter of Bid.
Schedule No. 1  Plant (including Mandatory Spare Parts) 
Supplied from Abroad

Schedule No. 2  Plant (including Mandatory Spare Parts) 
Supplied from within the Employer’s Country

Schedule No. 3  Design Services

Schedule No. 4  Installation Services

Schedule No. 5  Grand Summary (Schedule Nos. 1 to 4)

Schedule No. 6  Recommended Spare Parts

Bidders shall note that the plant and equipment included in 
Schedule Nos. 1 and 2 above exclude materials used for civil, 
building and other construction works. All such materials 
shall be included and priced under Schedule No. 4, Installation 
Services.

17.5  In the Schedules, bidders shall give the required details and a 
breakdown of their prices as follows:

(a)  Plant to be supplied from abroad (Schedule No. 1):

   The price of the plant shall be quoted on CIP-named 
place of destination basis as specified in the BDS

(b)  Plant manufactured within the Employer’s country 
(Schedule No. 2):

   (i) The price of the plant shall be quoted on an EXW 
Incoterm basis (such as “ex-works,” “ex-factory,”
“ex-warehouse” or “off-the-shelf,” as applicable),

   (ii) Sales tax and all other taxes payable in the 
Employer’s country on the plant if the contract is 
awarded to the Bidder, and

   (iii) The total price for the item.

(c)  Design Services (Schedule No. 3).

(d) Installation Services shall be quoted separately 
(Schedule No. 4) and shall include rates or prices for 
local transportation to named place of final destination 
as specified in the BDS, insurance and other services 
incidental to delivery of the plant, all labor, contractor’s 
equipment, temporary works, materials, consumables 
and all matters and things of whatsoever nature, 
including operations and maintenance services, the
provision of operations and maintenance manuals, training, etc., where identified in the Bidding Document, as necessary for the proper execution of the installation and other services, including all taxes, duties, levies and charges payable in the Employer’s country as of twenty-eight (28) days prior to the deadline for submission of bids.

(e) Recommended spare parts shall be quoted separately (Schedule 6) as specified in either subparagraph (a) or (b) above in accordance with the origin of the spare parts.

17.6 The current edition of Incoterms, published by the International Chamber of Commerce shall govern.

17.7 The prices shall be either fixed or adjustable as specified in the BDS.

17.8 In the case of Fixed Price, prices quoted by the Bidder shall be fixed during the Bidder’s performance of the contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non responsive and rejected.

17.9 In the case of Adjustable Price, prices quoted by the Bidder shall be subject to adjustment during performance of the contract to reflect changes in the cost elements such as labor, material, transport and contractor’s equipment in accordance with the procedures specified in the corresponding Appendix to the Contract Agreement. A bid submitted with a fixed price quotation will not be rejected, but the price adjustment will be treated as zero. Bidders are required to indicate the source of labor and material indices in the corresponding Form in Section IV, Bidding Forms.

17.10 If so indicated in ITB 1.1, bids are being invited for individual lots (contracts) or for any combination of lots (packages). Bidders wishing to offer any price reduction (discount) for the award of more than one Contract shall specify in their Letter of Bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package, and the manner in which the price reductions will apply.

17.11 Bidders wishing to offer any unconditional discount shall specify in their Letter of Bid the offered discounts and the manner in which price discounts will apply.

18. Currencies of

18.1 The currency(ies) of the bid shall be, as specified in the BDS.
Bid and Payment 18.2 Bidders may be required by the Employer to justify, to the Employer’s satisfaction, their local and foreign currency requirements.

19. Period of Validity of Bids

19.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as non responsive.

19.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 20, the Bidder granting the request shall also extend the bid security for twenty-eight (28) days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid, except as provided in ITB 19.3.

19.3 In the case of fixed price contracts, if the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial bid validity, the Contract price shall be adjusted by a factor or factors specified in the request for extension. Bid evaluation shall be based on the Bid Price without taking into consideration the above correction.

20. Bid Security

20.1 The Bidder shall furnish as part of its bid, either a Bid-Securing Declaration or a bid security as specified in the BDS, in original form and in the amount specified in the BDS.

20.2 A Bid-Securing Declaration shall use the form included in Section IV Bidding Forms.

20.3 If a bid security is specified pursuant to ITB 20.1, the bid security shall be a demand guarantee in any of the following forms at the Bidder’s option:

(a) an unconditional guarantee issued by a bank or surety;

(b) an irrevocable letter of credit;

(c) a cashier’s or certified check; or

(d) another security indicated in the BDS, from a reputable source from an eligible country. If the unconditional guarantee is issued by an insurance company or a bonding company located outside the Employer’s Country,
the issuer shall have a correspondent financial institution located in the Employer’s Country to make it enforceable. In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms or in another substantially similar format approved by the Employer prior to bid submission. In either case, the form must include the complete name of the Bidder. The bid security shall be valid for twenty-eight days (28) beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 19.2.

20.4 If a bid security is specified pursuant to ITB 20.1, any bid not accompanied by a substantially responsive bid security or Bid-Securing Declaration shall be rejected by the Employer as non-responsive.

20.5 If a bid security is specified pursuant to ITB 20.1, the bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder’s furnishing of the performance security pursuant to ITB 42.

20.6 The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.

20.7 The bid security may be forfeited or the Bid-Securing Declaration executed:

(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid or

(b) if the successful Bidder fails to:

(i) Sign the Contract in accordance with ITB 41; or

(ii) Furnish a performance security in accordance with ITB 42.

20.8 The Bid Security or the Bid Securing Declaration of a JVA shall be in the name of the JVA that submits the bid. If the JVA has not been legally constituted into a legally enforceable JVA at the time of bidding, the Bid Security or the Bid Securing Declaration shall be in the names of all future partners as named in the letter of intent referred to in ITB 4.1.

20.9 If a Bid-Securing Declaration is executed in accordance with ITB 20.7, the Employer will declare the Bidder ineligible to be awarded a contract by the Employer for the period of time stated in the Form of Bid-Securing Declaration.

20.10 If a bid security is not required in the BDS, and
Part 1 - Section I: Instruction to Bidders

(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid Form, except as provided in ITB 19.2, or

(b) if the successful Bidder fails to: sign the Contract in accordance with ITB 41; or furnish a performance security in accordance with ITB 42;

the Borrower may, if provided for in the BDS, declare the Bidder disqualified to be awarded a contract by the Employer for a period of time as stated in the BDS.

21. Format and Signing of Bid

21.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it “ORIGINAL.” Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked “ALTERNATIVE”. In addition, the Bidder shall submit copies of the bid, in the number specified in the BDS and clearly mark them “COPY.” In the event of any discrepancy between the original and the copies, the original shall prevail.

21.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid.

21.3 A bid submitted by a JVA shall comply with the following requirements:

(a) Unless not required in accordance with ITB 4.1 (a), be signed so as to be legally binding on all partners and

(b) Include the Representative’s authorization referred to in ITB 4.1 (b), consisting of a power of attorney signed by those legally authorized to sign on behalf of the JVA.

21.4 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.

22. Submission, Sealing and Opening of Bids

22.1 Bidders may always submit their bids by mail or by hand. When so specified in the BDS, bidders shall have the option of submitting their bids electronically. Procedures for
Marking of Bids

submission, sealing and marking are as follows:

(a) Bidders submitting bids by mail or by hand shall enclose the original and each copy of the Bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as “ORIGINAL,” “ALTERNATIVE” and “COPY.” These envelopes containing the original and the copies shall then be enclosed in one single envelope. The rest of the procedure shall be in accordance with ITB sub-Claususes 22.2 and 22.3.

(b) Bidders submitting bids electronically shall follow the electronic bid submission procedures specified in the BDS.

22.2 The inner and outer envelopes shall:

(a) bear the name and address of the Bidder;

(b) be addressed to the Employer in accordance with ITB 24.1;

(c) bear the specific identification of this bidding process indicated in accordance with ITB 1.1; and

(d) bear a warning not to open before the time and date for bid opening.

22.3 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

23. Deadline for Submission of Bids

23.1 Bids must be received by the Employer at the address and no later than the date and time indicated in the BDS.

23.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

24. Late Bids

24.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 23. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.

25. Withdrawal

25.1 A Bidder may withdraw, substitute, or modify its bid after it
Substitution, and Modification of Bids

has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 21.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:

(a) prepared and submitted in accordance with ITB 21 and ITB 22 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” “MODIFICATION;” and

(b) received by the Employer prior to the deadline prescribed for submission of bids, in accordance with ITB 23.

25.2 Bids requested to be withdrawn in accordance with ITB 25.1 shall be returned unopened to the Bidders.

25.3 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

26. Bid Opening

26.1 The Employer shall conduct the bid opening in public, in the presence of Bidders` designated representatives and anyone who choose to attend, and at the address, date and time specified in the BDS. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be as specified in the BDS.

26.2 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked “SUBSTITUTION” shall be opened and read out and exchanged with the corresponding bid being substituted, and the substituted bid shall not be opened, but returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked “MODIFICATION” shall be opened and read out with the corresponding bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only bids that are
opened and read out at bid opening shall be considered further.

26.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and the Bid Price(s), including any discounts and alternative bids, and indicating whether there is a modification; the presence or absence of a bid security or Bid-Securing Declaration; and any other details as the Employer may consider appropriate. Only discounts and alternative bids read out at bid opening shall be considered for evaluation. No bid shall be rejected at bid opening except for late bids, in accordance with ITB 24.1.

26.4 The Employer shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot if applicable, including any discounts and alternative bids; and the presence or absence of a bid security or a Bid-Securing Declaration. The Bidders’ representatives who are present shall be requested to sign the record. The omission of a Bidder’s signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders who submitted bids in time, and posted online when electronic bidding is permitted.

**Evaluation and Comparison of Bids**

27. **Confidentiality**

27.1 Information relating to the evaluation of bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders.

27.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.

27.3 Notwithstanding ITB 27.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it should do so in writing.

28. **Clarification of Bids**

28.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer’s request for clarification and the response shall be in writing. No change in the prices or substance of the bid
shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 32.

28.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Employer’s request for clarification, its bid may be rejected.

29. Deviations, Reservations, and Omissions

29.1 During the evaluation of bids, the following definitions apply:

(a) “Deviation” is a departure from the requirements specified in the Bidding Document;

(b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and

(c) “Omission” is the failure to submit part or all of the information or documentation required in the Bidding Document.

30. Determination of Responsiveness

30.1 The Employer’s determination of a bid’s responsiveness is to be based on the contents of the bid itself, as defined in ITB11.

30.2 A substantially responsive bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

(a) if accepted, would:

   (i) affect in any substantial way the scope, quality, or performance of the Plant and Installation Services specified in the Contract; or

   (ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer’s rights or the Bidder’s obligations under the proposed Contract; or

(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.

30.3 The Employer shall examine the technical aspects of the bid in particular, to confirm that all requirements of Section VI, Employer’s Requirements have been met without any material deviation, reservation, or omission.

30.4 If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer.
31. Nonmaterial Nonconformities

31.1 Provided that a bid is substantially responsive, the Employer may waive any nonconformity in the bid that does not constitute a material deviation, reservation or omission.

31.2 Provided that a bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.

31.3 Provided that a bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the method indicated in Section III, Evaluation and Qualification Criteria.

32. Correction of Arithmetical Errors

32.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) where there are errors between the total of the amounts given under the column for the price breakdown and the amount given under the Total Price, the former shall prevail and the latter will be corrected accordingly;

(b) where there are errors between the total of the amounts of Schedule Nos. 1 to 4 and the amount given in Schedule No. 5 (Grand Summary), the former shall prevail and the latter will be corrected accordingly; and

(c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

32.2 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its bid shall be declared non-responsive.
33. **Conversion to Single Currency**

33.1 For evaluation and comparison purposes, the currency(ies) of the bid shall be converted into a single currency as specified in the BDS.

34. **Margin of Preference**

34.1 No margin of domestic preference shall apply.

35. **Evaluation of Bids**

35.1 The Employer shall use the criteria and methodologies indicated in this Clause. No other evaluation criteria or methodologies shall be permitted.

**Technical Evaluation**

35.2 The Employer will carry out a detailed technical evaluation of the bids not previously rejected to determine whether the technical aspects are in compliance with the Bidding Document. **The bid that does not meet minimum acceptable standards of completeness, consistency and detail, and the specified minimum (or maximum, as the case may be) requirements for specified functional guarantees, will be rejected for non responsiveness.** In order to reach its 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:

(a) overall completeness and compliance with the Employer’s Requirements; conformity of the Plant and Installation Services offered with specified performance criteria, including conformity with the specified minimum (or maximum, as the case may be) requirement corresponding to each functional guarantee, as indicated in the Specification and in Section III Evaluation and Qualification Criteria; suitability of the Plant and Installation Services 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;

(b) type, quantity and long-term availability of mandatory and recommended spare parts and maintenance services; and

(c) other relevant factors, if any, listed in Section III, Evaluation and Qualification Criteria.

35.3 Where alternative technical solutions have been allowed in accordance with ITB 13, and offered by the Bidder, the Employer will make a similar evaluation of the alternatives. Where alternatives have not been allowed but have been
offered, they shall be ignored.

**Economic Evaluation**

35.4 To evaluate a bid, the Employer shall consider the following:

(a) the bid price, excluding provisional sums and the provision, if any, for contingencies in the Price Schedules;

(b) price adjustment for correction of arithmetic errors in accordance with ITB 32.1;

(c) price adjustment due to discounts offered in accordance with ITB 17.9 or ITB17.10;

(d) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 31.3;

(e) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 33; and

(f) the evaluation factors indicated in Section III, Evaluation and Qualification Criteria.

35.5 If price adjustment is allowed in accordance with ITB 17.6, the estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

35.6 If this Bidding Document allows Bidders to quote separate prices for different lots (contracts), and the award to a single Bidder of multiple lots (contracts), the methodology to determine the lowest evaluated price of the lot (contract) combinations, including any discounts offered in the Letter of Bid, is specified in Section III, Evaluation and Qualification Criteria.

35.7 If the bid, which results in the lowest Evaluated Bid Price, is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Price Schedules, to demonstrate the internal consistency of those prices with the methods and time schedule proposed. After evaluation of the price analyses, taking into consideration the terms of payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against
financial loss in the event of default of the successful Bidder under the Contract.

36. **Comparison of Bids**

36.1 The Employer shall compare all substantially responsive bids in accordance with ITB 35.4 to determine the lowest evaluated bid.

37. **Eligibility and Qualification of the Bidder**

37.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid is eligible and meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder’s qualifications submitted by the Bidder, pursuant to ITB 15.

37.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder’s qualifications to perform satisfactorily.

37.4 The capabilities of the manufacturers and subcontractors proposed in its Bid to be used by the lowest evaluated Bidder for identified major items of supply or services will also be evaluated for acceptability in accordance with Section III, Evaluation and Qualification Criteria. Their participation should be confirmed with a letter of intent between the parties, as needed. Should a manufacturer or subcontractor be determined to be unacceptable, the Bid will not be rejected, but the Bidder will be required to substitute an acceptable manufacturer or subcontractor without any change to the bid price. Prior to signing the Contract, the corresponding Appendix to the Contract Agreement shall be completed, listing the approved manufacturers or subcontractors for each item concerned.

38. **Employer’s Right to Accept Any Bid, and to Reject Any or All Bids**

38.1 The 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 contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

**Award of Contract**
39. **Award Criteria**

39.1 Subject to ITB 38.1, the Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be eligible and qualified to perform the Contract satisfactorily.

40. **Notification of Award**

40.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, that its bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the “Letter of Acceptance”) shall specify the sum that the Employer will pay the Contractor in consideration of the execution and completion of the Plant and Installation Services (hereinafter and in the Conditions of Contract and Contract Forms called “the Contract Price”).

40.2 At the same time, the Employer shall also notify all other Bidders of the results of the bidding, and shall publish in UNDB online and in dgMarket the results identifying the bid and lot numbers and the following information: (i) name of each Bidder who submitted a Bid; (ii) bid prices as read out at Bid Opening; (iii) name and evaluated prices of each Bid that was evaluated; (iv) name of bidders whose bids were rejected and the reasons for their rejection; and (v) name of the winning Bidder, and the Price it offered, as well as the duration and summary scope of the contract awarded.

40.3 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

40.4 The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.2, requests in writing the grounds on which its bid was not selected.

41. **Signing of Contract**

41.1 Promptly upon notification, the Employer shall send the successful Bidder the Contract Agreement.

41.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

41.3 Notwithstanding ITB 41.2 above, in case signing of the Contract Agreement is prevented by any export restrictions attributable to the Employer, to the country of the Employer, or to the use of the Plant and Installation Services to be supplied, where such export restrictions arise from trade regulations from a country supplying those Plant and Installation Services, the Bidder shall not be bound by its bid,
always provided, however, that the Bidder can demonstrate to the satisfaction of the Employer and of the Bank that signing of the Contract Agreement has not been prevented by any lack of diligence on the part of the Bidder in completing any formalities, including applying for permits, authorizations and licenses necessary for the export of the Plant and Installation Services under the terms of the Contract.

42. Performance Security

42.1 Within twenty-eight (28) days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the General Conditions, subject to ITB 35.7, using for that purpose the Performance Security Form included in Section IX, Contract Forms, or another form acceptable to the Employer. If the performance security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign institution providing a performance security shall have a correspondent financial institution located in the Employer’s Country.

42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.
Section II. Bid Data Sheet
## A. Introduction

<table>
<thead>
<tr>
<th>ITB 1.1</th>
<th>The number of the Invitation for Bids is : NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITB 1.1</td>
<td>The Employer is: Nepal Electricity Authority (NEA)</td>
</tr>
<tr>
<td>ITB 1.1</td>
<td>The name of the ICB is: Supply, Delivery and Installation of Trash Rack Cleaning Machine.</td>
</tr>
<tr>
<td></td>
<td>The identification number of the ICB is: KGAHPPRP/G/ICB-4-R</td>
</tr>
<tr>
<td></td>
<td>The number and identification of lots (contracts) comprising this ICB is: NA</td>
</tr>
<tr>
<td>ITB 1.1</td>
<td></td>
</tr>
<tr>
<td>ITB 2.1</td>
<td>The Borrower is: Government of Nepal (GoN)</td>
</tr>
<tr>
<td>ITB 2.1</td>
<td>The name of the Project is: Kali Gandaki A (KGA) Hydropower Plant Rehabilitation Project</td>
</tr>
<tr>
<td></td>
<td>Credit No. 5246 NP</td>
</tr>
<tr>
<td>ITB 4.1 (a)</td>
<td>The individuals or firms in a joint venture, consortium or association Shall be jointly and severally liable.</td>
</tr>
</tbody>
</table>

## B. Bidding Document

| ITB 7.1 | For **clarification purposes** only, the Employer’s address is: |
|         | Office of the Director |
|         | Nepal Electricity Authority |
|         | Generation, Operation & Maintenance Department |
|         | Attention: Mr. Sudhir Prasad Singh, Project Co-ordinator |
|         | Floor/ Room number: 315 |
|         | City: Kathmandu |
|         | Country: Nepal |
|         | Telephone: +977 1 4153070 |
|         | Facsimile number: +977 1 4153071 |
|         | Electronic mail address: kgahpprp@nea.org.np |

| ITB 7.4 | A Pre-Bid meeting take place at the following date, time and place: |
|         | Date: 29th Dec, 2014 |
|         | Time: 11:00 a.m. (Nepal Standard Time) |
|         | Place: Nepal Electricity Authority |
|         | Conference Room |
|         | Generation Operation & Maintenance Department |
|         | Durbarmarg |
|         | City: Kathmandu |
|         | Country: Nepal |
|         | Site visit will be organized for potential bidders (on their own cost) who have purchased the Bidding Documents one week prior to Pre – Bid |
### C. Preparation of Bids

<table>
<thead>
<tr>
<th>ITB 10.1</th>
<th>The language of the bid is: English</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITB 11.1 (k)</td>
<td>The Bidder shall submit with its bid the following additional documents:</td>
</tr>
<tr>
<td></td>
<td>1. An notarized copy of legal registration certificate</td>
</tr>
<tr>
<td></td>
<td>2. Nepalese Bidders shall provide VAT Registration Certificate</td>
</tr>
<tr>
<td></td>
<td>3. Manufacturer Authorization: If the Bidder is not the manufacturers, the Bidder must have been duly authorized by the equipment manufacturers to supply the equipment in the Purchaser's country under this contract. Such authorization shall be necessary for all equipments. (as asked in Technical Data Sheet of Section VI).</td>
</tr>
<tr>
<td></td>
<td>4. Bidders are strictly advised to complete the TECHNICAL DATA SHEET included in Section IV with complete information.</td>
</tr>
<tr>
<td></td>
<td>5. Any other Bidding Forms included in Section IV with complete information.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITB 13.1</th>
<th>Alternative bids are not permitted.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITB 13.2</td>
<td>Alternatives to the Time Schedule shall not be permitted.</td>
</tr>
<tr>
<td>ITB 13.4</td>
<td>NA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITB 17.1</th>
<th>Bidders shall quote for the following components or services on a single responsibility basis:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plant and mandatory spare parts supplied from abroad (Schedule No. 1), and Design Services (Schedule No. 3).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITB 17.5(a)</th>
<th>Named place of destination is: Nepal Border</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITB 17.5(d)</td>
<td>Named place of final destination is: Kali Gandaki A Hydro Power Station, Beltari, Syangja, Nepal</td>
</tr>
</tbody>
</table>

| ITB 17.7 | The prices quoted by the Bidder shall be: fixed for Plant and mandatory spare parts supplied from abroad (Schedule No. 1), and Design Services (Schedule No. 3). |

<table>
<thead>
<tr>
<th>ITB 18.1</th>
<th>The currency (ies) of the bid shall be as follows: (a) Plant and equipment to be supplied from abroad (Schedule 1) shall be quoted entirely in freely convertible currency. If the Bidder wishes to be paid in a combination of amounts in different currencies, it may quote its price accordingly, but use no more than three foreign currencies.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(b) Plant and equipment to be supplied from within the Employer’s country shall be quoted in Nepalese Rupees (NRs.)</td>
</tr>
<tr>
<td></td>
<td>(c) Design and installation services shall be quoted in either</td>
</tr>
</tbody>
</table>
foreign and / or local currency, depending upon the currency in which the costs are to be incurred.

<table>
<thead>
<tr>
<th>ITB 19.1</th>
<th>The bid validity period shall be 120 (One Hundred and Twenty) days.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITB 20.1</td>
<td>The amount of the bid security shall be minimum US$ 37,000 (Thirty seven thousand) or Nepalese Rupees 3.20 million or an equivalent amount in freely convertible currency. The bank guarantee shall be issued by a commercial bank in Nepal. If the bank guarantee is issued by a foreign bank, it shall be endorsed by a commercial bank in Nepal. Bid security shall be in the form of unconditional bank guarantee.</td>
</tr>
<tr>
<td>ITB 20.3 (d)</td>
<td>NA</td>
</tr>
<tr>
<td>ITB 20.10</td>
<td>NA</td>
</tr>
<tr>
<td>ITB 21.1</td>
<td>In addition to the original of the bid, the number of copies is three (3) hard copies and one (1) electronic copy on CD/DVD.</td>
</tr>
</tbody>
</table>
| ITB 21.2 | a. Original Power of Attorney duly notarized in favor of person signing the bid on behalf of the Bidder.  

b. In the case of bids submitted by an existing or intended JVA, include and undertaking signed by all parties (i) starting that all parties shall be jointly and severally liable and (ii) nominating a representative who shall have the authority to conduct all business for and on behalf of any and all parties of the JVA during the bidding process and in the event the JVA awarded the contract for signing the contract and contract execution. |

**D. Submission and Opening of Bids**

| ITB 22.1 | Bidders shall not have the option of submitting their bids electronically. |
| ITB 22.1 (b) | If bidders shall have the option of submitting their bids electronically, the electronic bidding submission procedures shall be: NA |
| ITB 23.1 | For bid submission purposes only, the Employer’s address is:  
Director  
Nepal Electricity Authority  
Generation Operation & Maintenance Department  
Durbarmarg  
Room No: 315  
City: Kathmandu  
Country: Nepal  
Telephone: +977 1 4153170  
Facsimile number: +977 1 4153171  
Electronic mail address: kgahpprp@nea.org.np  

The deadline for bid submission is: |
| **Date:** 23rd Jan, 2015  
**Time:** 12:00 Hrs (NST)  
Add at the end of ITB Clause 23.1 the following:  
“In the event of the specified date for the submission of bids, being declared a holiday for the Employer, the bids will be received up to the appointed time on the next working day.” |  
**E. Evaluation, and Comparison of Bids**  
**ITB 33.1** The currency(ies) of the Bid shall be converted into a single currency as follows:  
The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: Nepalese Rupees.  
The source of exchange rate shall be: The exchange (selling) rates as published by the Nepal Rastra Bank. ([www.nrb.org.np](http://www.nrb.org.np)).  
The date for the exchange rate shall be: The day of bid opening. |  
| **F. Award of Contract**  
**ITB 42.1** The amount of the performance security shall be 10% of the contract Amount. The Bank guarantee shall be issued by a Commercial Bank in Nepal. If the Bank guarantee is issued by a foreign Bank, it shall be endorsed by a commercial bank located in Nepal. Performance security shall be in the form of unconditional Bank guarantee. |
Section III Evaluation and Qualification Criteria
1. Evaluation
1.1 Technical Evaluation

In addition to the criteria listed in ITB 35.2 (a) – (b) the following factors shall apply:

None

1.2 Economic Evaluation

The following factors and methods will apply:

(a) Time Schedule
   Not Applicable

(b) Operating and Maintenance Costs
   Not Applicable

(c) Functional Guarantees of the facilities
   Not Applicable

(d) Work, services, facilities, etc., to be provided by the Employer
   Where bids include the undertaking of work or the provision of services or facilities by the Employer in excess of the provisions allowed for in the bidding document, the Employer shall assess the costs of such additional work, services and/or facilities during the duration of the contract. Such costs shall be added to the bid price for evaluation.

(e) Specific additional criteria
   The relevant evaluation method, if any, shall be as follows:

   None

1.3 Technical Alternatives

Technical alternatives, if invited in accordance with ITB 13.4, will be evaluated as follows:

Not Applicable
## 2. Qualification

<table>
<thead>
<tr>
<th>Sub-Factor</th>
<th>Requirement</th>
<th>Criteria</th>
<th>Bidder</th>
<th>Documentation Required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.1 Eligibility</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.1.1 Nationality</strong></td>
<td>Nationality in accordance with ITB 4.2.</td>
<td>Must meet requirement</td>
<td>Existing or intended JVA must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Form ELI –1.1 and 1.2, with attachments</td>
</tr>
<tr>
<td><strong>2.1.2 Conflict of Interest</strong></td>
<td>No-conflicts of interests as described in ITB 4.3.</td>
<td>Must meet requirement</td>
<td>Existing or intended JVA must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Letter of Bid</td>
</tr>
<tr>
<td><strong>2.1.3 Bank Ineligibility</strong></td>
<td>Not having been declared ineligible by the Bank as described in ITB 4.4.</td>
<td>Must meet requirement</td>
<td>Existing JVA must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Letter of Bid,</td>
</tr>
<tr>
<td><strong>2.1.4 Government Owned Entity</strong></td>
<td>Compliance with conditions of ITB 4.5</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Form ELI –1.1 and 1.2, with attachments</td>
</tr>
<tr>
<td><strong>2.1.5 Ineligibility based on a United Nations resolution or Borrower's country law</strong></td>
<td>Not having been excluded as a result of the Borrower’s country laws or official regulations, or by an act of compliance with UN Security Council resolution, in accordance with ITB 4.8</td>
<td>Must meet requirement</td>
<td>Existing JVA must meet requirement</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Letter of Bid</td>
</tr>
<tr>
<td>Factor</td>
<td>2.2 Historical Contract Non-Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-Factor</td>
<td>Criteria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requirement</td>
<td>Bidder</td>
<td>Documentation Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Joint Venture, Consortium or Association</td>
<td>Single Entity</td>
<td>All partners combined</td>
<td>Each partner</td>
</tr>
<tr>
<td>2.2.1 History of non-performing contracts</td>
<td>Non-performance of a contract did not occur within the last five (5) years prior to the deadline for application submission, based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract, and where all appeal instances available to the bidder have been exhausted.</td>
<td>Must meet requirement by itself or as partner to past or existing JVA</td>
<td>N / A</td>
<td>Must meet requirement by itself or as partner to past or existing JVA</td>
</tr>
<tr>
<td>2.2.2 Pending Litigation</td>
<td>All pending litigation shall in total not represent more than five percent (5%) of the Bidder’s net worth and shall be treated as resolved against the Bidder.</td>
<td>Must meet requirement by itself or as partner to past or existing JVA</td>
<td>N / A</td>
<td>Must meet requirement by itself or as partner to past or existing JVA</td>
</tr>
</tbody>
</table>
## 2.3 Financial Situation

<table>
<thead>
<tr>
<th>Sub-Factor</th>
<th>Requirement</th>
<th>Criteria</th>
<th>Documentation Required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.3.1 Historical Financial Performance</strong></td>
<td>Submission of audited balance sheets or if not required by the law of the bidder’s country, other financial statements acceptable to the Employer, for the last three [3] years to demonstrate the current soundness of the bidders financial position and its prospective long term profitability. As a minimum, a Bidder’s net worth calculated as the difference between total assets and total liabilities should be positive. The bidder shall not have current liabilities more than current assets for the last fiscal year.</td>
<td>Bidder</td>
<td>Joint Venture, Consortium or Association</td>
</tr>
<tr>
<td>Single Entity</td>
<td>Must meet requirement</td>
<td>N / A</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td>All partners combined</td>
<td></td>
<td></td>
<td>N / A</td>
</tr>
<tr>
<td>Each partner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At least one partner</td>
<td></td>
<td></td>
<td>Form FIN – 3.1 with attachments</td>
</tr>
<tr>
<td><strong>2.3.2 Average Annual Turnover</strong></td>
<td>Minimum average annual turnover of USD 1.88 million, calculated as total certified payments received for contracts in progress or completed, within the last three (3) fiscal years.</td>
<td>Bidder</td>
<td>Joint Venture, Consortium or Association</td>
</tr>
<tr>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet Twenty Five percent (25%) of the requirement</td>
<td>Must meet Forty percent (40%) of the requirement</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Form FIN – 3.2</td>
</tr>
</tbody>
</table>
### 2.3 Financial Situation

<table>
<thead>
<tr>
<th>Sub-Factor</th>
<th>Requirement</th>
<th>Criteria</th>
<th>Bidder</th>
<th>Documentation Required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Single Entity</td>
<td>Joint Venture, Consortium or Association</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>All partners combined</td>
<td>Each partner</td>
</tr>
<tr>
<td><strong>2.3.3 Financial Resources</strong></td>
<td>The Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet the following cash-flow requirement: (i) Liquid assets shall not be less than USD 430,000. (ii) In case of inadequate liquid assets balance can be supplemented with a letter confirming a line of credit for the balance from a reputable bank</td>
<td>Must meet requirement</td>
<td>Must meet requirement</td>
<td>Must meet Twenty Five percent (25%) of the requirement</td>
</tr>
<tr>
<td>Sub-Factor</td>
<td>Requirement</td>
<td>Criteria</td>
<td>Bidder</td>
<td>Documentation Required</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>2.4.1 General Experience</td>
<td>Experience under contracts in the role of contractor, subcontractor, or management contractor for at least the last ten [10] years, Prior to the applications submission deadline.</td>
<td>Must meet requirement</td>
<td>N / A</td>
<td>Must meet requirement</td>
</tr>
<tr>
<td>2.4.2 Specific Experience (a)</td>
<td>Participation as contractor, management contractor, or subcontractor, in at least 1 (One) contracts within the last 5 (Five) years with a value of at least US$ 1.0 million or 2 (Two) contracts within the last 5 (Five) years, each with a value of at least US$ 0.63 million that have been successfully or are substantially completed and that are similar to the proposed plant and services. The similarity shall be based on the physical size, complexity, methods, technology or other characteristics as described in Section 6 (Employer’s Requirements)</td>
<td>Must meet requirement</td>
<td>Must meet requirements</td>
<td>N / A</td>
</tr>
<tr>
<td>Sub-Factor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Experience</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4.2.b Experience in Key Activities (May be complied by specialist subcontractors. Employer shall require evidence of subcontracting agreement from Bidder.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bidder</td>
</tr>
<tr>
<td>Single Entity</td>
</tr>
<tr>
<td>Joint Venture, Consortium or Association</td>
</tr>
<tr>
<td>Documentation Required</td>
</tr>
<tr>
<td>All partners combined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.4 Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must meet all requirements by Manufacturers/Sub-Contractors:--</td>
</tr>
<tr>
<td>(i) Design, Manufacture and Supply of at least five (5) Hydraulic Trash Rack Cleaning Machines (Trash Handling Capacity of at least 6 MT and rake bucket width of 4.6 m) out of which three (3) must have been supplied outside home country.</td>
</tr>
<tr>
<td>(ii) Design, Manufacture and Supply of at least 3 (three) Gantry Cranes (each at least twelve (12) MT Capacity).</td>
</tr>
<tr>
<td>(iii) Manufacture and Supply of stop-logs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Must meet requirement</th>
<th>Must meet requirements</th>
<th>N/A</th>
</tr>
</thead>
</table>

Form EXP-2.4.2(b)

Design, fabrication and installation of any capacity of combined unit constituting hydraulic TRCM and gantry crane hoist
1. End-user certificates for all the relevant projects undertaken by the bidder and all the partners in JVA shall be submitted along the bid to substantiate the work experience.
2. If the contracts have been completed by a JV, the profit share in those contracts shall be considered for the calculation of the value of works completed.
BLANK
2.5 Personnel

The Bidder must demonstrate that it will have the personnel for the key positions that meet the following requirements:

<table>
<thead>
<tr>
<th>No.</th>
<th>Position</th>
<th>Total Work Experience (years)</th>
<th>Specific Works Experience (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project Manager</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Site manager</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

The Bidder shall provide details of the proposed personnel and their experience records in the relevant Forms included in Section IV, Bidding Forms. Each of the personnel must hold bachelor degree (min) in related field.

2.6 Equipment

The Bidder must demonstrate that it will have access to the key Contractor’s equipment listed hereafter:

<table>
<thead>
<tr>
<th>No.</th>
<th>Equipment Type and Characteristics</th>
<th>Minimum Number required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>None</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The Bidder shall provide further details of proposed items of equipment using the relevant Form in Section IV.

2.7 Subcontractors;

Not Applicable
BLANK
# Section IV. Bidding Forms

## Table of Forms

<table>
<thead>
<tr>
<th>Form</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter of Bid</td>
<td>50</td>
</tr>
<tr>
<td>Letter of Bid – Single Stage Bidding</td>
<td>50</td>
</tr>
<tr>
<td><strong>Schedules of Rates and Prices</strong></td>
<td>52</td>
</tr>
<tr>
<td>Schedule No. 1 - Plant and Mandatory Spare Parts Supplied from Abroad</td>
<td>53</td>
</tr>
<tr>
<td>Schedule No. 2 - Plant and Mandatory Spare Parts Supplied from Within the Employer’s Country</td>
<td>54</td>
</tr>
<tr>
<td>Schedule No. 3 - Design Services</td>
<td>55</td>
</tr>
<tr>
<td>Schedule No. 4 - Installation and Other Services</td>
<td>56</td>
</tr>
<tr>
<td>Schedule No. 5 - Grand Summary</td>
<td>57</td>
</tr>
<tr>
<td><strong>Price Adjustment</strong></td>
<td>59</td>
</tr>
<tr>
<td><strong>Technical Proposal</strong></td>
<td>60</td>
</tr>
<tr>
<td>Site Organization</td>
<td>61</td>
</tr>
<tr>
<td>Method Statement</td>
<td>62</td>
</tr>
<tr>
<td>Mobilization Schedule</td>
<td>63</td>
</tr>
<tr>
<td>Construction Schedule</td>
<td>64</td>
</tr>
<tr>
<td>Contractor’s Equipment</td>
<td>66</td>
</tr>
<tr>
<td>Personnel</td>
<td>68</td>
</tr>
<tr>
<td>Proposed Subcontractors for Major Items of Plant and Installation Services</td>
<td>70</td>
</tr>
<tr>
<td>Form ELI 1.1</td>
<td>73</td>
</tr>
<tr>
<td><strong>Bidder Information Sheet</strong></td>
<td>73</td>
</tr>
<tr>
<td><strong>Party to JVA Information Sheet</strong></td>
<td>74</td>
</tr>
<tr>
<td><strong>Historical Contract Non-Performance</strong></td>
<td>75</td>
</tr>
<tr>
<td><strong>Current Contract Commitments / Works in Progress</strong></td>
<td>76</td>
</tr>
<tr>
<td><strong>Financial Situation</strong></td>
<td>77</td>
</tr>
<tr>
<td>Historical Financial Performance</td>
<td>77</td>
</tr>
<tr>
<td>Average Annual Turnover</td>
<td>79</td>
</tr>
<tr>
<td>Financial Resources</td>
<td>80</td>
</tr>
<tr>
<td><strong>Experience - General Experience</strong></td>
<td>81</td>
</tr>
<tr>
<td>Specific Experience</td>
<td>82</td>
</tr>
<tr>
<td><strong>Manufacturer’s Authorization</strong></td>
<td>87</td>
</tr>
</tbody>
</table>
Letter of Bid

Letter of Bid – Single Stage Bidding

Date: ____________________________
ICB No.: _______________________
Invitation for Bid No.: _____________

To: Project Manager
Kali Gandaki A (KGA) Hydropower Plant Rehabilitation Project
Nepal Electricity Authority
Generation O & M
Beltari, Syangja, Nepal
Telephone: +977 63 403201
Facsimile number: +977 63 403202
Electronic mail address: kgahpprp@nea.org.np

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Document, including Addenda issued in accordance with Instructions to Bidders (ITB) 8;  
(b) We offer to ________________________, in conformity with the Bidding Document, the following Plant and Installation Services: ____________________________________________  
(c) The price of our Bid, excluding any discounts offered in item (d) below is the sum of: ________________________, (_________), and ______________________, (________)  
(d) The discounts offered and the methodology for their application are: ______________________

__________________________________________
__________________________________________
__________________________________________

(a) Our bid shall be valid for a period of /One hundred twenty (120) days/ days from the date fixed for the bid submission deadline in accordance with the Bidding Document, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
(b) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;
(c) We, including any subcontractors or manufacturers for any part of the contract, have or will have nationalities from eligible countries, in accordance with ITB-4.2;
(d) We, including any subcontractors or manufacturers for any part of the contract, do not have any conflict of interest in accordance with ITB-4.3;

(e) We are not submitting more than one bid in this bidding process as a Bidder, either individually or as a partner in a joint venture, in accordance with ITB-4.3, except for alternative offers permitted under ITB Clause 13;

(f) We, including any of our subcontractors or manufacturers for any part of the contract, have not been declared ineligible by the Bank, under the Employer’s country laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;

(g) We are not a government owned entity/ We are a government owned entity but meet the requirements of ITB-4.5;

(h) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:

<table>
<thead>
<tr>
<th>Name of Recipient</th>
<th>Address</th>
<th>Reason</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

(If none has been paid or is to be paid, indicate “none.”)

(i) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and

(j) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Name __________________________ In the capacity of _________________________

Signed __________________________

Duly authorized to sign the bid for and on behalf of __________________________

Dated on _____________________ day of ______________________, _____

---

10 Bidder to use as appropriate
Schedules of Rates and Prices
# Schedules of Rates and Prices

**Schedule No. 1 - Plant and Mandatory Spare Parts Supplied from Abroad**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
<th>Qty.</th>
<th>Unit Price 🇨寤 (2)</th>
<th>Total Price 🇨寤 (1) x (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 (one) Trash Rack Raking Machines and 1 (one) trash removal system</td>
<td></td>
<td>1 Set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1 (one) under sluice stoplog</td>
<td></td>
<td>1 Nos</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL (to Schedule No. 5. Grand Summary)**

Name of Bidder

Signature of Bidder

1. Bidders shall enter a code representing the country of origin of all imported plant and equipment.
2. Specify currency. Create and use as many columns for Unit Price and Total Price as there are currencies.

## Country of Origin Declaration Form

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Signature]
## Schedule No. 2 - Plant and Mandatory Spare Parts Supplied from Within the Employer’s Country

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty. (1)</th>
<th>EXW Unit Price (2)</th>
<th>EXW Total Price (1) x (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL (to Schedule No. 5. Grand Summary)**

Name of Bidder  
Signature of Bidder

---

1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 18.1 in Single Stage Bid, or ITB 30.1 in Two Stage Bid.
## Schedule No. 3 - Design Services

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty.</th>
<th>Unit Price(^1)</th>
<th>Total Price(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Local Currency</td>
<td>Foreign Currency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Portion (1)</td>
<td>Portion (optional)</td>
</tr>
<tr>
<td>1</td>
<td>Lump sum design services</td>
<td>LS²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL (to Schedule No. 5. Grand Summary)

Name of Bidder ____________________________

Signature of Bidder ____________________________

---

\(^1\) Specify currency in accordance with specifications in Bid Data Sheet under ITB 18.1 in Single Stage Bid,
### Schedule No. 4 - Installation and Other Services

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty.</th>
<th>Unit Price(^1)</th>
<th>Total Price(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Foreign Currency Portion (1)</td>
<td>Local Currency Portion (2)</td>
</tr>
<tr>
<td>1</td>
<td>One (1) new trash-rack raking machines (TRRM) and trash removal system installation</td>
<td>1 sets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1 (one) under sluice stoplog</td>
<td>1 Nos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Training Services for the operation of New Trash Rack Raking Machine and Trash removal system</td>
<td>LS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL (to Schedule No. 5. Grand Summary)

Name of Bidder __________________________

Signature of Bidder __________________________

---

\(^1\) Specify currency in accordance with specifications in Bid Data Sheet under ITB 18.1 in Single Stage Bid,
### Schedule No. 5 - Grand Summary

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Total Price&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Foreign</td>
</tr>
<tr>
<td></td>
<td>Total Schedule No. 1. Plant, and Mandatory Spare Parts Supplied from Abroad</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Schedule No. 2. Plant, and Mandatory Spare Parts Supplied from Within the Employer’s Country</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Schedule No. 3. Design Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Schedule No. 4. Installation and Other Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL (to Bid Form)</td>
<td></td>
</tr>
</tbody>
</table>

Name of Bidder  
Signature of Bidder

<sup>1</sup> Specify currency in accordance with specifications in Bid Data Sheet under ITB 18.1 in Single Stage Bid. Create and use as many columns for Foreign Currency requirement as there are foreign currencies
**Schedule No. 6. Recommended Spare Parts**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty.</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As per Bidder’s Indication</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>CIP (foreign parts) (2)</th>
<th>EXW (local parts) (3)</th>
<th>Total Price (1 x (2) or(3))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name of Bidder ____________________________

Signature of Bidder ________________________
Price Adjustment

Not Applicable
Technical Proposal

- Site Organization
- Method Statement
- Mobilization Schedule
- Construction Schedule
- Contractor’s Equipment
- Personnel
- Proposed Subcontractors for Major Items of Plant and Installation Services
- Others
Site Organization
Method Statement
Mobilization Schedule
Construction Schedule
Plant
Contractor’s Equipment

Form EQU

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key Contractor’s equipment listed in Section III, Evaluation and Qualification Criteria. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

<table>
<thead>
<tr>
<th>Item of equipment</th>
<th>Equipment information</th>
<th>Name of manufacturer</th>
<th>Model and power rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacity</td>
<td></td>
<td>Year of manufacture</td>
</tr>
<tr>
<td>Current status</td>
<td>Current location</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Details of current commitments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Indicate source of the equipment</td>
<td></td>
<td>Owned  Rented  Leased Specially manufactured</td>
</tr>
</tbody>
</table>

Omit the following information for equipment owned by the Bidder.

<table>
<thead>
<tr>
<th>Owner</th>
<th>Name of owner</th>
<th>Address of owner</th>
<th>Telephone</th>
<th>Contact name and title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fax</td>
<td>Telex</td>
</tr>
<tr>
<td>Agreements</td>
<td>Details of rental / lease / manufacture agreements specific to the project</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form FUNC

The Bidder shall copy in the left column of the table below, the identification of each functional guarantee required in the Specification and stated by the Employer in Para. 1.2 (c) of Section III. Evaluation and Qualification Criteria, and in the right column, provide the corresponding value for each functional guarantee of the proposed plant and equipment.

<table>
<thead>
<tr>
<th>Required Functional Guarantee</th>
<th>Value of Functional Guarantee of the Proposed Plant and Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>
Proposed Personnel

Bidders should provide the names of suitably qualified personnel to meet the specified requirements stated in Section III. The data on their experience should be supplied using the Form below for each candidate.

<table>
<thead>
<tr>
<th></th>
<th>Title of position*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name</td>
</tr>
<tr>
<td>2.</td>
<td>Title of position*</td>
</tr>
<tr>
<td></td>
<td>Name</td>
</tr>
<tr>
<td>3.</td>
<td>Title of position*</td>
</tr>
<tr>
<td></td>
<td>Name</td>
</tr>
<tr>
<td>4.</td>
<td>Title of position*</td>
</tr>
<tr>
<td></td>
<td>Name</td>
</tr>
</tbody>
</table>

*As listed in Section III.
Form PER-2

Resume of Proposed Personnel

<table>
<thead>
<tr>
<th>Name of Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Position**

<table>
<thead>
<tr>
<th>Personnel information</th>
<th>Name</th>
<th>Date of birth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Professional qualifications**

<table>
<thead>
<tr>
<th>Present employment</th>
<th>Name of employer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address of employer</th>
<th>Telephone</th>
<th>Contact (manager / personnel officer)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fax</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Job title</th>
<th>Years with present employer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Company / Project / Position / Relevant technical and management experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---
Proposed Subcontractors for Major Items of Plant and Installation Services

A list of major items of Plant and Installation Services is provided below.

The following Subcontractors and/or manufacturers are proposed for carrying out the item of the facilities indicated. Bidders are free to propose more than one for each item

<table>
<thead>
<tr>
<th>Major Items of Plant and Installation Services</th>
<th>Proposed Subcontractors/Manufacturers</th>
<th>Nationality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Others - Time Schedule

(to be used by Bidder when alternative Time for Completion is invited in ITB 13.2 – Single Stage Bidding only)
Others – Commercial or contractual aspects of the bidding documents that the Bidder would like to discuss with the Employer during clarifications (to be used by Bidder – Two Stage Bidding only)
Form ELI 1.1

Bidder Information Sheet

Date: ______________________
ICB No.: ___________________
Invitation for Bid No.: ________
Page _______ of _______ pages

1. Bidder’s Legal Name

2. In case of JVA, legal name of each party:

3. Bidder’s actual or intended Country of Registration:

4. Bidder’s Year of Registration:

5. Bidder’s Legal Address in Country of Registration:

6. Bidder’s Authorized Representative Information
   Name:
   Address:
   Telephone/Fax numbers:
   Email Address:

7. Attached are copies of original documents of:
   □ Articles of Incorporation or Registration of firm named in 1 above, in accordance with ITB Sub-Clauses 4.1 and 4.2.
   □ Nepalese Bidders and Nepalese JV partners must submit VAT registration certificate.
   □ In case of JVA, letter of intent to form JVA including a draft agreement, or JVA agreement, in accordance with ITB Sub-Clauses 4.1 and 11.1(i) Single Stage Bidding or 11.1(g) Two Stage Bidding.
   □ The Bidder and their JV partners, if any, must submit their individual registration certificate to confirm their legal status.
   □ In case of government owned entity from the Employer’s country, documents establishing legal and financial autonomy and compliance with the principles of commercial law, in accordance with ITB Sub-Clause 4.5.

Please note that a original written authorization letter needs to be attached to this sheet as required by ITB 21.2 Single Stage Bidding) or ITB 17.2 Two Stage Bidding
Form ELI 1.2

Party to JVA Information Sheet

Date: ______________________
ICB No.: ___________________
Invitation for Bid No.:_________
Page _______ of ______ pages

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bidder’s Legal Name:</td>
<td></td>
</tr>
<tr>
<td>2. JVA’s Party legal name:</td>
<td></td>
</tr>
<tr>
<td>3. JVA’s Party Country of Registration:</td>
<td></td>
</tr>
<tr>
<td>4. JVA’s Party Year of Registration:</td>
<td></td>
</tr>
<tr>
<td>5. JVA’s Party Legal Address in Country of Registration:</td>
<td></td>
</tr>
<tr>
<td>6. JVA’s Party Authorized Representative Information</td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Telephone/Fax numbers:</td>
<td></td>
</tr>
<tr>
<td>Email Address:</td>
<td></td>
</tr>
</tbody>
</table>

7. Attached are copies of original documents of:
   - Articles of Incorporation or Registration of firm named in 1, above, in accordance with ITB Sub-Clauses 4.1 and 4.2.
   - In case of government owned entity from the Purchaser’s country, documents establishing legal and financial autonomy and compliance with the principles of commercial law, in accordance with ITB Sub-Clause 4.5.
Form CON – 2

Historical Contract Non-Performance

In case a prequalification process was conducted this form should be used only if the information submitted at the time of prequalification requires updating

Bidder’s Legal Name: _______________________ Date: ___________________

JVA Partner Legal Name: _______________________ ICB No.: ___________________

Non-Performing Contracts in accordance with Section III, Evaluation Criteria

☐ Contract non-performance did not occur during the stipulated period, in accordance with Sub- Factor 2.2.1 of Section III, Evaluation Criteria

Pending Litigation, in accordance with Section III, Evaluation Criteria

☐ No pending litigation in accordance with Sub-Factor 2.2.2 of Section III, Evaluation Criteria

☐ Pending litigation in accordance with Sub-Factor 2.2.2 of Section III, Evaluation Criteria, as indicated below

<table>
<thead>
<tr>
<th>Year</th>
<th>Outcome as Percent of Total Assets</th>
<th>Contract Identification</th>
<th>Total Contract Amount (current value, US$ equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Contract Identification:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Name of Employer:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Address of Employer:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Matter in dispute:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contract Identification:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Name of Employer:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Address of Employer:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Matter in dispute:</td>
<td></td>
</tr>
</tbody>
</table>
Form CCC

**Current Contract Commitments / Works in Progress**

Bidders and each partner to a JVA should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

<table>
<thead>
<tr>
<th>Name of contract</th>
<th>Employer, contact address/tel/fax</th>
<th>Value of outstanding work (current US$ equivalent)</th>
<th>Estimated completion date</th>
<th>Average monthly invoicing over last six months (US$/month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form FIN – 3.1

Financial Situation

Historical Financial Performance

Bidder’s Legal Name: _______________________      Date:  _____________________
JVA Partner Legal Name: _______________________      ICB No.: _______________________

Page _______ of _______ pages

To be completed by the Bidder and, if JVA, by each partner

<table>
<thead>
<tr>
<th>Financial information in US$ equivalent</th>
<th>Historic information for previous _____ (__) years (US$ equivalent in 000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
</tr>
</tbody>
</table>

**Information from Balance Sheet**

- Total Assets (TA)
- Total Liabilities (TL)
- Net Worth (NW)
- Current Assets (CA)
- Current Liabilities (CL)

**Information from Income Statement**

- Total Revenue (TR)
- Profits Before Taxes (PBT)
Attached are copies of financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following conditions:

(a) Must reflect the financial situation of the Bidder or partner to a JVA, and not sister or parent companies

(b) Historic financial statements must be audited by a certified accountant

(c) Historic financial statements must be complete, including all notes to the financial statements

(d) Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted)
Form FIN – 3.2

Average Annual Turnover

Bidder’s Legal Name: ___________________________ Date: _____________________
JVA Partner Legal Name: ___________________________  ICB No.: __________________

Page _____ of _____ pages

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount and Currency</th>
<th>US$ equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

*Average Annual Construction Turnover

*Average annual turnover calculated as total certified payments received for work in progress or completed, divided by the number of years specified in Section III, Evaluation Criteria, Sub-Factor 2.3.2.
Form FIN 3.3

Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Section III, Evaluation and Qualification Criteria

<table>
<thead>
<tr>
<th>Source of financing</th>
<th>Amount (US$ equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
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<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>
Form EXP 2.4.1

Experience - General Experience

Bidder’s Legal Name: ____________________________     Date: _____________________
JVA Partner Legal Name: ____________________________
ICB No.: ________________
Page _______ of _______ pages

<table>
<thead>
<tr>
<th>Starting Month / Year</th>
<th>Ending Month / Year</th>
<th>Years *</th>
<th>Contract Identification</th>
<th>Role of Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____</td>
<td>_____</td>
<td>______</td>
<td>Contract name:</td>
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<td></td>
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<td></td>
<td>Brief Description of the Works performed by the Bidder:</td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td>Name of Employer:</td>
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<td>Address:</td>
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<td>______</td>
<td>Contract name:</td>
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<td>Brief Description of the Works performed by the Bidder:</td>
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<td>Name of Employer:</td>
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<td>Address:</td>
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<td>______</td>
<td>Contract name:</td>
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<td>Brief Description of the Works performed by the Bidder:</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Name of Employer:</td>
<td></td>
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<td>Address:</td>
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<td>_____</td>
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<td>______</td>
<td>Contract name:</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Brief Description of the Works performed by the Bidder:</td>
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<td></td>
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<td></td>
<td>Name of Employer:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Address:</td>
<td></td>
</tr>
</tbody>
</table>

*List calendar year for years with contracts with at least nine (9) months activity per year starting with the earliest year
Form EXP – 2.4.2(a)

Specific Experience

Bidder’s Legal Name: ___________________________ Date: _____________________
JVA Partner Legal Name: _________________________
ICB No.: ___________________
Page _______ of _______ pages

<table>
<thead>
<tr>
<th>Similar Contract Number: ___ of ___ required.</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Identification</td>
<td></td>
</tr>
<tr>
<td>Award date</td>
<td></td>
</tr>
<tr>
<td>Completion date</td>
<td></td>
</tr>
<tr>
<td>Role in Contract</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>Management</td>
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<tr>
<td></td>
<td>Subcontractor</td>
</tr>
<tr>
<td>Total contract amount</td>
<td>US$_______</td>
</tr>
<tr>
<td>If partner in a JVA or subcontractor, specify participation of total contract amount</td>
<td>_____ %</td>
</tr>
<tr>
<td></td>
<td>US$_______</td>
</tr>
<tr>
<td>Employer’s Name:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Telephone/Fax number:</td>
<td></td>
</tr>
<tr>
<td>E-mail:</td>
<td></td>
</tr>
</tbody>
</table>
Form EXP – 2.4.2(a) (cont.)

**Specific Experience (cont.)**

Bidder’s Legal Name: ___________________________  Page _____ of _____ pages
JVA Partner Legal Name: ___________________________

<table>
<thead>
<tr>
<th>Similar Contract No. ___[insert specific number] of [total number of contracts] ___ required</th>
<th>Information</th>
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</thead>
<tbody>
<tr>
<td>Description of the similarity in accordance with Sub-Factor 2.4.2a) of Section III:</td>
<td></td>
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<tr>
<td>Amount</td>
<td>_________________________________</td>
</tr>
<tr>
<td>Physical size</td>
<td>_________________________________</td>
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<tr>
<td>Complexity</td>
<td>_________________________________</td>
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<tr>
<td>Methods/Technology</td>
<td>_________________________________</td>
</tr>
<tr>
<td>Physical Production Rate</td>
<td>_________________________________</td>
</tr>
</tbody>
</table>
Form EXP – 2.4.2(b)

Specific Experience in Key Activities

Bidder’s Legal Name: __________________________ Date: ______________________
JVA Partner Legal Name: ________________________ ICB No.: __________________
Subcontractor’s Legal Name: ____________________ Page ________ of _______ pages

<table>
<thead>
<tr>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Identification</td>
</tr>
<tr>
<td>Award date</td>
</tr>
<tr>
<td>Completion date</td>
</tr>
<tr>
<td>Role in Contract</td>
</tr>
<tr>
<td>Contractor</td>
</tr>
<tr>
<td>Total contract amount</td>
</tr>
<tr>
<td>If partner in a JVA or subcontractor, specify participation of total contract amount</td>
</tr>
<tr>
<td>Employer’s Name:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>Telephone/fax number:</td>
</tr>
<tr>
<td>E-mail:</td>
</tr>
</tbody>
</table>
Form EXP – 2.4.2 (b) (cont.)

Specific Experience in Key Activities (cont.)

Bidder’s Legal Name: ______________________________  Page _____ of _____ pages
JVA Partner Legal Name: ____________________________
Subcontractor’s Legal Name: _________________________

<table>
<thead>
<tr>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of the key activities in accordance with Sub-Factor 2.4.2b) of Section III:</td>
</tr>
</tbody>
</table>

Form of Bid Security (Bank Guarantee)

__________________________
Beneficiary: ____________________________

Date: ____________________________

BID GUARANTEE No.: ____________________________

We have been informed that ____________________________ (hereinafter called “the Bidder”) has submitted to you its bid dated ____________ (hereinafter called “the Bid”) for the execution of ________________ under Invitation for Bids No. ________________ (“the IFB”).

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we ____________________________ hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ____________ (____________) upon receipt by us of your first demand in writing accompanied by a

[Signature]
written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

(a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or

(b) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB.

This guarantee will expire: (a) if the Bidder is the successful Bidder, upon our receipt of copies of the contract signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; and (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy your notification to the Bidder of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of the Bidder’s bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

_____________________________

[Signature]
Manufacturer’s Authorization

Please provide the required information in the document.
Section V. Eligible Countries

1. In accordance with Para 1.8 of the Guidelines: Procurement under IBRD Loans and IDA Credits, dated May 2004, the Bank permits firms and individuals from all countries to offer goods, works and services for Bank-financed projects. As an exception, firms of a Country or goods manufactured in a Country may be excluded if:

   Para 1.8 (a) (i): as a matter of law or official regulation, the Borrower’s Country prohibits commercial relations with that Country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of the Goods or Works required, or

   Para 1.8 (a) (ii): by an Act of Compliance with a Decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower’s Country prohibits any import of goods from that Country or any payments to persons or entities in that Country.

2. For the information of borrowers and bidders, at the present time firms, goods and services from the following countries are excluded from this bidding:

   (a) With reference to paragraph 1.8 (a) (i) of the Guidelines: NONE

   (b) With reference to paragraph 1.8 (a) (ii) of the Guidelines: NONE
PART 2 – Employer’s Requirements
Scope of Supply of Plant and Installation Services by the Contractor

and

Specification
### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>Alternate Current</td>
</tr>
<tr>
<td>CT</td>
<td>Current Transformers</td>
</tr>
<tr>
<td>DC</td>
<td>Direct Current</td>
</tr>
<tr>
<td>DFT</td>
<td>Dry Film Thickness</td>
</tr>
<tr>
<td>EPR</td>
<td>Ethylene-Propylene-Rubber</td>
</tr>
<tr>
<td>IEC</td>
<td>International Electro technical Commission</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
</tr>
<tr>
<td>LV</td>
<td>Low Voltage</td>
</tr>
<tr>
<td>MIV</td>
<td>Main Inlet Valve</td>
</tr>
<tr>
<td>MV</td>
<td>Medium Voltage</td>
</tr>
<tr>
<td>NO/NC</td>
<td>Normally open/normally close</td>
</tr>
<tr>
<td>PVC</td>
<td>Polyvinyl Chloride</td>
</tr>
<tr>
<td>PT</td>
<td>Potential Transformers</td>
</tr>
<tr>
<td>RTD</td>
<td>Resistance Thermal Detectors</td>
</tr>
<tr>
<td>SSPC</td>
<td>Surface Preparation Standards and Specifications</td>
</tr>
<tr>
<td>TEF C</td>
<td>Totally Enclosed Fan Cooled type</td>
</tr>
<tr>
<td>TRRM</td>
<td>Trash-rack raking machine</td>
</tr>
<tr>
<td>uPVC</td>
<td>Unplasticised Polyvinyl Chloride</td>
</tr>
<tr>
<td>WPS</td>
<td>Welding Procedure Specifications</td>
</tr>
</tbody>
</table>
Scope of Supply of Plant and Installation Services by the Contractor
Scope of Supply of Plant and Installation Services by the Contractor
TABLE OF CONTENTS
1 Scope of Work .......................................................... 95
1.1 General ................................................................... 95
1.2 Scope of Work .......................................................... 95
1.3 Description of the Facilities ...................................... 96
1 Scope of Work

1.1 General

The Contractor has full liability for the proper design, manufacturing, transportation, installation, testing and commissioning of the equipment to be supplied and installed. The Facilities shall include:

- All the civil works and electromechanical equipment listed in the next chapter and detailed in the description
- Spare parts and special tools necessary to correctly dismantle and maintain the supplied equipment.

The supply shall conform to the Technical Specifications described under “Specification”; the various parts of the Facilities shall be considered as a whole and shall also include the minute material required for the good co-ordination of their different items, even though they are not expressly described in the various chapters, as well as any equipment necessary to carry out the site works, such as construction and lifting equipment, instruments and special tools. In other words the following chapters, mentioning only the main works to be carried out by the Contractor, do not limit the responsibility of the Contractor to perform all works and to supply all accessories and additional minor components that, even if not described in these Specifications are part of the system in order that the supply is complete and ready for operation.

The supply shall include demolitions, dismantling of old components and their removal. The Employer reserves the right to request the Contractor, at Contractor cost, either to delivery to waste any of the replaced items, or to hand them over to the Employer. The Contractor shall be responsible to provide all the equipment necessary for the dismantling and erection of the equipment, but he will be allowed to use, under his full responsibility and the conditions specified by the Employer, the lifting equipment available in the plants.

Possible damages caused by the Contractor during the utilization of such equipment and, in general, damages caused by him during site works shall be covered by an insurance, which cost shall be included in the contract price, remaining at the Contractor charge the repair of the damages caused to the equipment.

For the sake of clarity, this document includes a General Technical Specifications. Prescriptions of all other paragraphs prevail over these General Technical Specifications.

1.2 Scope of Work

1. At present the intake works incorrectly operate due excessive debris on trash racks due to insufficiency of the existing raking machine. Maintenance works will be carried out by the Owner on this existing raking machine which is also used for the lifting of the intake under sluice stoplogs. The Contractor shall supply an additional raking machine, which shall be also provided with lifting device for the under sluice stoplogs and trash removal system. The raking machine and the trash removal system supplied by the Contractor will automatically work, and the raking machine will move automatically after
having completed the cleaning of one rack. The existing raking machine, which does not work automatically, will remain as spare to be used with manual operation in case of unavailability of the new raking machine or working in parallel with the new machine in case of large amount of debris.

2. The scope of works shall include the design, manufacture, supply, installation testing and commissioning of new equipment. All services need to complete satisfactorily the works shall be included in the Supply as well as all necessary accessories and specified spare parts and special tools. The scope of works will be:

   a) the design, manufacture, supply, installation, testing and commissioning of a new trash-rack raking machine (TRRM) and a new trash removal system
   b) Supply, installation, testing and commissioning of an intake under-sluice stoplog
   c) Training services for the operation of New Trash Rack Raking Machine and Trash removal system
   d) Spare parts and special tools

1.3 Description of the Facilities

The Kali Gandaki Hydro Power Plant is located in the District of Syangja, Nepal, approximately 110 kilometers west of Pokhara. The water is taken from the confluence of Kali Gandaki and Andhi Khola rivers, where stays a Diversion Dam. After a 5.9 kilometers headrace tunnel, water reaches the powerhouse. The net head for generation is approximately 115 meters. A desander basin located next to the dam allows water desanding. The power generation is by three generating units, each rated 56,500 KVA at 0.85 power factors, 13,800 volts supplied and installed about 10 years ago by Toshiba Corporation of Japan.

Each unit is driven by a turbine rated 48,830 KW at 130 meters of head and 300 revolutions per minute. Power generated at the units is transformed to 132 kV by transformers supplied by Koncar and can be transmitted over three overhead circuits to the Nepal Electricity Authority's National grid. The capacity of the Kali Gandaki Powerhouse (144 MW) represents about 25% of total power generation capacity in Nepal. Therefore, it is important that Kali Gandaki "A" is operated at its full capacity and that its production is optimized and outages to complete the works of this contract kept to an absolute minimum.

The Kali Gandaki Powerhouse employs the latest and most up-to-date technology and is designed to be operated locally or remotely.
Specifications
TABLE OF CONTENTS

1 Local conditions ........................................................................................................ 99

2 General Technical Specifications............................................................................. 99
   2.1 Regulation and Standards ................................................................................... 99
   2.2 Nameplates ........................................................................................................ 100
   2.3 Packing and Identification .................................................................................. 101
   2.4 Protection against Atmospheric Agents .............................................................. 102
   2.5 Materials and Workmanship ............................................................................. 102
   2.6 Mechanical Details ............................................................................................. 114
   2.7 Piping, Valves and Threaded Fasteners ............................................................... 116
   2.8 Electrical Equipment ......................................................................................... 118
   2.9 Control, Protection, Signaling and Metering Equipment .................................... 132
   2.10 Treatment of Surfaces ...................................................................................... 135
   2.11 Tests ................................................................................................................ 138
   2.12 Spare parts and tools ....................................................................................... 139

3 New trash-rack raking machine (TRRM) and trash removal system ................. 140
   3.1 Object and Scope of Work .................................................................................. 140
   3.2 Design Data ........................................................................................................ 140
   3.3 Technical Data Sheet ........................................................................................ 141
   3.4 Design Criteria .................................................................................................. 148
   3.5 Detailed technical specifications ........................................................................ 148
   3.6 Site Tests .......................................................................................................... 149
   3.7 New Trash rack Raking Machine Spare Parts ...................................................... 149
   3.8 New Trash rack Raking Machine Special Tools ................................................ 150

4 Supply, installation, testing and commissioning of an intake under-sluice stoplog .............................................................................................................................. 150
   4.1 Object and Scope of Work .................................................................................. 150
   4.2 Design Criteria .................................................................................................. 150
   4.3 Detailed technical specifications ........................................................................ 150
   4.4 Site Tests .......................................................................................................... 150
   4.5 Under-sluice stoplog Spare Parts ...................................................................... 150

5 Training and Inspections required ........................................................................... 151
Local conditions

The design shall be done considering the following local conditions:
Minimum ambient temperature: -10 °C
Maximum ambient temperature: +55 °C
Minimum relative humidity (RH): 10%
Maximum relative humidity (RH): 98%
Mean annual precipitation: 1500 mm
Maximum Credible Earthquake: Seismic acceleration/magnitude: 0.2 g/6.5

General Technical Specifications

Regulation and Standards

The Supply of equipment and performance of the work must conform to the local Laws and Regulations and to the particular prescriptions given in the present Technical Specifications.
Units of measurement shall be in the International System of Measurement (SI).
All materials and equipment to be incorporated in the Works and the fabrication of same, except as otherwise provided in the Specifications or specifically agreed with the Employer, or his Representative, before the Contract award, shall conform to the latest edition of the Standards of the Engineering Societies included in the following list:

AGMA American Gear Manufacturers Association
AIEE American Institute of Electrical and Electronic Project Managers
AISC American Institute of Steel Construction
AISI American Iron and Steel Institute
ANSI American National Standards Institute
ASME American Society of Mechanical Project Managers
ASTM American Society for Testing and Materials
AWS American Welding Society
AWWA American Water Works Association
CCITT International Telephone and Telegraph Consultative Committee
DIN Deutsche Industrie Normen
ICEA Insulated Cable Project Manager’s Association
IEC International Electrotechnical Commission
IEEE Institute of Electrical and Electronic Project Managers
ISA Instrument Society of America
ISO International Organization for Standardization
NEMA National Electrical Manufacturers Association
NFPA National Fire Protection Association
SSPC Steel Structures Painting Council

The latest edition of each standard shall mean the available edition at the date of signature of the Contract.

Utilization of latest revision of IEC codes and ISO standards is compulsory and these international codes and standards shall prevail over any other code and standard; in case a contradiction is found between IEC and ISO, the IEC codes shall govern. Where no applicable international standards exist, national standards may be used. National standards different from those mentioned above may be accepted provided that they are proposed in the Bid and accepted before the award of the Contract.

In such case the Bidder shall submit two copies (one to the Employer and one to the Project Manager) of the equivalent proposed standards in English or with English translation, showing the correspondence with the specified Standards. If the Contractor, after the award of the Contract, proposes other equivalent Standards and Specifications and Standards of equivalent material, the Contractor shall state the exact nature of the change, and shall submit complete Standards and Specifications and information and data on the materials for the approval of the Project Manager, who reserves the right to reject the request without claims from the Contractor.

Such submittal shall be timely done and failure to do so, or purchase of any proposed equivalent materials prior to the approval of the Project Manager, will be at the Contractor's risk.

All documents such as drawings, descriptions, notices, letters, data, instructions, etc., shall be in English language.

2.1.1 System Voltages

The following rated voltages are to be used throughout the Supply:
- Medium Voltage: 15 kV, 50 Hz, three-phase, ungrounded
- Auxiliary services: 400 V, 50 Hz, three-phase, neutral solidly grounded
- Minor loads: 230 V AC
- Emergency services: 110 V DC

Nameplates

Stainless steel nameplate mounted on each major piece of equipment shall report the following data:
- a) Equipment designation;
- b) Manufacturer's name and address;
- c) Serial number;
- d) Part number;
- e) Date of Manufacture;
- f) Main ratings.
Unless otherwise specified, indicating plates to be applied on panel and board fronts shall be of transparent plastic material, white painted and black engraved. Text of name plates and indicating plates shall be in English, in metric units and shall be submitted to the Project Manager for approval.

**Packing and Identification**

The Contractor shall be responsible, at his costs, for loading, transporting, shipping and unloading of the equipment to be supplied under the Contract from the point of manufacture to the Site. The Contractor shall furnish to the Project Manager a complete program of delivery for the equipment, and shall provide revisions to this program when necessary.

The Contractor shall provide such packing of the equipment as is required to prevent its damage or deterioration during transportation. Packing case size and weights shall take into consideration, where appropriate, size and dimensions possible limitations at the location of the equipment's final destination and the capacity of existing handling facilities. All equipment and material required for the Contract which is being shipped shall be effectively protected against corrosion, loss and damage and shall be adequately packaged for ease of handling and for shipment in hot climate, to avoid damage during train and road transport, and for outdoor storage at the Site during extended period of extreme cold. Shipment of equipment by container system will be acceptable, but all incidental expenses shall be borne by the Contractor. The cost of all damage to the equipment due to improper packaging shall be at Contractor's expense. Machined surfaces shall be specially protected against corrosion and shall be positively prevented from coming into contact with timber packing or supports, paying due regard to movements which may occur during transport. Flange faces and openings shall be covered by metal blanks and gaskets. Rubber parts shall be protected against light and air. Moisture absorbent crystals shall be provided when items are enclosed in plastic or other impervious material. Relays, instruments and the like shall be removed from panels and separately packed. Each package shall be clearly marked with the Contract Number, package identification number, gross weight, net weight, package dimensions, any special lifting instructions and with a brand to be nominated by the Project Manager. Each package or crate shall contain a copy of the packing list in a waterproof envelope. The Contractor shall arrange for protection of the packages in outdoor storage at the Site. All packages shall be placed on packing to raise them above ground level. If any item is unsuitable for outdoor storage, the Contractor shall agree with the Employer a proper place indoor. All packing material, except that required for storage of spare parts, shall remain the property of the Contractor and shall be removed from the Site when appropriate.
Protection against Atmospheric Agents

General

All materials and equipment supplied under these Specifications shall be suitable for being delivered, stored and operated under tropical conditions. Process for protection against atmospheric agents shall be in accordance with the best commercial and industrial practices.

Metals

Iron and steel shall generally be painted or galvanized or metal-sprayed as appropriate. Indoor parts may alternatively have chromium or copper-nickel plating, or other suitable protective finish.

Bolts, Screws, Nuts, Washers

Steel bolts, screws, nuts and washers shall be zinc, cadmium or chromium plated or, where plating is not possible due to tolerance limitations, of corrosion-resisting steel. Corrosion-resisting steel, copper-nickel alloy or bronze, shall also be used for bolts and nuts when either or both are subject to frequent adjustment or removal, or are in contact with water and for bolts projecting from concrete with nuts to removal or vice versa.

Fabrics, Cork, Paper, etc.

Fabrics, cork, paper and similar materials, which are not subsequently protected by impregnation, shall be adequately treated with suitable fungicide. Sleeving and fabrics treated with linseed oil varnishes shall not be used.

Electrical Materials and Equipment

Materials and components which are inherently fungus resistant or are protected by hermetic sealing or oil immersion need not be treated. Other elements shall be protected by additional varnish against humidity and given an antifungal treatment.

Materials and Workmanship

General

The material to be used under this Contract shall be without defects and it shall ensure efficient service and life to each part of the machinery. The new material shall not be of inferior quality to that specified below or stated in the Contract Documents or specified in the Standards.

<table>
<thead>
<tr>
<th>Material</th>
<th>Standard</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray cast iron</td>
<td>ASTM A 48</td>
<td>Class 35</td>
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</tbody>
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### Section VI. Scope of Supply and Specification

<table>
<thead>
<tr>
<th>Material</th>
<th>Specification</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductile cast iron</td>
<td>ASTM A 536</td>
<td>Grade 60-40</td>
</tr>
<tr>
<td>Cast Carbon steel</td>
<td>ASTM A 27</td>
<td>Grade 65-35 or 70-36</td>
</tr>
<tr>
<td>Cast alloy steel</td>
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<td>Corrosion resistant cast steel</td>
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<td>Forged steel for gears</td>
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<td>Cold finished steel for shafts</td>
<td>ASTM A 108</td>
<td>Grade 1022</td>
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<td>Forged steel for shafts, trunnions, etc.</td>
<td>ASTM A 470</td>
<td>Class 2</td>
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<tr>
<td>Wrought steel wheels and sheaves</td>
<td>ASTM A 504</td>
<td>Class A</td>
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<tr>
<td>Forged alloy steel for general use</td>
<td>ASTM A 668</td>
<td>Class G</td>
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<td>Structural steel sections and plates</td>
<td>ASTM A 36</td>
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<td>Steel plates for low and intermediate stresses</td>
<td>ASTM A 283</td>
<td>Grade D</td>
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<td>Steel plates for high stresses</td>
<td>ASTM A 225</td>
<td>Grade 60, 65, 70</td>
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<tr>
<td>Steel plates for high stresses</td>
<td>ASTM A 537</td>
<td>Class 1</td>
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<td>Alloy steel for springs</td>
<td>ASTM A 689</td>
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<tr>
<td>Corrosion resistant steel plates</td>
<td>ASTM A 240</td>
<td>Type 304 or 410</td>
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<tr>
<td>Steel bolts and nuts (not submerged)</td>
<td>ASTM A 307</td>
<td>Grade B</td>
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<td>High strength steel, bolts nuts and washers</td>
<td>ASTM A 325</td>
<td>Type 3</td>
</tr>
<tr>
<td>Corrosion resistant forged steel for sections</td>
<td>ASTM A 276</td>
<td>Type 304, 410, 420</td>
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<td>Welding rods for:</td>
<td>According to AWS Standard</td>
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<td>– corrosion resistant steel</td>
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<td>– carbon steel</td>
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<td>Steel piping</td>
<td>ASTM A 53</td>
<td>Type S or E</td>
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<td>Pipe fittings</td>
<td>ASTM A 181</td>
<td>Class 70</td>
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<td>Galvanization for:</td>
<td>ASTM A 105-80</td>
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<td>– steel piping</td>
<td>ASTM A 53</td>
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<tr>
<td>– section and plates</td>
<td>ASTM A 123</td>
<td></td>
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<tr>
<td>– bolts and nuts</td>
<td>ASTM A 153</td>
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<tr>
<td>Cast bronze</td>
<td>ASTM B 584</td>
<td>Alloy C 867 or Alloy C 937</td>
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<tr>
<td>Base metal for self-lubricated bearings and bushes</td>
<td>ASTM B22</td>
<td>Alloy C 90500 or Alloy C 86300</td>
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<td>Bronze for bearings, bushes, thrust shoes,...</td>
<td>ASTM B 103</td>
<td>Alloy C 53200</td>
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<td>White metal for bearings</td>
<td>ASTM B 23</td>
<td>Alloy No. 3</td>
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<td>Bronze for gears</td>
<td>ASTM B 148</td>
<td>Alloy 955</td>
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<td>Brass for bolts and nuts</td>
<td>ASTM B 21</td>
<td>Alloy 485</td>
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<td>Copper piping</td>
<td>ASTM B 42</td>
<td>No. 102</td>
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<tr>
<td>Copper tubing for grease lubrication</td>
<td>ASTM B 751</td>
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<tr>
<td>Copper alloy tubes for heat exchangers</td>
<td>ASTM B 111</td>
<td>Alloy 687</td>
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<tr>
<td>Chromium electroplating for pins</td>
<td>ASTM B 177</td>
<td>Condition A or B</td>
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<td>Gaskets for pipes and fittings</td>
<td>ASTM A 564</td>
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<td>Synthetic rubber for seals:</td>
<td>ASTM D 412</td>
<td>21 MPa</td>
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<td>– min. tensile strength</td>
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</table>
Section VI. Scope of Supply and Specification

- min. tensile strength after oxygen bomb ageing (48 hr, 70°C, 210 daN/cm²) in percent of tensile strength before ageing
- min. elongation at break
- min. Shore hardness
- specific density
- max. water absorption (2 days at 70 °C)
- max. compression set (constant deflection) in percent of original deflection

<table>
<thead>
<tr>
<th>Test Requirement</th>
<th>Method/Standard</th>
<th>Value</th>
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<tbody>
<tr>
<td>ASTM D 572</td>
<td>80%</td>
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<tr>
<td>ASTM D 412</td>
<td>450%</td>
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<tr>
<td>ASTM D 2240</td>
<td>60-70</td>
<td></td>
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<tr>
<td>ASTM D 395</td>
<td>1.15 ±0.3</td>
<td></td>
</tr>
<tr>
<td>Method B</td>
<td>5%</td>
<td></td>
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<tr>
<td>Method B</td>
<td>30%</td>
<td></td>
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</table>

ACSR conductors: ASTM B232
Electrolytic copper: 99.9% min. purity
Aluminium for stranded conductors: ASTM B-531-78 N 16 and H 26
Bronze for stranded conductors: Minimum breaking load 500 MPa
Porcelain insulators: IEC 75
Zinc coating: ASTM A-123/153
Aluminium shims, plates and sheets: ASTM B 209

The materials not expressly specified shall conform to the most recently published ASTM Standards regarding the class or type of those materials. In particular, for cast or forged steel, the maximum radioactivity limits shall be guaranteed in the range 0.1-0.2 Bq/g. In case materials adopted are classified according to other material Specification, the Sub-Contractor shall submit the list of equivalence of adopted materials to ASTM Standards.

Allowable Stresses

This subparagraph gives prescriptions on equipment calculations; these prescriptions shall be applied unless different requirements are given in the following chapters. The design dimensions and materials of all works and equipment shall be such that the stresses to which they may be subjected shall not render them liable to distortion or damage under the most adverse service conditions. Mechanisms shall be so constructed as to avoid sticking due to rust or corrosion. When required for approval, stress calculation shall be submitted with all the indications necessary for a correct checking, such as:
- materials adopted and reference Standards;
- allowable stresses;
- external loads calculation and stress calculation procedure, indicating the meaning and value of each calculation coefficient.

Above prescription is also applicable when the calculation is carried out by means of computer programs. Calculation methods different from those herein specified can be used, subject to the following conditions:
- such methods shall be in accordance with Standards approved for the purpose of stress calculation before signing the Contract;
- all the conditions stated by these Standards and relevant to the design, fabrication and testing, when heavier than those specified by the present Contract, shall be complied with;
- the utilization of these Standards shall not involve any restriction to the operating conditions prescribed by this Subcontract.
The following design, fabrication and testing conditions shall be considered:
the materials adopted, the welded joint efficiencies, the forging and casting methods, the
prescribed over-thicknesses, the heat treatments, the dimensional tolerances, the qualification of the fabrication procedures and operators, the procedures for inspections and tests, etc.
Welded joint efficiencies to be adopted in the calculations shall be those prescribed by
ASME Section VIII PART UW, unless otherwise specified. Double Vee T welds and double-vee-corner welds joint efficiency shall be 0.8 if fully radiographed, 0.7 if spot radiographed and 0.55 if not examined.

The loads to be considered in the stress calculations are:

a) Dead loads, including the weight of the water;
b) Load due to internal pressure or hydrostatic load;
c) Hydrodynamic load;
d) Load due to the wind acting on the installation area according to the prescriptions of these Technical Specifications and, if not indicated, according to the prescriptions of approved local national Standards;
e) Load due to driving and resisting forces, including acceleration and friction forces (the value of friction coefficient, when not specified in the Technical Specification, shall be taken according to the best standard practice and shall be approved by the Contractor);
f) Load due to the temperature variations indicated in the Technical Specification or to be agreed upon with the Contractor;
g) Load due to support settings;
h) Load due to support substructure deformations;
i) Load due to centrifugal forces;
j) Electromagnetic forces in normal operating condition and during fault conditions;
k) Load due to dimensional tolerances (values of these tolerances shall be those prescribed in the manufacturing drawings);
l) Test loads;
m) Load due to equipment handling during transportation and erection;
n) Other normal and exceptional loads, when indicated in the Technical Specification and/or strictly depending on the equipment and its mode of operation.

The calculations to be carried out are the following:
- calculation with maximum load;
- calculation with exceptional load;
- calculation with test load;
- elastic stability analysis, when required by the slenderness ratio and the type of load;
- other special analysis, when required in the Technical Specification.

**Maximum Load**
As maximum load shall be considered the most critical combination of the following loads: a, b, c, d, e, f, i, j, k and n; the relevant values being calculated according to the indications of the Technical Specification. The wind effect to be considered for that calculation shall be half the maximum prescribed. In case no indications are given in the
Technical Specification, the loads to be assumed are the maximum normal values calculated considering the rated operating conditions.

**Exceptional Load**
As exceptional load, shall be considered the most critical combination, even if improbable, of the following loads: a, b, c, d, e, f, g, h, i, j, k and n; the relevant values being the maximum absolute values or the most unfavorable for the purpose of calculation. Load g shall be considered in the calculation when required in the Technical Specification. When necessary, the equipment shall be calculated for the load m, limiting the maximum deflections and/or the stresses; for the purpose of stress calculation this load shall be considered as exceptional.

When necessary, in order to guarantee that interferences or bad functioning due to deformations do not occur among the various parts of the equipment, a calculation shall be carried out considering that the maximum allowable strains shall be such that, at maximum load, the good functioning of equipment and, at exceptional load, no permanent damages are guaranteed.

Dimensions of anchor beams, basements and any other parts to be supported or embedded in the concrete shall be such that the max. compressive strength of the concrete shall not exceed 6 MPa, the max. shear strength 1.4 MPa and the max. bond 0.7 MPa. The maximum load condition can take place with static or variable loads according to the operating conditions and/or as specified in the Technical Specification.

The stress T to be compared with the allowable one shall be calculated with the following equation:

$$ T^2 = T_1^2 + T_2^2 - (T_1 \times T_2) $$

where T1 and T2 are the main biaxial stresses.

The allowable stress shall not exceed the minor of the two values indicated in the following table for each material and load type, where:

- Y.P. = minimum yield point according to the relevant Standard
- U.S. = minimum ultimate tensile strength according to the relevant Standard.

Moreover, in case of impulsive load, the allowable stress shall not exceed 75% of the limits stated for the maximum variable load, and for welded joint calculation the allowable stress shall also be multiplied by the welded joint efficiency.

When secondary stresses due to the presence of reinforcing elements are to be considered, the allowable stress, only in the points where such secondary stresses are taken into account, can be multiplied by 1.25.

<table>
<thead>
<tr>
<th>Allowable Stresses Table</th>
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<tr>
<td></td>
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<tr>
<td>Rolled and forged steel</td>
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### Section VI. Scope of Supply and Specification

<table>
<thead>
<tr>
<th></th>
<th>0.36 U.S.</th>
<th>0.24 U.S.</th>
<th>0.44 U.S.</th>
<th>0.52 U.S.</th>
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<tr>
<td>Cast Steel</td>
<td>0.44 Y.P.</td>
<td>0.29 Y.P.</td>
<td>0.54 Y.P.</td>
<td>0.64 Y.P.</td>
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<td>0.28 U.S.</td>
<td>0.18 U.S.</td>
<td>0.35 U.S.</td>
<td>0.40 U.S.</td>
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<td>0.25 Y.P.</td>
<td>not allowed</td>
<td>0.30 U.S.</td>
<td>0.36 U.S.</td>
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<tr>
<td>• tension</td>
<td>0.08 U.S.</td>
<td>50 MPa</td>
<td>not allowed</td>
<td>70 MPa</td>
</tr>
<tr>
<td>• compression</td>
<td></td>
<td></td>
<td>0.10 U.S.</td>
<td>70 MPa</td>
</tr>
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<td>Nodular Cast Iron</td>
<td>0.17 Y.P.</td>
<td>0.17 Y.P.</td>
<td>0.22 Y.P.</td>
<td>0.25 Y.P.</td>
</tr>
<tr>
<td>Bronze and self</td>
<td>0.36 Y.P.</td>
<td>0.24 Y.P.</td>
<td>0.44 Y.P.</td>
<td>0.52 Y.P.</td>
</tr>
<tr>
<td>lubricated material</td>
<td>0.22 U.S.</td>
<td>0.14 U.S.</td>
<td>0.27 U.S.</td>
<td>0.32 U.S.</td>
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</table>

Elastic stability Analysis ® Minimum Safety Factor = 2

**Tests**

All materials and components shall be subject to tests and inspection while in process of and upon completion of manufacture. The inspection and tests shall consist of:

- Tests and inspection specified in this chapter;
- The tests and inspection required by the relevant standards;
- Such other tests and inspection as included in the standard fabrication and acceptance procedures of the Contractor.

The Contractor shall submit for approval a detailed list of the tests to be carried out in the workshop and at site and the Employer will identify the tests which he intends to attend. If the Employer fails to appoint a time after having been asked to do so, or does not attend at the time and place appointed, the Contractor shall be entitled to proceed with the Tests in his absence. The Tests shall then be deemed to have been made in the presence of the Employer and the results of the Tests shall be accepted.

All deficiencies revealed by testing and inspection shall be rectified by the Contractor at his own expense and to the approval of the Employer. Rectified components shall be subject to retesting and re-inspection.

Test reports shall be complete with all pertinent data to present clear, concise and factual evidence of the tests.

No parts of the plant shall be dispatched until all agreed inspection and tests of the components concerned have been completed and approved by the Employer. Acceptance of test results or waiving of tests by the Employer shall not relieve the Contractor of his obligations under the Contract.

The Contractor shall notify the Employer of the date and the place at least 28 days in advance of intended shop tests and at least 2 working days in advance of the date of intended site tests and/or inspections of any equipment or Work.

As far as applicable, the Contractor shall submit with his notice a description of procedures and methods of checking or testing. The description shall indicate the type of equipment that will be available and used for this work.

Test on Materials Mechanical tests shall be performed in accordance with the Standards and chemical analysis and mechanical properties of all materials shall be supplied.
Section VI. Scope of Supply and Specification

All materials and equipment to be operated under pressure shall undergo hydraulic tests which shall last a period of time sufficient to achieve a satisfactory verification of their tightness but in any case not less than half an hour. All electrical materials and equipment shall be tested in accordance with applicable Standards before assembly. Control and power panels shall be assembled and checked at workshop for correct operation. Whenever the Contractor is not in position to submit certificates of type tests, as required by the applicable Standards, on equipment part of his supply, such tests shall be performed by the Contractor at his expenses. The following tests shall be carried out at Site by the Contractor:

a) Tests during the installation of the equipment
b) Preliminary tests after the complete installation of subsystems
c) Operational tests.

Non-Destructive Testing

Unless otherwise specified in the following Chapters, all non-destructive testing shall be carried out in accordance with the latest edition of the following standards:

Castings
- Radiographic examination:
  ASTM E 446: minimum quality level 2 except for category A for which the minimum quality level shall be 3
  ASTM E 186: quality levels as above
  ASTM E 280: quality levels as above
- Ultrasonic examination:
  ASTM A 609: minimum quality level 2
- Magnetic particle examination:
  ASTM E 125: minimum quality levels: type I degree 0, other types degree 1
- Dye penetrant examination:
  ASTM E 165: evaluation to be agreed upon at the inspection and the acceptability will be subject to agreement between the Contractor and the Sub-Contractor.

Forgings
- Ultrasonic examination:
  ASTM A 388: evaluation to be agreed upon at the inspection and the acceptability will be subject to agreement between the Employer and the Contractor.
- Magnetic particle examination:
  ASTM A 275: evaluation to be agreed upon at the inspection and the acceptability will be subject to agreement between the Employer and the Contractor.

Plates
- Ultrasonic examination:
Welding

The tests that shall be carried out are those indicated in the following Chapters. If no indication is given, the welds shall be tested according to the joint efficiency adopted in the calculations, following the indications of ASME Section VIII Table UW-12. All welded joints assuring tightness shall be inspected or tested by magnetic particle or dye penetrant. The Contractor shall indicate in the Fabrication and Installation Drawings the type of non-destructive testing to be conducted.

The following prescriptions shall apply:

**Radiographic Examination:**
According to ASME Section VIII par. UW-51 and for spot examination according to ASME Section VIII par. UW-52.

**Ultrasonic Examination:**
According to ASME Section VIII Appendix 12. The ultrasonic examination will be considered equivalent to the radiographic examination for the purpose of the weld efficiency factor determination, provided that the following conditions are met:
- all welds with indications exceeding 50% of the reference level shall be radiographed following the prescriptions of ASME Section VIII par. UW-51;
- not considering the above radiographs, 10% of the welds carried out in the workshop and 20% of the welds carried out at Site shall be radiographed.

Welds shall be divided into groups, according to the welding procedure and position of the welds, and in agreement with the Employer. In any case, welds carried out on different materials and/or by different welders or welding machines and/or with electrodes of different quality shall not be considered as pertaining to the same group. The influence of thicknesses, castings and weld positions on the grouping shall be agreed with the Employer. The Contractor will choose the welds and/or the groups on which the radiographic examination shall be carried out. Should a single unacceptable defect be found out, the whole group shall be radiographed, without considering these radiographs as included in the above percentages.

Crossing point welds shall be 100% radiographed; also these radiographs are not included in the above percentages. All welds to be radiographically examined will be countermarked with identification marks appearing in the radiographic film and the marks shall not be removed before the approval of the relevant weld has been given by the Contractor. The Contractor shall submit to the Employer the radiographic film of all welds to be approved, together with a localization map of the relevant identification marks. All radiographic films shall become the property of the Employer. Welds performed on automatic resistance butt-welding machine shall undergo an indirect control providing sampling pieces. For each piece, mechanical tests and other tests according to Contractor's practice shall be performed on the welding. In case one welding proves to be defective, the adjacent welds shall be cut out and tested. All defects detected by inspection shall be fully corrected and inspected again until the correction has been approved by the Employer.
Materials Mechanical Tests and Chemical Composition

All principal materials, such as plates and sections subject to intermediate and high stresses, main castings and forgings, shall be subject to the mechanical tests prescribed by the relevant Standards. Where no definitive Specifications are given, test pieces shall be obtained as required by the Employer. Mill test certificates for chemical composition of the material shall be submitted. Test specimens and sample shall be plainly marked to indicate the material they represent and, if required, shall be properly boxed and prepared for shipment.

Test Certificates and Reports

General
The Contractor shall carry out all tests as specified and shall record all test results in a satisfactory manner. Some of tests shall be witnessed by the Employer who has the right to select them.

Certificates
The Contractor shall furnish copies of all test certificates. The test certificates shall be suitably identified with the component parts for which the materials are to be used and shall be prepared in such a way that it can easily be determined, if the applicable Specification or standards have been complied with.

Workmanship

General

The items shall be accurately finished and shall be in accordance with the highest current technical Standards. In particular, homologous parts shall be interchangeable with each other.

Casting

The Contractor shall advice the Employer of the schedule for the casting of the pieces for which the inspection of the blank is required. The Contractor will inspect these items after casting, before any repair work. Castings requiring welding repairs and castings involving welding fabrication shall be stress-relieved unless otherwise permitted by the Employer. No welding shall be done after final heat treatment without the written approval of the Employer. Weld repairs shall be inspected or tested by radiograph, magnetic particle or dye-penetrant as considered appropriate by the Contractor. The casting may be refused if the removal of metal increases the computed unit stresses by more than 30% of that allowed prior to the defect. In any case, a large number of defects may cause the refusal of the casting if, in the opinion of the Contractor, its strength will be affected by the defects. The Employer may require the radiographic examination of the main castings and/or other testing methods. The Standards shall be followed both in testing methods and in the result interpretation.
Section VI. Scope of Supply and Specification

Forgings

The structure of forgings shall be homogeneous and free from excessive non-metallic inclusions. Excessive concentration of impurities or separation of alloying elements at critical points will be cause for rejection. Any welding repair shall be approved by Employer and, if approved, shall be carried out in accordance with ASME Code Section VIII. All main forgings shall be ultrasonically tested. All forgings shall be annealed or normalized as a final heat treatment.

Plates and Steel Sections

Plates and steel sections must be perfectly straight, with smooth surfaces. If straightening is necessary, hammering must be avoided. After the cutting of sheets and steel sections, the edges must be left sharp, clean and without burrs. High thickness plates may be flame cut, provided that the material is not damaged and that the edges of the cut shall be ground clean or machined. Plates shall be cold rolled; in case of correction of the bending, heavy blows shall be avoided. Should hot-rolling be necessary, special care shall be taken to avoid overheating. All plates with thickness higher than 25 mm shall be ultrasonically examined before machining. The steel plates for shells of parts under pressure must not only meet corresponding requirements for chemical composition, tensile and bending properties, hardness and other tests in ASTM Standards, but also the Specification for brittleness as may be required for the particular material by the ASME Code for Unfired Pressure Vessels. All tests shall be performed before the start of fabrication and the results submitted for approval to the Employer.

Welding

General

New steel structures to be embedded in the concrete, if any, shall be divided into two categories: subject to stress and not subject to stress. No special test will be required on welds for embedded parts not subject to stress.

Embedded parts subject to stresses shall be divided in two sub-categories, small and large thickness. Radiographic tests shall be carried out on embedded parts of small thickness whilst ultrasonic examination equivalent to radiographic testing may be carried out for large thickness parts depending upon the importance of the embedded part.

Welding, whether manual or automatic, shall be carried out with electric arc. The welding procedures must be such as to ensure full penetration joints, free of internal and external defects. The edges to be welded must be prepared accurately and have smooth clean surfaces. The Sub-Contractor shall indicate in the drawings the field and shop welding joints preparation. Edges of plates of different thickness shall be tapered according to Standards. Welding Procedure Specification (WPS) shall be submitted for approval to the Contractor. In the construction, welding procedures and welders qualification shall be in accordance with the ASME Code for Unfired Pressure Vessels and relevant certificates shall be made available to the Contractor upon request. Test procedure and result interpretation shall be in accordance with the ASME Standards. Post weld heat treatment does not apply to all equipment. Thick and complex structures subject to heavy stresses will require post-weld heat treatment.
Laminations
Any plate in which lamination has been discovered after cutting shall be rejected, unless the lamination portion of plate is local and can be cut out and replaced by welding of a new sound plate in the cut-out area. In such cases, the approval of the Employer for repairs will be required.

Welding Equipment at Site
The welding equipment at Site shall include all devices necessary to avoid arc extinguishing and to ensure a steady supply voltage within one tenth of five percent. Voltage shall not be higher than 80 V.

Electrodes
The Contractor shall indicate in all detail drawings the type and size of electrode he proposes to use for shop and/or field welding. The electrodes shall be shipped suitably packed in weather-proof metal boxes and kept inside their box up to their use. Should any box be damaged, the electrodes shall be replaced. The electrodes to be used shall be maintained in a drying oven at a temperature of about 90°C. Electrodes exposed outside for more than four hours shall be returned to the oven.

Stress Relieving
All structures and equipment, including high stressed welds, shall be stress relieved. All cold rolled plates, with thickness higher than 35 mm and/or one percent of the rolling diameter, to be welded to each other shall be stress relieved after welding and before machining in order to eliminate the internal stresses. In all the other cases, stress relieving shall be made when required by ASME Code for Unfired Pressure Vessels. Stress relieving methods shall comply with ASME Standards.

Oil and Grease
All components in movement shall be duly and efficaciously lubricated. Greasing or lubricating points shall be grouped for all equipment in easily accessible positions. Pressure gauges and level indicators shall be installed in a noticeable place to acknowledge a sudden drop in level or pressure and prevent any damage that may occur. Dipsticks, leakage drip plates, lubricant sight glasses shall be installed throughout the Plant. All the lubrication equipment shall be tested, before placing into service, at a pressure of 1.5 times the maximum operating one. The Contractor shall entrust a lubrication schedule for the Equipment, showing the recommended frequency of application and types and grades of required lubricants. The recommended lubricants shall be approved by the Contractor before requiring their supply. Type of oil and grease shall be reduced to a minimum so as to facilitate maintenance, and shall be available in the local market. After the Employer’s approval, the Contractor shall supply all first filling oil and grease. With the first filling it is intended the 125% of the quantity necessary for the operation of the equipment.
Shop Preassembly

The Sub-Contractor shall preassemble, in his shop, unless otherwise specified, those assemblies, subassemblies and pieces of equipment which require precise fit-up for field erection. Shop assembly shall be done after all shop welding and machining has been completed. The Contractor shall make all assemblies available for checking by the Employer. All interferences, errors in dimensions and inaccuracies in workmanship, discovered during the shop assembly, shall be corrected. Before disassembling, each item to be shipped separately shall be match-marked and identified in conformity with the erection drawings. Marking shall be done in such a manner as to retain its legibility until field erection is completed.

Inspection and Testing

All materials and components shall be subject to tests and inspection while in process of and upon completion of manufacture, as prescribed in Conditions of Contract. Inspection and tests shall consist of:

a) tests and inspections specified in the following chapters of these Specification;

b) tests and inspection required by applicable standards;

c) additional tests and inspection as may be necessary in the opinion of the Employer to demonstrate compliance with the Specification.

All deficiencies revealed by testing and inspection shall be rectified by the Contractor at his own expense. Rectified components shall be subject to retesting and re-inspection of the Contractor. Test reports shall be complete with all pertinent data, descriptions of apparatus and photographs to present clear, concise and factual evidence of the tests. No parts of the plant shall be shipped until all required inspections and tests have been completed and approved by the Employer. Acceptance of test results or waiving of tests by the Employer shall not relieve the Sub-Contractor of his obligations under the Subcontract. The Employer will witness the factory tests as required and all relevant costs, planning, arranging, conducting, etc. of these tests shall be borne by the Contractor.

Miscellaneous Metalwork and Handling Facilities

The Contractor shall provide and install, in respect of the equipment to be supplied and rehabilitated, all the necessary miscellaneous metalwork such as:

- soleplates, bedplates, foundation bolts and anchor bolts;
- floorplates and curbing, including covers for pipe and cable trenches, required for completing the floors around and over the plant;
- platforms, ladders, guards and handrails necessary for easy and safe access to the plant;
- safety guards at each point where normal access would permit personnel to come within reach of any moving item of plant;
- lifting lugs, eyebolts or other lifting attachment points on each item weighing more than 250 N; in case the pieces are of such a shape as to make the above devices uneven or anaesthetic, handling belts and brackets shall be supplied.
**Mechanical Details**

**General**

All mechanisms will be made of first quality material, machined and mounted according to the most advanced engineering practice. The elements will be studied for perfectly resisting the stresses corresponding to maximum torques. As a general rule, the use of cast iron is not admitted in the manufacture of elements that are subject to bending or shocks and it will be tolerated only in the manufacture of supports, shoes, brake sheaves. Each reduction gear shall be housed in a box fitted with a drain plug and with a device to check the oil level. Bearings will be suitably sized and firmly fastened on sturdy trunnions. Covers of lubricating pipes of bearings or shafts will be fitted with a small chain to prevent their fall. Any moving component shall be encased in order to avoid accidents.

**Drums**

The pitch diameter of the drums shall not be less than 25 times the outside diameter of rope and/or 450 times the diameter of the wire forming the rope. Drums shall be of first quality rolled steel. They shall be grooved with a depth of at least 35% of the rope diameter. Two complete turns of rope shall stay wound on the drum when the rope is unwound for the maximum depth of work. When the hook is in its highest position, overlapping of the rope shall not be allowed. Each drum shall have right and left-hand grooves turned from the solid, to receive the hoisting rope. The grooved length of the drums shall be sufficient to take the full run of rope for the maximum lift plus two turns at each end. The rope connection to the drum shall be simple and secure so that replacement of the rope shall easily be made. Drums shall be pressed and keyed to the drum shaft. The drum gears shall be pressed and keyed to the drum body.

**Sheaves**

Sheaves shall be of solid rolled steel. The rope grooves shall be turned. Pitch diameter of rope grooves for all moving sheaves shall not be less than 24 times the diameter of the rope, and for equalizing sheaves not less than 20 times the diameter of the rope. All sheaves shall be provided with roller bearings or bronze bushings.

**Wire Ropes**

The hoisting ropes shall be of the first quality and shall be made of steel wires resistant to corrosion, ultimate tensile strength not less than 1,400 MPa. The safety factor referred to the ultimate tensile strength shall not be lower than eight. The rope stresses shall be calculated according to the Standards.

**Hooks and Blocks**

The hooks shall be of forged steel, supported by thrust bearings mounted on a forged steel supporting beam. The hooks shall rotate freely and the bearings shall be grease lubricated and totally enclosed to prevent dust entry and grease leakage. The blocks shall be manufactured so as to protect the wire ropes and prevent them from moving out from the
sheave grooves during the slack rope operation. The protective guards shall be of solid, welded construction, grease-proof type, mounted close to the sheave periphery. The rated lifting capacity shall be marked with paint on the two sides of the block.

Shaft and Bearings

The shaft shall be made of high tensile rolled steel. Their diameter shall be calculated taking into account key slots and any other resisting section reducing elements. The bottom of this slot shall be rounded off. In any case the shafts shall be designed so as to limit the deflection to 1/3,000th of the distance between the bearings. The bearings of the high-speed operating shafts shall be provided with ball rolling system; the bearings of the low-speed operating shafts shall be provided with bushings or antifriction metal.

Gears

The tooth profile for all types of gears shall be carefully calculated and machined. All gears shall be made of forged steel, exception made for the worm wheels that shall have replaceable outer crown made of highly resisting bronze. The gears having revolving speed higher than 500 rpm shall have helical teeth and the active contact areas shall be case hardened up to a depth of 2/10 to 3/10th of millimeter; identical case hardening shall be foreseen for the worm screws. All the gears and reduction gears as well as the bearings shall be oil-bath lubricated. According to their operating requirements, the bearings shall be made of bronze or antifriction metal, or ball type, easy to replace. The reduction gears and the gears shall be totally enclosed in sealed boxes made of cast steel or welded sheets, of very rugged construction, in order to ensure the perfect alignment of axis and shafts and prevent their deformation during the transport and erection. The gear boxes shall be provided with the accessories necessary for oil filling and emptying. These operations shall not require the disassembling of any element of the box. It shall be possible to open the upper part of the box, to allow inspection of the gears. As far as possible also lateral inspection panels shall be foreseen, with hermetic seals. All gear safety factor shall not be less than five, referred to the ultimate tensile strength.

Wheels

All wheels shall be made of cast or forged steel. Wheel sizes shall be proportioned to the maximum wheel loads and their diameter (in cm) shall not be less than \( \frac{L}{120} \times W \), where \( L \) is the wheel load in kg, \( W \) is the effective width of the rail head in cm (excluding corner radii). Standard roller bearings, sealed type, or self-lubricated bearings of well known manufacturers shall be adopted following the prescriptions of said manufacturers. Bearings with bronze bushing may also be accepted, subject to the Employer’s approval; these bearings shall be grease lubricated and fitted with suitable grooves on the contact surface to ensure uniform lubrication. The mean pressure on the bushings shall not exceed 10 MPa on the projected area of the bearing, under rated operating conditions. The driving wheels shall be rigidly connected with a crown gear driven by a pinion. The driving units shall mainly consist of a motor connected to the reduction gear by means of a transmission shaft fitted with a cardan joint. The special jacks for disassembling the wheels shall be included in the Supply.
Piping, Valves and Threaded Fasteners

General

All piping, valves and threaded fasteners shall be designed according to ANSI Standards; the pipes shall be in accordance with ANSI B 31.1; all flanges shall be of Raised Face (RF), designed according to ANSI B 16.5. Screwed joints may be used for pipes up to 50 mm diameter, at working pressures not exceeding 0.7 MPa. Pipes of 25 mm diameter and less, for working pressures exceeding 0.7 MPa, shall be joined by unions of approved type. The working pressure of a system shall be taken as the maximum pressure it can attain, including waterhammer and/or relief valve blow-off pressure. Indicatively the pipe diameters shall be calculated considering the following maximum allowable speeds:

- Air 15 m/s and 5 m/s in between compressors and receivers;
- Oil and water at the suction side 1 m/s;
- Oil and water at the pressure side 2.5 m/s.

The thicknesses of the pipes shall be calculated following the ANSI requirements; at least 3 (three) mm for corrosion shall be considered for the water and air piping and 1 (one) mm for the oil piping. All piping 100 mm nominal diameter and larger shall be completely prefabricated at Contractor’s workshop with all fittings in place, except that extra length for field cutting and welding shall be provided where required for field assembly. Piping with flanged connections shall be furnished with gaskets, bolts, studs and nuts. All pipes up to 50 mm nominal diameter shall be assembled by means of threaded or socket welded fittings. Threaded and socket welded pipe will be Site fabricated, as erection proceeds. Piping systems shall be complete with fittings, valves, supports and all necessary accessories. Piping arrangement shall be neat in appearance and shall allow a convenient operation. Items requiring periodic attention shall be easily and readily accessible from floors or platforms. Pipes shall neither obstruct passways nor interfere with access to valves and equipment. The piping buried in the concrete shall be sloped for drainage and provided with 25 mm diameter drain valves at all low points in the system. The supports, hangers, anchors and clamps necessary to support and restrain all pipes and valves shall be designed, selected and located in order to ensure uniform continuous slopes for draining and minimize stresses in the piping material, and to let the piping system be safely supported, guided and anchored, especially for the pipes to be laid in the pier trench. All items to be site welded to the piping shall be of the same material as that of the relevant piping. As far as practicable, the supports shall be grouped and of consistent design throughout.

The Contractor shall submit for approval drawings showing:

- the piping flow diagram;
- the piping P. and I. diagram;
- the piping layouts.

The Contractor’s calculations of the piping diameters and thicknesses shall be available for approval at the Employer’s request. Axonometric sketches shall be supplied for site erection.
Pipes

Pipes shall be in accordance with the ASTM A 53 Grade B standard specification or approved equivalent for welded and seamless steel pipe. Type S, seamless pipes will be preferred. Longitudinal welded pipes type E and electric resistance welded pipes, are subject to approval. All pipes shall be shipped with the ends plugged by plastic covers. The beveled ends to be welded at Site shall be protected by a special paint compatible with the welding. Elbows having radius at least 1.5 nominal diameter shall be used for changes in the direction of piping having 75 mm nominal diameter and over. For piping having 50 mm nominal diameter and below commercial fittings shall be used. Bends having radius not less than 5 nominal diameter instead of ells may be used. Minimum wall thickness at any point of the elbows, bends and ells shall not be less than the minimum wall thickness allowed for pipes. Shop prefabricated pieces may be employed for tee reducers, drain and other special pieces. Materials and thickness shall be the same as for the straight pipe. Branch connections shall be reinforced where necessary in accordance with the requirements of ANSI B 31.1 “Code for Pressure Piping”. For piping having 50 mm nominal diameter and over, seamless type fittings such as tee, reducers and cap shall be used for intersection of piping, piping branches, changes in size and end closure. Metered fittings and metered bends will not be accepted. All ends of 250 mm nominal diameter and over shall be internally calibrated for simplifying the welding at site. The misalignment between the internal surfaces to two ends having the same diameter and wall thickness shall not be greater than 1.6 mm. Ends of pipes of 65 mm nominal diameter and over shall be plain ends beveled in accordance with butt-welding and preparation dimensions contained in ANSI Standards B 16.25. Ends of pipes of 50 mm nominal diameter and below shall be plain end cut square. Open ends of pipe shall be plugged or otherwise suitably closed when the work is suspended.

Valves

All the valves shall be of the flanged type, made of carbon steel, with stem and sealing rings of stainless steel; all valves shall be provided with back seated stems. Valve nominal diameter shall always be equal to the relevant pipe diameter. Seals and seats shall be positively fixed so that they cannot become loose in service. The fixing of seals and seats by an interference fit only is not acceptable. The operating mechanism shall have means of lubrication and position indicators and, in the case of isolating valves, the means of padlocking in the open and closed positions together with approved padlocks and keys. All hand-operated valves shall close by clockwise rotation of the handwheels, which shall be marked to show the direction of closing. Valve handwheels shall be located for safe and convenient operation with extended spindles where necessary to achieve this. All hand-operated valves shall be capable of being opened and closed against their maximum working pressure fully unbalanced with a force at the handwheel not exceeding 100 N. If necessary to achieve this, reduction gearing, ball or roller bearings shall be provided. As far as practicable, all valves for similar service shall be of the same make and type and be interchangeable. All gate valves for water and air service shall be of a type in which the operating mechanism is not subject to the working fluid. Valves other than needle type shall not be used permanently if the need for throttling is foreseen, such as to adjust flow subdivision in a system; orifice plates or needle valves with fixed stops shall be provided. Valves for water and oil service may be gate, butterfly, ball, plug or needle type, whichever is most suited to the particular service and operating pressure. Valves for air
service may be ball, plug or needle type whichever is most suited to the particular service. Non-return valves shall be of a type specifically designed to avoid impact and waterhammer on closure. The closing member shall be pivoted from the valve body, not from a lid cover. Relief valves for pumps shall be of direct spring loaded, angle body type. For identification, each valve of 150 mm ND and over shall be provided with stainless steel identification disc on the handwheel.

On this disc the following shall be etched:
- manufacturer;
- catalogue number;
- size;
- rating and fluid;
- trim material;
- body and bonnet material.

Valves below 150 mm ND shall be identified with size and ANSI Class. The disc shall be written in English.

Threaded Fasteners

The threaded fasteners shall comply with ISO metric system and with the following requirements:

- steel bolts shall be forged, unless otherwise approved;
- mild steel fasteners shall be zinc or cadmium plated;
- all parts shall be spot-faced or machined for nuts or bolts, except in the case of clearance bolts in structural steelwork;
- tapped holes shall not be used in sheet metal less than 6 mm thick;
- fasteners of less than 6 mm diameter shall not be used, except in instruments and relays;
- threaded fasteners of more than 8 mm diameter shall have hexagon or socket hexagon heads;
- all threaded fasteners subject to vibrations and/or installed in a position which is not inspectionable during operation shall be locked in an approved manner.

Electrical Equipment

General

The following paragraphs cover the general prescriptions for electrical equipment, such as panels, boards, distribution boards, auxiliary devices, motors, relays, indicating instruments, cables, etc. to obtain a satisfactory quality of the equipment. The Contractor shall deliver the equipment within his limit of supply, complete in all respect with all components, fittings and accessories, for an efficient and trouble-free operation as required by the following Chapters. The Contractor shall submit to the approval of the Employer all electric drawings such as single and three line diagrams, schematic and logic diagrams, overall dimensions, manuals, calculation sheets, cable list, etc.; the
drawings shall give a complete description of the principle of operation and of the 
construction details of the component supplied by the Contractor.
The system voltages presently used in the plants, are the following:

- Power centers, Motor control centers and main loads 400 V AC ± 10%, three phase, 50 Hz ±5%
- Lighting system, space heaters, minor loads 230 V AC ± 10%, single phase, 50 Hz ±5%
- Control equipment, inverters, emergency motors 110 V DC + 10% -15%
- Emergency lighting, overall monitoring system 110 V DC + 10% -15%
- Telecommunications 48V DC + 10% -15%

Unless otherwise stated in the Technical Specification, the prescriptions of this chapter 
shall be strictly followed.

Motor control Centers, Distribution Boards, Panels, Boards, Cabinets and Local 
Control Panels

General

The Contractor shall supply and install Motor Control Centers, Distribution Boards, 
Panels, Boards, Cabinets and Local Control Station included in the Limit of Supply, as 
called for in the following Chapters.

Motor Control Centers, Distribution Boards, Panels, Boards and Cabinets

General

The enclosures for indoor installation of Motor Control Centers, Distribution Boards, 
Panels, Boards and Cabinets shall be IP 42 protection class or higher, unless otherwise 
stated in the Technical Specification. The enclosures shall be made of steel sheets, shaped 
and reinforced to form a rigid free-standing structure. Any individual cubicle, module or 
compartment of enclosures shall be provided with a hinged door to allow full access to 
the inside mounted equipment. The doors shall be suitably gasketed to make the 
compartments dust-tight. Provisions shall be taken to prevent the possibility of accidental 
contact with live parts when opening the doors. Doors shall be provided with key locks. 
Busbars for power circuits, when provided, shall be of copper, liberally dimensioned for 
the specified current ratings, both short-circuit and continuous current. All joints and 
connections of busbars shall be silver plated. The phase arrangement shall be A, B, C, 
counting front to back, top to bottom, or left to right, as viewed from the front of the 
enclosure. Each phase shall be suitably identified by colored marks to be defined by the 
Contractor, in accordance with requirements of the Contractor as far as identifications 
colors are concerned. Bus supports shall be made of flame retardant material. Each 
enclosure shall be provided with a copper ground bus having a minimum cross section of 
200 mm² and to which steel structure and all metallic parts of the enclosure shall be 
connected. Grounding terminals and connectors shall also be provided at both ends of the 
ground bus. Small sized panels, boards or cabinets can be provided, instead of the ground
bus, with a ground bolt. Motor Control Centers, Panels, Boards and Cabinets shall be
designed considering the local ambient conditions stated in these Specification.

All enclosures shall be provided with thermostatically controlled space heaters, operated
at 230 V, 50 Hz from an external source. Heaters shall have individual automatic
miniature circuit breakers. Cable entry shall be located at the bottom or at the top of the
closures, according to layout requirements.

Enclosures shall be supplied complete with cable glands with removable plates for fitting
the cable glands. Suitable brackets to fasten the cables shall also be provided. Motor
control centers, floor mounted panels, boards and cabinets shall be supplied complete
with suitable base channel frames, anchor bolts and nuts. External surfaces shall be
preferably painted in RAL 7035, while inside surfaces shall be treated with anti-
condensation paint.

Motor Control Centers

The Motor Control Centers will be used to supply the power and/or the control of 400 V
AC motors up to 110 kW and as distribution boards to supply the power to loads fed at
400 V AC.

Unless otherwise stated in the Technical Specification or shown in the Subcontract
Drawings, the power circuit of Motor Control Centers shall have the following main
characteristics:
- System three-phase
- Rated insulation voltage 660 V
- Rated frequency 50 Hz
- Rated short-time withstand current for 1 second in compliance with power station
  characteristics

Motor Control Centers shall be made up of individual modules, arranged in vertical
sections with separations between each other. The vertical sections shall be bolted
together to form a rigid, free standing assembly of uniform and neat appearance.

The module sizes shall be multiple of one basic unit to facilitate interchangeability.
Modules of similar function shall be interchangeable. The design of the Motor Control
Centers shall permit their easy extension on site at either end. The door of each individual
module shall have a key lock and shall be so constructed that it cannot be opened when
the relevant main circuit breaker is in the “ON” position. Modules shall be of the fully
draw-out type, i.e. contacts for power terminals on both incoming and outgoing sides
shall be draw-out type.

Power and control terminals shall be installed close to each module and physically
separated from each other. Suitable interlocks shall be provided to prevent on-load
withdrawal of draw-out type units. When the draw-out units are taken out, suitable
devices shall avoid accidental contacts with live parts.

The incoming feeder cubicle shall be of fixed type, equipped as follows:
Section VI. Scope of Supply and Specification

- molded case circuit breaker with trip switching device, draw-out or plug-in type;
- voltmeter, with scale 0-500 V;
- voltmeter switch, to read the three line-to-line voltages upstream of main circuit breaker;
- potential transformers 400/100 V (draw-out type);
- auxiliary protective fuses;
- under voltage relay.

The feeder tap unit shall be draw-out type, equipped with molded case circuit breaker with built-in thermomagnetic protective device.

Combination Motor Control Units shall be of fully draw-out type. They shall consist of:
- molded case circuit breaker, with built-in magnetic protective device;
- magnetic contactor (in the starters for reversing motors, two contactors mechanically and electrically interlocked shall be provided);
- thermal overload relay;
- indicating lamps;
- auxiliary protective fuses.

The circuit of every Combination Motor Control Units shall include the necessary devices, contacts and/or relays for the remote signaling of draw-out unit not available due to operation of thermal and magnetic protective devices, “test” and “draw-out” position of the unit, control voltage loss, etc. A local indication shall also be provided by means of an indicating light with amber cap. Should the other Sections of the Technical Specification or the approved schematic diagrams call for the control of the motors from the MCCs, then the necessary push buttons, selector switches and/or any other necessary devices shall be supplied by the Sub-Contractor. Control units for motors requested to re-start after a brief interruption of voltage supply shall be equipped with the necessary relays and/or devices.

It shall be possible to reset thermal overload relays from the outside of Motor Control Centers, without the necessity of opening the door.

**Boards, Panels and Cabinets**

Boards, Panels and Cabinets shall be provided either for control or power supply or for the combination of power and control circuits. Boards, Panels and Cabinets shall be designed for floor or wall mounting. The Contractor shall include in his Supply all necessary fittings for the installation of wall mounted type enclosures. Where applicable, suitable interlocks shall be provided to prevent door opening with the main disconnecting device in the “ON” position. Boards, Panels and Cabinets which include power circuit shall be provided with an incoming trip-free circuit breaker. A voltmeter with a selector switch and potential transformers shall also be supplied. When Combination Motor Control Units shall be supplied, the units shall be as described above for Motor Control Centers. They shall be equipped with indicating lamps and with START and STOP push buttons. STOP push button shall be fitted with lock and key, to avoid the possibility to start the motor when the key is removed.
Section VI. Scope of Supply and Specification

Suitable LOCAL-REMOTE selector switch, with removable key, shall also be provided when remote control is called for by Technical Specification or by approved schematic diagrams. It will be possible to remove the key only when the selector is in the “REMOTE” position.

With the selector switch turned on the “REMOTE” position, only remote starting of the motor shall be possible, and conversely with the selector switch in the “LOCAL” position, starting the motor shall be possible only from Board, Panel or Cabinet without any control from other sources. It shall always be possible to stop the motor either locally or remotely, regardless of the position of the selector switch. The change of position of the selector switch from “LOCAL” to “REMOTE” or vice versa shall not influence the status of the motor. The Boards, Panels and Cabinets shall also be provided with AUTO-MANUAL selector switch, should motors be requested for automatic operations.

Construction Features of Local Control Panels

A Local Control Station shall be provided for each motor, wherever required. Local Control Stations shall be located in the proximity of the controlled motors and shall be equipped with indicating lamps, push buttons, LOCAL-REMOTE and AUTO-MANUAL selector switches, as described above. All Local Control Stations shall consist of sheet metal enclosures, complete with terminals and those intended for outdoor installation shall have weather-proof enclosure. Suitable stands shall be supplied to support the Local Control Stations.

Molded Case Circuit Breakers

Molded Case Circuit Breakers (MCCB) shall be either three-pole or four pole for three-phase circuits, and two-pole for direct current and AC stabilized system circuits. They shall have built-in protective devices or shall be trip-free or with trip switching device, as specified elsewhere. Each circuit breaker shall be capable of interrupting the rated short time current (rms, symmetrical value) required for the enclosure on which it is installed. Fused circuit breakers shall not be accepted. The rated continuous current shall be selected with a large safety margin, according to the load requirements. The contacts of circuit breakers shall be silver plated. The handle of automatic MCCB, after the breaker has tripped due to a fault, shall occupy a middle position. The incoming circuit breakers rating shall be selected considering all available modules including feeders and spares. The protective device of the incoming circuit breaker, if provided, shall always be co-ordinated with that of any downstream feeder circuit breaker.

Magnetic Contactors

The magnetic contactors shall have three poles. The contactors shall be provided with a minimum of two normally open and two normally closed auxiliary contacts, and both main and auxiliary contacts shall be silver plated. They shall be suitable for full voltage starting of AC motors or miscellaneous loads, taking into account their installation conditions. Rated continuous current of contactors shall be chosen to suit the rated current of motor or the load to be fed. The selection shall take into account a large safety margin. The admissible short-time current of contactors shall be co-ordinated with the protective device preceding it. Contactor coils shall be rated at 230 V, 50 Hz and must be able to
operate without any trouble under a voltage supply within 110 and 80 percent of the rated value.

Thermal Overload Relays

Each Combination Motor Control Unit shall be provided with three-element, ambient temperature compensated, bi-metal thermal overload relays. The relays shall be of a manually reset type. The setting range of the relays shall preferably be adjustable from 80% to 120% of the rated current. The Sub-Contractor shall co-ordinate the overload relay and MCCB with the thermal overload characteristics of the motor, so that these protect completely the motor. These protective devices should not operate during the starting phase of the motor. The admissible short time current of thermal relays shall be co-ordinated with the protective device preceding it. The co-ordination of thermal relay, contactor and MCCB shall be in accordance with IEC Standard 947-4-1.

Current and Potential Transformers

The Current Transformers shall be installed in such a manner as to allow an easy accessibility and replacement. The Current Transformers shall be single ratio, single or multicore, epoxy impregnated bushing type. The technical characteristics (burden, accuracy class, etc.) shall meet the requirements of the relevant feeder. The compartment of potential transformers cubicles shall be fully draw-out type. When the PTs are fully drawn-out, the primary terminals shall be automatically disconnected and earthed. Automatic safety shutters shall be provided to cover up live terminals when PTs are drawn-out. The PTs shall be cast epoxy resin insulated, with high dielectric strength and high partial discharge inception voltage. When required they shall be of the antiferroresonance type; the resistor for quick damping of ferroresonance oscillations shall be open-delta connected. The primary windings of PTs shall be protected by medium voltage current limiting fuses, accessible only in drawn-out position. The secondary terminals of individual PTs shall be protected by automatic miniature circuit breakers, with auxiliary contacts for remote signaling of tripping, and wired up to the secondary terminal blocks, located in a suitable compartment of one cubicle. Secondary voltage rating of PTs shall be 100/√3 and 100/3 V, as the case requires.

CTs and PTs shall be designed and tested in accordance with IEC Standards.

Terminal Blocks

The terminal blocks shall be supplied installed on a DIN profile and suitably located to make easy cabling installation and inspection. The terminal blocks shall be molded plastic, designed for ring-tongue crimp style cable termination. The supplier may propose alternate supply standards. Screw type terminals, with screw directly impinging on conductors, are not acceptable. Insulating barriers shall be provided between adjacent terminals. Terminal blocks shall have separate terminals for incoming and outgoing wire and not more than three wires shall be connected to inside terminals, and only one on the outer side. Terminal blocks shall be grouped according to circuit functions.

Terminals shall be serially numbered according to the relevant wiring diagram. At least 25% spare terminals shall be provided in each block. Control terminal blocks shall be
suitable for connection of two 3.5 mm² stranded copper wires at each end. Terminal
blocks for auxiliary supplies from external source shall be suitable for minimum 10 mm²
copper wire. Minimum clearance of 200 mm shall be maintained between the terminal
block and the bottom or top plates to make easy the connection of outgoing cables.
Terminals for current transformer secondary circuits shall be shorting type, while those
for potential transformer circuits shall be sectionable type. Plugs for measuring
instruments insertion shall also be provided. Terminals of the sectionable type can be
provided for circuits other than current transformer, subject to approval.

Auxiliary Relays

All auxiliary relays to be supplied and installed shall be vibration-proof and shock proof.
All relays shall be capable of operating continuously from 80% to 110% of the rated
voltage of the circuit they are connected to. The contacts of relays shall be single-pole,
double-throw type. Both the moving and stationary contacts shall be made of solid silver
or special alloy.

Fuses

All control and power fuses shall be cartridge type fuses. Plug fuses (screw-in-type) shall
not be accepted. The rated current of fuses shall be selected to suit the load and fault
requirements. In the case control and power fuses are used, auxiliary contacts shall be
provided for fuse blown indication.

Indicating Lights

The indicating lights shall be provided wherever called for and mounted on the front door
of enclosures for electrical equipment. Indicating lamps and their holders are preferred
with pin type. Caps shall be dust tight and shall have poly-carbonate or equivalent colored
lenses. Indicating lights shall be so constructed that the lamp can be readily fitted and
removed and the lens changed from the front of the panel.

DC/DC Converters

Wherever DC/DC conversion must be used, two DC/DC converters in parallel through
the coupling diodes, one in standby to the other shall be provided.

Electrical Control Devices Manually Operated

General

The contacts in all electrical control devices shall be adequately rated for the service
conditions. Contacts shall be made of silver or special alloy and shall be double-break
type. All control devices shall be heavy duty, dust-tight type. Devices for outdoor
installation shall be weatherproof type. Where necessary, contacts shall be furnished for
remote signaling interlocking etc.
Control Instruments and Selector Switches

Unless otherwise stated in the Technical Specification, the control, instruments and selector switches shall be of the multistage, rotary type, rated 300 V, 20 A continuous duty for both AC and DC service, and shall be designed for switchboard mounting, with all contact mechanism behind the panels. Each contact shall be of the renewable, self-cleaning and wipe-type. A square or rectangular plate shall be furnished and engraved to show the switch position.

Control Switches

Control switches shall be of the rotating and push type, spring return to neutral. Control switches for Circuit Breaker and Disconnecting Switches shall be of four positions, “READY TO CLOSE” “READY TO OPEN” with only the two outer positions “CLOSE” “OPEN” push type. The control switches for Circuit Breakers and Disconnecting Switches shall be equipped with discrepancy light. Control switches shall be arranged to turn as follows:

Clockwise: for RAISE, CLOSE (switches), START, ON and OPEN (valves) position;
Anti-Clockwise: for LOWER, OPEN (switches), STOP, OFF and CLOSE (valves) position.

Instrument and Selector Switches

They shall be provided to select a particular mode of plant operation or different reading of instruments. Instrument and selector switches shall have standard type handle and fixed operating positions. Synchronizing switches shall have standard type, removable handle in “OFF” position only to insure that only one set of potentials can be applied to the synchronizing equipment at one time.

Pushbuttons

Pushbuttons shall be rated 300 V, 10 A, continuous duty for both AC and DC services.

Pushbuttons shall be shrouded type to prevent accidental operation. Where required, red and green pushbuttons shall be provided for the following purposes:

Green pushbuttons: for RAISE, CLOSE (switch), START, ON and OPEN (valves) operations;
Red pushbuttons: for LOWER, OPEN (switches), STOP, OFF and CLOSE (valves) operations.

Green pushbuttons shall be mounted on the right hand side of the red ones, looking at the front of the panel.

Pushbuttons on electronic equipment are excluded from the requirements of this subparagraph.

Electric Motors

The present paragraph covers the Specification for the electric motors to be supplied and installed indoors or outdoors. All motors shall be of Totally Enclosed Fan Cooled type (TEFC), both for outdoors and indoors service. All motors installed outdoor shall be designed considering also the temperature increase due to sun radiation. All 3-phase induction motors shall be of squirrel cage rotors type and designed for full voltage starting. Voltage rating of motors shall be 400 V, 50 Hz. Motor capacity shall be always
not less than 120% of the maximum calculated required capacity. Motors shall be capable of three consecutive starting when they are cold and two consecutive starting when they are at normal operating temperature; the temperatures shall not exceed the limits stated in the IEC Standards.

The starting current for 3-phase induction motors shall not exceed 10 times the rated current, when started under normal conditions of supply voltage and frequency. The starting torque shall not be less than 100% of rated load torque of the motor. The break down torque shall not be less than 200% of the rated load torque of the motor. During the automatic change-over (1 to 2 s), the motors shall be capable of restarting or regaining speed with a voltage 20% lower than normal voltage, without injurious heating.

The slip at rated output must not be more than 5% for motors up to 50 kW or 3% for motors above 50 kW.

The journal and thrust bearings of each motor shall be self-lubricated, with a self-contained cooling system, and where necessary the bearings should be electrically isolated to prevent the passage of stray currents. Every motor larger than 150 kW will be provided with at least 3 temperature detectors embedded in the stator windings and one temperature detector in each of the motor bearings, wired up to the terminal box.

All motors shall be insulated in Class B, in accordance with IEC Standards.

Noise level of electric motors, either on-load or no-load, shall not exceed the overall pressure level of 85 dB (A), measured at a distance of 1 m from the major surface of the machine.

All motors shall be statically and dynamically balanced. Vibration amplitude shall be in compliance with the Standards.

All motors shall be complete with the following accessories:
- terminal connection box;
- space heaters and temperature detectors terminal boxes (if provided);
- nameplate, according to Standards;
- earth connections;
- lifting eyebolts;
- baseplate and foundation bolts;
- special tools for disassembly.

Boards and Panels Wiring

All wiring within the enclosures for electrical equipment shall comply with the requirements of this paragraph. All electrical connections outside the enclosures for electrical equipment shall comply with the cabling requirements of paragraph 2.9.14. Wiring shall be done with stranded copper conductor, flexible, PVC insulated switchboard wire. Conductor insulation shall be of the fire retardant type, in compliance with the latest edition of IEC publication 332. The rated voltage shall be 450/750 V. Minimum cross-section shall be 0.5 mm² for control and auxiliary cables, solid state circuits, 1.5 mm² for other circuits rated 110 V, 230 V or 400 V, and 4 mm² for current and potential transformers. Each wire shall be identified at both ends with wire
designation, in accordance with the approved wiring schemes. All series-connected switchgear devices shall be connected in the sequence shown on the approved schematic diagrams. All interpanels wiring, between different modules of the same enclosure, shall be included in the Supply.

Low Voltage, Control Cables and Accessories

The Contractor shall supply and install low voltage power and control cables, cable trays, supports, connection boxes, steel conduits, conduits coupling and threaded connectors, flexible conduits, clamps, fixing bolts, cable joints and identification markings within his limits of supply.

Cabling Design

The Sub-Contractor shall prepare and submit for approval the termination diagrams and cable chart for all electrical equipment and cables included in the Subcontract. All cables shall be allocated a cable identification number in accordance with the above cable schedules.

The cable schedules shall be of an approved format, showing for each cable:
- cable identification number;
- the termination points, identifying the location of the two cable ends in separate columns by cubicle designation or device description with, where applicable, the device number as shown on the circuit diagrams;
- the details of cable (type and rated voltage, conductor size, number of cores);
- the estimated route length, in meters.

The termination diagrams may be combined with equipment wiring diagrams. The termination diagrams shall show the following details for each cubicle, cabinet, device or other equipment to which cabling is to be connected:
- cubicle designation;
- all terminal strips or terminals in their correct relative location;
- a wire number (or blank space in the case of a spare terminal) against each terminal;
- for each cable, the cable identification number, the total number of cores and the number of spare cores and the destination of the cable;
- the wire number of each core in each cable.

The termination diagrams shall make reference to the associated circuit diagram drawing numbers and wiring diagram drawing numbers (if on separate drawings) including the latest revision number or letter. The information may be presented in a schedule or tabular form (such as computer printout) provided that the schedules are accompanied by drawings showing the terminals and the reference to the schedules to enable easy cable, core and terminal identification. The Contractor may, subject to approval, employ for part of his cabling system a standardized system of preformed cables, with plug and socket connections to facilitate initial installation, operation and maintenance and later modification by the Employer. For such a system, an alternative method of identification of connections may be employed in place of identification of circuit wires, cables cores and terminals by wire numbers. The Contractor shall supply all components of the preformed cabling system where this is employed.
The Contractor shall allow for the following minimum number of spare cores in each multicore control cable:

<table>
<thead>
<tr>
<th>No. of cores in cable</th>
<th>Min. No. of spare cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
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</tr>
<tr>
<td>4</td>
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<tr>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>27</td>
<td>4</td>
</tr>
</tbody>
</table>

**Low Voltage Cable:**

Rated voltage of low voltage power cables shall be 0.6/1 kV. Cables shall have multi-core stranded copper conductors, PVC insulation, wrapped with appropriate filler and core binder, galvanized steel wire or tape armour and an overall PVC sheath.

Single core power cables, if provided, shall be armoured with non-magnetic metal tape.

The Sub-Contractor shall dimension the cables, taking into account the applicable Standards and the following:
- Load ratings;
- Short-time current, both in amplitude and duration;
- Voltage drop.

Dimensioning methods and calculation sheets shall be submitted for the Employer’s approval. The short-time current value to be introduced in the calculation of power cables shall be the maximum that can be expected at the load terminals for a bolted short circuit fault, whether phase to phase or phase to ground. For all the power cables of the 400 V AC circuits, the duration of short time current to be introduced in the calculations shall be one (1) second or the break time of relevant circuit breaker installed on the cable. The maximum admissible temperature after a short circuit fault shall be the one specified by IEC Standards for the type of insulation adopted, assuming that the cable is at rated temperature of 100% before the fault occurrence. The maximum total voltage drop on both feeders and branch circuit to the farthest outlet, i.e. between the service entrance equipment and the connected load, shall not exceed five percent (5%) in steady state operation. During motor starting the allowable voltage drop is ten percent (10%). In any case the minimum cross-section of power cable cores shall be 2.5 mm².

Single core power cables shall be installed in trefoil touching formation.

The requirements for multicore control cables shall apply to all cables for the control, protection, indication, instrumentation and alarm circuits, including cables from the DC
and essential AC distribution boards, where such circuits are loaded to less than 35% of the rated capacity of the cable. (For continuous loading over 35%, those cables shall be regarded as auxiliary power cables).

Except for low signal, alarm and solid-state circuits, multi-core control cables will be circular copper conductor, PVC insulated, wrapped with appropriate filler and core binder, non-magnetic metal screened of max. resistance 50 $\Omega$/km at 20°C and minimum thickness 0.1 mm, and overall sheathed with PVC, 0.6/1 kV rating voltage, to the requirements of IEC Standard.

Multicore control cables for low signal, alarm and solid-state circuits shall be copper twisted pair, PVC insulated, PVC sheathed and screened telephone type cables. The minimum cross-sectional area for low signal and solid-state circuit cables will be 0.5 mm$^2$.

The minimum cross-sectional area for other multicore control cables shall be at least 2.5 mm$^2$, unless otherwise specified. Conductors for current transformer secondary circuits shall be designed with a cross-sectional area of not less than 6 mm$^2$. Where the burden of the leads associated with the current transformers requires to be further reduced to ensure correct operation of the equipment under all conditions, a larger cross-section shall be used. In these cases the required cross-sectional area of the conductors shall be shown on the circuit diagram. Conductors for voltage transformer secondary circuits shall not be less than 2.5 mm$^2$ in cross-sectional area.

PVC for insulation and sheath of all types of cables shall be of fire-retardant type, with reduced flame – spread properties and reduced emission of smoke, in compliance with IEC 332, and suitable for low temperature.

The cores of power supply cables shall be colour-coded as set down here below.

AC (three-phase) supply cables
- Phase A Yellow
- Phase B Green
- Phase C Red
- Neutral Blue

DC supply cables
- Positive leads White
- Negative leads Black

The cores of multicore cables may be colour-coded or numbered.

Cables Connection

General
The connections of the cables shall include the following:
fitting an approved lug to each core (except spare cores);
fitting an approved phase or polarity identification to each power cable core and identification ferrule to each control and alarm cable core;
where a wire number changes, all cores and wires on a terminal block shall be double ferruled to show both wire numbers;
connections to equipment terminals (except spare cores).

**Termination of Power Cables**
The Sub-Contractor shall ensure that AC cables are phased and that the polarity of DC cables is correct.

**Termination of Multicore Control Cables**
Allowance shall be made by the Contractor for each core to be sufficiently long and neatly looped to allow a fresh termination to be made, should the original termination device break off. Where not enclosed in ducting, the unsheathed portion of the cable shall be laced neatly with an approved non-flammable cable strapping. Spare cable cores shall not be terminated but should be sufficiently long to reach the most remote terminal strip in the enclosure. Spare cores will be looped together and left in cable ducting inside the enclosure.

The Contractor shall provide approved non-flammable wire-marking ferrules on each core of all control cables. Spare cores shall be identified with the letter “S” followed by the cable number. Cable cores in control cables shall be terminated using ring tongue crimp style termination, unless otherwise specified.

**Termination of Cable Screens**
Unless otherwise specified, the screens of screened cable shall be earthed at one end only. This shall generally be the end closest to the source of supply. Earthing of copper screens shall be by means of wrapping three or more turns of 1 mm² stranded copper earthing conductor over the exposed screen and making an effective soldered joint with the screen. The earth conductor shall be terminated to the ground bar of the equipment by means of crimp-on terminal lugs. All earthing conductors shall be insulated.

**Cables Installation**
Installation of cables shall be compatible with the existing layout. New power and control cables shall be installed either on cable trays or inside concrete cable trenches or in conduits. Cables shall be positioned so that they can be easily inspected and, if necessary, replaced. Both for indoor and outdoor installations, the cable arrangements shall be so designed as to separate power cables from control cables.

The cables shall be laid in an orderly and neat manner; they shall be fixed at proper points by means of clamps. For every type of installation, the laying of a new cable, in the case of breakdown of the old cable, should be as rapid and straightforward as possible; in particular, all cables installed in conduits should be easy to withdraw. The cables shall be installed in order to permit sufficient air circulation. Cables laid on cable trays or cable racks shall be supported in such a way as to avoid damage to the insulation. Greasy or oily substances shall not be used to facilitate the passage of the cable in conduits; only dry powdered soapstone shall be permitted. The pull shall be applied to cables only by means of approved grips and the end portion of the cable which has been marked or deformed by the grip shall be cut off. All the lengths of cable running along a structure, pole or any other power plant or substation component shall be protected by a rigid galvanized steel tube or PVC conduit. All types of cables shall be placed according to the following
prescriptions, provided the requirements for cable installation according to Standards are strictly followed in addition to the prescriptions.

**Outdoor Areas**
- In covered trenches or galleries: laid on cable trays;
- In tubes or conduits: laid in concrete tubes or galvanized conduits; these tubes or conduits shall be fitted with adequate junctions and connection boxes, the whole installation being waterproof and sealed;

**Indoor Areas**
- At sight: laid as cable cluster in cable racks or cable trays, hung from the ceiling; connections from the cable racks or trays to the equipment shall be carried out in steel conduits;
- In covered trenches: laid on cable trays;
- Embedded: pulled into galvanized steel conduits.

Both for indoor and outdoor installations, the cable arrangements shall be so designed as to separate medium voltage, low voltage power cables, control and measuring cables.

**Cable Trays**

The Sub-Contractor shall supply all cable trays necessary to support the cables connecting different parts of the Supply. All trays shall be aluminum or galvanized steel, suitable for installation of insulated cables. The hanger clamps, fastening hardware and pins shall be of highly corrosion resistant metals. Steel accessories shall be galvanized. The trays shall have bottom slots not in excess of 50 mm in width. The quantity of hanger clamps, fastening hardware and pins shall be as required to support all trays every 1.5 m. Cable trays shall be of modular type. Connection to walls and to ceiling shall be carried out by interposing steel beams to allow reasonable adjustment during the erection. The Contractor shall perform all the works for fixing the cable trays to the trenches and for passage of cables through the walls. Cable trays shall be connected to the grounding system by means of a ground wire or ground bar. Steel cable trays and accessories shall be hot-dip galvanized. Supports shall be pre-assembled type and hot-dip galvanized. Separation between different classes of cables can be obtained through galvanized steel plate separators.

In order to protect cables, where cable trays are exposed to dust or light materials fallout, the same shall be protected by suitable covers. In vertical sections, covers in steel plate shall be installed for 2.5 m from the walkable floor. Covers and relevant accessories shall be hot-dip galvanized. Bolts and nuts shall be in stainless steel.

**Conduits**

The Sub-Contractor shall supply and install the conduits and the associated materials, such as conduit couplings and thread protectors, flexible conduits, bushings, locknuts, unions, watertight conduit hubs, flexible conduit fittings, cabinets, boxes and supports. All complete piping shall have a protection degree not less than IP54. All rigid steel
Conduits, couplings and elbows shall be hot-dip galvanized rigid mild steel, in accordance with the latest revision of IEC and ISO Standard. The conduit interior and exterior surfaces shall have a continuous zinc overcoating of transparent enamel, transparent lacquer or zinc chromate. All conduits shall be furnished in 3 m lengths. Each length of steel conduit shall be threaded at both ends and shall be supplied complete with a coupling on one end and a thread protector on the other. The thread protector shall have sufficient mechanical strength to protect the threads during normal handling and storage. All bends in the conduit shall be made cold and the radius of bends shall be in compliance with the conduit diameter. Conduits flattened during bending shall be rejected. All flexible conduits shall be plastic jacketed, liquid tight, galvanized steel. Suitable fire barriers shall be installed if necessary.

Control, Protection, Signaling and Metering Equipment

General

Primary signals and tripping signals shall be transmitted by direct current by means of an energizing voltage impulse. Should the Contractor wish to adopt a deenergizing circuit, the proposal shall be submitted to the Employer’s approval. The control and protection contacts and circuits shall be completely separated from the signaling and metering ones. Tripping contacts shall operate directly on the final stage relay without interference with other circuits. The control circuits shall be protected with miniature automatic circuit breakers, in order to exclude a part without affecting the general operation. The miniature automatic circuit breakers shall be provided with at least one (1) NO/NC auxiliary contact, wired to terminals for remote indication.

Instruments

General

The instruments shall be preferably long scale antiparallax type. The maximum scale value shall be at least 20% higher than the rated value. They shall be vibration proof. Rated value or operating range shall be marked on the instruments. Field instruments shall be grouped in panels where possible. Instruments to be installed on the same panel shall be similar in shape, colour and dimensions. Instrument accuracy, dials and ranges shall be in accordance with the applicable IEC Standards. All field instruments shall have weatherproof case. Instruments and switches provided with contacts shall have electrically separated contacts for alarm and trip.

In all cases, the ratings of contacts shall match with the requirements of controlled loads, such as final stage relays.

Electrical Indicating Instruments

Unless otherwise stated in the Technical Specification, all electrical indicating instruments to be mounted on enclosures for electrical equipment, such as switchboards, MCCs, panels, etc. shall follow the prescriptions given in this paragraph. These instruments shall receive an electric input signal from metering devices. The instruments shall be moving coil, flush-mounting, dust-tight type, with 1.5% accuracy, within a
temperature range from 15 to 80°C, a voltage range of ± 10% and a frequency range (where applicable) of ± 1% of the rated values. The instrument case shall be adequately grounded or secured to the assembly structure by metal mounting screw, with provisions for penetrating the paint film.

Field Indicating Instruments and Switches

**Thermometers**
Thermometers shall be dial, liquid type. Their accuracy shall not be less than ± 1%. The flexible pipe from the bulbs to the dial shall be one piece, stainless steel, compensated type, protected against shocks, and shall be installed in such a way as to allow its removal as many times as desired without interfering with other parts of the installation. Thermometers may bear electric contacts for protection or signaling.

**Pressure Gauges**
Pressure gauges shall have aluminum or brass case, with screwed pipe connections and stainless steel movements, and shall be equipped with sectionalizing and vent valves and suitable pressure pulsations dampers. Their accuracy shall not be less than ± 1%. Each pressure gauge shall be equipped with zero setting. Pressure gauges may bear electric contacts for protection or signaling.

**Thermostats**
Thermostats shall be of thermal bulbs type and shall have two sets of contacts continuously and independently adjustable within a suitable range, which in any case shall not be less than 40% of the rated switch temperature. One set shall be used for alarm and the other for trip circuits. Contacts may be of mercury or metal type.

**Pressure Switches**
Pressure switches shall be of the bellow type and shall have two sets of contacts continuously and independently adjustable within a suitable range, which in any case shall not be less than 40% of the rated switch pressure (applicable to direct or differentially sensed pressure). One set shall be used for alarm and the other for trip circuit. Contacts may be mercury or metal type.

**Tank Level Indicators**
Tank level indicators shall be of direct readings, glass column type, protected against shocks and with house casing. Connections shall be made by ¼” copper pipe with sectionalising valve. Check valves shall be fitted on level indicators for pressurized reservoirs in order to avoid liquid loss in case of glass break.

**Limit Switches**
Limit switches shall be used for auxiliary circuits connection and disconnection. They shall be suitable for outdoors installation and will have at least one make and one break contact. All the limit switches shall operate at 110 V DC ± 10%, unless otherwise specified. They shall be heavy duty type and withstand at least 1 000 switching cycles per hour, under rated current conditions. Contact ratings shall comply with the controlled loads.
The contacts shall be made of solid silver or of special alloy. Unless otherwise specified, all limit switches shall be snap-acting type.

**Remote Metering**

All measuring equipment shall be fed at stabilized 230 V AC, unless otherwise specified elsewhere. In case the measuring equipment requires a voltage other than 230 V AC, the Contractor should provide adequate power supply matching unit. The impulse lines between the primary elements and the transducer shall be installed at a gradient so that no air pockets or water locks can occur. If the required gradient cannot be achieved, water or air separators, drain or vent valves shall be installed. The primary elements shall be:

**Temperature Measurement**

Resistance Thermal Detectors (RTD) shall be used; they shall be standard type platinum 100Ω at 0°C with temperature coefficient 0.00385 K⁻¹. The RTD protecting tube shall be of the screw-in type. Three wire circuits shall be utilized for connecting the RTD to the measuring unit.

**Level Measurement**

The level measurement shall be made by means of a pressure sensor or by float. The error limits of the measuring chain (primary element, transducer) shall not exceed ± 1%. Should float and balance weight method be used, the float and the rope shall be of stainless steel. The level primary measuring element shall have electric contacts, potential free, for min. and max. level signaling and control.

**Flow Measurement**

The flow measurement shall be made by means of standard orifices or standard nozzles, or by other specified methods, leading to a differential pressure measurement. Measurement shall start at a flow rate not higher than 5% while the maximum flow shall correspond to 70-80% of full scale.

**Transducers**

The transducers shall be of the electronic type, with an output signal range of 4 to 20 mA DC, for single direction flow and -20 to +20 mA for reversible flow. The rms ripple current shall be less than two (2) percent. The output shall be limited to not more than 40 mA even though the input amplitude exceeds 200% of the rated value. Each transducer shall be able to operate into a load impedance ranging between 0 and 1,000Ω, without adjustment of the output. Each transducer shall be provided with a setting device for adjustment of the output current in the range of ± 10% to compensate for possible errors in the primary element. The output current shall be proportional to the input, with an accuracy of ± 0.5% in the range from 5% to 125% of the full rated output. The transducers and the relevant power supply network shall be so designed that no appreciable deviation in the output current is produced by switching or other voltage transients in the supply. The output leads from the transducers to the main terminal block shall be screened.
Treatment of Surfaces

General

The scope of these prescriptions is to establish materials and workmanship such as to ensure a first quality and homogeneous work. Such prescriptions are summarized on a general painting schedule. The Contractor shall forward to the Project Manager his own painting schedule, made on the basis of the prescription of the present chapter. The Contractor schedule shall include description of each part with relevant shop and site painting treatments and an affidavit of compliance, stating that all materials and work will comply, or have complied, with the applicable requirements of these Specifications. Parts to be painted, with relevant painting prescriptions, are indicated in the painting schedule. The prescriptions shall be applied to all minor parts which are included in the Supply even if not mentioned in the schedule. Surfaces of stainless steel, copper and copper alloys, rubber, glass and surfaces to be embedded in concrete need not be painted, unless otherwise specified. Part of the Supply that shall have to undergo a special painting, if any, will be specifically mentioned in the following Chapters.

Painting will be carried out in accordance with the instructions and recommendations of the paint manufacturers, as approved by the Project Manager. Any equipment that is not likely to be damaged during erection shall be finish painted at the shop, while it shall be primed and top coated only, whenever the erection shall be deemed to damage the paint. Such equipment shall be finish-painted (or intermediate and finish-painted) at site by the Contractor, after erection has been completed. Shop painting shall be protected against damages during transport by wooden pads or other suitable means. Nevertheless, the Contractor shall furnish the paint for any touch up that will be required after the erection has been completed.

The paints to be supplied for the site painting shall not be less than one hundred and twenty percent (120%) of the estimated required quantity.

Preparation of Surfaces

All surfaces required to be painted, either at the shop or at site, shall be thoroughly cleaned so as to remove, even where access is difficult, any previous paint, dirt and foreign matter and to obtain a smooth and dry surface. In the preparation of metal surfaces, all welds, beads, blister and any defect shall be smooth ground and pits and dents compound filled to obtain a clean and smooth surface. In particular old surfaces to be repainted, after cleaning, shall be checked with no destructive tests, the defects, if any, repaired and the surface prepared for the paint. Ferrous metals shall have all rust, dust and scale removed by sand-blasting. Oily and greasy surfaces shall be cleaned using suitable solvents and dried with compressed air blows. In any case the state of surfaces shall be in accordance with the SSPC Standards requirements. Non ferrous metals and galvanized steel shall be thoroughly cleaned by solvent, by washing and/or brushing. All metallic machined surfaces and surfaces not required to be painted shall be covered with a protective coating of wax or oil. Unassembled pins and bolts shall be oiled and wrapped with moisture resistant paper or protected by other suitable means. The interior surfaces of piping, valves and other parts that have to undergo hydraulic tests shall be painted.
before such test, unless otherwise specified. All the protective coatings shall be effective against salt air in the case of transport by sea and shall be easily removable, if required.

**Paints and Painting Equipment**

The Contractor shall submit at least three (3) probable suppliers of paint materials for the Project Manager's approval. The paints and the paint products shall be a standard type of a well-known manufacturer, and a reference list of past performances in similar power plants shall be submitted to the Project Manager by the Contractor. All paints used shall possibly be produced by the same manufacturer and the Contractor shall however be responsible for the choice of compatible coatings. Painting equipment shall conform to paint manufacturer's recommendations. Materials shall be delivered to the site in the manufacturer sealed container, bearing the manufacturer labels indicating type and grade of content.

**Application of Paint - General Standards**

The prime coat shall be applied immediately following blasting and cleaning, before any condensation might occur on the prepared surface. No paints shall be applied over dust, grease, oil or other incompatible matter. No paints shall be applied during rainy or foggy weather, when the air temperature is below 10°C or above 40°C or when the surface temperature is below 5°C or above 50°C, and when air relative humidity is over 80% or air temperature is less than 2.5°C above the dew-point. Paints shall not be applied even if the above conditions are forecast to prevail within one day from scheduled paint application. Enclosures and heating shall be provided as necessary to prevent dust circulation, to achieve required temperature and to protect the finished surfaces. The time schedule for successive coats of paint shall be such as to allow the first coat to dry hard and to be in required state to receive the second coat. The colour of successive coats of paint must be different to allow easy identification of the sequence of painting, for control purposes. The paint film must adhere perfectly to the painted surface. The Contractor shall pay particular care in applying the prescribed paint thickness even where access is difficult or over corners and edges. To comply with the prescriptions, additional coats shall be applied by brush or by spray until a satisfactory result is achieved. Coating shall be applied in a workmanlike manner, so that the finished surfaces shall appear free from drops, waves, laps, bubbles, brush marks or other defects.

**Zinc Plating**

Zinc protective coat, if any, shall be applied by bath or electrolytic process. It shall be adherent, smooth and free from discontinuity and imperfections, such as bubbles, porosity, cracks or other irregularities that may affect the soundness of the protective layer. The plating thickness shall correspond to a minimum rate of 600 g/m². The adheriveness of the protective layer shall be such as not to be removable during normal handling, transport and assembly operations. After immersion in the molten zinc bath the protected surfaces shall not be submitted to any process of scraping or wiping that may reduce the uniformity of the thickness of the protective coat. Items plated by electrolytic process shall be dehydrogenated after plating.
Section VI. Scope of Supply and Specification

Colors

The Contractor shall comply with the requirements of the Employer as far as identification colors are concerned. The Project Manager shall entrust, after the award of the Contract, a complete list of colors for the equipment not covered by the Employer's requirements. The Contractor shall submit for approval to the Project Manager painted samples, 150 x 300 mm. No paint shall be ordered until approval from the Project Manager has been given.

Inspection, Tests and Guarantees on Painting

The checks of the painting shall be carried out in the workshop and at Site, at the expenses of the Contractor, in compliance with the following provisions:

a) Check of the material adopted;
b) Check of the sand-blasted surfaces;
c) Measurements of the thickness of the various paint coats and of the total paint coat, by means of a suitable meter.

Should the measured dry film thickness (DFT) be less than the specified, the Contractor shall apply additional paint to the coat inspected or shall increase the thickness of succeeding coat, as applicable, to assure the specified total dry film thickness.

The guarantee period of the paintwork shall be five years, beginning from acceptance of the paintwork itself. After this period the rusting level of coated surfaces shall correspond to the Re 0 level, in accordance with the Rusting European Standard or equivalent. During this period it shall remain the responsibility of the Contractor to repair or replace at his own expenses all paintwork showing defects such as peeling, wrinkles, bubbles, flakes of rust, etc. where it may be shown that the deterioration arises from poor quality paint, insufficient cleaning of the surface before painting, incorrect choice of paint for the service required or incorrect application of paint itself to the surface. Gradual fading of strong colors will be tolerated. The guarantee shall not cover any damage due to accidental causes.

Painting Schedule

The painting procedure, the number of coats to be used and the thickness of the applied layers shall be in compliance with the following requirements, unless otherwise specified in the following Chapters.

Structural and miscellaneous steel (indoor and outdoor items except galvanized steel)

a) Near white metal sandblast SSPC-SP10
b) One coat of zinc filled inorganic silicate primer, Min DFT per coat 75 µm
c) One coat of polyamide epoxy topcoat, Min DFT per coat 75 µm

Steel gratings & checkered plates

- Hot dip galvanizing, Min rate 600 g/m2

Equipment

Exterior surfaces indoor & outdoor:

a) Near white metal sandblast SSPC-SP10
b) One coat of zinc chromate catalyzed epoxy primer, Min DFT per coat 75 µm
Section VI. Scope of Supply and Specification

138

c) Two coat of catalyzed epoxy enamel, Min DFT per coat: 75 µm

*Exterior surfaces underground:*

a) Near white metal sandblast SSPC-SP10
b) One coat of epoxy coal tar coating, Min DFT per coat 200 µm
c) Two coat of epoxy coal tar finish, Min DFT per coat 200 µm

*Boards and panels:*

a) Pickling, washing, phosphatising
b) Two coats (three for exterior surfaces) of polyamide epoxy paint, Min DFT per coat 40 µm

*Electric motors and other standard equipment:*

a) As per Manufacturer's Standard

*Fresh water submerged or intermittently submerged surfaces*

a) White metal sandblast SSPC-SP5
b) Two coats of epoxy zinc rich coating, Min DFT per coat 35 µm
c) Two coats of epoxy coal tar coating, Min DFT per coat 200 µm

**Tests**

All materials and components shall be subject to tests and inspection while in process of and upon completion of manufacture. The inspection and tests shall consist of:

− Tests and inspection are specified in the following chapters;
− The tests and inspection required by the relevant standards;
− Such other tests and inspection as included in the standard fabrication and acceptance procedures of the Contractor.

The Contractor shall submit for approval a detailed list of the tests to be carried out in the workshop and at site and the Employer will identify the tests which he intends to attend. If the Employer fails to appoint a time after having been asked to do so, or does not attend at the time and place appointed, the Contractor shall be entitled to proceed with the Tests in his absence. The Tests shall then be deemed to have been made in the presence of the Employer and the results of the Tests shall be accepted.

All deficiencies revealed by testing and inspection shall be rectified by the Contractor at his own expense and to the approval of the Employer. Rectified components shall be subject to retesting and re-inspection.

Test reports shall be complete with all pertinent data to present clear, concise and factual evidence of the tests.

No parts of the plant shall be dispatched until all agreed inspection and tests of the components concerned have been completed and approved by the Employer.

Acceptance of test results or waiving of tests by the Employer shall not relieve the Contractor of his obligations under the Contract.

The Contractor shall notify the Employer of the date and the place at least 28 days in advance of intended shop tests and at least 2 working days in advance of the date of intended site tests and/or inspections of any equipment or Work.

As far as applicable, the Contractor shall submit with his notice a description of procedures and methods of checking or testing. The description shall indicate the type of equipment that will be available and used for this work.
Test on Materials  Mechanical tests shall be performed in accordance with the Standards and chemical analysis and mechanical properties of all materials shall be supplied. All materials and equipment to be operated under pressure shall undergo hydraulic tests which shall last a period of time sufficient to achieve a satisfactory verification of their tightness but in any case not less than half an hour. The generating unit shall be completely preassembled in the workshop. All electrical materials and equipment shall be tested in accordance with applicable Standards before assembly. Control and power panels shall be assembled and checked at workshop for correct operation. Whenever the Contractor is not in position to submit certificates of type tests, as required by the applicable Standards, on equipment part of his supply, such tests shall be performed by the Contractor at his expenses. The following tests shall be carried out by the Contractor:

d) Tests during the installation of the equipment

e) Preliminary tests after the complete installation of subsystems

f) Operational tests of the unit, including the efficiency test mentioned in a previous chapter, and of the control and protection system.

Spare parts and tools

All spare parts shall be interchangeable with, and of the same material and workmanship as the corresponding parts of the equipment furnished. Spare parts shall be packed for storage in the climate at site. Each part shall be marked with its description and purpose on the outside of the packaging.

The Contractor shall also supply the tool necessary for the operation and maintenance of the supplied equipment. Tools are those required for dismantling and adjustment of all the supplied works and shall include usual and special (single purpose) tools, wrenches and other accessories such as eyebolts, lifting lugs, shackles, slings and any other special equipment required for handling the supplied equipment. Every special tool and instrument shall be accompanied or furnished with maintenance or instruction manuals. Each tool and device shall be new and shall be delivered after erections in good condition and marked with its size or purpose. Except where otherwise specified, all tools shall be suitably arranged in metal tool boxes, each fitted with a lock with two (2) keys. A board on which tools and wrenches shall be stored shall be also supplied.
New trash-rack raking machine (TRRM) and trash removal system

Object and Scope of Work

Object of the Work

The supply shall include the design, manufacturing, painting, factory tests, shipping, erection in site, tests and commissioning of the following equipment:
One (1) trash-rack raking machine

One (1) new trash removal system to be used by New TRRM and another one (1) to be used as spare

Scope of the Supply

The Scope of supply is the following:
• design, supply and installation of one (1) new automatically working trash-rack raking machine, complete with stoplog lifting device and with accessories;
• design, supply and installation of one (1) new trash removal system, Hydraulic trolley;
• carrying out the necessary modifications at site to install the new TRRM including the supply of the necessary components;
• Modifying the existing drawings or redrawing the same as a consequence of the new supply.

The supply shall include also the recommended spare parts, the special tools and installation materials and accessories, not mentioned in present specification, but necessary for the installation, operation and maintenance of the plant.

The installation will be done in order:
• to allow an easy operation and maintenance of the new equipment;
• to reduce as much as possible the modifications on the plant;
• not to represent a danger to persons or things.

Design Data

The new TRRM shall be furnished with a boom hoist and shall have the double removing capability of the existing TRRM. Thus it shall be capable of raking each slot (4.85 m span) in one shot, instead of the two used by the existing TRRM, but in the same operating time.
The required TRRM specifications are as follows:

## TECHNICAL DATA SHEET

### A. TRRM & Trash Removal System Specifications

<table>
<thead>
<tr>
<th>S. No.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>EXISTING DATA</th>
<th>PROJECT REQUIREMENT</th>
<th>BIDDER’S OFFER</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manufacturer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Country of Origin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Type of Machine</td>
<td></td>
<td></td>
<td>4 in 1 function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Hydraulic TRCM</td>
<td></td>
<td></td>
<td>Integrated machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Operation Mechanism</td>
<td></td>
<td></td>
<td>Hydraulic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Type of Operation</td>
<td></td>
<td></td>
<td>Automatic + Manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>Operating deck level:</td>
<td>m a.s.l.</td>
<td>526</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Length of rails electrical supply</td>
<td>m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>Rail Width</td>
<td>m</td>
<td>4.2</td>
<td>4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.6</td>
<td>Transversal travelling speed</td>
<td>m/min</td>
<td></td>
<td>0-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.7</td>
<td>Lowest rake position</td>
<td>m a.s.l.</td>
<td>514</td>
<td>514</td>
<td></td>
<td></td>
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<tr>
<td>4.8</td>
<td>Trash Rack Inclination to the Vertical</td>
<td>°</td>
<td></td>
<td></td>
<td>2.86</td>
<td>2.86</td>
</tr>
<tr>
<td>4.9</td>
<td>Rake guides inclination</td>
<td>-</td>
<td>1:20</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4.10</td>
<td>Rake free opening during lowering</td>
<td>mm</td>
<td>Min 1200</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4.11</td>
<td>Rake net capacity</td>
<td>tons</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.12</td>
<td>Rake hoisting speed (lifting)</td>
<td>m/min</td>
<td>0 to 5 m/min (if possible up to 10 m/min)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.13</td>
<td>Rake lowering speed</td>
<td>m/min</td>
<td>0 to 10 m/min (if possible up to 20 m/min)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.14</td>
<td>Max transverse speed during raking</td>
<td>m/min</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.15</td>
<td>Max transverse velocity design flood</td>
<td>m/min</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4.16</td>
<td>Traveling bucket width</td>
<td>m</td>
<td>4.6 ± 0.1 (including both pulleys width)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.17</td>
<td>Number of Intake vents</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4.18</td>
<td>Max. Hydraulic Operating Pressure</td>
<td>MPA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.19</td>
<td>Angle of Rotation of boom</td>
<td>°</td>
<td>270 degree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.20</td>
<td>Teeth Material of Rake</td>
<td></td>
<td>Wear resistance material</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.21</td>
<td>Trash Disposal System</td>
<td></td>
<td>Main and Spare Hydraulically operated Trolley</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.22</td>
<td>Weight of TRCM</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section VI. Scope of Supply and Specification

#### 5 Hydraulic Grappler

<table>
<thead>
<tr>
<th>5.1 Type of Hydraulic Grappler</th>
<th>Integrated with the Rack (bucket) of Hydraulic TRCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2 Lifting capacity</td>
<td>tons</td>
</tr>
<tr>
<td>5.3 Operation</td>
<td>Integrated with Hydraulic TRCM function</td>
</tr>
</tbody>
</table>

#### 6 Hoist Boom for Intake Stoplog handling

<table>
<thead>
<tr>
<th>6.1 Type of Hoist</th>
<th>Rope</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2 Hoisting capacity (as per attached drawing no. :437485-Intake Trash Rack Cleaner-Noell make)</td>
<td>ton</td>
</tr>
<tr>
<td>6.3 Max hoisting speed</td>
<td>m/min</td>
</tr>
<tr>
<td>6.4 Clear lifting height</td>
<td>m</td>
</tr>
</tbody>
</table>

#### 7 Hoist Boom for Under Sluice Stoplog handling

<table>
<thead>
<tr>
<th>7.1 Type of Hoist</th>
<th>Rope</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2 Hoist boom radius</td>
<td>m</td>
</tr>
<tr>
<td>7.3 Hoist boom rotation</td>
<td>°</td>
</tr>
<tr>
<td>7.4 Lower hook position</td>
<td>m a.s.l.</td>
</tr>
<tr>
<td>7.5 Max hoisting speed</td>
<td>m/min</td>
</tr>
</tbody>
</table>
### Section VI. Scope of Supply and Specification

<table>
<thead>
<tr>
<th>7.6</th>
<th>Grab net capacity</th>
<th>ton</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.7</td>
<td>Clear lifting height up to deck</td>
<td>m</td>
<td>22</td>
</tr>
</tbody>
</table>

#### Additional Data sought as follows:
- peak flow, Type of screen, Type of effluent, Existing Channel width, Existing channel depth, Upstream Water depth, upstream velocity, material of construction, anti corrosive epoxy coating max water level, sill level, floor level

Avg flow = 109 m$^3$/s  
Peak flow = 141 m$^3$/s, Type of screen = Hoist, Type of effluent = River ,  
Existing Channel width = 5 m,  
Existing channel depth = 12 m,  
Upstream Water depth = 10 m, upstream velocity (MAX) = 7.15 M/S ,  
Design velocity = 9.1 m/s, material of construction= MS,  
anti corrosive epoxy coating = 300 microns, Max. Water level= 524 Msl  
Sill level= 505 Msl  
Floor or deck level= 526 Msl

- The proposed Trash Rack Raking Machine shall be compatible to given intake trash rack bar specifications

<table>
<thead>
<tr>
<th>8</th>
<th>Anti-collision mechanism</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Weight of integrated machine</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Max. Wheel load</td>
<td></td>
</tr>
</tbody>
</table>
Section VI. Scope of Supply and Specification

<table>
<thead>
<tr>
<th>S.No.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>EXISTING DATA</th>
<th>PROJECT REQUIREMENT</th>
<th>BIDDER’S OFFER</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Electricity supply</td>
<td></td>
<td>380/220 V, 50 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Concept design/ sketch of Machine</td>
<td></td>
<td>To be submitted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Manufacturer’s valid ISO 9001 Certificate for design, manufacturing &amp; installation of TCRM</td>
<td></td>
<td>To be submitted</td>
<td>To be submitted</td>
<td>To be submitted</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Manufacturer’s authorization</td>
<td></td>
<td>To be submitted</td>
<td>To be submitted</td>
<td>To be submitted</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>End user's Certificates</td>
<td></td>
<td>To be submitted</td>
<td>To be submitted</td>
<td>To be submitted</td>
<td></td>
</tr>
</tbody>
</table>

B. Intake Trash Rack Bar Specifications (Existing):

<table>
<thead>
<tr>
<th>S.No.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>EXISTING DATA</th>
<th>PROJECT REQUIREMENT</th>
<th>BIDDER’S OFFER</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clear Width (each panel/column)</td>
<td>m</td>
<td>4.85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Clear Height (each panel)</td>
<td>m</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Total Height (4 panel/row X 3)</td>
<td>m</td>
<td>12 (526m-514m)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Total Width (15 columns X 4.85)</td>
<td>M</td>
<td>72.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Clear with between Two Rack bars</td>
<td>mm</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Weight of the each panel (3 m x 4.85 m)</td>
<td>Tons</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Design water velocity</td>
<td>m/s</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Bottom Sill Level</td>
<td>M</td>
<td>514</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Design Pressure at sill</td>
<td>Mwc</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Inclination</td>
<td>°</td>
<td>2.86</td>
<td></td>
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</tr>
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</table>

The proposed Trash Rack Raking Machine shall be compatible to given intake trash rack bar specifications.
### C. Intake Under-Sluice Stoplog.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>EXISTING DATA</th>
<th>PROJECT REQUIREMENT</th>
<th>BIDDER’S OFFER</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manufacturer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Country of Origin</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Weight</td>
<td></td>
<td></td>
<td>As per Drawings 437261 and 437262.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Material &amp; Dimension of Intake under-sluice stoplog</td>
<td>-</td>
<td>-</td>
<td>As per Drawings 437261 and 437262.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Material &amp; dimension of Lifting beam</td>
<td></td>
<td></td>
<td>As per Drawing no. 436794/1 of existing Lifting Beam</td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>Manufacturer’s valid ISO 9001 Certificate for manufacturing</td>
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<td></td>
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<tr>
<td>7</td>
<td>Manufacturer’s authorization</td>
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<td>To be submitted</td>
<td>To be submitted</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>End user's Certificates</td>
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<td>To be submitted</td>
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### D. Training and Inspections Required

<table>
<thead>
<tr>
<th>S.No.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>EXISTING DATA</th>
<th>PROJECT REQUIREMENT</th>
<th>BIDDER’S OFFER</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Training Services-Trash Rack Raking Machine and Trash Removal System</td>
<td>10 persons – 1 Week/KGA Power Plant Dam site</td>
<td>15 persons – 1 Week/KGA Power Plant Dam site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Inspection Services-New Trash Rack Raking Machine and Trash Removal System</td>
<td>4 Persons – 1 Week/Supplier Workshop</td>
<td>6 Persons – 1 Week/Supplier Workshop</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Design Criteria

The two TRRMs (the existing one and the new one) shall be able to operate on the same rails covering the entire length of the trash rack. The TRRMs shall be able to translate on the rail in a coordinated way as per the technical solution proposed by the Contractor. The new TRRM shall be able to perform the trash removal on one slot and move to others automatically and alert in case of presence of any floating material that prevent the correct machine work. The contractor shall describe in details the safety systems and the performed strategies in case of any foreseeable working situation.

The contractor shall propose his best option to solve the trash removal problem. In any case it is intended that the proposal must comply with the following needs:

1) The new TRRM shall be equipped by a hoist to remove voluminous floating materials, or to lift and lower the under-sluice stoplogs.
2) The new TRRM shall operate automatically and, in case of no voluminous objects present on the trash rack, it shall move at its proper speed.

Anti-collision device shall be installed to prevent the interference between the new TRRM and the existing one.
3) It will be possible to manually operate the new TRRM, using it for normal trash removing (using the new trash removal system) and for floating objects removing or stoplogs handling (using the hoist boom).

Detailed technical specifications

The TRRM shall be used for three different aims:

1) Automatic trash removal
2) Manually operated both to lift floating material in front of the trash racks (using hoist boom) and to manually remove trash if needed.
3) Manually operated to handle the under-sluice stoplogs.

The first aim shall be normally performed by the new TRRs, and an appropriate safety system shall be adopted in order to optimize their action also in case of presence of floating material that inhibit the possibility of working of one of the two TRRM.

Anyway the two TRRMs shall be able to operate, both at a time, also in case of overloads of trashes on the trash racks.

In this case the TRRM shall interrupt the raking action in the specific slot and move to the following slot, giving an alert message to the control room. If the problem should persist even in the following positions, the TRRM shall stop in a safe position (in order to avoid any interference with the other TRRMs) until an operator will manually operate to remove the problem.

The procedure for manually operate the TRRM to clear the trash racks from any floating material, shall be supplied by the contractor, shall be as easy as possible and safe proof.

Workshop tests

Workshop tests shall be carried out on materials and components and the raking machine and trash removal system shall be completely preassembled.

Site Tests

Site test shall be performed to verify the conformance with the design data, particularly all the operation speeds and automatic operation.

New Trash rack Raking Machine and Trash Removal System Spare Parts

The Sub-Contractor shall supply the spare parts listed here below:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Description</th>
<th>Qty.</th>
<th>Unit Rate ( USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>New Trash Rack Cleaning Machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Seals for Hydraulic Cylinder</td>
<td>1 set</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Hydraulic Hose</td>
<td>1 set</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Rack teeth</td>
<td>1 set</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bearings for Long. drive motor</td>
<td>2 set</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Oil Seals for long drive motor</td>
<td>2 set</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Limit switches</td>
<td>2 set</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Solenoid operated direction control Valves</td>
<td>2 set</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Proximity Sensor</td>
<td>2 set</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Return line filter elements</td>
<td>1 set</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Pressure line filter Elements</td>
<td>1 set</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Complete Set of fuses</td>
<td>2 set</td>
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</tr>
<tr>
<td>12</td>
<td>Relay of each size and type</td>
<td>1 set</td>
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<tr>
<td>13</td>
<td>Complete set of lamps</td>
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<tr>
<td>14</td>
<td>Contactors of each size and type</td>
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<tr>
<td>15</td>
<td>Push buttons for each type used</td>
<td>3 Nos.</td>
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</tr>
<tr>
<td>16</td>
<td>Bolts and nuts for each type used</td>
<td>10%</td>
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</tr>
<tr>
<td>B</td>
<td>Under Sluice Stoplog Spare Parts &amp; tools</td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>Complete Gasket Set</td>
<td>1 Set</td>
<td></td>
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</table>
New Trash rack Raking Machine and Trash Removal System Special Tools

A complete set of maintenance tools shall be supplied, particularly all the special tools needed for ordinary and extraordinary maintenance.

Supply, installation, testing and commissioning of an intake under-sluice stoplog

Object and Scope of Work

The scope of work is the installation, testing and commissioning of an intake under-sluice stoplog.

Design Criteria

The new stop-log shall be compatible with the existing ones and the installed fixed parts.

Detailed technical specifications

For technical details, see the attached drawings 437261 and 437 262.

Stoplog Tests.

Workshop tests

Workshop tests shall be carried out on materials and components and the stoplog shall be shipped completely preassembled.

Site tests

After the installation, the contractor shall verify the perfect functionality of the new stoplog particularly for as regards it's smooth movement along its guides and the water tightness. According to the international standards, the leaks should not exceed: 01 liter/sec per linear meter of seal perimeter.

Under-sluice stoplog Spare Parts

A complete gasket set shall be supplied.
Training and Inspections required

The Contractor shall supply training services to allow NEA staff to learn the correct usage and working of the specified supplied systems:

<table>
<thead>
<tr>
<th>Item n.</th>
<th>Description</th>
<th>Persons to be trained and time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Trash Rack Raking Machine and trash removal system</td>
<td>15 persons – 1 Week</td>
<td>KGA Power Plant Dam site</td>
</tr>
</tbody>
</table>

The Contractor shall also allow the inspections that the employers may decide to carry on the specified items as follows:

<table>
<thead>
<tr>
<th>Item n.</th>
<th>Description</th>
<th>Persons to be trained and time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>New Trash Rack Raking Machine and trash removal system</td>
<td>6 Persons – 1 Week</td>
<td>Supplier Workshop</td>
</tr>
</tbody>
</table>
Forms and Procedures

Form of Completion Certificate

Form of Operational Acceptance Certificate

Change Order Procedure and Forms

Change Order Procedure

Annex 1. Request for Change Proposal

Annex 2. Estimate for Change Proposal

Annex 3. Acceptance of Estimate

Annex 4. Change Proposal

Annex 5. Change Order

Annex 6. Pending Agreement Change Order

Annex 7. Application for Change Proposal
Form of Completion Certificate

Date: __________________
Loan/Credit N°: __________________
IFB N°: __________________

To: ____________________________

Dear Ladies and/or Gentlemen,

Pursuant to GC Clause 24 (Completion of the Facilities) of the General Conditions of the Contract entered into between yourselves and the Employer dated __________, relating to the __________________, 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:
______________________________

2. Date of Completion: _____________

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 in accordance with the Contract nor of your obligations during the Defect Liability Period.

Very truly yours,

Title
(Project Manager)
Form of Operational Acceptance Certificate

Date: ______________________
Loan/Credit No: ______________
IFB No: _____________________

To: ____________________________________________

Dear Ladies and/or Gentlemen,

Pursuant to GC Sub-Clause 25.3 (Operational Acceptance) of the General Conditions of the Contract entered into between yourselves and the Employer dated ____________, relating to the ____________________________, 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: ____________________________

2. Date of Operational Acceptance: ____________________________

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 Defect Liability Period.

Very truly yours,

____________________________________
Title
(Project Manager)
Change Order Procedure and Forms

CONTENTS

1. General
2. Change Order Log
3. References for Changes

ANNEXES

Annex 1 Request for Change Proposal
Annex 2 Estimate for Change Proposal
Annex 3 Acceptance of Estimate
Annex 4 Change Proposal
Annex 5 Change Order
Annex 6 Pending Agreement Change Order
Annex 7 Application for Change Proposal
Change Order Procedure

1. General

This section provides samples of procedures and forms for implementing changes in the Facilities during the performance of the Contract in accordance with GC Clause 39 (Change in the Facilities) of the General Conditions.

2. Change Order Log

The Contractor shall keep an up-to-date Change Order Log to show the current status of Requests for Change and Changes authorized or pending, as Annex 8. Entries of the Changes in the Change Order Log shall be made to ensure that the log is up-to-date. The Contractor shall attach a copy of the current Change Order Log in the monthly progress report to be submitted to the Employer.

3. References for Changes

(1) Request for Change as referred to in GC Clause 39 shall be serially numbered CR-X-nnn.

(2) Estimate for Change Proposal as referred to in GC Clause 39 shall be serially numbered CN-X-nnn.

(3) Acceptance of Estimate as referred to in GC Clause 39 shall be serially numbered CA-X-nnn.

(4) Change Proposal as referred to in GC Clause 39 shall be serially numbered CP-X-nnn.

(5) Change Order as referred to in GC Clause 39 shall be serially numbered CO-X-nnn.

Note: (a) Requests for Change issued from the Employer’s Home Office and the Site representatives of the Employer shall have the following respective references:

Home Office  CR-H-nnn
Site          CR-S-nnn

(b) The above number “nnn” is the same for Request for Change, Estimate for Change Proposal, Acceptance of Estimate, Change Proposal and Change Order.
Annex 1. Request for Change Proposal

(Employer’s Letterhead)

To: ______________________________  Date: ________________

Attention: ______________________________

Contract Name: ______________________________
Contract Number: ______________________________

Dear Ladies and/or Gentlemen:

With reference to the captioned Contract, you are requested to prepare and submit a Change Proposal for the Change noted below in accordance with the following instructions within ________________ days of the date of this letter ________________.

1. Title of Change: ______________________________

2. Change Request No. __________________

3. Originator of Change: Employer: ______________________________
   Contractor (by Application for Change Proposal No. ______ 6).

4. Brief Description of Change: ______________________________

5. Facilities and/or Item No. of equipment related to the requested Change: ________________

6. Reference drawings and/or technical documents for the request of Change:

<table>
<thead>
<tr>
<th>Drawing No./Document No.</th>
<th>Description</th>
</tr>
</thead>
</table>

7. Detailed conditions or special requirements on the requested Change: ________________

8. General Terms and Conditions:

   (a) Please submit your estimate to us showing what effect the requested Change will have on the Contract Price.
(b) Your estimate shall include your claim for the additional time, if any, for completion of the requested Change.

(c) If you have any opinion negative to the adoption of the requested Change in connection with the conformability to the other provisions of the Contract or the safety of the Plant or Facilities, please inform us of your opinion in your proposal of revised provisions.

(d) Any increase or decrease in the work of the Contractor relating to the services of its personnel shall be calculated.

(e) You shall not proceed with the execution of the work for the requested Change until we have accepted and confirmed the amount and nature in writing.

________________________________________________________________________

(Employer’s Name)

________________________________________________________________________

(Signature)

________________________________________________________________________

(Name of signatory)

________________________________________________________________________

(Title of signatory)
Annex 2. Estimate for Change Proposal

(Contractor’s Letterhead)

To: ____________________________  Date: ________________

Attention: ____________________________

Contract Name: ____________________________
Contract Number: ____________________________

Dear Ladies and/or Gentlemen:

With reference to your Request for Change Proposal, we are pleased to notify you of the approximate cost of preparing the below-referenced Change Proposal in accordance with GC Sub-Clause 39.2.1 of the General Conditions. We acknowledge that your agreement to the cost of preparing the Change Proposal, in accordance with GC Sub-Clause 39.2.2, is required before estimating the cost for change work.

1. Title of Change: ____________________________

2. Change Request No./Rev.: ____________________________

3. Brief Description of Change: ____________________________

4. Scheduled Impact of Change: ____________________________

5. Cost for Preparation of Change Proposal: ________________

   (a) Engineering  (Amount)

   (i) Engineer  _____ hrs x _____ rate/hr = _____

   (ii) Draftsperson  _____ hrs x _____ rate/hr = _____

   Sub-total  _____ hrs  _____

   Total Engineering Cost  _____

   (b) Other Cost  _____

   Total Cost (a) + (b)  _____

---

7 Costs shall be in the currencies of the Contract.
(Contractor’s Name)

(Signature)

(Name of signatory)

(Title of signatory)
Annex 3. Acceptance of Estimate

(Employer’s Letterhead)

To: __________________________ Date: ______________

Attention: __________________________

Contract Name: __________________________
Contract Number: __________________________

Dear Ladies and/or Gentlemen:

We hereby accept your Estimate for Change Proposal and agree that you should proceed with the preparation of the Change Proposal.

1. Title of Change: __________________________

2. Change Request No./Rev.: __________________________

3. Estimate for Change Proposal No./Rev.: __________________________

4. Acceptance of Estimate No./Rev.: __________________________

5. Brief Description of Change: __________________________

6. Other Terms and Conditions: In the event that we decide not to order the Change accepted, you shall be entitled to compensation for the cost of preparation of Change Proposal described in your Estimate for Change Proposal mentioned in para. 3 above in accordance with GC Clause 39 of the General Conditions.

________________________________________

(Employer’s Name)

________________________________________

(Signature)

________________________________________

(Name and Title of signatory)
Annex 4. Change Proposal

(Contractor’s Letterhead)

To: ___________________________  Date: ________________

Attention: ___________________________

Contract Name: ___________________________
Contract Number: ___________________________

Dear Ladies and/or Gentlemen:

In response to your Request for Change Proposal No. ___________________________, we hereby submit our proposal as follows:

1. Title of Change: ___________________________

2. Change Proposal No./Rev.: ___________________________

3. Originator of Change: Employer: / ___________________________
   Contractor: ___________________________

4. Brief Description of Change: ___________________________

5. Reasons for Change: ___________________________

6. Facilities and/or Item No. of Equipment related to the requested Change: ___________________________

7. Reference drawings and/or technical documents for the requested Change:

   Drawing/Document No.  Description

8. Estimate of increase/decrease to the Contract Price resulting from Change Proposal:  
   (Amount)
   
   (a) Direct material  ___________________________
   
   (b) Major construction equipment  ___________________________
   
   (c) Direct field labor (Total ____ hrs)  ___________________________

---

8 Costs shall be in the currencies of the Contract.
Section VI. Scope of Supply and Specification

(d) Subcontracts

(e) Indirect material and labor

(f) Site supervision

(g) Head office technical staff salaries

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Process engineer</td>
<td>hrs</td>
<td>rate/hr</td>
</tr>
<tr>
<td>Project engineer</td>
<td>hrs</td>
<td>rate/hr</td>
</tr>
<tr>
<td>Equipment engineer</td>
<td>hrs</td>
<td>rate/hr</td>
</tr>
<tr>
<td>Procurement</td>
<td>hrs</td>
<td>rate/hr</td>
</tr>
<tr>
<td>Draftsperson</td>
<td>hrs</td>
<td>rate/hr</td>
</tr>
<tr>
<td>Total</td>
<td>hrs</td>
<td></td>
</tr>
</tbody>
</table>

(h) Extraordinary costs (computer, travel, etc.)

(i) Fee for general administration, ____ % of Items

(j) Taxes and customs duties

Total lump sum cost of Change Proposal

(Sum of items (a) to (j))

Cost to prepare Estimate for Change Proposal

(Amount payable if Change is not accepted)

9. Additional time for Completion required due to Change Proposal

10. Effect on the Functional Guarantees

11. Effect on the other terms and conditions of the Contract

12. Validity of this Proposal: within [Number] days after receipt of this Proposal by the Employer

13. Other terms and conditions of this Change Proposal:

(a) You are requested to notify us of your acceptance, comments or rejection of this detailed Change Proposal within ____________ days from your receipt of this Proposal.

(b) The amount of any increase and/or decrease shall be taken into account in the adjustment of the Contract Price.

(c) Contractor’s cost for preparation of this Change Proposal:²

² Specify where necessary.
(Contractor’s Name)

(Signature)

(Name of signatory)

(Title of signatory)
Annex 5. Change Order

(Employer’s Letterhead)

To: ___________________________ Date: _______________

Attention: ___________________________

Contract Name: ___________________________
Contract Number: ___________________________

Dear Ladies and/or Gentlemen:

We approve the Change Order for the work specified in the Change Proposal (No. _______), and agree to adjust the Contract Price, Time for Completion and/or other conditions of the Contract in accordance with GC Clause 39 of the General Conditions.

1. Title of Change: ___________________________

2. Change Request No./Rev.: ___________________________

3. Change Order No./Rev.: ___________________________

4. Originator of Change: Employer: ___________________________
   Contractor: ___________________________

5. Authorized Price:

   Ref. No.: ___________________________ Date: _______________
   Foreign currency portion _______ plus Local currency portion _______

6. Adjustment of Time for Completion

   None Increase ________ days Decrease ________
   days

7. Other effects, if any

Authorized by: ___________________________ Date: _______________
   (Employer)

Accepted by: ___________________________ Date: _______________
   (Contractor)
Annex 6. Pending Agreement Change Order

(Employer’s Letterhead)

To: ___________________________ Date: ______________

Attention: ______________________

Contract Name: ____________________
Contract Number: __________________

Dear Ladies and/or Gentlemen:

We instruct you to carry out the work in the Change Order detailed below in accordance with GC Clause 39 of the General Conditions.

1. Title of Change: ______________________

2. Employer’s Request for Change Proposal No./Rev.: ______________________ dated: _________

3. Contractor’s Change Proposal No./Rev.: ______________________ dated: _________

4. Brief Description of Change: ______________________

5. Facilities and/or Item No. of equipment related to the requested Change: ______________________

6. Reference Drawings and/or technical documents for the requested Change:

<table>
<thead>
<tr>
<th>Drawing/Document No.</th>
<th>Description</th>
</tr>
</thead>
</table>

7. Adjustment of Time for Completion:

8. Other change in the Contract terms:

9. Other terms and conditions:
Section VI. Scope of Supply and Specification

(Employer’s Name)

(Signature)

(Name of signatory)

(Title of signatory)
Annex 7. Application for Change Proposal

(Contractor’s Letterhead)

To: ___________________________ Date: _________________

Attention: ______________________

Contract Name: __________________
Contract Number: __________________

Dear Ladies and/or Gentlemen:

We hereby propose that the below-mentioned work be treated as a Change in the Facilities.

1. Title of Change: ___________________________


3. Brief Description of Change: ___________________________

4. Reasons for Change:

5. Order of Magnitude Estimation (in the currencies of the Contract):

6. Scheduled Impact of Change:

7. Effect on Functional Guarantees, if any:

8. Appendix:

________________________________________

(Contractor’s Name)

________________________________________

(Signature)

________________________________________

(Name of signatory)

________________________________________

(Title of signatory)
## Drawings

<table>
<thead>
<tr>
<th>Item</th>
<th>Drawing number</th>
<th>Drawing supplier</th>
<th>Document Title Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>437485</td>
<td>Noell</td>
<td>Existing Intake Trash rack cleaner</td>
</tr>
<tr>
<td>02</td>
<td>437261</td>
<td>Noell</td>
<td>Undersluice_Stoplog Panel</td>
</tr>
<tr>
<td>03</td>
<td>437262</td>
<td>Noell</td>
<td>Undersluice_Stoplog Sealings</td>
</tr>
<tr>
<td>04</td>
<td>436794/1</td>
<td>Noell</td>
<td>Lifting beam for Undersluice Stoplog</td>
</tr>
<tr>
<td>05</td>
<td></td>
<td>Noell</td>
<td>Section View of Intake Structure</td>
</tr>
</tbody>
</table>
Supplementary Information

None
PART 3 – Conditions of Contract and Contract Forms
## Section VII. General Conditions (GC)

**Table of Clauses**

### A. Contract and Interpretation

1. Definitions ................................................................. 174
2. Contract Documents ......................................................... 177
3. Interpretation ................................................................. 177
4. Communications .............................................................. 179
5. Law and Language ............................................................. 179
6. Fraud and Corruption ....................................................... 179

### B. Subject Matter of Contract

7. Scope of Facilities .......................................................... 1800
8. Time for Commencement and Completion .......................... 1822
9. Contractor’s Responsibilities ............................................ 182
10. Employer’s Responsibilities .............................................. 1833

### C. Payment

11. Contract Price ............................................................. 185
12. Terms of Payment .......................................................... 185
13. Securities ........................................................................ 1866
14. Taxes and Duties ............................................................ 1877

### D. Intellectual Property

15. License/Use of Technical Information .............................. 188
16. Confidential Information .................................................. 188

### E. Execution of the Facilities

17. Representatives ............................................................. 189
18. Work Program ............................................................... 191
19. Subcontracting ............................................................... 193
20. Design and Engineering .................................................. 194
21. Procurement ................................................................. 196
22. Installation ..................................................................... 198
23. Test and Inspection ........................................................ 206
24. Completion of the Facilities ............................................ 208
25. Commissioning and Operational Acceptance .................... 210

### F. Guarantees and Liabilities

26. Completion Time Guarantee ............................................ 213
27. Defect Liability ................................................................................................................. 214
28. Functional Guarantees ................................................................................................. 216
29. Patent Indemnity ........................................................................................................... 217
30. Limitation of Liability ................................................................................................. 218

G. Risk Distribution .......................................................................................................... 219
31. Transfer of Ownership ................................................................................................. 219
32. Care of Facilities ........................................................................................................... 219
33. Loss of or Damage to Property; Accident or Injury to Workers; Indemnification ......... 221
34. Insurance ...................................................................................................................... 222
35. Unforeseen Conditions ................................................................................................. 224
36. Change in Laws and Regulations ................................................................................ 226
37. Force Majeure ................................................................................................................ 226
38. War Risks ....................................................................................................................... 227

H. Change in Contract Elements ...................................................................................... 229
39. Change in the Facilities ................................................................................................. 229
40. Extension of Time for Completion ............................................................................... 232
41. Suspension .................................................................................................................... 234
42. Termination .................................................................................................................... 235
43. Assignment .................................................................................................................... 242
44. Export Restrictions ...................................................................................................... 242

I. Claims, Disputes and Arbitration ................................................................................. 243
45. Contractor’s Claims ...................................................................................................... 243
46. Disputes and Arbitration .............................................................................................. 244
General Conditions

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.


“GC” means the General Conditions hereof.

“PC” means the Particular Conditions.

“day” means calendar day.

“year” means 365 days.

“month” means calendar month.

“Party” means the Employer or the Contractor, as the context requires, and “Parties” means both of them.

“Employer” means the person named as such in the PC 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 GC Sub-Clause 17.1 (Project Manager) hereof and named as such in the PC 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 Contractor 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 GC Sub-Clause 17.2 (Contractor’s Representative and Construction Manager) hereof to perform the duties delegated by the Contractor.

“Construction Manager” means the person appointed by the Contractor’s Representative in the manner provided in GC Sub-
Clause 17.2.4.

“Subcontractor,” including manufacturers, means any person to whom execution of any part of the Facilities, including preparation of any design or supply of any Plant, is subcontracted directly or indirectly by the Contractor, and includes its legal successors or permitted assigns.

“Dispute Board” (DB) means the person or persons named as such in the PC appointed by agreement between the Employer and the Contractor to make a decision with respect to any dispute or difference between the Employer and the Contractor referred to him or her by the Parties pursuant to GC Sub-Clause 46.1 (Dispute Board) hereof.

“The Bank” means the financing institution named in the PC.

“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 therefrom, as may be made pursuant to the Contract.

“Facilities” means the Plant to be supplied and installed, as well as all the Installation Services to be carried out by the Contractor under the Contract.

“Plant” means permanent plant, equipment, machinery, apparatus, materials, 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 GC 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 for the Facilities, to be provided by the Contractor under the Contract, such as 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, precommissioning, commissioning, operations, maintenance, the provision of operations and maintenance manuals, training, etc… as the case may require.

“Contractor’s Equipment” means all 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, or other things intended to form or forming part of the Facilities.
“Country of Origin” means the countries and territories eligible under the rules of the Bank as further **elaborated in the PC**.

“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 of fulfillment of all conditions stated in Article 3 (Effective Date) of the Contract Agreement, from which the Time for Completion shall be counted.

“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, as referred to in GC Clause 8 and in accordance with the relevant provisions of the Contract.

“Completion” means that the Facilities (or a specific part thereof where specific parts are specified in the Contract) have been completed operationally and structurally and put in a tight and clean condition, that all work in respect of Precommissioning of the Facilities or such specific part thereof has been completed, and that the Facilities or specific part thereof are ready for Commissioning as provided in GC Clause 24 (Completion) hereof.

“Precommissioning” means the testing, checking and other requirements specified in the Employer’s Requirements that are to be carried out by the Contractor in preparation for Commissioning as provided in GC Clause 24 (Completion) hereof.

“Commissioning” means operation of the Facilities or any part thereof by the Contractor following Completion, which operation is to be carried out by the Contractor as provided in GC 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 Employer’s Requirements to be carried out to ascertain whether the Facilities or a specified part thereof is able to attain the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees, in accordance with the provisions of GC 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 fulfillment of the Contract in respect of Functional Guarantees of the Facilities (or the relevant part thereof) in accordance with the provisions of GC Clause 28.
(Functional Guarantees) hereof and shall include deemed acceptance in accordance with GC 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 GC Clause 27 (Defect Liability) hereof.

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.

3. **Interpretation**

3.1 In the Contract, except where the context requires otherwise:

(a) words indicating one gender include all genders;

(b) words indicating the singular also include the plural and words indicating the plural also include the singular;

(c) provisions including the word “agree,” “agreed,” or “agreement” require the agreement to be recorded in writing;

(d) the word “tender” is synonymous with “bid,” “tenderer,” with “bidder,” and “tender documents” with “bidding documents,” and

(e) “written” or “in writing” means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

3.2 **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.

3.4 **Entire Agreement**

Subject to GC 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.

3.5 Amendment

No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each Party hereto.

3.6 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.

3.7 Non-Waiver

3.7.1 Subject to GC Sub-Clause 3.7.2 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.

3.7.2 Any waiver of a Party’s rights, powers or remedies under the Contract must be in writing, must be 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.

3.8 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.
3.9 **Country of Origin**

“Origin” means the place where the plant and component parts thereof are mined, grown, produced or manufactured, and from which the services are provided. Plant components are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that is substantially in its basic characteristics or in purpose or utility from its components.

4. **Communications**

4.1 Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

(a) in writing and delivered against receipt; and

(b) delivered, sent or transmitted to the address for the recipient’s communications as stated in the Contract Agreement.

When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Project Manager, a copy shall be sent to the Project Manager or the other Party, as the case may be.

5. **Law and Language**

5.1 The Contract shall be governed by and interpreted in accordance with laws of the country specified in the PC.

5.2 The ruling language of the Contract shall be that stated in the PC.

5.3 The language for communications shall be the ruling language unless otherwise stated in the PC.

6. **Fraud and Corruption**

6.1 If the Employer determines that the Contractor and/or any of its personnel, or its agents, or its Subcontractors, subconsultants, services providers, suppliers and/or their employees has engaged in corrupt, fraudulent, collusive coercive, or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site, and the provisions of Clause 42 shall apply as if such expulsion had been made under Sub-Clause 42.2.1 (c).

For the purposes of this Sub-Clause,
(i) “corrupt practice” is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;  

(ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;  

(iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;  

(iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;  

(v) “obstructive practice” is  

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or 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  

(bb) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under Sub-Clause 9.8.

Subject Matter of Contract

7. Scope of Facilities

7.1 Unless otherwise expressly limited in the Employer’s Requirements, the Contractor’s obligations cover the provision of all Plant and the performance of all Installation Services required for the design, and the manufacture (including

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9 “Another party” refers to a public official acting in relation to the procurement process or contract execution. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

10 “Party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

11 “Parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

12 “Party” refers to a participant in the procurement process or contract execution.
procurement, quality assurance, construction, installation, associated civil works, Precommissioning and delivery) of the Plant, and the installation, completion and commissioning of the Facilities in accordance with the plans, procedures, specifications, drawings, codes and any other documents as specified in the Section, Employer’s Requirements. Such specifications include, but are not limited to, the provision of supervision and engineering services; the supply of labor, materials, equipment, spare parts (as specified in GC 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 the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer.

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.

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 for the period specified in the PC and the provisions, if any, specified in the PC. 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.
8. Time for Commencement and Completion

8.1 The Contractor shall commence work on the Facilities within the period specified in the PC and without prejudice to GC Sub-Clause 26.2 hereof, the Contractor shall thereafter proceed with the Facilities in accordance with the time schedule specified in the Appendix to the Contract Agreement titled Time Schedule.

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 PC or within such extended time to which the Contractor shall be entitled under GC Clause 40 hereof.

9. Contractor’s Responsibilities

9.1 The Contractor shall design, manufacture including associated purchases and/or subcontracting, install and complete the Facilities in accordance with the Contract. When completed, the Facilities should be fit for the purposes for which they are intended as defined in 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 including any data as to boring tests 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 of the date twenty-eight (28) days prior to 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 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 Contractor to obtain in its name and which 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 GC 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 to be implemented. The laws will include all local, state, national 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 laws by the Contractor or its personnel, including the Subcontractors and their personnel, but without prejudice to GC Sub-Clause 10.1 hereof.

9.5 Any Plant and Installation Services that will be incorporated in or be required for the Facilities and other supplies shall have their origin as specified under GC Clause 1 (Country of Origin). Any subcontractors retained by the Contractor shall be from a country as specified in GC Clause 1 (Country of Origin).

9.6 The Contractor shall permit the Bank to inspect the Contractor’s accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Bank, if so required by the Bank.

9.7 If the Contractor is a joint venture, or association (JVA) of two or more persons, all such persons shall be jointly and severally bound to the Employer for the fulfillment of the provisions of the Contract, unless otherwise specified in the PC, and shall designate one of such persons to act as a leader with authority to bind the JVA. The composition or the constitution of the JVA shall not be altered without the prior consent of the Employer.

9.8 The Contractor shall permit, and shall cause its Subcontractors and subconsultants to permit, the Bank and/or persons appointed by the Bank to inspect the Site and all accounts and records relating to the performance of the Contract and the submission of the Bid, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Contractor’s and its Subcontractors’ and subconsultants’ attention is drawn to Sub-Clause 6.1 [Fraud and Corruption] which provides, inter alia, that acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under Sub-Clause 9.8 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank’s prevailing sanctions procedures).

10. Employer’s Responsibilities

10.1 All information and/or data to be supplied by the Employer as described in the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer, shall be deemed to be accurate, except when the Employer expressly states otherwise.

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 the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer. The Employer shall give full possession of and accord all rights of access thereto on or before the date(s) specified in that Appendix.

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 (a) such authorities or undertakings require the Employer to obtain in the Employer’s name, (b) are necessary for the execution of the Contract, including those required for the performance by both the Contractor and the Employer of their respective obligations under the Contract, and (c) are specified in the Appendix (Scope of Works and Supply by the Employer).

10.4 If requested by the Contractor, the Employer shall use its best endeavors 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, including those required by the Contractor to properly carry out Precommissioning, Commissioning and Guarantee Tests, all in accordance with the provisions of the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer, at or before the time specified in the program furnished by the Contractor under GC Sub-Clause 18.2 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 GC Sub-Clause 24.8, and shall be responsible for facilitating the Guarantee Test(s) for the Facilities, in accordance with GC Sub-Clause 25.2.

10.7 All costs and expenses involved in the performance of the
10.8 In the event that the Employer shall be in breach of any of his obligations under this Clause, the additional cost incurred by the Contractor in consequence thereof shall be determined by the Project Manager and added to the Contract Price.

Payment

11. Contract Price

11.1 The Contract Price shall be as specified in Article 2 (Contract Price and Terms of Payment) of the Contract Agreement.

11.2 Unless an adjustment clause is provided for in the PC, the Contract Price shall be a firm lump sum not subject to any alteration, except in the event of a Change in the Facilities or as otherwise provided in the Contract.

11.3 Subject to GC Sub-Clauses 9.2, 10.1 and 35 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 Article 2 (Contract Price and Terms of Payment) of the Contract Agreement and in the Appendix to the Contract Agreement titled Terms and Procedures of Payment, which also outlines the procedures to be followed in making application for and processing payments.

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 In the event that the Employer fails to make any payment by its respective due date or within the period set forth in the Contract, the Employer shall pay to the Contractor interest on the amount of such delayed payment at the rate(s) shown in the Appendix to the Contract Agreement titled Terms and Procedures of Payment, for the period of delay until payment has been made in full, whether before or after judgment or arbitrage award.

12.4 The currency or currencies in which payments are made to the Contractor under this Contract shall be specified in the Appendix to the Contract Agreement titled Terms and Procedures of Payment, 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.

13. Securities

13.1 Issuance of Securities

The Contractor shall provide the securities specified below in
favor 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 contract award, provide a security in an
amount equal to the advance payment calculated in
accordance with the Appendix to the Contract Agreement
titled Terms and Procedures of Payment, and in the same
currency or currencies.

13.2.2 The security shall be in the form provided in the
bidding documents or in another form acceptable to the
Employer. The amount of the security shall be reduced in
proportion to the value of the Facilities executed by and
paid to the Contractor from time to time, and shall
automatically become null and void when the full amount
of the advance payment has been recovered by the
Employer. The security shall be returned to the
Contractor immediately after its expiration.

13.3 Performance Security

13.3.1 The Contractor shall, within twenty-eight (28) days of
the notification of contract award, provide a security for
the due performance of the Contract in the amount
specified in the PC.

13.3.2 The performance security shall be denominated in the
currency or currencies of the Contract, or in a freely
convertible currency acceptable to the Employer, and
shall be in the form provided in Section IX, Contract
Forms, corresponding to the type of bank guarantee
stipulated by the Employer in the PC, or in another form
acceptable to the Employer.

13.3.3 Unless otherwise specified in the PC, the security shall
be reduced by half on the date of the Operational
Acceptance. The Security shall become null and void, or
shall be reduced pro rata to the Contract Price of a part of
the Facilities for which a separate Time for Completion is
provided, five hundred and forty (540) days after
Completion of the Facilities or three hundred and sixty
five (365) days after Operational Acceptance of the
Facilities, whichever occurs first; provided, however, that if the Defects Liability Period has been extended on any part of the Facilities pursuant to GC 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 GC Sub-Clause 27.10, is liable for an extended defect liability obligation, the performance security shall be extended for the period specified in the PC pursuant to GC Sub-Clause 27.10 and up to the amount specified in the PC.

13.3.4 The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract. The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

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 Subcontractors 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.

14.2 Notwithstanding GC Sub-Clause 14.1 above, the Employer shall bear and promptly pay

(a) all customs and import duties for the Plant specified in Price Schedule No. 1; and

(b) other domestic taxes such as, sales tax and value added tax (VAT) on the Plant specified in Price Schedules No. 1 and No. 2 and that is to be incorporated into the Facilities, and on the finished goods, imposed by the law of the country where the Site is located.

14.3 If any tax exemptions, reductions, allowances or privileges may be available to the Contractor in the country where the Site is located, the Employer shall use its best endeavors 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 at the date twenty-eight
(28) days prior to the date of bid submission in the country where the Site is located (hereinafter called “Tax” in this GC 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, Subcontractors or their employees 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 GC Clause 36 hereof.

### Intellectual Property

15. **License/Use of Technical Information**

15.1 For the operation and maintenance of the Plant, the Contractor hereby grants a non-exclusive and non-transferable license (without the right to sub-license) to the Employer under the patents, utility models or other industrial property rights owned by the Contractor or by a third Party from whom the Contractor has received the right to grant licenses thereunder, and shall also grant to the Employer a non-exclusive and non-transferable right (without the right to sub-license) to use the know-how and other technical information disclosed to the Employer under the Contract. Nothing contained herein shall be construed as transferring ownership of any patent, utility model, trademark, design, copyright, know-how or other intellectual property right from the Contractor or any third Party to the Employer.

15.2 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.

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 GC 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 of the Facilities. 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, construction or such other work and services as are required for the performance of the Contract.

16.3 The obligation of a Party under GC 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.

16.4 The above provisions of this GC 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 GC Clause 16 shall survive termination, for whatever reason, of the Contract.

**Execution of the Facilities**

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 Contractor without delay. No such appointment shall be made at such a time or in such a manner as to impede the progress of work on the Facilities. Such appointment shall only take effect upon receipt of such notice by the Contractor. The Project Manager shall represent and act for the Employer at all times during the performance 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.

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 If the Contractor’s Representative is not named in the Contract, then within fourteen (14) days of the Effective Date, the Contractor shall appoint the Contractor’s Representative and shall request the Employer in writing to approve the person so appointed. If the Employer makes no objection to the appointment within fourteen (14) days, the Contractor’s Representative shall be deemed to have been approved. If the Employer objects to the appointment within fourteen (14) days giving the reason therefor, then the Contractor shall appoint a replacement within fourteen (14) days of such objection, and the foregoing provisions of this GC 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 performance 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 consents thereto, the Contractor shall appoint some other person as the Contractor’s Representative, pursuant to the procedure set out in GC 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 GC Sub-Clause 17.2.3 shall be deemed to be an act or exercise by the Contractor’s Representative.

17.2.4 From the commencement of installation of the Facilities at the Site until Completion, the Contractor’s Representative shall appoint a suitable person 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 the Construction Manager’s 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 GC 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 GC Sub-Clause 17.2.5, the Contractor shall, where required, promptly appoint a replacement.

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 within twenty-one (21) days of the Effective Date. The chart shall include the identities of the key personnel and the curricula vitae of such key personnel to be employed shall be supplied together with the chart. 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 Effective Date, the Contractor shall submit to the Project Manager a detailed program of performance of the Contract, made in a form acceptable to the Project Manager and showing the sequence in which it proposes to design, manufacture, transport, assemble, install and precommission 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, Commissioning 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 the Appendix to the Contract Agreement titled Time Schedule, 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 specified in the PC pursuant to Sub-Clause 8.2 and any extension granted in accordance with GC 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 GC Sub-Clause 18.2 above, and supply a progress report to the Project Manager every month.

The progress report shall be in a form acceptable to the Project Manager and shall 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 GC Sub-Clause 18.2, 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 GC Sub-Clause 8.2, any extension thereof entitled under GC Sub-Clause 40.1, or any extended period as
may otherwise be agreed upon between the Employer and the Contractor.

18.5 Procedures

The Contract shall be executed in accordance with the Contract Documents including the procedures given in the Forms and Procedures of the Employer’s Requirements.

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.

19. Subcontracting

19.1 The Appendix to the Contract Agreement titled List of Major Items of Plant and Installation Services and List of Approved Subcontractors, specifies major items of supply or services and a list of approved Subcontractors against each item, including manufacturers. 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 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 GC Sub-Clause 19.1.

For items or parts of the Facilities not specified in the Appendix to the Contract Agreement titled List of Major Items of Plant and Installation Services and List of Approved Subcontractors, the Contractor may employ such Subcontractors as it may select, at its discretion.

Each sub-contract shall include provisions which would entitle the Employer to require the sub-contract to be assigned to the Employer under GC 19.5 (if and when applicable), or in event of termination by the Employer under GC 42.2.

If a sub-contractor's obligations extend beyond the expiry date of the relevant Defects Liability Period and the Project Manager, prior to that date, instructs the Contractor to assign the benefits of such obligations to the Employer, then the Contractor shall do so.
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.

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 twenty-eight (28) days prior to date of bid submission shall apply unless otherwise specified. During Contract execution, any changes in such codes and standards shall be applied subject to approval by the Employer and shall be treated in accordance with GC Clause 39.

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 the Appendix to the Contract Agreement titled List of Documents for Approval or Review, for its approval or review as specified and in accordance with the requirements of GC 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.

GC 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 fourteen (14) days after receipt by the Project Manager of any document requiring the Project Manager’s approval in accordance with GC 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.

If the Project Manager fails to take such action within the said fourteen (14) days, then the said document shall be deemed to have been approved by the Project Manager.

20.3.3 The Project Manager shall not disapprove any document, except on the grounds that the document does not comply with 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 GC Sub-Clause 20.3.2. If the Project Manager approves the document subject to modification(s), the Contractor shall make the required modification(s), whereupon the document shall be deemed to have been approved.

20.3.5 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 a Dispute Board for determination in accordance with GC Sub-Clause 46.1 hereof. If such dispute or difference is referred to a Dispute Board, 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 Dispute Board upholds the Contractor’s view on the dispute and if the Employer has not given notice under GC Sub-Clause 46.3 hereof, then the Contractor shall be reimbursed by the Employer 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 Dispute Board shall decide, and the Time for Completion shall be extended accordingly.

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 GC 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 GC Clause 39 shall apply to such request.

21. Procurement

21.1 Plant

Subject to GC Sub-Clause 14.2, the Contractor shall procure and transport all Plant in an expeditious and orderly manner to the Site.

21.2 Employer-Supplied Plant

If the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer, provides that the Employer shall furnish any specific items 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 GC Sub-Clause 18.2, 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 GC 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 GC Clause 27 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 materials and the Contractor’s Equipment to the Site by the mode of transport that the Contractor judges most suitable under all the circumstances.

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 materials and the Contractor’s Equipment.

21.3.3 Upon dispatch of each shipment of materials and the Contractor’s Equipment, the Contractor shall notify the Employer by telex, cable, facsimile or electronic means, of the description of the materials 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 materials and the Contractor’s Equipment to the Site. The Employer shall use its best endeavors 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 materials and the Contractor’s Equipment to the Site.
21.4 Customs Clearance

The Contractor shall, at its own expense, handle all imported materials and Contractor’s Equipment at the point(s) of import and shall handle any formalities for customs clearance, subject to the Employer’s obligations under GC Sub-Clause 14.2, provided that if applicable laws or regulations require any application or act to be made by or in the name of the Employer, the Employer shall take all necessary steps to comply with such laws or regulations. In the event of delays in customs clearance that are not the fault of the Contractor, the Contractor shall be entitled to an extension in the Time for Completion, pursuant to GC Clause 40.

22. Installation

22.1 Setting Out/Supervision

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.

22.2 Labor:

22.2.1 Engagement of Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, housing, feeding and transport.
The Contractor shall provide and employ on the Site in the installation of the Facilities such skilled, semi-skilled and unskilled labor as is necessary for the proper and timely execution of the Contract. The Contractor is encouraged to use local labor that has the necessary skills.

The Contractor shall be responsible for obtaining all necessary permit(s) and/or visa(s) from the appropriate authorities for the entry of all labor and personnel to be employed on the Site into the country where the Site is located. The Employer will, if requested by the Contractor, use his best endeavors in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national or government permission required for bringing in the Contractor’s personnel.

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 the place where they were recruited or to their domicile. 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.

22.2.2 Persons in the Service of Employer

The Contractor shall not recruit, or attempt to recruit, staff and labor from amongst the Employer’s Personnel.

22.2.3 Labor Laws

The Contractor shall comply with all the relevant labor Laws applicable to the Contractor’s Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall at all times during the progress of the Contract use its best endeavors to prevent any unlawful, riotous or disorderly conduct or behavior by or amongst its employees and the labor of its Subcontractors.
The Contractor shall, in all dealings with its labor and the labor 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 labor.

22.2.4 Rates of Wages and Conditions of Labor

The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

The Contractor shall inform the Contractor’s Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages and allowances as are chargeable under the Laws for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.

22.2.5 Working Hours

No work shall be carried out on the Site on locally recognized days of rest, or outside the normal working hours stated in the PC, unless:

(a) otherwise stated in the Contract,

(b) the Project Manager gives consent, or

(c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Project Manager.

If and when the Contractor considers it necessary to carry out work at night or on public holidays so as to meet the Time for Completion and requests the Project Manager’s consent thereto, the Project Manager shall not unreasonably withhold such consent.

This Sub-Clause shall not apply to any work which is customarily carried out by rotary or double-shifts.
22.2.6 Facilities for Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor’s Personnel. The Contractor shall also provide facilities for the Employer’s Personnel as stated in the Specification.

The Contractor shall not permit any of the Contractor’s Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

22.2.7 Health and Safety

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor’s Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor’s and Employer’s Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the performance of the Contract, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send to the Project Manager, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

The Contractor shall throughout the contract (including the Defects Notification Period): (i) conduct Information, Education and Consultation Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labor (including all the Contractor's employees, all Sub-Contractors and Employer’s and Project Manager’s
employees, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behavior with respect to of Sexually Transmitted Diseases (STD)—or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular; (ii) provide male or female condoms for all Site staff and labor as appropriate; and (iii) provide for STI and HIV/AIDS screening, diagnosis, counseling and referral to a dedicated national STI and HIV/AIDS program, (unless otherwise agreed) of all Site staff and labor.

The Contractor shall include in the program to be submitted for the execution of the Facilities under Sub-Clause 18.2 an alleviation program for Site staff and labor and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation program shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification. For each component, the program shall detail the resources to be provided or utilized and any related sub-contracting proposed. The program shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation this program shall not exceed the Provisional Sum dedicated for this purpose.

22.2.8 Funeral Arrangements

In the event of the death of any of the Contractor’s personnel or accompanying members of their families, the Contractor shall be responsible for making the appropriate arrangements for their return or burial, unless otherwise specified in the PC.

22.2.9 Records of Contractor’s Personnel

The Contractor shall keep accurate records of the Contractor’s personnel, including the number of each class of Contractor’s Personnel on the Site and the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis in a form approved by the Project Manager and shall be available for inspection by the Project Manager until the Contractor has completed all work.
22.2.10 Supply of Foodstuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor’s Personnel for the purposes of or in connection with the Contract.

22.2.11 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor’s Personnel.

22.2.12 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor’s Personnel employed on the Site from insect and pest nuisance, and to reduce their danger to health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

22.2.13 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift barter or disposal by Contractor's Personnel.

22.2.14 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

22.2.15 Prohibition of All Forms of Forced or Compulsory Labor

The contractor shall not employ “forced or compulsory labor” in any form. “Forced or compulsory labor” consists of all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.

22.2.16 Prohibition of Harmful Child Labor

The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's
education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

22.3 **Contractor’s Equipment**

22.3.1 All Contractor’s 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.

22.3.2 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.

22.3.3 The Employer will, if requested, use its best endeavors 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.

22.4 **Site Regulations and Safety**

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, gate control, sanitation, medical care, and fire prevention.

22.5 **Opportunities for Other Contractors**

22.5.1 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.

22.5.2 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.

22.5.3 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.

22.5.4 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.

22.6 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.

22.7 Site Clearance

22.7.1 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.

22.7.2 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 in a clean and safe condition.

22.8 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.

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 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 traveling 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 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
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, 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 impede 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 or any part of the Facilities fails to pass any test and/or inspection, the Contractor shall either rectify or replace such Plant or part of the Facilities and shall repeat the test and/or inspection upon giving a notice under GC Sub-Clause 23.3.

23.7 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 or part of the Facilities that cannot be settled between the Parties within a reasonable period of time, it may be referred to an Dispute Board for determination in accordance with GC Sub-Clause 6.1.

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 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 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 GC 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.
inspection required under the Contract. The Contractor shall give a reasonable notice to the Project Manager whenever any such parts 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 parts of the Facilities or foundations have been covered up at the Site after compliance with the requirement of GC 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 the Facilities or any part thereof has, in the opinion of the Contractor, been completed operationally and structurally and put in a tight and clean condition as specified in the Employer’s Requirements, excluding minor items not materially affecting the operation or safety of the Facilities, the Contractor shall so notify the Employer in writing.

24.2 Within seven (7) days after receipt of the notice from the Contractor under GC Sub-Clause 24.1, the Employer shall supply the operating and maintenance personnel specified in the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer for Precommissioning of the Facilities or any part thereof.

Pursuant to the Appendix to the Contract Agreement titled Scope of Works and Supply by the Employer, the Employer shall also provide, within the said seven (7) day period, the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for Precommissioning 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 have been provided by the Employer in accordance with GC Sub-Clause 24.2, the Contractor shall commence Precommissioning of the Facilities or the relevant part thereof in preparation for
24.4 As soon as all works in respect of Precommissioning are completed and, in the opinion of the Contractor, the Facilities or any part thereof is ready for Commissioning, 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 GC Sub-Clause 24.4, either issue a Completion Certificate in the form specified in the Employer’s Requirements (Forms and Procedures), stating that the Facilities or that part thereof have reached Completion as of the date of the Contractor’s notice under GC 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 GC 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 of 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 GC Sub-Clause 24.4 or within seven (7) days after receipt of the Contractor’s repeated notice under GC 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.

24.8 Upon Completion, 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 and Operational Acceptance

25.1 Commissioning

25.1.1 Commissioning of the Facilities or any part thereof shall be commenced by the Contractor immediately after issue of the Completion Certificate by the Project Manager, pursuant to GC Sub-Clause 24.5, or immediately after the date of the deemed Completion, under GC Sub-Clause 24.6.

25.1.2 The Employer shall supply the operating and maintenance personnel and all raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for Commissioning.

25.1.3 In accordance with the requirements of the Contract, the Contractor’s and Project Manager’s advisory personnel shall attend the Commissioning, including the Guarantee Test, and shall advise and assist the Employer.

25.2 Guarantee Test

25.2.1 Subject to GC Sub-Clause 25.5, the Guarantee Test and repeats thereof shall be conducted by the Contractor during Commissioning of the Facilities or the relevant part thereof to ascertain whether the Facilities or the relevant part can attain the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees. 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 not attributable to the Contractor, the Guarantee Test of the Facilities or the relevant part thereof cannot be successfully completed within the period from the date of Completion specified in the PC or any other period agreed upon by the Employer and the Contractor, the Contractor shall be deemed to have fulfilled its obligations with respect to the Functional Guarantees, and GC Sub-Claususes 28.2 and 28.3 shall not apply.
25.3 Operational Acceptance

25.3.1 Subject to GC Sub-Clause 25.4 below, Operational Acceptance shall occur in respect of the Facilities or any part thereof when

(a) the Guarantee Test has been successfully completed and the Functional Guarantees are met; or

(b) the Guarantee Test has not been successfully completed or has not been carried out for reasons not attributable to the Contractor within the period from the date of Completion specified in the PC pursuant to GC Sub-Clause 25.2.2 above or any other period agreed upon by the Employer and the Contractor; or

(c) the Contractor has paid the liquidated damages specified in GC Sub-Clause 28.3 hereof; and

(d) any minor items mentioned in GC Sub-Clause 24.7 hereof relevant to the Facilities or that part thereof have been completed.

25.3.2 At any time after any of the events set out in GC 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 Employer’s Requirements (Forms and Procedures) in respect of the Facilities or the part thereof specified in such notice as of the date of such notice.

25.3.3 The Project Manager shall, after consultation with the Employer, and within seven (7) days after receipt of the Contractor’s notice, issue an Operational Acceptance Certificate.

25.3.4 If within seven (7) 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 of 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.

25.5 Delayed Precommissioning and/or Guarantee Test

25.5.1 In the event that the Contractor is unable to proceed with the Precommissioning of the Facilities pursuant to Sub-Clause 24.3, or with the Guarantee Test pursuant to Sub-Clause 25.2, for reasons attributable to the Employer either on account of non-availability of other facilities under the responsibilities of other contractor(s), or for reasons beyond the Contractor’s control, the provisions leading to “deemed” completion of activities such as Completion, pursuant to GC Sub-Clause 24.6, and Operational Acceptance, pursuant to GC Sub-Clause 25.3.4, and Contractor’s obligations regarding Defect Liability Period, pursuant to GC Sub-Clause 27.2, Functional Guarantee, pursuant to GC Clause 28, and Care of Facilities, pursuant to GC Clause 32, and GC Clause 41.1, Suspension, shall not apply. In this case, the following provisions shall apply.

25.5.2 When the Contractor is notified by the Project Manager that he will be unable to proceed with the activities and obligations pursuant to above Sub-Clause 13.1, the Contractor shall be entitled to the following:

(a) the Time of Completion shall be extended for the period of suspension without imposition of liquidated damages pursuant to GC Sub-Clause 26.2;

(b) payments due to the Contractor in accordance with the provision specified in the Appendix to the Contract Agreement titled Terms and Procedures of Payment, which would not have been payable in normal circumstances due to
non-completion of the subject activities, shall be released to the Contractor against submission of a security in the form of a bank guarantee of equivalent amount acceptable to the Employer, and which shall become null and void when the Contractor will have complied with its obligations regarding those payments, subject to the provision of Sub-Clause 25.5.3 below;

(c) the expenses towards the above security and extension of other securities under the contract, of which validity needs to be extended, shall be reimbursed to the Contractor by the Employer;

(d) the additional charges towards the care of the Facilities pursuant to GC Sub-Clause 32.1 shall be reimbursed to the Contractor by the Employer for the period between the notification mentioned above and the notification mentioned in Sub-Clause 25.5.4 below. The provision of GC Sub-Clause 33.2 shall apply to the Facilities during the same period.

25.5.3 In the event that the period of suspension under above Sub-Clause 25.5.1 actually exceeds one hundred eighty (180) days, the Employer and Contractor shall mutually agree to any additional compensation payable to the Contractor.

25.5.4 When the Contractor is notified by the Project Manager that the plant is ready for Precommissioning, the Contractor shall proceed without delay in performing Precommissioning in accordance with Clause 24.

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) within the Time for Completion specified in the PC pursuant to GC Sub-Clause 8.2, or within such extended time to which the Contractor shall be entitled under GC Clause 40 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 GC Clause 40, the Contractor shall pay to the Employer liquidated damages in the amount specified in the PC as a percentage rate of the Contract Price or the relevant part thereof. The aggregate amount of such liquidated damages
shall in no event exceed the amount **specified as “Maximum” in the PC** as a percentage rate of the Contract Price. Once the “Maximum” is reached, the Employer may consider termination of the Contract, pursuant to GC 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 GC Clause 40. 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 GC Sub-Clause 26.2, the failure by the Contractor to attain any milestone or other act, matter or thing by any date specified in the Appendix to the Contract Agreement titled Time Schedule, and/or other program of work prepared pursuant to GC Sub-Clause 18.2 shall not render the Contractor liable for any loss or damage thereby suffered by the Employer.

26.3 If the Contractor attains Completion of the Facilities or any part thereof before the Time for Completion or any extension thereof under GC Clause 40, the Employer shall pay to the Contractor a bonus in the amount **specified in the PC**. The aggregate amount of such bonus shall in no event exceed the amount **specified as “Maximum” in the PC**.

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 supplied and of the work executed.

27.2 The Defect Liability Period shall be five hundred and forty (540) days from the date of Completion of the Facilities (or any part thereof) or one year from the date of Operational Acceptance of the Facilities (or any part thereof), whichever first occurs, unless specified otherwise in the PC pursuant to GC Sub-Clause 27.10.

If during the Defect Liability Period any defect should be found in the design, engineering, materials and workmanship of the Plant supplied or of the work executed by the Contractor, the Contractor shall promptly, in consultation and agreement with the Employer regarding appropriate remediing of the defects, and at its cost, repair, replace or otherwise make good as the Contractor shall determine at its discretion, 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; or

(c) normal wear and tear.

27.3 The Contractor’s obligations under this GC Clause 27 shall not apply to:

(a) any materials that are supplied by the Employer under GC Sub-Clause 21.2, 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; or

(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 GC 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 GC Clause 27.

The Contractor may, with the consent of the Employer, remove from the Site any Plant 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 shall be agreed upon by the Employer and the Contractor.

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 such work, 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 the Contractor or claimed under the Performance Security.

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.

27.9 Except as provided in GC Clauses 27 and 33, 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, 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, or criminal or willful action of the Contractor.

27.10 In addition, any such component of the Facilities, and during the period of time as may be specified in the PC, shall be subject to an extended defect liability period. Such obligation of the Contractor shall be in addition to the defect liability period specified under GC 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 the Appendix to the Contract Agreement titled Functional Guarantees, subject to and upon the conditions therein specified.

28.2 If, for reasons attributable to the Contractor, the minimum level of the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees, are not met either in whole or in part, the Contractor shall 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 at least the minimum level of such Guarantees. The Contractor shall
notify the Employer upon completion of the necessary changes, modifications and/or additions, and shall request the Employer to repeat the Guarantee Test until the minimum level of the Guarantees has been met. If the Contractor eventually fails to meet the minimum level of Functional Guarantees, the Employer may consider termination of the Contract, pursuant to GC Sub-Clause 42.2.2.

28.3 If, for reasons attributable to the Contractor, the Functional Guarantees specified in the Appendix to the Contract Agreement titled Functional Guarantees, are not attained either in whole or in part, but the minimum level of the Functional Guarantees specified in the said Appendix to the Contract Agreement is met, the Contractor shall, at the Contractor’s option, either

(a) make such changes, modifications and/or additions to the Facilities or any part thereof that are necessary to attain the Functional Guarantees at its cost and expense, and shall request the Employer to repeat the Guarantee Test or

(b) pay liquidated damages to the Employer in respect of the failure to meet the Functional Guarantees in accordance with the provisions in the Appendix to the Contract Agreement titled Functional Guarantees.

28.4 The payment of liquidated damages under GC Sub-Clause 28.3, up to the limitation of liability specified in the Appendix to the Contract Agreement titled Functional Guarantees, shall completely satisfy the Contractor’s guarantees under GC Sub-Clause 28.3, 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, subject to the Employer’s compliance with GC 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.
Part 3 - Section VII. General Conditions

29. 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 GC 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 defense 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, 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, other than specifically provided as any obligation of the Party in the Contract, and
Part 3 - Section VII. General Conditions

31. Transfer of Ownership

31.1 Ownership of the Plant (including spare parts) to be imported into the country where the Site is located shall be transferred to the Employer upon loading on to the mode of transport to be used to convey the Plant from the country of origin to that country.

31.2 Ownership of the Plant (including spare parts) procured in the country where the Site is located shall be transferred to the Employer when the Plant are brought on to the Site.

31.3 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.

31.4 Ownership of any Plant in excess of the requirements for the Facilities shall revert to the Contractor upon Completion of the Facilities or at such earlier time when the Employer and the Contractor agree that the Plant in question are no longer required for the Facilities.

31.5 Notwithstanding the transfer of ownership of the Plant, the responsibility for care and custody thereof together with the risk of loss or damage thereto shall remain with the Contractor pursuant to GC Clause 32 (Care of Facilities) hereof until Completion of the Facilities or the part thereof in which such Plant are incorporated.

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 GC Clause 24 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 GC Clause 27. Notwithstanding the foregoing, the Contractor shall not be liable for any loss or damage to the Facilities or that part

(b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the amount resulting from the application of the multiplier specified in the PC, to the Contract Price or, if a multiplier is not so specified, the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the Contractor to indemnify the Employer with respect to patent infringement.

Risk Distribution
thereof caused by reason of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GC Sub-Claus e 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 GC Clause 34 hereof; or

(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; or

(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 GC Clause 39. 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 GC Clause 39, 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 GC Sub-Clause 42.1 hereof.

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 GC 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 GC
Sub-Claususes 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 GC Sub-Clause 38.1, the provisions of GC Sub-Clause 38.3 shall apply.

33. **Loss of or Damage to Property; Accident or Injury to Workers; Indemnification**

33.1 Subject to GC 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 GC 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 defense 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 GC Clause 34, 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 GC 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 the Appendix to the Contract Agreement titled Insurance Requirements, 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.

(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 (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 an 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 Appendix to the Contract Agreement titled Insurance Requirements.

34.2 The Employer shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GC 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 GC 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 the Appendix to the Contract Agreement titled Insurance Requirements, 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 the Appendix to the Contract Agreement titled Insurance Requirements, in the sums and with the deductibles and other conditions specified in the said Appendix. The Contractor and the Contractor’s Subcontractors shall be named as co-insureds under all such policies. 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. The Employer shall deliver to the Contractor satisfactory evidence that the required insurances are in full force and effect. The policies shall provide that not less than
Part 3 - Section VII. General Conditions

224
twenty-one (21) days’ notice shall be given to the Contractor by all insurers prior to any cancellation or material modification of the policies. If so requested by the Contractor, the Employer shall provide copies of the policies taken out by the Employer under this GC Sub-Clause 34.5.

34.6 If the Contractor fails to take out and/or maintain in effect the insurances referred to in GC 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 GC 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 GC Clause 34, and all monies payable by any insurers shall be paid to the Contractor. 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.

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 including any data as to boring tests, 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 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;

(b) the additional work and/or Plant 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; and

(d) the additional cost and expense that the Contractor is likely to incur.

On receiving any notice from the Contractor under this GC 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 GC Sub-Clause 35.1 shall be paid by the Employer to the Contractor as an addition to the Contract Price.

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 GC Sub-Clause 35.1, the Time for Completion shall be extended in accordance with GC Clause 40.
36. **Change in Laws and Regulations**

36.1 If, after the date twenty-eight (28) days prior to the date of 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. 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 PC pursuant to GC Sub-Clause 11.2.

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, and shall include, without limitation, the following:

(a) war, hostilities or warlike operations whether a state of war be 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

(c) confiscation, nationalization, mobilization, commandeering or requisition by or under the order of any government or de jure or de facto authority or ruler or any other act or failure to act of any local state or national government authority

(d) strike, sabotage, lockout, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, shortage or restriction of power supply, epidemics, quarantine and plague

(e) earthquake, landslide, volcanic activity, fire, flood or inundation, tidal wave, typhoon or cyclone, hurricane, storm, lightning, or other inclement weather condition, nuclear and pressure waves or other natural or physical disaster

(f) shortage of labor, materials or utilities where caused by circumstances that are themselves Force Majeure.
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 GC Clause 40.

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 fulfill its or their obligations under the Contract, but without prejudice to either Party’s right to terminate the Contract under GC Sub-Clauses 37.6 and 38.5.

37.5 No delay or nonperformance by either Party hereto caused by the occurrence of any event of Force Majeure shall

(a) constitute a default or breach of the Contract, or

(b) give rise to any claim for damages or additional cost or expense occasioned thereby, subject to GC Sub-Clauses 32.2, 38.3 and 38.4

if and to the extent that such delay or nonperformance 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 either Party may terminate the Contract by giving a notice to the other, but without prejudice to either Party’s right to terminate the Contract under GC Sub-Clause 38.5.

37.7 In the event of termination pursuant to GC Sub-Clause 37.6, the rights and obligations of the Employer and the Contractor shall be as specified in GC Sub-Clauses 42.1.2 and 42.1.3.

37.8 Notwithstanding GC 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 event specified in paragraphs (a)
and (b) of GC Sub-Clause 37.1 and any explosion or impact of any mine, bomb, shell, grenade or other projectile, missile, munitions or explosive of war, occurring or existing in or near the country (or countries) where the Site is located.

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, or any part thereof;

(b) destruction of or damage to property of the Employer or any third Party; or

(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 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 so destroyed or damaged to the extent not already paid for by the Employer

and so far as may be required by the Employer, and as may be necessary for completion of the Facilities

(b) replacing or making good any Contractor’s Equipment or other property of the Contractor so destroyed or damaged

(c) replacing or making good any such destruction or damage to the Facilities or the Plant 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 GC Clause 39, 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 GC Sub-Clause 42.1.

If the Employer requires the Contractor to replace or make good on any such destruction or damage to the Facilities, the Time for
Completion shall be extended in accordance with GC 40.

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 either Party may terminate the Contract by giving a notice to the other.

38.6 In the event of termination pursuant to GC Sub-Clauses 38.3 or 38.5, the rights and obligations of the Employer and the Contractor shall be specified in GC Sub-Clauses 42.1.2 and 42.1.3.

**Change in Contract Elements**

39. Change in the Facilities

39.1 Introducing a Change

39.1.1 Subject to GC Sub-Clauses 39.2.5 and 39.2.7, 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, provided that the
Employer shall approve any Change proposed by the
Contractor to ensure the safety of the Facilities.

39.1.3 Notwithstanding GC 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 GC Sub-Clauses 39.2 and 39.3,
and further details and forms are provided in the
Employer’s Requirements (Forms and Procedures).

39.2 Changes Originating from Employer

39.2.1 If the Employer proposes a Change pursuant to GC Sub-
Clause 39.1.1, it shall send to the Contractor a “Reques-
t for Change Proposal,” requiring the Contra-
tor to prepare and furnish to the Project Manager as soon as rea-
nably practicable a “Change Proposal,” which shall include the
following:

(a) brief description of the Change
(b) effect on the Time for Completion
(c) estimated cost of the Change
(d) effect on Functional Guarantees (if any)
(e) effect on the Facilities
(f) effect on any other provisions of the Contract.

39.2.2 Prior to preparing and submitting the “Change Proposal,”
the Contractor shall submit to the Project Manager an
“Estimate for Change Proposal,” which shall be an
estimate of the cost of preparing and submitting the
Change Proposal.

Upon receipt of the Contractor’s Estimate for Change
Proposal, the Employer shall do one of the following:

(a) accept the Contractor’s estimate with instructions
to the Contractor to proceed with the preparation
of the Change Proposal
(b) advise the Contractor of any part of its Estimate for Change Proposal that is unacceptable and request the Contractor to review its estimate

(c) advise the Contractor that the Employer does not intend to proceed with the Change.

39.2.3 Upon receipt of the Employer’s instruction to proceed under GC Sub-Clause 39.2.2 (a), the Contractor shall, with proper expedition, proceed with the preparation of the Change Proposal, in accordance with GC Sub-Clause 39.2.1.

39.2.4 The pricing of any Change shall, as far as practicable, be calculated in accordance with the rates and prices included in the Contract. If such rates and prices are inequitable, the Parties thereto shall agree on specific rates for the valuation of the Change.

39.2.5 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 GC 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 percent (15%), 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 shall withdraw the proposed Change and shall notify the Contractor in writing thereof.

The Contractor’s failure to so object shall neither affect its right to object to any subsequent requested Changes or Change Orders herein, nor affect its right to take into account, when making such subsequent objection, the percentage increase or decrease in the Contract Price that any Change not objected to by the Contractor represents.

39.2.6 Upon receipt of the Change Proposal, the Employer and the Contractor shall mutually agree upon all matters therein contained. 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. Under such circumstances, the Contractor shall be entitled to reimbursement of all costs reasonably incurred by it in the preparation of the Change Proposal, provided that these do not exceed the amount given by the Contractor in its Estimate for Change Proposal submitted in accordance with GC Sub-Clause 39.2.2.

39.2.7 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.”

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.

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 Dispute Board in accordance with the provisions of GC Sub-Clause 46.1.

39.3 Changes Originating from Contractor

39.3.1 If the Contractor proposes a Change pursuant to GC 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 GC Sub-Clause 39.2.1.

Upon receipt of the Application for Change Proposal, the Parties shall follow the procedures outlined in GC Sub-Clauses 39.2.6 and 39.2.7. However, should the Employer choose not to proceed, the Contractor shall not be entitled to recover the costs of preparing the Application for Change Proposal.

40. Extension of Time for Completion

40.1 The Time(s) for Completion specified in the PC pursuant to GC Sub-Clause 8.2 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 GC Clause 39

(b) any occurrence of Force Majeure as provided in GC Clause 37, unforeseen conditions as provided in GC Clause 35, or other occurrence of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GC Sub-Clause 32.2

(c) any suspension order given by the Employer under GC Clause 41 hereof or reduction in the rate of progress pursuant to GC Sub-Clause 41.2 or

(d) any changes in laws and regulations as provided in GC Clause 36 or

(e) any default or breach of the Contract by the Employer, Appendix to the Contract Agreement titled ,or any activity, act or omission of the Employer, or the Project Manager, or any other contractors employed by the Employer, or

(f) any delay on the part of a sub-contractor, provided such delay is due to a cause for which the Contractor himself would have been entitled to an extension of time under this sub-clause, or

(g) delays attributable to the Employer or caused by customs, or

(h) 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 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 a Dispute Board, pursuant to GC Sub-Clause 46.1.

The Contractor shall at all times use its reasonable efforts to minimize any delay in the performance of its obligations under the Contract.

In all cases where the Contractor has given a notice of a claim for an
extension of time under GC 40.2, the Contractor shall consult with the Project Manager in order to determine the steps (if any) which can be taken to overcome or minimize the actual or anticipated delay. The Contractor shall thereafter comply with all reasonable instructions which the Project Manager shall give in order to minimize such delay. If compliance with such instructions shall cause the Contractor to incur extra costs and the Contractor is entitled to an extension of time under GC 40.1, the amount of such extra costs shall be added to the Contract Price.

41. Suspension

41.1 The Employer may request the Project Manager, by notice to the Contractor, to 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.

If, by virtue of a suspension order given by the Project Manager, 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, order the resumption of such performance or request and subsequently order a change in accordance with GC Clause 39, 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 GC Clause 39 or, where it affects the whole of the Facilities, as termination of the Contract under GC Sub-Clause 42.1.

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 the Appendix to the Contract Agreement titled Terms and Procedures of Payment, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, with interest thereon as stipulated in
GC Sub-Clause 12.3, 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 together with such interest, 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 GC 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 GC Clause 41, then the Time for Completion shall be extended in accordance with GC 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.

41.4 During the period of suspension, the Contractor shall not remove from the Site any Plant, 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 GC Sub-Clause 42.1.

42.1.2 Upon receipt of the notice of termination under GC 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, and

(d) subject to the payment specified in GC Sub-Clause 42.1.3,

(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 as of the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors; and

(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 GC 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
Part 3 - Section VII. General Conditions

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 GC 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.

42.2 Termination for Contractor’s Default

42.2.1 The Employer, without prejudice to any other rights or remedies it may possess, may terminate the Contract forthwith in the following circumstances by giving a notice of termination and its reasons therefor to the Contractor, referring to this GC 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 GC Clause 43.

(c) if the Contractor, in the judgment of the Employer has engaged in corrupt, collusive, coercive, or fraudulent practices, as defined in GC Clause 6, in competing for or in executing the Contract.

42.2.2 If the Contractor

(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 GC 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 labor to execute and complete the Facilities in the manner specified in the program furnished under GC Sub-Clause 18.2 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,

then the Employer may, without prejudice to any other rights it may possess under the Contract, 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 GC Sub-Clause 42.2.

42.2.3 Upon receipt of the notice of termination under GC Sub-Clausess 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 Facilities and to the Plant as of 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 of the date of termination in connection with the Facilities.

42.2.4 The Employer may enter upon the Site, expel the Contractor, and complete the Facilities itself or by employing any third Party. The Employer may, to 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.

42.2.5 Subject to GC Sub-Clause 42.2.6, the Contractor shall be entitled to be paid the Contract Price attributable to the Facilities executed as of the date of termination, the value of any unused or partially used Plant 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 GC Sub-Clause 42.2.3. Any sums due 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 If the Employer completes the Facilities, the cost of completing the Facilities by the Employer shall be determined.

If the sum that the Contractor is entitled to be paid, pursuant to GC Sub-Clause 42.2.5, plus the reasonable 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 the Contractor under GC Sub-Clause 42.2.5, the Contractor shall pay the
balance to the Employer, and if such excess is less than the sums due the Contractor under GC 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 the Contractor

42.3.1 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 the Appendix to the Contract Agreement titled Terms and Procedures of Payment, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, with interest thereon as stipulated in GC Sub-Clause 12.3, 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 together with such interest, 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,

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 GC 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 GC 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 GC Sub-Claus.es 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 Subcontractors’ personnel from the Site, and

(d) subject to the payment specified in GC Sub-Clause 42.3.4,

(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 as of the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors, and

(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.

42.3.4 If the Contract is terminated under GC Sub-Claus es 42.3.1 or 42.3.2, the Employer shall pay to the Contractor all payments specified in GC Sub-Clause 42.1.3, and reasonable compensation for all loss, except for loss of profit, 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 GC 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 GC Sub-Clause 42.3.

42.4 In this GC Clause 42, the expression “Facilities executed” shall include all work executed, Installation Services provided, and all Plant 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 GC 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 the Appendix to the Contract Agreement titled Terms and Procedures of Payment.

43. Assignment 43.1 Neither the Employer nor the Contractor shall, without the express prior written consent of the other Party, which consent shall not be unreasonably withheld, 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.

44. Export Restrictions 44.1 Notwithstanding any obligation under the Contract to complete all export formalities, any export restrictions attributable to the Employer, to the country of the Employer or to the use of the Plant and Installation Services to be supplied which arise from trade regulations from a country supplying those Plant and Installation Services, and which substantially impede the Contractor from meeting its obligations under the Contract, shall release the Contractor from the obligation to provide deliveries or services, always provided, however, that the Contractor can demonstrate to the satisfaction of the Employer and of the Bank that it has completed all formalities in a timely manner, including applying for permits, authorizations and licenses.
necessary for the export of the Plant and Installation Services under the terms of the Contract. Termination of the Contract on this basis shall be for the Employer's convenience pursuant to Sub-Clause 42.1.

Claims, Disputes and Arbitration

45. Contractor's Claims

45.1 If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall submit a notice to the Project Manager, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Project Manager. Without admitting the Employer’s liability, the Project Manager may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Project Manager to inspect all these records, and shall (if instructed) submit copies to the Project Manager.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Project Manager, the Contractor shall send to the Project Manager a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

(a) this fully detailed claim shall be considered as interim;
(b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Project Manager may reasonably require; and

(c) the Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Project Manager.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Project Manager and approved by the Contractor, the Project Manager shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within such time.

Each Payment Certificate shall include such amounts for any claim as have been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

The Project Manager shall agree with the Contractor or estimate: (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with GC Clause 40, and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

In the event that the Contractor and the Employer cannot agree on any matter relating to a claim, either Party may refer the matter to the Dispute Board pursuant to GC 46 hereof.

46. Disputes and Arbitration

46.1 Appointment of the Dispute Board

Disputes shall be referred to a DB for decision in accordance with GC Sub-Clause 46.3. The Parties shall appoint a DB by the date stated in the PC.
The DB shall comprise, as stated in the PC, either one or three suitably qualified persons (“the members”), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of activities involved in the performance of the Contract and with the interpretation of contractual documents. If the number is not so stated and the Parties do not agree otherwise, the DB shall comprise three persons, one of whom shall serve as chairman.

If the Parties have not jointly appointed the DB 21 days before the date stated in the PC and the DB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The first two members shall recommend and the Parties shall agree upon the third member, who shall act as chairman.

However, if a list of potential members is included in the PC, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DB.

The agreement between the Parties and either the sole member or each of the three members shall incorporate by reference the General Conditions of Dispute Board Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DB consults, shall be mutually agreed upon by the Parties when agreeing the terms of appointment of the member or such expert (as the case may be). Each Party shall be responsible for paying one-half of this remuneration.

If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DB (including each member) shall expire when the Operational Acceptance Certificate has been issued in accordance with GC Sub-Clause 25.3.

46.2 Failure to Agree on the Composition of the Dispute Board

If any of the following conditions apply, namely:
Part 3 - Section VII. General Conditions

(a) the Parties fail to agree upon the appointment of the sole member of the DB by the date stated in the first paragraph of GC Sub-Clause 46.1,

either Party fails to nominate a member (for approval by the other Party) of a DB of three persons by such date,

the Parties fail to agree upon the appointment of the third member (to act as chairman) of the DB by such date, or

the Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment,

then the appointing entity or official named in the PC shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

46.3 Obtaining Dispute Board’s Decision

If a dispute (of any kind whatsoever) arises between the Parties in connection with the performance of the Contract, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Project Manager, either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Project Manager. Such reference shall state that it is given under this Sub-Clause.

For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.

Both Parties shall promptly make available to the DB all such additional information, further access to the Site, and appropriate facilities, as the DB may require for the purposes of making a decision on such dispute. The DB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference, or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or
terminated, the Contractor shall continue with the performance of the Facilities in accordance with the Contract.

If either Party is dissatisfied with the DB’s decision, then either Party may, within 28 days after receiving the decision, give notice to the other Party of its dissatisfaction and intention to commence arbitration. If the DB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference, then either Party may, within 28 days after this period has expired, give notice to the other Party of its dissatisfaction and intention to commence arbitration.

In either event, this notice of dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in GC Sub-Clausés 46.6 and 46.7, neither Party shall be entitled to commence arbitration of a dispute unless a notice of dissatisfaction has been given in accordance with this Sub-Clause.

If the DB has given its decision as to a matter in dispute to both Parties, and no notice of dissatisfaction has been given by either Party within 28 days after it received the DB’s decision, then the decision shall become final and binding upon both Parties.

46.4 Amicable Settlement

Where notice of dissatisfaction has been given under GC Sub-Clause 46.3 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, arbitration may be commenced on or after the fifty-sixth day after the day on which notice of dissatisfaction and intention to commence arbitration was given, even if no attempt at amicable settlement has been made.

46.5 Arbitration

Unless indicated otherwise in the PC, any dispute not settled amicably and in respect of which the DB’s decision (if any) has not become final and binding shall be finally settled by arbitration. Unless otherwise agreed by both Parties, arbitration shall be conducted as follows:

(a) For contracts with foreign contractors:

(i) international arbitration with proceedings administered by the international arbitration institution appointed in the PC, in accordance with the rules of arbitration of the appointed institution;
(ii) the place of arbitration shall be the city where the headquarters of the appointed arbitration institution is located or such other place selected in accordance with the applicable arbitration rules; and

(iii) the arbitration shall be conducted in the language for communications defined in Sub-Clause 5.3; and

(b) For contracts with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer’s country.

The arbitrator(s) shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Project Manager, and any decision of the DB, relevant to the dispute. Nothing shall disqualify the Project Manager from being called as a witness and giving evidence before the arbitrator(s) on any matter whatsoever relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrator(s) to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its notice of dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.

Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Project Manager and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

46.6 Failure to Comply with Dispute Board’s Decision

In the event that a Party fails to comply with a DB decision which has become final and binding, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under GC Sub-Clause 46.5. GC Sub-Clauses 46.3 and 46.4 shall not apply to this reference.

46.7 Expiry of Dispute Board’s Appointment

If a dispute arises between the Parties in connection with the performance of the Contract, and there is no DB in place, whether by reason of the expiry of the DB’s appointment or otherwise:

(a) GC Sub-Clauses 46.3 and 46.4 shall not apply, and

(b) the dispute may be referred directly to arbitration under GC Sub-Clause 46.5
APPENDIX

A General Conditions of Dispute Board Agreement

1. Definitions

Each “Dispute Board Agreement” is a tripartite agreement by and between:

the “Employer”;

the “Contractor”; and

the “Member” who is defined in the Dispute Board Agreement as being:

(i) the sole member of the “DB” and, where this is the case, all references to the “Other Members” do not apply, or

(ii) one of the three persons who are jointly called the “DB” (or “dispute board”) and, where this is the case, the other two persons are called the “Other Members”.

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the “Contract” and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2. General Provisions

Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:

(a) the Commencement Date defined in the Contract,

(b) when the Employer, the Contractor and the Member have each signed the Dispute Board Agreement, or

(c) when the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days’ notice of resignation to the Employer and to the Contractor, and the Dispute Board Agreement shall terminate upon the expiry of this period.

3. Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Project Manager. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.
When appointing the Member, the Employer and the Contractor relied upon the Member’s representations that he/she is:

(a) experienced in the work which the Contractor is to carry out under the Contract,

(b) experienced in the interpretation of contract documentation, and

(c) fluent in the language for communications defined in the Contract.

4. General Obligations of the Member

The Member shall:

(a) have no interest financial or otherwise in the Employer, the Contractor or the Project Manager, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;

(b) not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Project Manager, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;

(c) have disclosed in writing to the Employer, the Contractor and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Project Manager, and any previous involvement in the overall project of which the Contract forms part;

(d) not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Project Manager, except as may be agreed in writing by the Employer, the Contractor and the Other Members (if any);

(e) comply with the annexed procedural rules and with GC Sub-Clause 46.3;

(f) not give advice to the Employer, the Contractor, the Employer’s Personnel or the Contractor’s Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;

(g) not while a Member enter into discussions or make any agreement with the Employer, the Contractor or the Project Manager regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;

(h) ensure his/her availability for all site visits and hearings as are necessary;

(i) become conversant with the Contract and with the progress of the Facilities (and of any other parts of the project of which the Contract forms part) by studying all documents received which shall be maintained in a current working file;
(j) treat the details of the Contract and all the DB’s activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members (if any); and

(k) be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).

5. General Obligations of the Employer and the Contractor

The Employer, the Contractor, the Employer’s Personnel and the Contractor’s Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DB’s activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer’s Personnel and the Contractor’s Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members (if any):

(a) be appointed as an arbitrator in any arbitration under the Contract;

(b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or

(c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member’s functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding paragraph.

Whenever the Employer or the Contractor refers a dispute to the DB under GC Sub-Clause 46.3, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6. Payment

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

(a) a retainer fee per calendar month, which shall be considered as payment in full for:

(i) being available on 28 days’ notice for all site visits and hearings;

(ii) becoming and remaining conversant with all project developments and maintaining relevant files;
(iii) all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and

(iv) all services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

(b) a daily fee which shall be considered as payment in full for:

(i) each day or part of a day up to a maximum of two days’ travel time in each direction for the journey between the Member’s home and the site, or another location of a meeting with the Other Members (if any);

(ii) each working day on site visits, hearings or preparing decisions; and

(iii) each day spent reading submissions in preparation for a hearing.

(c) all reasonable expenses including necessary travel expenses (air fare in less than first class, hotel and subsistence and other direct travel expenses) incurred in connection with the Member’s duties, as well as the cost of telephone calls, courier charges, faxes and telexes: a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (b) of this Clause;

(d) any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar months, and shall thereafter be adjusted by agreement between the Employer, the Contractor and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.

If the Parties fail to agree on the retainer fee or the daily fee the appointing entity or official named in the PC shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.
The Contractor shall pay each of the Member’s invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DB; and without prejudice to the Employer’s rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in accordance with GC Sub-Clause 12.3.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

7. Termination

At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days’ notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8. Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 concerning his impartiality or independence in relation to the Employer or the Contractor, he/she shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

9. Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.
Annex

DISPUTE BOARD GUIDELINES

1. Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

2. The timing of and agenda for each site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to prevent potential problems or claims from becoming disputes.

3. Site visits shall be attended by the Employer, the Contractor and the Project Manager and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

4. The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

5. If any dispute is referred to the DB in accordance with GC Sub-Clause 46.3, the DB shall proceed in accordance with GC Sub-Clause 46.3 and these Guidelines. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

   (a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other’s case, and

   (b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

6. The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

7. Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the
Contractor and the Project Manager, and to proceed in the absence of any Party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

8. The Employer and the Contractor empower the DB, among other things, to:

(a) establish the procedure to be applied in deciding a dispute,

(b) decide upon the DB’s own jurisdiction, and as to the scope of any dispute referred to it,

(c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Guidelines,

(d) take the initiative in ascertaining the facts and matters required for a decision,

(e) make use of its own specialist knowledge, if any,

(f) decide upon the payment of financing charges in accordance with the Contract,

(g) decide upon any provisional relief such as interim or conservatory measures,

(h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Project Manager, relevant to the dispute, and

(i) appoint, should the DB so consider necessary and the Parties agree, a suitable expert at the cost of the Parties to give advice on a specific matter relevant to the dispute.

9. The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with GC Sub-Clause 46.3, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

(a) it shall convene in private after a hearing, in order to have discussions and prepare its decision;

(b) it shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and

(c) if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:

(i) either the Employer or the Contractor does not agree that they do so, or
(ii) the absent Member is the chairman and he/she instructs the other Members to not make a decision.
Section VIII. Particular Conditions

The following Particular Conditions shall supplement the General Conditions in Section VII. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions.
Table of Clauses

| PC 1. | Definitions | 259 |
| PC 5. | Law and Language | 259 |
| PC 7. | Scope of Facilities | 259 |
| PC 8. | Time for Commencement and Completion | 260 |
| PC 13. | Securities | 260 |
| PC 14. | Taxes and Duties | 260 |
| PC 15 | Licenses / Use of Technical Information | 261 |
| PC 20 | Designs and Engineering | 261 |
| PC 21.4 | Custom Clearances | 261 |
| PC 22 | Installation | 261 |
| PC 23 | Test and Inspection | 261 |
| PC 24 | Completion of the Facilities | 262 |
| PC 25. | Commissioning and Operational Acceptance | 262 |
| PC 26. | Completion Time Guarantee | 262 |
| PC 27. | Defect Liability | 262 |
| PC 30. | Limitation of Liability | 262 |
| PC 33. | Loss of or Damage to Property; Accident or Injury to Workers; Indemnification | 263 |
| PC 40. | Extension of Time for Completion | 263 |
| PC 46. | Disputes and Arbitration | 263 |

No table of contents entries found.
Particular Conditions

The following Particular Conditions (PC) shall supplement the General Conditions (GC). Whenever there is a conflict, the provisions herein shall prevail over those in the GC. The clause number of the PC is the corresponding clause number of the GC.

PC 1. Definitions

The Employer is: Nepal Electricity Authority
Durbarmarg Kathmandu
P. O. Box 10020
Tel: 977 1 4153170
Fax: 977 1 4153171
Email: kgahpprp@nea.org.np

Office of the Director
Nepal Electricity Authority
Generation, Operation & Maintenance Department
Attention: Mr. Sudhir Prasad Singh, Project Co-ordinator
Floor/ Room number: 315
City: Kathmandu
Country: Nepal
Telephone: +977 1 4153070
Facsimile number: +977 1 4153071
Electronic mail address: kgahpprp@nea.org.np

The Bank is: World Bank International Development Association
Country of Origin: all countries and territories as indicated in Section V of the bidding documents, Eligible Countries.

PC 5. Law and Language

PC 5.1 The Contract shall be interpreted in accordance with the laws of: Nepal
PC 5.2 The ruling language is: English
PC 5.3 The language for communications is: English

PC 7. Scope of Facilities [Spare Parts] (GC Clause 7)

PC 7.3 The Contractor agrees to supply spare parts for a period of years: Ten (10) Years

Add PC 7.4 Sub Clause as follows

The Contractor shall carry sufficient inventories to ensure an ex-stock supply of consumable spares for the Plant. Other spare parts and
components shall be supplied as promptly as possible, but at the most within six (6) months of placing the order and opening the letter of credit. In addition, in the event of termination of the production of spare parts, advance notification will be made to the Employer of the pending termination, with sufficient time to permit the Employer to procure the needed requirement. Following such termination, the Contractor will furnish to the extent possible and at no cost to the Employer the blueprints, drawings and specifications of the spare parts, if requested.

PC 8. Time for Commencement and Completion

PC 8.1 The Contractor shall commence work on the Facilities within thirty (30) days from the Effective Date for determining Time for Completion as specified in the Contract Agreement.

PC 8.2 The Time for Completion of the whole of the Facilities shall be eighteen (18) months from the Effective Date as described in the Contract Agreement.

PC 13. Securities

PC 13.3.1 The amount of performance security shall be: Ten (10) Percent of the Contract Price

PC 13.3.2 The performance security shall be in the form of the Bank Guarantee (Unconditional) attached hereto in Section IX, Contract Forms. The Performance Security shall be issued by any registered bank in Nepal, or a foreign bank counter guaranteed by correspondent local bank, in complete accordance with the specimen provided herein.

PC 13.3.3 The performance security shall be reduced to five (5) percent from the date of the Operational Acceptance until expiry of Defect Liability Period.

PC 14. Taxes and Duties

Add the following:
1. In the country of Origin

The prices bid by the Contractor shall include all taxes, duties and other charges imposed outside the Employer's country on the production, manufacture, sale and transport of the Contractor's Equipment, Plant, Materials and Supplies to be used on or furnished under the Contract, and on the services performed under the Contract.

2. In Nepal

2.1 The Project is entitled for 1% custom duty and VAT exemption. The Contractor has to follow all the procedures to import Plant & Mandatory Spare Parts to be supplied from abroad in Price Schedule No. 1. The Contractor shall pay all the taxes and duties applicable at the point of entry (custom). Employer will refund such amount to the Contractor upon submission of the related original documents. However, Employer
will not be responsible for any demurrage charges applicable due to delay in custom clearance.

2.2 The unit bid price quoted in the Price Schedule Nos. 2 & 4 are exclusive of VAT. VAT in each supply/progress bill shall be paid to the Contractor and as per law of Nepal he will be responsible for depositing the same to the concerned Revenue office in Nepal.

2.3 Tax Deduction at Source (TDS)
As per the law of Nepal the Employer will deduct TDS at the rate as applicable at the time of execution of the contract from each payment to the Contractor and deposit to the Revenue office. The Contractor shall be provided with all details in this regard promptly. The Contractor shall be responsible for obtaining tax clearance before issuance of Final Acceptance Certificate or before releasing the final 5% retention amount.

2.4 Staff income tax
The Contractor's staff, personnel and laborers, and those of its subcontractors, will be liable to pay personal income taxes in the Employer's country irrespective of local or foreign nationals on income earned including salaries and wages as applicable under the laws and regulations of Nepal. The Contractor shall perform such duties in regard to Tax Deduction at Source (TDS) thereof as may be applicable by such laws and regulations.

PC 15    Licenses / Use of Technical Information
Add the following second paragraph under sub clause 15.2
The Employer shall have the right to reproduce all drawings, documents and other materials furnished to the Employer for the purpose of the Contract including, if required, for operation and maintenance.

PC 20    Designs and Engineering

PC 20.3.2 Change "fourteen (14) days" to "twenty-one (21) days" in both paragraphs of this Sub-Clause

PC 21.4    Custom Clearances;
Add the following paragraph at the beginning of this Sub-Clause:
The Contractor shall familiarize himself with the rules and regulations of Nepal with regard to customs, duties, taxes, importation and clearing of goods and equipment and the like and the Contractor shall follow the required procedures regardless of the relief provided by the Employer. The Employer will provide assistance whenever possible.
PC 22  Installation

PC 22.25  Working Hours

Normal working hours are: The Contractor shall be responsible for following the normal working hours according to local regulation.

PC 23  Test and Inspection

PC 23.3  Contractor shall give a four (4) weeks’ advance notice of such test and/or inspection and of the place and time thereof to the Project Manager.

PC 23.4  The Contractor shall provide the Project Manager with a certified report of the results of any such test and/or inspection within fifteen (15) days after completion of tests

PC 24  Completion of the Facilities

PC 24.3  The Clause is modified as follows

The Contractor shall provide operation and maintenance personnel for Pre Commissioning of the facilities. The Employer shall provide operating staff to receive training from the Contractor during Pre-commissioning at Site. The Contractor shall provide any material required for Pre Commissioning.

PC 25  Commissioning and Operational Acceptance

PC 25.2.2  The Guarantee Test of the Facilities shall be successfully completed within fifteen (15) from the date of Completion.

PC 25.3.1(e)  Add the following new Sub-Clause:

Three (3) sets of as built drawings, operating and maintenance manuals and CD's, etc. as per Technical Specifications of the Bidding Documents are furnished.

PC 25.3.3  Change "seven (7) days" to "twenty one (21) days"

PC 25.3.4  Change "seven (7) days" to "twenty one (21) days"

PC 26.  Completion Time Guarantee

PC 26.2  Applicable rate for liquidated damages: 0.05 % of the Contract price per day.

Maximum deduction for liquidated damages: ten percent (10%) of the Contract Price.

PC 26.3: No bonus will be given for earlier Completion of the Facilities or part thereof.

PC 27.  Defect Liability

PC 27.8  Add the following paragraph at the end of this Sub-Clause:
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) months from the time such repair/replacement of the Facilities or any part thereof.

PC 27.10 Time period shall be 12 months.

**PC 30. Limitation of Liability**

PC 30.1 (b) The multiplier of the Contract Price is: 25 (Twenty Five) per cent of the remaining value of Work of the Contract.

**PC 33. Loss of or Damage to Property; Accident or Injury to Workers; Indemnification**

PC 33.1 Add the following at the end of this Sub-Clause:
"In case of any damage by contractor, the Contractor shall restore all such facilities, as early as possible as instructed by Project Manager, to its original condition at its own expense and to the satisfaction of the Employer."

**PC 40. Extension of Time for Completion**

PC 40.2 Delete first sentence. And replace with
"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 within 14 days of occurrence of an event, together with particulars of the event or circumstance justifying such extension as soon as reasonably practicable but not later than 14 days after the commencement of such event or circumstance.

**PC 46. Disputes and Arbitration**

PC 46.1 The DB shall be appointed within 28 days after the Effective Date.

PC 46.1 The DB shall be formed with three members.

PC 46.2 Appointment (if not agreed) to be made by: United Nations Commission on International Trade Law (UNCITRAL)

PC 46.5 Rules of procedure for arbitration proceedings:

(a) Contracts with foreign contractors:

Any dispute, controversy or claim arising out of or relating to this Contract, or breach, termination or invalidity thereof, shall be settled by arbitration in accordance with the UNCITRAL Arbitration Rules as at present in force.

(b) Any dispute between the Employer and a Contractor who is a national of the Employer’s country arising in connection with the present Contract shall be referred to adjudication or arbitration in accordance with the laws of the Employer’s country.
Section IX. - Contract Forms

Table of Forms

Notification of Award - Letter of Acceptance................................................................. 254
Contract Agreement................................................................. 255
Appendix 1. Terms and Procedures of Payment.......................................................... 259
Appendix 2. Price Adjustment .................................................................................. 263
Appendix 3. Insurance Requirements ..................................................................... 263
Appendix 4. Time Schedule .................................................................................... 267
Appendix 5. List of Major Items of Plant and Installation Services and List of Approved Subcontractors......................................................................................... 268
Appendix 6. Scope of Works and Supply by the Employer........................................ 269
Appendix 7. List of Documents for Approval or Review........................................... 271
Appendix 8. Functional Guarantees ........................................................................ 272
Performance Security Form – Bank Guarantee....................................................... 274
Performance Security Form- Conditional Bank Guarantee ...................................... 276
Bank Guarantee Form for Advance Payment......................................................... 279
Notification of Award - Letter of Acceptance

To: ______________________

This is to notify you that your Bid dated ______ for execution of the ___________ for the Contract Price in the aggregate of ___________, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section IX, - Contract Forms, of the Bidding Document.

Authorized Signature: ____________________________________________
Name and Title of Signatory: _______________________________________
Name of Agency: _________________________________________________

Attachment: Contract Agreement
Contract Agreement

THIS AGREEMENT is made the ________ day of ________________________, _____,
BETWEEN

(1) ____________________, a corporation incorporated under the laws of ________ and
having its principal place of business at ________________ (hereinafter called “the
Employer”), and (2) ____________________, a corporation incorporated under the laws of
__________________ and having its principal place of business at ________________ (hereinafter called “the Contractor”).

WHEREAS the Employer desires to engage the Contractor to design, manufacture, test,
deliver, install, complete and commission certain Facilities, viz. ________________ (“the
Facilities”), and the Contractor has 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 GC 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) Letter of Bid and Price Schedules submitted by the
Contractor
(c) Particular Conditions
(d) General Conditions
(e) Specification
(f) Drawings
(g) Other completed bidding forms submitted with the Bid
(h) Any other documents forming part of the Employer’s
Requirements
(i) Any other documents shall be added here

1.2 Order of Precedence (Reference GC 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 GC Clause 1)
Capitalized words and phrases used herein shall have the same meanings as are ascribed to them in the General Conditions.

**Article 2. Contract Price and Terms of Payment**

2.1 **Contract Price** (Reference GC 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: ____________, ____________ as specified in Price Schedule No. 5 (Grand Summary), and ____________, ____________, or such other sums as may be determined in accordance with the terms and conditions of the Contract.

2.2 **Terms of Payment** (Reference GC Clause 12)

The terms and procedures of payment according to which the Employer will reimburse the Contractor are given in the Appendix (Terms and Procedures of Payment) hereto.

The Employer may instruct its bank to issue an irrevocable confirmed documentary credit made available to the Contractor in a bank in the country of the Contractor. The credit shall be for an amount of ____________; and shall be subject to the Uniform Customs and Practice for Documentary Credits 1993 Revision, ICC Publication No. 600.

In the event that the amount payable under Schedule No. 1 is adjusted in accordance with GC 11.2 or with any of the other terms of the Contract, the Employer shall arrange for the documentary credit to be amended accordingly.

**Article 3. Effective Date**

3.1 **Effective Date** (Reference GC Clause 1)

The Effective Date from which the Time for Completion of the Facilities shall be counted is the date when all of the following conditions have been fulfilled:

(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 and the advance payment guarantee;

(c) The Employer has paid the Contractor the advance payment;

(d) The Contractor has been advised that the documentary credit referred to in Article 2.2 above has been issued in its favor.

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 this Contract notification because of
reasons not attributable to the Contractor, 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.

**Article 4 Communications**

4.1 The address of the Employer for notice purposes, pursuant to GC 4.1 is:
Office of the Director
Nepal Electricity Authority
Generation, Operation & Maintenance Department
Attention: Mr. Sudhir Prasad Singh, Project Co-ordinator
Floor/Room number: 315
City: Kathmandu
Country: Nepal
Telephone: +977 1 4153070
Facsimile number: +977 1 4153071
Electronic mail address: kgahpprp@nea.org.np

4.2 The address of the Contractor for notice purposes, pursuant to GC 4.1 is: ________________.

**Article 5 Appendices**

5.1 The Appendices listed in the attached List of Appendices shall be deemed to form an integral part of this Contract Agreement.

5.2 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 ________________________________

APPENDICES

Appendix 1 Terms and Procedures of Payment
Appendix 2 Price Adjustment
Appendix 3 Insurance Requirements
Appendix 4 Time Schedule
Appendix 5 List of Major Items of Plant and Installation Services and List of Approved Subcontractors
Appendix 6 Scope of Works and Supply by the Employer
Appendix 7 List of Documents for Approval or Review
Appendix 8 Functional Guarantees
Appendix 1. Terms and Procedures of Payment

In accordance with the provisions of GC 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 Breakdown given in the section on Price Schedules. Payments will be made in the currencies quoted by the Bidder unless otherwise agreed between the Parties. Applications for payment in respect of part deliveries may be made by the Contractor as work proceeds.

TERMS OF PAYMENT

Schedule No. 1. Plant and Equipment Supplied from Abroad

In respect of plant and equipment supplied from abroad, the following payments shall be made:

Ten percent (10%) of the total CIP amount as an advance payment against receipt of invoice and an irrevocable advance payment security for the equivalent amount made out in favor of the Employer. The advance payment security may be reduced in proportion to the value of the plant and equipment delivered to the site, as evidenced by shipping and delivery documents.

Eighty percent (80%) of the total or pro rata CIP amount upon Incoterm “CIP”, upon delivery to the carrier within forty-five (45) days after receipt of following invoice and documents through irrevocable letter of credit opened in favour of supplier bank:

i) 6 copies of supplier invoice showing contract no. goods description, quantity, unit price and total amount.

ii) Original and 6 copies of negotiable, clean, on-board bill of lading marked freight prepaid and 6 copies of non-negotiable bill of lading.

iii) 6 copies of Detailed Packing list identify contents of each package.

iv) Insurance Policy/Certificate.

v) Manufacturer’s / supplier’s warranty certificate.

vi) Dispatch authorization issued by the employer with the factory inspection report.

vii) Certificate of origin.

Five percent (5%) of the total or pro rata CIP amount upon issue of the Completion Certificate, within forty-five (45) days after receipt of invoice.

Five percent (5%) of the total or pro rata CIP amount upon issue of the Operational Acceptance Certificate, within forty-five (45) days after receipt of invoice.

Schedule No. 2. Plant and Equipment Supplied from within the Employer’s Country

In respect of plant and equipment supplied from within the Employer’s country, the following payments shall be made:
Ten percent (10%) of the total EXW amount as an advance payment against receipt of invoice, and an irrevocable advance payment security for the equivalent amount made out in favor of the Employer. The advance payment security may be reduced in proportion to the value of the plant and equipment delivered to the site, as evidenced by shipping and delivery documents.

Eighty percent (80%) of the total or pro rata EXW amount upon Incoterm “Ex-Works,” upon delivery of goods at site within forty-five (45) days after receipt of following invoice and documents through irrevocable letter of credit opened in favor of supplier bank: -

i) 6 copies of supplier invoice showing contract no. goods description, quantity, unit price and total amount.

ii) Original and 6 copies of negotiable, clean, on-board bill of lading marked freight prepaid and 6 copies of non-negotiable bill of lading.

iii) 6 copies of Detailed Packing list identify contents of each package.

iv) Insurance Policy/Certificate.

v) Manufacturer’s / supplier’s warranty certificate.

vi) Dispatch authorization issued by the employer with the factory inspection report.

vii) Delivery certificate issued by Employer.

Five percent (5%) of the total or pro rata EXW amount upon issue of the Completion Certificate, within forty-five (45) days after receipt of invoice.

Five percent (5%) of the total or pro rata EXW amount upon issue of the Operational Acceptance Certificate, within forty-five (45) days after receipt of invoice.

Schedule No. 3. Design Services

In respect of design services for both the foreign currency and the local currency portions, the following payments shall be made:

Ten percent (10%) of the total design services amount as an advance payment against receipt of invoice and an irrevocable advance payment security for the equivalent amount made out in favor of the Employer.

Ninety percent (90%) of the total or pro rata design services amount upon acceptance of design in accordance with GC Clause 20 by the Project Manager within forty-five (45) days after receipt of invoice.

Schedule No. 4 - Installation and other Services

In respect of installation services for both the foreign and local currency portions, the following payments shall be made:
Ten percent (10%) of the total installation and other services amount as an advance payment against receipt of invoice and an irrevocable advance payment security for the equivalent amount made out in favor of the Employer. The advance payment security may be reduced in proportion to the value of work performed by the Contractor as evidenced by the invoices for installation services.

Eighty percent (80%) of the measured value of work performed by the Contractor, as identified in the said Program of Performance, during the preceding month, as evidenced by the Employer’s authorization of the Contractor’s application, will be made monthly within forty-five (45) days after receipt of invoice.

Five percent (5%) of the total or pro rata value of installation services performed by the Contractor as evidenced by the Employer’s authorization of the Contractor’s monthly applications, upon issue of the Completion Certificate, within forty-five (45) days after receipt of invoice.

Five percent (5%) of the total or pro rata value of installation services performed by the Contractor as evidenced by the Employer’s authorization of the Contractor’s monthly applications, upon issue of the Operational Acceptance Certificate, within forty-five (45) days after receipt of invoice.

In the event that the Employer fails to make any payment on its respective due date, the Employer shall pay to the Contractor interest on the amount of such delayed payment at the rate of Three percent (3 %) per annum for period of delay until payment has been made in full.

PAYMENT PROCEDURES

The procedures to be followed in applying for certification and making payments are as explained in above respective paragraphs. The Employer shall make payments promptly within forty-five (45) days of submission of an invoice/claim by the Contractor. All the payment shall be released to the Contractor directly except the payment due on shipment, which shall be paid through irrevocable confirmed Letter of Credit.

a) Taxes & duties:

Provisions in PC 14 shall apply in respect to Taxes & Duties.
Appendix 2. Price Adjustment

Not Applicable
Appendix 3. Insurance Requirements

Insurances to be Taken Out by the Contractor

In accordance with the provisions of GC Clause 34, 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. 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.

(a) Cargo Insurance
Covering loss or damage occurring, while in transit from the supplier’s or manufacturer’s works or stores until arrival at the Site, to the Facilities (including spare parts therefore) and to the construction equipment to be provided by the Contractor or its Subcontractors.

<table>
<thead>
<tr>
<th>Amount</th>
<th>Deductible limits</th>
<th>Parties insured</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>In foreign currency</td>
<td>5%</td>
<td>Employer</td>
<td>Manufacture’s Works/stores</td>
<td>Site</td>
</tr>
<tr>
<td>110% of the cost in Price Schedule No. 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Local cost: 110% of the cost in Price Schedule No. 2

<table>
<thead>
<tr>
<th>Amount</th>
<th>Deductible limits</th>
<th>Parties insured</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>Employer</td>
<td>Any place in Nepal</td>
<td>Site</td>
<td></td>
</tr>
</tbody>
</table>

(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.

<table>
<thead>
<tr>
<th>Amount</th>
<th>Deductible limits</th>
<th>Parties insured</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full replacement cost of the Facilities</td>
<td>5%</td>
<td>Employer</td>
<td>Start of installation</td>
<td>Operational Acceptance (extended as above during defect liability period)</td>
</tr>
</tbody>
</table>
(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 (including the Employer’s property and any parts of the Facilities that have been accepted by the Employer) occurring in connection with the supply and installation of the Facilities.

<table>
<thead>
<tr>
<th>Amount</th>
<th>Deductible limits</th>
<th>Parties insured</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRs 1 million as in (b) above</td>
<td></td>
<td>Contractor’s Employees</td>
<td>Commence Of Works</td>
<td>Defect Liability Period</td>
</tr>
<tr>
<td>NRs 1 million as in (b) above</td>
<td></td>
<td>Third Party Personnel</td>
<td>Commence Of Works</td>
<td>Defect Liability Period</td>
</tr>
<tr>
<td>NRs 4 million as in (b) above</td>
<td></td>
<td>Employer’s Property</td>
<td>Commence Of Works</td>
<td>Defect Liability Period</td>
</tr>
</tbody>
</table>

(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 supply and installation of the Facilities. Comprehensive insurance in accordance with statutory requirements.

(e) **Workers’ Compensation**
In accordance with the statutory requirements applicable in any country where the Facilities or any part thereof is executed.

(f) **Employer’s Liability**
In accordance with the statutory requirements applicable in any country where the Facilities or any part thereof is executed.

(g) **Other Insurances**
The Contractor is also required to take out and maintain at its own cost the following insurances:

| Details: |
|-------------------|-------------------|
| Amount | Deductible limits | Parties insured | From | To |

The Employer shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GC 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 GC Sub-Clause 34.1, except for the Cargo, 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.

**Insurances To Be Taken Out By The Employer**
The Employer shall at its expense take out and maintain in effect during the performance of the Contract the following insurances.

**Details:**

<table>
<thead>
<tr>
<th>Amount</th>
<th>Deductible limits</th>
<th>Parties insured</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
</table>

...
Appendix 4. Time Schedule

The completion schedule shall be as per Bar Chart enclosed as Annexure – I to this Appendix-4.

The contractual Time Schedule shall comply with the milestones indicated in the Preliminary Time Schedule proposed by the Employer, which is included in Section VI – Drawings.

Time for Completion is given in the Particular Conditions.

[The Time Schedule submitted by the selected Bidder and amended as necessary prior to award of Contract shall be included as Appendix to the Contract Agreement before the Contract is signed which replace the original Time Schedule prior to signature of the Contract Agreement].
Appendix 5. List of Major Items of Plant and Installation Services and List of Approved Subcontractors

A list of major items of Plant and Installation Services is provided below.

The following Subcontractors and/or manufacturers are approved for carrying out the items of the Facilities indicated below. Where more than one Subcontractor is listed, the Contractor is free to choose between them, but it must notify the Employer of its choice in good time prior to appointing any selected Subcontractor. In accordance with GC Sub-Clause 19.1, the Contractor is free to submit proposals for Subcontractors for additional items from time to time. No Subcontracts shall be placed with any such Subcontractors for additional items until the Subcontractors have been approved in writing by the Employer and their names have been added to this list of Approved Subcontractors.

<table>
<thead>
<tr>
<th>Major Items of Plant and Installation Services</th>
<th>Approved Subcontractors/Manufacturers</th>
<th>Nationality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>
Appendix 6. Scope of Works and Supply by the Employer

The following personnel, facilities, works and supplies will be provided/supplied by the Employer, and the provisions of GCC Clauses 10, 21 and 24 shall apply as appropriate.

All personnel, facilities, works and supplies will be provided by the Employer in good time so as not to delay the performance of the Contractor, in accordance with the approved Time Schedule and Program of Performance pursuant to GCC Sub-Clause 18.2.

Unless otherwise indicated, all personnel, facilities, works and supplies will be provided free of charge to the Contractor.

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Charge to Contractor (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (one) person of Operating Staff always available at request during the Contractor working hours at site</td>
<td>None</td>
</tr>
<tr>
<td>1 (one) person of Maintenance Staff always available at request during the Contractor working hours at site</td>
<td>None</td>
</tr>
<tr>
<td>Personnel for Operation and Maintenance Services during Performance Availability Guarantee Period.</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Charge to Contractor (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranes</td>
<td>Mobile crane can be used by the contractor by filling fuel and others if any, and provide allowances to the Crane Operator and Helper. We have one 25 ton capacity mobile crane only.</td>
</tr>
<tr>
<td>Office Space</td>
<td>None</td>
</tr>
<tr>
<td>Covered and uncovered storage area</td>
<td>Security will be provided by the contractor himself.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Works</th>
<th>Charge to Contractor (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disposal of the old equipment dismantled by the Contractor</td>
<td>Space will be provided by the employer but necessary equipments and labours will be arranged by the contractor.</td>
</tr>
</tbody>
</table>
### Handover of the units in safety conditions

<table>
<thead>
<tr>
<th>Supplies</th>
<th>Charge to Contractor (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>None</td>
</tr>
<tr>
<td>Electricity</td>
<td>None</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>Fuel will be provided by the contractor for compressor and allowance to the compressor operators.</td>
</tr>
</tbody>
</table>
Appendix 7. List of Documents for Approval or Review

Pursuant to GC Sub-Clause 20.3.1, the Contractor shall prepare, or cause its Subcontractor to prepare, and present to the Project Manager in accordance with the requirements of GC Sub-Clause 18.2 (Program of Performance), the following documents for

(A) Approval

1. Time Schedule
2. Safety Plan
3. Drawings as per Technical Specifications
4. Contractor’s Design Data, Calculations, Catalogues and Reports
5. Operation and Maintenance Manuals

(B) Review

1. “As built drawings”
2. Drawings, if any, not explicitly mentioned “for approval” in the Technical Specifications
Appendix 8. Functional Guarantees

General
This Appendix sets out:

(a) the functional guarantees referred to in GC Clause 28 (Functional Guarantees)

(b) the preconditions to the validity of the functional guarantees, either in production and/or consumption, set forth below

(c) the minimum level of the functional guarantees

2. Preconditions
The Contractor gives the functional guarantees (specified herein) for the facilities, subject to the following preconditions being fully satisfied:

None

3. Functional Guarantees
Subject to compliance with the foregoing preconditions, the Contractor guarantees as follows:

3.1 Production Capacity
The equipment and systems supplied and installed by the Contractor are able to fulfill their theoretical design performance as per the relevant documentation and satisfy the Technical Specifications.

4. Failure in Guarantees and Liquidated Damages

4.1 Failure to Attain Guaranteed Production Capacity
If the production capacity of the facilities attained in the guarantee test, pursuant to GC Sub-Clause 25.2, is less than the guaranteed figure specified in para. 3.1 above, but the actual production capacity attained in the guarantee test is not less than the minimum level specified in para. 4.3 below, and the Contractor elects to pay liquidated damages to the Employer in lieu of making changes, modifications and/or additions to the Facilities, pursuant to GC Sub-Clause 28.3, then the Contractor shall pay liquidated damages at the rate of two percent (2%) of the relevant Contract price for every complete one percent (1%) of the deficiency in the production capacity of the Facilities, or at a proportionately reduced rate for any deficiency, or part thereof, of less than a complete one percent (1%).

4.2 Raw Materials and Utilities Consumption in Excess of Guaranteed Level
Not Applicable
4.3 Minimum Levels

Notwithstanding the provisions of this paragraph, if as a result of the guarantee test(s), the following minimum levels of performance guarantees are not attained by the Contractor, the Contractor shall at its own cost make good any deficiencies until the Facilities reach any of such minimum performance levels, pursuant to GCC Sub-Clause 28.2:

(a) production capacity of the Facilities attained in the guarantee test: ninety percent (90%) of the guaranteed production capacity

4.4 Limitation of Liability

Subject to para. 4.3 above, the Contractor’s aggregate liability to pay liquidated damages for failure to attain the functional guarantees shall not exceed ten percent (10%) of the Contract price.
Performance Security Form – Bank Guarantee

Beneficiary:

Date: ________________

PERFORMANCE GUARANTEE No.: __________________

We have been informed that ___________________ (hereinafter called “the Contractor”) has entered into Contract No. ____________ dated ____________ with you, for the execution of ___________________ (hereinafter called “the Contract”).

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we ___________________ hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ___________________ (__) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall be reduced by half upon our receipt of:

(a) a copy of the Operational Acceptance Certificate; or
(b) a registered letter from the Contractor (i) attaching a copy of its notice requesting issuance of the Operational Acceptance Certificate and (ii) stating that the project manager has failed to issue such Certificate within the time required or provide in writing justifiable reasons why such Certificate has not been issued, so that Operational Acceptance is deemed to have occurred.

This guarantee shall expire no later than the earlier of:

The Employer should insert either the Bank Guarantee (4.1) or the Conditional Guarantee (4.2).

The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract and denominated either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Employer.

This text shall be revised as and where necessary to take into account (i) partial acceptance of the Facilities in accordance with Sub-Clause 25.4 of the GCC; and (ii) extension of the performance security when the Contractor is liable for an extended warranty obligation pursuant to Sub-Clause 27.10 of the GCC (although in this latter case the Employer might want to consider an extended warranty security in lieu of the extension of the performance security).
(a) twelve months after our receipt of either (a) or (b) above; or
(b) eighteen months after our receipt of:

(i) a copy of the Completion Certificate; or
(ii) a registered letter from the Contractor, attaching a copy of the notice to the project manager that the Facilities are ready for commissioning, and stating that fourteen days have elapsed from receipt of such notice (or seven days have elapsed if the notice was a repeated notice) and the project manager has failed to issue a Completion Certificate or inform the Contractor in writing of any defects or deficiencies; or
(iii) a registered letter from the Contractor stating that no Completion Certificate has been issued but the Employer is making use of the Facilities; or
(c) the ____ day of _____, 2___.

Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

_____________________
{signature(s)}
Performance Security Form- Conditional Bank Guarantee

Date: ______________
Loan/Credit N°: ______________
IFB N°: ______________

To: ____________________________

Dear Ladies and/or Gentlemen,

We refer to the Contract Agreement ("the Contract") signed on [date] between you and ____________________________ ("the Contractor") concerning design, execution and completion of ____________________________.

By this letter we, the undersigned, [name of Bank], a Bank (or company) organized under the laws of ____________________________ having its registered/principal office at ____________________________, do hereby jointly and severally with the Contractor irrevocably guarantee payment owed to you by the Contractor, pursuant to the Contract, up to the sum of ______________, equivalent to ______________ percent (%) of the Contract Price until the date of the Operational Acceptance Certificate and thereafter up to a sum of ______________, equivalent to ______________ percent (%) of the Contract Price, until twelve (12) months after the date of Operational Acceptance, or eighteen (18) months after Completion of the Facilities, whichever comes first.

Where it is agreed between you and the Contractor that the Facilities are to be accepted in parts, and thus where there are separate Completion and Operational Acceptance Certificates for each part, this Letter of Guarantee shall be apportioned to the value of each such part and shall reduce or expire as provided above on or following Completion or Operational Acceptance of each part.

We shall only undertake to make payment under this Letter of Guarantee upon our receipt of a written demand signed by your duly authorized officer for a specified sum, where such demand sets out the reasons for your claim under this Letter of Guarantee and is accompanied by

(a) a copy of the written notice sent by you to the Contractor before making the claim under this Guarantee, specifying the Contractor’s breach of contract and requesting the Contractor to remedy it

(b) a letter signed by your duly authorized officer certifying that the Contractor has failed to remedy the default within the period allowed for remedial action
(c) a copy of your written notice to the Contractor stating your intent to claim under this Letter of Guarantee because of the Contractor’s failure to remedy the default in accordance with the request referred to in para. (a) above.

Our liability under this Letter of Guarantee shall be to pay to you whichever is the lesser of the sum so requested or the amount then guaranteed hereunder in respect of any demand duly made hereunder prior to expiry of this Letter of Guarantee, without being entitled to inquire whether or not this payment is lawfully demanded.

This Letter of Guarantee shall be valid from the date of issue until the earlier of twelve (12) months after the date of Operational Acceptance or eighteen (18) months after the date of Completion of the Facilities or, where the Facilities are to be accepted in parts, twelve (12) months after the date of Operational Acceptance or eighteen (18) months after the date of Completion of the last part or [date], whichever comes first.

Except for the documents herein specified, no other documents or other action shall be required, notwithstanding any applicable law or regulation.

If the Defect Liability Period is extended with respect to any part of the Facilities in accordance with the Contract, you shall notify us, and the validity of this Letter of Guarantee shall be extended with respect to the percentage of the Contract Price stipulated in the notification until expiry of such extended Defect Liability Period.

Our liability under this Letter of Guarantee shall become null and void immediately upon its expiry, whether it is returned or not, and no claim may be made hereunder after such expiry or after the aggregate of the sums paid by us to you shall equal the sums guaranteed hereunder, whichever is the earlier.

All notices to be given hereunder shall be given by registered (airmail) post to the addressee at the address herein set out or as otherwise advised by and between the parties hereto.

We hereby agree that any part of the Contract may be amended, renewed, extended, modified, compromised, released or discharged by mutual agreement between you and the Contractor, and this security may be exchanged or surrendered without in any way impairing or affecting our liabilities hereunder without notice to us and without the necessity for any additional endorsement, consent or guarantee by us, provided, however, that the sum guaranteed shall not be increased or decreased.

No action, event or condition which by any applicable law should operate to discharge us from liability hereunder shall have any effect and we hereby waive any right we may have to apply such law, so that in all respects our liability hereunder shall be irrevocable and, except as stated herein, unconditional in all respects.
Yours truly,

__________________________
Authorized Signature
Bank Guarantee Form for Advance Payment

Beneficiary:  

Date: 

ADVANCE PAYMENT GUARANTEE No.: 

We have been informed that (hereinafter called “the Contractor”) has entered into Contract No. ________ dated ________ with you, for the execution of ______________________ (hereinafter called “the Contract”). Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum of ___________ (__________________) is to be made against an advance payment guarantee.

At the request of the Contractor, we hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ___________ (__________________) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than toward the execution of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on his account number ________ at ______________________________.

The maximum amount of this guarantee is valid shall be progressively reduced in proportion to the value of each part-shipment or part-delivery of plant and equipment to the site, as indicated in copies of the relevant shipping and delivery documents that shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of documentation indicating full repayment by the Contractor of the amount of the advance payment, or on the ___ day of ________, 2___, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

17 Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: “The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Employer’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.”
This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

[signature(s) name of bank or financial institution]