

# E.P.C – PROJECT'S

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**SECTION 1. GENERAL EXECUTION STRATEGY**

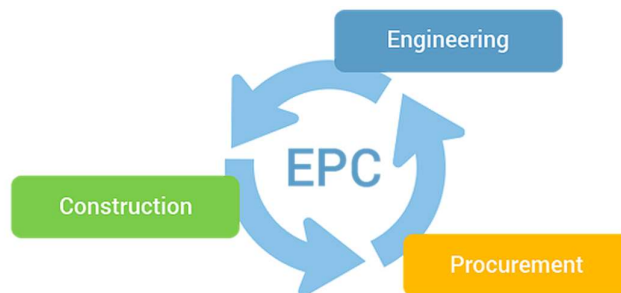
**SECTION 2. DETAILS OF DESIGN AND ENGINEERING PLAN**

**SECTION 3. MATERIAL MANAGEMENT PLANNING AND LIST OF LONG DELIVERY MATERIAL**

**SECTION 4. CONSTRUCTION AND INSTALLATION ACTIVITY**

**SECTION 5. HEALTH SAFETY AND ENVIRONMENTAL PLAN**

**SECTION 6. QUALITY ASSURANCE & QUALITY CONTROL PLANNING**



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## SECTION 1. GENERAL EXECUTION STRATEGY

**Contractor** will be responsible for continuing **E.P.C** - Engineering, Procurement, Construction and commissioning process of the project. contractor will ensure the following Objectives.

Quality Assurance of each phase of the Project will be refer to the Quality Assurance and Quality Control procedure of the project to meet the code and standard.

### ACHIEVEMENT OF TIME SCHEDULE:

The best way to achieve the contractual completion date(s) stipulated in the Contract is sequential achievement step-wise, examining and confirming both quality and safety.

In order to achieve the time schedule, contractor will organize the best project execution team and proper work force with effective quality and safety control.



Project budget achievements is a main objective of the Project. In order to accomplish this objective, contractor will provide a realistic plan for completing Project within an estimated budget and provide a means of ensuring that the Project will proceed within budget and in accordance with the plan.

The primary objective of safety and security is to ensure effective prevention of injuries and losses all the time during the performance of the work at work site and workshop for the protection of men, equipment and materials.

### PROJECT EXECUTION STRATEGY:

This Project Execution Plan will describe contractor's approach to the Project. Contractor offers an organisation whose strengths, resources, facilities, experience, technology and skills constitute a valid basis for the success of the Project Execution. The project will be undertaken under strict control by single responsibility from start until completion.



This [Project Execution Plan](#) outlines the development of the Project with a logical shift of the centre of activities according to the progress of the work. In this framework, the successful approach to the Project Execution is assured by a fully integrated Project organisation and the implementation of the following key elements:

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The appointment of a highly experienced Project Management Team headed by a Project Manager to manage, control and be the focal point of responsibility for the total Project as well as the single point of contact and accountability with client.

The Project Management Team will control the work of all Project participants, formulate the objectives and strategies for Project execution and complete the development of all Project procedures and thereby:



- Meet the overall Project schedule
- Attain the quality objectives
- Maintain effective management control
- Co-ordination procedure
- Project control
- Reporting
- Cost control



Project administration of the activities related to the execution of the work Provision and obtaining government or statutory authority approvals where required The Project Management Team will draw its resources from experienced Project management personnel. The Project Management Team will be located mainly at Project Home Office with emphasis on the detail engineering phase, then will be relocated to the Site as the centre of gravity of the Project activities shifts towards Construction.

A Procurement Team will be established as part of the Project Management Team upon award of the Contract and will direct, co-ordinate and monitor the Project Procurement activities as well as the interface with client. The Project Engineering Team will be led by a Project Engineering Manager who, supported by a team of Lead Specialist Engineers and Lead Process Engineers, will direct and co-ordinate the continuation design activities since its project start throughout its conclusion with the Site Engineering.

A Construction Management Team at the Construction Site will manage Project Construction and Commissioning under the direction of the Project Management Team. The Construction Management Team will be set up by experienced personnel resourced from contractor organization.

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Construction will be in principle directly executed by contractor. Portions of the Construction activities will be subcontracted to others under the direct control of contractor.

**Project Manager will be the leader of the Project Management Team** that will operate according to the Project guidelines and procedures reflecting the stipulation of the contractor.



Site Manager will be also part of the Project Management Team and will jointly work with the Home Office Construction Coordinator for the elaboration of the Construction plan.

Site activities shall be duly identified and planned during engineering assessment phase and subsequently implemented during this Phase under the supervision of the Site Management Team.

The main site activities will commence around the Assessment and Site investigation work phase when contractor will mobilize to project site, but front site activities will start earlier to perform preparation work for construction.

The whole site organisation, which will be headed by the Site Manager under the overall supervision of the Project Manager, shall be gradually built up in the construction phase. As far as the centre of gravity of the Project activities shifts to the Construction Site, certain key personnel of the Project Management Team shall also move from Project Home Office to Site for a better engineering assistance to the site and also for a more direct interface with client during the key phases of Construction.

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In order to complete the project on time for mutual benefits, it is strongly recommended that client approval requirements for contractor's activities and output, such as, drawings, work inspection, etc., shall be minimized through mutual discussions in due course of project execution to avoid any loss of time to meet the stringent project time schedule. In addition, decisive and quick actions and replies from client are keenly requested to speed up progress.

The cooperative and wide involvement of client personnel at the stage of pre-commissioning, commissioning and start-up will be one of the essential points in order to meet project completion schedule as well as successful turn-over of plant.

## **CO-ORDINATION /CORRESPONDENCE/COMMUNICATION**

Contractor's project and/or resident Site Manager will arrange regular co-ordination meetings with client, to discuss the various phases of the work and its status. During these meetings, remedial matters for resolving difficulties encountered or foreseen and other subjects related to the Work shall be discussed.

A correspondence or basic communication procedure will be developed specifically for this project to be approved with client as guidance. The procedure will illustrate the communications for the project.

All correspondence will show the project title, client's project number and specific subject covered.

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## **MOBILIZATION AND INITIAL PLANNING**

Mobilization will start immediately after the award of the project with the target of setting up an organisation able to face the efficiently activities in the initial phase of the Project.

The group of **key Personnel** to be mobilized will be generally composed of the following personnel involved in the Project bidding phase:

- **Project Director**
- **Project Manager**
- **Engineering Manager**
- **Site Manager**
- **Construction Manager**
- **Project Control Manager**
- **Project Procurement Manager**
- **Each Discipline Lead Engineer**

Project Manager will manage the mobilization of the engineering staff and in particular of the leaders of each technical discipline to continuing the remaining engineering work to completion.



It is anticipated that the mobilization will be completed and the offices will be rendered fully operational timely enough to meet urgency of project schedule upon the award of the CONTRACT.

A Kick-off meeting will be held as per contractual requirements with the participation of the client and contractor's key personnel. Construction labors will be resourced from local by the Construction subcontractors. For the reason, all equipment and facilities for construction will be leased by CONTRACTOR and/or

mobilized by Local Construction Subcontractors.

## **CONTROL-PLANS, SCHEDULE AND PROGRESS**

Contractor is completely responsible for the development, implementation, control, status update, recovery and reporting of all phases of mobilization, engineering, procurement, construction, commissioning, start-up and de-mobilization.

Contractor will develop and submit after the contract award to client for approval a Comprehensive Detailed Project Schedule for the total project based on the WBS (work Breakdown Structure).

The project schedule will be developed using the critical path method (CPM), will be in bar chart form, and scheduling logic will be provided. The entire execution of work will be controlled by the project schedule. The project schedule will have an activity list that will identify all work to be carried out by the contractor.

The project schedule will be compatible or in advance of all milestones listed as key milestone dates in the contract. Once approved, no changes to the project schedule can be made without client approval.

The contractor will also notify client at least once a month by the monthly progress report the status of the critical action items that could affect the completion of work. In addition, the contractor will include an action

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plan of proposed remedial actions for expediting these items to achieve the completion date. Costs for any such items required to maintain the schedule will be borne by contractor.

The contractor will prepare and issue after award of contract a schedule detailed design refer to the previous design as reference to save the engineering phase and grouped by disciplines. The schedule will show the document title number and the planned start and completion status.

Construction Schedule will be issued by the contractor. Schedule will describe the various construction activities in more details.

Contractor will prepare Detailed Schedule of Commissioning and Start-up showing inter-dependence to completion of construction, requirements for materials, technical operation and vendor personnel including details on test and operating systems.

## METHOD OF PROGRESS REPORTING

The contractor will issue a monthly progress report to client, at the seventh calendar day of each month following the reporting period. Format and contents will be submitted to and approved by client, however, the report will include the following minimum information for the project as a whole and for each major component of the project, as applicable:

1. Executive summaries
2. Overall project status
3. Time schedules
4. Work performed during the reporting period, including the critical path activities and work in progress at the end of the period.
5. The current status of Work in narrative and graphical demonstration of scheduled versus actual performed Work for:



- ❖ Contractor engineering
- ❖ Equipment and material commitment
- ❖ Equipment and materials received at Site
- ❖ Field construction activities
- ❖ Commissioning and start-up activities

6. Work planned during the next reporting period, including the critical path activities
7. Manpower force and monthly summary of construction force reports
8. Milestone statuses
9. Update of CPM schedule include s-curves indicating in detail actual versus a schedule progress for works
10. Delays, changes and other problem areas and their impact
11. Proposals for maintaining schedule or recovering lost time and other planned corrective actions
12. Monthly summary of the procurement report
13. Pictures of the Site for progress demonstration.

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Contractor will provide monthly a drawing and specification status report. The contractor will promptly report in writing to client the occurrence of any event or condition that might delay or prevent completion of the Work in accordance with the approved schedule and indicate steps being taken to meet the schedule.

## **Other Reports**

The contractor will prepare a job procedure for the following reports and submit the format to client for approval. As a minimum requirement, the contractor will prepare the following reports:

**Remaining Procurement Status Report:** Will be issued every month in the Monthly Progress Report. This report will show the status of all requisitions, Bid Requests and purchase orders for equipment identifiable by tag number, and non-engineered materials and subcontracts by category. The report will also highlight problem areas.

**Shop Inspection Reports:** will be issued as soon as they are received from the shop inspectors highlighting quality and expediting information.

**Construction Force Reports:** Shall be issued to client's representative on a daily basis. It will show the total number of employees, contractors and subcontractors, by craft for manual labor and non-manual staff on site.

**Safety Report:** The contractor will issue a weekly safety report documenting safety meetings and training sessions that took place, and that are planned in the future.

**Safety Incident Report:** An incident report will be issued as soon as possible after any accident for the following:

- Death from any causes whatsoever.
- A fractured skull, pelvis, arm, thigh, leg, foot or spine.
- A dislocated shoulder.
- The amputation of an arm hand or of one or more fingers, or leg or a foot.
- The loss of sight of an eye.

Any other serious bodily injury, including internal bleeding, burns, asphyxia where such injury is likely to endanger life, cause permanent incapacity or temporary incapacity of 5 days or more.

In the cases of death, the contractor will immediately report the accident and disposition to the nearest police station so they can make the proper investigation in accordance with the law.

## **Meetings Requirements**

The contractor will be responsible for arranging the meetings, issuing the agenda. During the project phase the Project Review Meeting will be held monthly or at shorter intervals if requested by client.

During the construction phase weekly co-ordination meetings shall take place at Site. The location of the meeting for each work stage will be discussed in detailed after contract. The contractor will prepare and issue the meeting notes.

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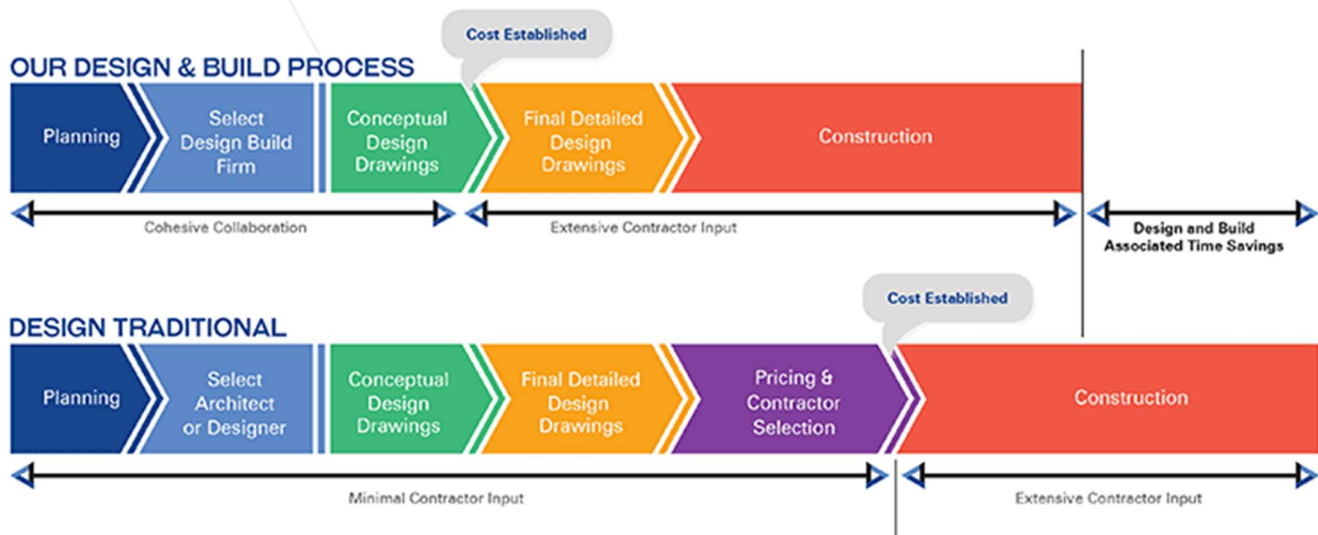
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## SECTION 2. DETAILED DESIGN AND ENGINEERING PLANNING

Contractor will execute the Detail engineering work at contractor's main office. The detail engineering work will be split as follows:

- Detailed engineering will be performed at head office.
- Field Engineering at job site will perform all engineering activities related to the field construction work including keeping proper records of site revision and producing mark-up drawings for "As Built" purpose.
- The client representatives will be hosted both, where all meetings, reviews and discussions between client and contractor will occur; it will be contractor care to ensure that all necessary information, knowledge and documents are made available at the office where the meeting, reviews and discussions will occur.

## DESIGN AND BUILD FLOW CHART



### ENGINEERING PLAN

Soon after award of the contract, the technical information from the previous contractor to be continued and used as basic, which constitutes a part of the Project Master Plan, will include:

- Identification of Project data.
- List of systems and items and their subdivision to ensure the status of each condition.
- Identification of Critical Items in terms of technical complexity, delivery time, construction.
- Identification of package units.
- List of remaining design documents to be produced
- Schedule of interdisciplinary reviews of main documents



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## ENGINEERING AND DESIGN SYSTEMS

Certain topics within the Engineering Design may be treated under the form of “systems”. In this case, each discipline involved will develop general philosophies and specifications based on contractual requirements and scope of work; typically this applies to:

- Electrical system
- Instrumentation and automation
- Telecommunications
- Fire & Gas detection
- Fire protection
- Balance of Plant

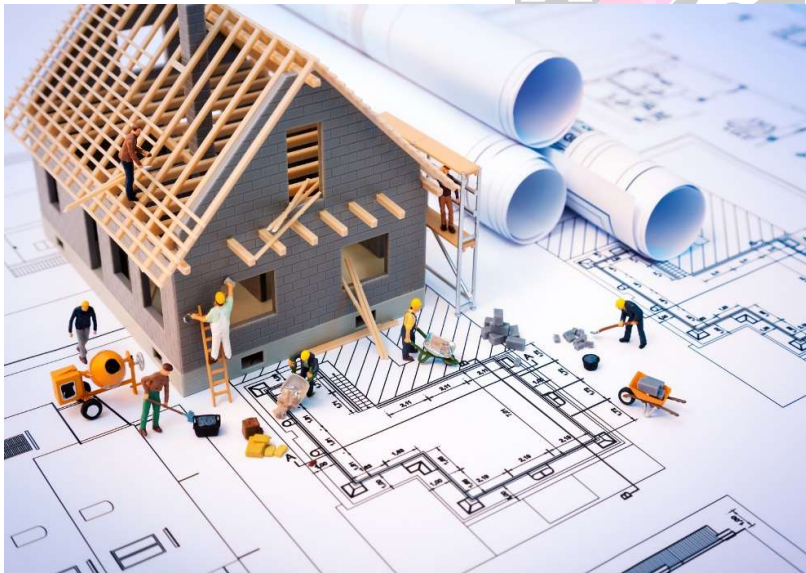
## EQUIPMENT AND MATERIALS

General technical specifications for all categories of equipment and materials to be supplied under the scope of work, will be defined on the basis of contractual requirements and, together with datasheets, will become part of the material requisitions documents.

Excluding the material and equipment that already provide from the previous contractor will identified and determine by contractor to procurement process.

## DETAILED DESIGN

**Engineering Specifications** The continuing design and engineering, construction and maintenance will be performed in accordance with the specifications.



Contractor's work will be based on the latest editions of the Codes, Standards and Practices published as of the date of this contract in the individual project specifications. Other authoritative standards which ensure an equal or higher quality will also be accepted.

The design, engineering, construction and maintenance will also consider the requirements stated in Indonesia codes and standards and any local and/or governmental/authority rules and regulations except where the requirements in the Contract are more stringent, in which case the latter will prevail.

## DESIGN AND DETAILED ENGINEERING

All documentation (e.g. balances, process flow diagrams, Piping and Instrument diagrams, data sheets, manuals, etc.) from Vendors, Subcontractors, sub-suppliers, suppliers of package units, etc., will also conform to requirements defined below. All such documents must be suitable for integration into the documentation prepared by the Contractor.

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The design/engineering services will include all process engineering and detail design Work, including any studies and calculations required for economic implementation of the project.

The Contractor is responsible for covering all other points and items necessary during its detailed engineering/design.

Contractor will: Review previous designs and specifications based on the information provided by client for review, including Stress Analysis and Vibration Analysis.

Submit to client for approval any modification or deviations from the basis information, which will either advance scheduled completion date or improve any performance.

Optimize the Work and prepare studies within the limits of specifications and codes to arrive at an optimum solution for the engineering, construction and operation.

Prepare process remaining data sheets and specifications.

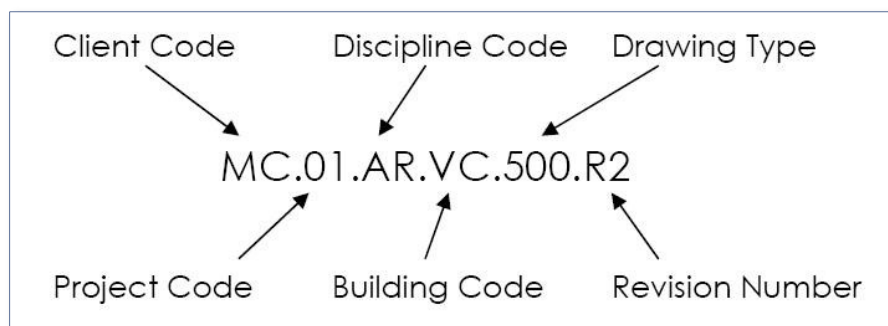
Prepare operating a maintenance manual.

Execute the final detail engineering/drawings for the complete Work, e.g. mechanical engineering, electrical engineering, instrumentation and control engineering, piping engineering, civil and structural engineering, safety engineering, etc.

Provide the final documentation to client.

## Engineering Document Numbering

Drawings, specifications and other engineering documents will be numbered in accordance with client's standards included in client's Numbering System for Drawing and Documents.



Detailed Engineering will also cover the revision and updating of the main Design documents (i.e. P&ID's, Plot Plans, etc.) which require constant updating depending on the purchase orders placing and feedback of Vendors' documents.

A timely feedback from vendors will be obtained by the Engineering team and it will be accomplished through a tight and constant interface with all the Vendors also by taking advantage from the Procurement Centers allocated to follow up the supply packages within their Scope of work.

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## Documents for Review and Approval Procedure

All documents issued to client will be forwarded with a transmittal letter. The transmittal letter and attached document will state the action to be taken.

### For Review and/or Approval

All the Engineering activities will be examined and reviewed/approved during dedicated design reviews conducted in full compliance with the Quality Assurance procedures.



Likewise, single discipline documents will be submitted to carry out review/approved within the organisation of each discipline.

Client / owner reserves the right to review and comment on transmitted documents prepared by contractor, vendors or subcontractors. Client returns one copy of such documents or fax with its comments. Commented documents will be returned within 14 days bearing one of the following notations/conditions:

- Work may proceed
- Work may proceed. Submit Final Drawings.
- Revise and resubmit. Work may proceed subject to incorporation of changes indicated.
- Revise and resubmit. Work may not proceed.
- Review not required. Work may proceed.

Comments by client associated with notations 2, 3, and 4 above will be incorporated in the next version of the documentation. Should contractor not receive a response from client within 14days, contractor will notify client that the time period has elapsed. Client will then immediately issue comments or will state that “Work may proceed” with the documents in question.

### For Information submission

Contractor to submit documents of all revision status as requested and all other documents necessary to complete client information even if not specifically defined.

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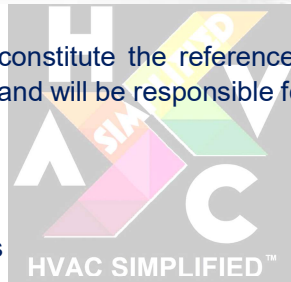
## SECTION 3. MATERIAL MANAGEMENT PLAN & LIST OF LONG DELIVERY MATERIAL

**Contractor** will perform procurement activities in accordance with the guidelines set forth in procedure. Equipment and materials will be procured competitively from the world-wide market. Contractor will appoint a Project Procurement Manager as part of the Project Management Team who will directly report to the Project Manager and will be duly supported by a team of coordinators for developing the purchasing, expediting, inspection and shipping activities.



The Project Procurement Manager will constitute the reference point for client for any matter regarding procurement of equipment and materials and will be responsible for the preparation of the main procurement documentation such as:

- General Purchase Conditions
- Instructions to Bidders
- Instructions relating to spare parts
- Inspection requirements
- Instructions relating to Packing, Marking and Documentation
- Instructions relating to Shipping, Invoicing and Payments.



The Project Procurement Manager will be also responsible for the periodical submission to client of the overall Material Status Report describing the Project situation about the status of inquiring, purchasing orders and relevant expediting, testing and shipping.

The content of each of the above activities, included in the Material Status Report, is described in the following paragraph.

### **The contractor's responsibilities include the following activities:**

- Regularly scheduled contractor's procurement status review meetings with client as a part of Monthly meeting with owner/client.
- Obtaining and preparing documents required for importation
- Ensure provision of adequate insurance
- Provide vendor prints and other vendor documentation including data sheet
- Provide purchase orders

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## Purchasing

Receipt of a Material Requisition (MR) from an engineering department will mark the beginning of the procurement activities related to the equipment and material subject to the MR.

Project Vendor List can be amended by contractor subject to client's approval by adding or deleting some vendors whose capability will be proved through proper procedures during the course of project execution.

## Request for Quotation

Purchasing will prepare and issue a Request for Quotation (RFQ) to Vendors selected based on the Project Vendors/Subcontractor List. The Contract language for all forms, documents, bids, letters and drawings, etc. shall be English, unless otherwise expressly stated in the contract.



The Project Procurement Manager will monitor the relevant working flow and will assist the inquiries world-wide expediting. The Project Procurement Manager will also be responsible for the inquiries Status Report (to be included in the Overall Material Status Report) which will include:

- Enquiry Number
- Description of Equipment/Material
- Revisions, if any
- Date of issuance
- Requested date of submission by Vendors
- Contacted Vendors
- Responses by Vendors (confirm quotation, decline, waiting)

## Minimum Competitive Bids Required

Contractor corporate purchasing policy requires to have a minimum number of three (3) technical/commercial competitive Bids for final analysis for any MR.

## Purchase Order

Once the Technical Evaluation is received from the appropriate Specialist Leader or Engineer, Purchasing will perform the following:

- Select the technically acceptable Vendor Bid (considering also transportation and packing costs),
- Negotiate with the selected Vendor(s) in order to obtain the best possible commercial conditions.
- Prepare the Purchase Order, which will include all the necessary and suitable clauses including:
  - Definition of exact scope of supply, by mentioning the pertinent technical specifications and standards;
  - Definition of delivery point of material/equipment;
  - Definition of delivery terms of materials/equipment
  - Definition of payment conditions as necessary and appropriate to the kind of order concerned.
  - Definition of requirements to provide representatives at the construction site.
  - Price list, commercial conditions and period of price validity for the possible future purchase by client of two years spare parts, capital spares.

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- Issue the Purchase Order to the selected Vendor after having been obtained its signature by the duly authorised signatory person. Any request for waivers to specifications and/or standard requirements, will be submitted by contractor to client for decision/resolution and must be approved before Purchase Order is awarded.
- The Project Procurement Manager will be responsible for the Purchasing Orders Status Report (to be included in the Overall Material Status Report) which will include:
  - Purchasing Order Number
  - Description of Equipment / Material
  - Revision, if any
  - Enquiry number
  - Supplier name
  - Date of issuance
  - Expected date of delivery
  - Delivery point

## Vendor Expediting and Shop Inspection

The activities required to ensure that the actual delivery times of equipment and bulk material are in accordance with the established Project schedule and technical specifications will be carried out by Expediting and Inspection.

## Inspection

The contractor will specify a detailed procedure for inspections, including the inspection plan listing all equipment and materials to be inspected.



Contractor requires inspection release notes. No equipment requiring inspection shall be shipped without prior inspection release.

Inspection results must be documented in such a way that the item can be clearly identified. In the event material cannot be identified at Site the inspection shall be repeated at contractor's costs and expenses.

The contractor shall issue reports on each inspection for submission to client. Any problem that could affect quality for delivery time shall be "highlighted" giving the reason and the action to solve the problem.

The contractor shall take responsibility for all **inspection** activities.

Contractor will execute the shop inspections.

For third party inspections, qualified international inspection agency will be used.

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The **Project Procurement Manager** will monitor this working flow and assure co-ordination and will also be responsible for the issuance of the overall Inspection Plan which will be based on the following main topics:

- Scheduled dates of testing inspections during fabrication (intermediate and final) and scheduled delivery dates.
- Classification of equipment / material.
- Inspection data sheets indicating the level of surveillance required for all the type of material to be supplied. This level (Quality Category) will be defined considering both the product complexity and its function in the Units.
- Tailoring of standard operating procedures where necessary.
- Specialized Inspectors from Qualified International Inspection Agencies.



On this basis, Inspection will execute the testing indicated in the instructions attached to each Purchase Order. The testing activities can include, as appropriate:

- Pre-inspection meetings with Vendors to clarify interfaces, Quality systems, Quality Control planning, testing procedures etc.
- Verification of the procedure qualification for special processes
- Verification of the performance qualification of welders and NDT operators
- Check of calibration system for inspection measurement and test equipment
- Material identification
- Check of material source certificates
- Witnessing inspections and tests and /or review of the results
- Verification and collection of the inspection records and certificates
- Reporting to Project Management.

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**The overall Material Status Report will include, about testing, the following:**

- Purchasing Order number
- Description of Equipment / Material
- Revision, if any
- Purchasing Order date
- Name of Vendor
- Executed inspection test date
- Results
- Non-conformity reporting and management

## **Classification of Inspections**

Contractor will identify minimum standard of inspection on equipment and material. A criticality rating system will be agreed between contractor and client.

## **Expediting**

Contractor will execute continuous expedition by stage. The Procurement Manager will monitor the working flow and will assure the necessary co-ordination.

The Procurement Manager will be also responsible for the issuance of the overall Expediting Plan which will be based on the following main topics:

1. Scheduled significant dates during fabrication and scheduled delivery dates at the planned delivery points (Ex works Supplier workshop or FOB Departure Port / Airport)
2. Type and frequency of contacts with Vendors according to the criticality of the delivery date
3. Tailoring of standard operating procedures, where necessary.

On this basis, the Expeditors will monitor the intermediate activities carried out by vendors such as engineering, suborders, progress etc. by paying an adequate number of visits to the vendors shops including, when necessary, sub-vendors 'factories.

**The overall Material Status Report will include, about expediting, the following:**

- Purchasing Order number
- Description of Equipment / Material
- Revision, if any
- Purchasing Order date
- Name of Vendor
- Intermediate significant fabrication dates (when applicable)
- Delivery date from purchasing Order
- Expected delivery
- Delivery point



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## SHIPPING & TRANSPORTATION

The contractor will follow the provisions of the contract and be responsible for the following items:

- The transportation from the manufacturer's works of all equipment and equipment components procured by contractor for the intact arrival of these parts at the Site
- The obtaining of all export, transport, transit, import and other licenses required for entry into Site.
- The planning of the logistics and preparation of a procedure of handling, considering the Contractual Conditions, the requirements of construction as well as the co-ordination/supervision of transport for all carriers involved.
- The consideration of all risks and dangers likely to occur during transport and storage
- The preparation of packing and shipping instructions and specifications for the suppliers to prevent any damage
- The obedience of all requirements as outlined within the specifications, end caps for pipes, tight closures for nozzles, temporary corrosion protection, etc.
- Shipping preparation and packing shall be in accordance with good practice to ensure the intact arrival of the equipment at the Site. Contractor shall be present at loading and unloading of sea freight to ensure proper handling.
- In the event that the delivery of any equipment/equipment components is delayed so that the subsequent construction stages are jeopardized, all measures necessary to make up for the delays (e.g. special transport, air freight, etc.) shall be taken immediately without additional costs for owner.



The overall Material Status Report will include, about shipping, the following:

- Purchasing Order number
- Description of equipment / material
- Revision, if any
- Purchasing Order date
- Name of Vendor
- Tonnage / volume size
- Transport means
- Expected Departure date from delivery point
- Name of forwarding client
- Name of carrier (ship)
- CIF arrival point and date
- Arrival date at Site

All shipping records will be filed by Project Procurement Manager at the Project Management Team level.

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## Shipping/Importation

The Project Procurement Manager will monitor the working flow and be the official linking point with the construction site and will assure the necessary co-ordination in the cases in which materials belonging to different centres can be shipped by the same departure port in the same periods. The Procurement Manager will also be responsible for the issuance of overall Shipping Plan.

## Transportation to site

The contractor will arrange and co-ordinate the following services:

Transport from the manufacturer's works to the exit port by means of train, truck, river vessel as well as trans-shipment, delivery "delivered duty paid," and stowing in the ocean vessel.

Ocean shipment or air freight directly to the port of destination, including all activities arising in this connection. Unloading/trans-shipment in the port of destination, transport to the Site, procurement of special vehicles/cranes as well as transport licenses for heavy-and large-size packages, unloading at the Site. Arranging of a separate storage area in the port of destination for the Plant equipment/equipment components forming part of its scope of supply, which are marked with a special color code system so as to be distinguishable from equipment of other contractor's or parties involved.

## Import/Customs Clearance

The contractor shall be responsible for customs clearance of all equipment/materials.

Equipment for temporary import is to be imported at contractor's expense.



## Transport Insurance

The contractor shall arrange transport insurance covering all risks related to transportation.

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## **Documentation**

The contractor shall be responsible for the preparation, drawing up and distribution, if necessary by courier service, of the relevant shipping documents in due time, e.g.:

1. Originals/copies of the bills of lading
2. Commercial invoices/custom invoices
3. Package lists
4. Certificates of origin, if required
5. Insurance certificates/policies, if required

As well as all other documents required for customs clearance/delivery receipt.

## **Information/Service**

The contractor shall prepare a shipping schedule considering the contractual conditions. This shipping schedule has to be updated monthly over the entire period of handling.

The shipping schedule shall also contain separate information on heavy/large-size packages. In connection with shipment scheduling, monthly progress reports/status and shipping lists have to be submitted to client. Anticipated customs clearance time shall be included in the shipping schedule.

## **Import Duties and Customs Clearance**

Contractor implement the activities related to customs clearance and import duties for the equipment and material sources.

Contractor shall prepare the following documents for the customs clearance of imported equipment/materials:

1. Bills of lading or air way bills
2. Commercial invoices
3. Packing lists
4. Insurance policy certificate
5. Certificate of origin
6. Inspection certificate



## **Delivery of Long Lead Equipment and Materials**

Overall project schedule of this project will be depended upon the delivery of long lead items. The delivery of long lead equipment to be decided to the bidding stage.

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## SECTION 4. CONSTRUCTION AND INSTALLATION ACTIVITIES

The contractor shall present to client a construction plan, if any, for the Work and construction procedure to execute the plan prior to start construction. Depending on the construction plan CONTRACTOR's supplies, provisions and scope of Work will include but shall not be limited to:

- All labor and supervision, construction equipment, tools, site facilities including temporary work-space and storage sites for equipment, site utilities, temporary and materials necessary for the construction of the facilities. All the contractor s supplies, provisions and services have to be in compliance with valid laws, codes, rules regulations, specifications and approved drawings.
- The contractor shall be responsible for satisfactory execution of installation in connection with temporary Site facilities and Site utilities and ensure that these installations comply with all relevant codes, rules, regulations, etc. and do not create hazards and/or impediments to persons, objects for working orders.



The contractor shall remove all temporary Site facilities and restore area to its original condition prior to Completion of the Work.

Contractor will plan, manage and control all the construction activities for the Project with full knowledge of the applicable laws and regulations, conditions of labor, local conditions, the site conditions and environmental aspects, and will comply with the requirements thereof.

The work will be carried out by the use of and by the coordination with professional management, coordination, planning and control with accurate and timely reports consistent with accepted good practice.

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## SITE ORGANIZATION AND MANAGEMENT

The contractor shall establish, operate and maintain a Site organization, constituting an essential part of the contractor's general project organization and having executive responsibility, in order to achieve the mutual objective of completion and commissioning, in compliance with the relevant plans, drawings, technical standards, specifications and safety regulations etc., in his Subcontractors' offices and with the Site representatives of client. Contractor will provide a construction organization chart upon mobilization at the site.

The contractor shall assign a qualified site manager to be the contractor's representative in all matters related to the construction Site. The Site Manager must have sufficient experience in the construction similar System. Site Manager's staff, which shall include a Safety Manager, QA/QC Manager, and others as required, shall be responsible for the construction Site efforts, direct all Work to be carried out in the various fields activity, coordinate the performance of all Work groups and assign all Work.

The contractor will be fully responsible for his staff and work force, including subcontractor and vendor personnel, and will advise his employees to refrain from participating in any illegal gatherings and disorderly acts, but to exhibit only the utmost in good conduct.



Client has the right to insist on the dismissal of persons having violated the above or not following the general safety rules. The contractor will fill the position of the dismissed offender by an employee with a proven, fair record of conduct and ability without delay and without cost to client.

Contractor's staff and personnel on the construction site, including subcontractor and vendor personnel, visitors included, will wear safety helmets with identification markings, e.g. colored stripes, other required safety gear, and ID badges, or displayed ID cards. These safety items will be provided by contractor.

The contractor will ensure that their expatriate personnel as well as all Subcontractors' expatriate personnel obtain the necessary passports, visas, work permits, and other documents required to enter and leave Site at such a time that the construction schedule will not be delayed. Such personnel will not violate the immigration laws of Site.

Contractor site management organization is designed to achieve the following:

- a. Fulfilment of Project requirements.
- b. Excellent Safety performance.
- c. In time mobilization.
- d. Efficient construction management of subcontractors.
- e. Optimum coordination of Site activities to achieve high productivity.
- f. Control of Health, Environment and Safety aspects.
- g. Maximum security.
- h. Excellent coordination of all parties.

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## PROJECT CONSTRUCTION STRATEGY

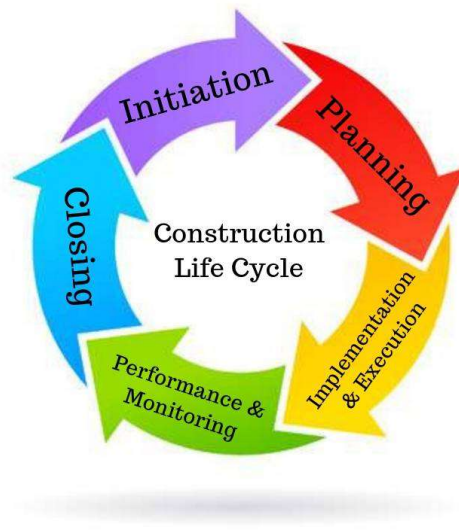
Contractor will execute the Construction activities. Portion of the Construction activities may be subcontracted to others under direct control of contractor.

A Construction Management Team at the Construction Site will manage the Construction under the direction of the Site Manager.

The Construction Management Team will be set up integrating experienced personnel of contractor organization.

A team of contractor personnel experienced in the execution of projects of this size and nature will be established on Site to provide technical support, materials and interface management.

Technical support will be provided by a team of contractor discipline engineers transferred from the head office design engineering team, to ensure project knowledge and to carry design responsibility into the field. The Construction Management Team assigned to the Project will be drawn from the resource pool of contractor's construction Specialists, to ensure relevant experience and familiarity in dealing with labor of various nationalities from diverse culture and ethnic backgrounds.



## CONSTRUCTION PLANNING

Construction personnel will first be mobilized to the Project Office to assist in the development of the project plans and to provide input and direction to the project team. Successful project execution requires construction experts to be active in all phases of the project. The following specific activities will be addressed early to be fully effective:

- Finalization of the construction schedule requirements, ensuring that the commissioning and start-up schedule is supported and the EPC schedule is truly construction-driven.
- Preparation of a detailed "Path of Construction" in the form of a narrative and marked up plot plan identifying the sequence of the plant completion. Set and agree a detailed list of engineering and procurement deliverables required meeting construction requirements and ensuring they are incorporated into the project schedule.
- Development of constructability program in line with the project guidelines.

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- Finalization of manpower requirements for the personnel; update these requirements by means of staffing schedules, histograms and craft mixes; and implement visa applications and permits required.
- Finalize construction equipment needs and ensure that timely mobilization plans are in place
- Develop “project field procedures” and “method statements” defining standards, policies and procedures required for the execution of the works.
- Develop Health, Safety and Environment Programs (HSE Plan) in line with contractor HSE Policy and client guidelines.
- Finalize temporary facility requirements, including indirects such as tools, consumables, gases and the like.
- Actively pursue preliminary site activities such as approvals, permitting, establishing contacts, soil and site investigations.
- Develop systems definition and completion schedules in co-ordination with client representatives.
- Ensure that Lessons Learned & Practices from previous projects are fully addressed at the design stage.

## **Constructability Program**

An aggressive and pro-active formal constructability program will be implemented. The Project Constructability Program will be modeled on the concepts of Project Constructability Guidelines, in which contractor will play an active part in development which has been implemented on previous projects.

Key features of contractor's Constructability Program will be:  
Immediate assignment of key construction personnel to the project.

A Constructability Team formed with representatives from each engineering discipline, construction, procurement, and from the client Project Management team, operations and maintenance.

Constructability engineers assigned from each engineering discipline will be responsible for promoting and coordinating suggestions within their own group and for ensuring that approved suggestions are implemented in a timely manner.

While the major benefits of a constructability program are gained during the detail design, the program will also move into the construction phase of the project and be a key tool in achieving the project objectives for Safety, Quality, schedule, budget, and effective integration of start-up and operation.

## **Pre-mobilization Planning**

**Contractor's pre-mobilization planning is to achieve the following activities:**

- a) Early finish of construction activities
- b) Topographic Surveys
- c) Blasting work
- d) Completion of Site Preparation
- e) Early Information for Approval (IFA) drawing release to support construction team
- f) Timely manpower mobilization
- g) Timely construction equipment mobilization
- h) Timely delivery of equipment & material to site
- i) Timely delivery of tools/consumable and living necessities to Site

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## Site Mobilization

The site construction mobilization for this project will be headed by a Construction Management Team. The mobilization will be composed of an integrated staff of expatriate local personnel.

With this staff, contractor will undertake the overall management, planning, coordination, inspection, and control of all construction activities from the site survey, initial planning and design, through the actual construction of facilities.



During each of these phases, contractor will define priorities and schedule the engineering and procurement activities to ensure that the special requirements of this project, especially regarding the schedule, material control and safety areas, are met.

Particular attention will be paid to relations with local authorities and at the same time every arrangement for timely manpower mobilization, timely delivery of equipment & material to site will be taken to keep the project schedule. contractor's relevant experience will assist in developing and executing this project on schedule.

Contractor will initiate remain plans for temporary facilities necessary to support the construction phase which go in common to support the field activities.

Contractor will make every effort to maximize employment of skilled workers. In the early stage of the project, contractor will forecast required field manpower by craft. This forecast would be developed reflecting the information quoted from subcontractors and reviewed periodically and reported to client in order to assure sufficient manpower for the execution of the construction work.

Contractor will mobilize key construction personnel in accordance with the construction schedule.

The first stage in the supervisory staff mobilization program will be the assignment of key personnel to engineering / procurement offices for input into the constructability plans for the design, and for a period of familiarization with the project prior to being assigned to the site.

Required labor will be forecasted in advance and will be recruited accordingly. Skilled labor will be tested according to craft and project qualification standards/requirements.



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## Site Working Conditions

Working hours will follow the local working time. Overtime work, if deemed necessary, will be performed. Moreover, contractor will be vigilant and remain flexible with respect to the work schedule to suit any emergency or special requirements such as work activities involving road crossing, shutdown, tie-ins, and testing.

## Material Handling & Control

The objective of the Material Control is to establish a system of checks and balances to ensure clear inventory accountability and the orderly flow of materials from vendors to construction forces.

## Quality Control at Site

The Quality control at the site will be an integral part of the overall QC System for this Project. The plan is intended to specify the methods to be applied in order to achieve the quality objective of completing the construction in accordance with the project specifications.

It will also establish Procedures for the monitoring and verification of the work as it progresses. The control of documentation and non-conformances will define the set-up and organization to handle these functions. The Quality control at site will address applicable requirements of the Project Quality Plan and contain the following:

- Quality control organisation chart
- Listing of references (codes, standards, main contractor specification etc.)
- Engineering document control
- Material controls
- Handling of non-conformities
- Civil testing and Inspection
- Inspection of centrifugal pumps and other rotating equipment and other equipment as specified in Contract
- Equipment inspections
- Piping inspection
- Flushing and cleaning of piping systems
- Welding inspection
- Non-destructive examinations
- Facility hand-over and plant completion



The Site QC Plan will be issued for approval in advance to commencement of construction activity.

## Site HSE Management System

Contractor's HSE Policy and Management Principles will be applied to the Project during the construction and commissioning & start-up phases to manage health, safety and environmental protection requirements. The main HSE objectives during Construction phase are:

Comply with applicable Health, Safety and Environmental Regulations, relevant Site Regulations and client Standards as required by the Contract, supplemented by contractor's operational experience;

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Identify all potential hazards associated with the execution of the Project, and to develop prevention, control and mitigation measures to eliminate or minimize harm to people, damage to plant or equipment, or adverse effects to the environment;

Encourage the adoption of a positive, proactive, committed health, safety and environmental culture throughout all phases of the Project.

Contractors construction organization and all parties involved in the construction and commissioning & start-up works at site, namely SUBCONTRACTORS and VENDOR's, will be provided with a complete set of Safe Work procedures to be prepared in line with Contract requirements. Among the safety procedures included in the HSE Manual, the following general Construction HSE Management documents will include:

- Hazard Analysis and Control Program;
- Work Permit System;
- HSE Meetings;
- Emergency Response Procedure (relevant to each work site).

## **Site Security**

Security control procedure shall ensure that all contractors/subcontractors are uniformly administered during the construction period as per the requirements outlined for the Project. Contractor will make sure that all people working under this contract will be informed about the security requirements, and the contractor will impose disciplinary actions in case of violation of those rules by and of his employees, subcontractors, labor or other.

## **Site Access**

For the security of the site, contractor will provide fencing in accordance with the requirements of the work and will safeguard the site. All personnel and visitors involved in the construction project will only be allowed to give access to the site through controlled gates in the existing fence.

The contractor will ensure that all employees and visitors wear at all times a numbered security pass, issued by the contractor, within the site area. This security pass must bear the name of the contractor's company. Contractor's employees must park their vehicles in areas designated at the site. They will use designated entrances and proceed by designated routes to work areas. Measures will be taken to prevent unauthorized persons from access.

## **Security Supervisor**

The contractor will appoint a security supervisor who will administer the security personnel and be responsible for the whole security functions.

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## SECTION 5. HEALTH SAFETY AND ENVIRONMENTAL PLANNING

The following security and safety instructions are basic requirements and it will not release the contractor of his responsibility.

- Site safety and security regulations shall be followed.
- Contractor will make sure that all people working under this Contract are informed about the safety requirements and the contractor will impose disciplinary actions in case of violation of those rules by any of his employees, Subcontractors, labor or other.
- Where the Work is performed within or at the boundaries of operating facilities, extra hazards may be present which require special precautions.



- Contractor is responsible for providing all safety precautions to protect facilities already installed. Hot work permits must be obtained from client for tie-ins and any other hot work within or at the boundaries of the existing facilities as required by client.
- For the security of the Site, contractor will provide fencing in accordance with the requirements of the Work and shall safeguard the Site.
- The vehicle traffic shall also be controlled. Measures shall be taken to prevent unauthorized persons from access.
- Contractor will nominate a person responsible for the safety and security of the Site. Contractor will provide security guard(s). Safety meetings will be held weekly with a report to client.

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- Contractor will maintain first aid/medical facilities as required by local regulations.
- Main Contractor will ensure that personnel wear protective clothes, wherever required for safety.
- Contractor will develop an alarm and evacuation plan for any fire and hazard occurring.
- Main contractor will make every effort to prevent or minimize damage to existing facilities during construction activities. Hand digging may be required by client or other affected parties near existing facilities or buried utilities
- For safety, Contractor will maintain a clean work Site and keep those areas free of rubbish, scrap and wastes.
- Serious accident and injuries have to be reported to client immediately.



- Hazardous non-smoking areas will be clearly identified. However, generally all of the Facilities areas will be regarded as non-smoking. Special smoking area can be established only with client's written consent.
- Contractor will maintain and supply adequate fire-fighting equipment during the execution of the work.

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## SECTION 6. QUALITY ASSURANCE & QUALITY CONTROL PLANNING

A **Project Quality Plan** will be compiled for the implementation of Contractor Quality Policy on the project. The PQP will be based on Contractor Quality Management System, adopted to meet the specific requirement of the project.

Contractor has established and applies Quality System in compliance with ISO9001 for Project Management, Engineering and Design, Procurement, Construction Management Services for Civil, Building and housing, power plant, Electrical and Structural Steel Works including Site Construction Activities.



Contractor's Quality Policy is to provide Client with plant, equipment and services, which in terms of performance, safety, reliability, ease of operation and maintenance conform both to the relevant, contractual and regulatory requirements in a cost-effective manner.

Contractor's Quality strategy is based upon operating in accordance with its established quality system whilst seeking to continually improve performance of the service provided to Client. In line with this policy, Contractor will perform all activities for the project in accordance with Quality Manual.

The manual acts as a guide to Contractor's System of Procedures which govern the work process.

A **QA/QC Quality Assurance Plan** is established during the initiation of a project and covers all phases of the project.

This document would then be specific to the Project identifying the relevant Project details such as the organization, specified standards, acceptance criteria and any special requirements defined by Client including any deviations from Contractor's standard Quality System.

### **Quality Plan Format**

The Quality Plan is established during the initiation of a project and covers all phases of the project. The document would be specific to Project identifying the relevant Project details such as the organization, contract strategy, specified standards, contractual obligations, acceptance criteria and any project specific requirements which will ensure the efficient management of the Contract.

As the Project develops, the Quality Plan will be reviewed and updated as necessary to reflect the current or latest project requirements.

The distribution of the document will ensure that all Project Key personnel have access to this document.

### **Role of Quality Assurance**

The role of Quality Assurance on the project is to ensure that the Employer's Quality Policy and contractual requirements are implemented.

This will be achieved, maintained and monitored on the project by internal auditing of the applicable departments, ensuring compliance of the Quality Program to the applicable control procedures.

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Additionally, the Project Quality Assurance Manager or his nominated representative will be responsible for ensuring that Contractor's quality policy is achieved on the following:

- Formulation and Control of the Project Quality Plan.
- Formulation and issue of and relevant QA Procedures.
- Liaison with our nominated Sub-Contractor on development and implementation of Quality Systems.
- Vendor Quality Appraisal.
- External Auditing of proposed selected Vendors and Sub-Contractors Sub-Contractor
- Quality Appraisal.
- Site Quality Assurance and Control.

## Project Quality Operation Guidelines

Following the contract review, the Project Manager will prepare a Project Execution Strategy and issue Contract Instructions to all relevant personnel via a "Kick-Off" meeting and compile the Project Procedure. These instructions will define the operational requirements for the project and identify any methods of working that will deviate from the Employer's established company and department procedures.

Additionally, the Project Procedures will identify the project reporting infrastructure for control, approval and issue of the various project documentation.



## Design Basis, Codes and Standards

The basis of design criteria is determined from the application codes and standards current in the industry, with specific project requirements as amplified by client's special requirements. The codes and standards applicable will be copies of the national and international editions appropriate at contract award. All these activities are subject to audit by the Quality Assurance team throughout the project's duration.

## Engineering Plan

The execution of the plan is vested within the project through the Project Lead Engineers being responsible for the Detailed Engineering. The content of the work will be divided to a pre-determined schedule, determining the effective utilization of all disciplines and personnel.

Administration of the design and engineering functions is achieved by use of the Company's Quality Manual and by specific departmental procedures.

Lead Engineers are responsible for their own Quality Assurance by ensuring that personnel under their administration are working in compliance to these control documents and through the routine checking and approving of engineering documents.

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A program of internal auditing will be developed to ensure that the Engineering functions on the project are being conducted accordance with the project strategy.

## **Document Control**

The administration of documentation throughout the project will be in accordance with the project document control procedure, with all internal filing centralized within project files.



Administration of Vendor Document Requirement, i. e. distribution, checking and approval, etc., will be identified in the Project Specification for Vendor Documentation.

Sub-Contractor document requirements, i.e. working instructions, procedures, test results, etc., shall be identified within the sub-contract documentation.

## **Project Quality Assurance**

Responsibility for Quality Assurance will be vested in the Project Manager, the Project Team Leaders and Site Manager. The Quality Manager will ensure that the system is being adhered to by internal audits and has direct reporting access to the Project Director.

The Quality Assurance activities shall be performed in accordance with Contractor's Quality Manual and by specific departmental procedures.

All activities as defined on the project shall be subject to evaluation by Quality Assurance Department in the form of internal auditing within the project duration.

An internal audit program shall be developed to investigate the area of operations considered critical to the integrity of the project.

Group Managers are responsible for quality control within their groups and it is their duty to ensure that each group is working to the departmental procedures, including any additional requirements imposed by the Client.

Vendor quality control shall be managed through a Project Inspection Administrator, whose responsibilities are to ensure that all required inspection activities at Vendor's are undertaken.

Construction quality assurance shall be administered by the Construction Manager with the Sub-Contractors being responsible for all inspection activities.

## **Requisitioning of Equipment and Materials**

The philosophy envisaged on the project is that Procurement will administer its activities in accordance with the client's Quality Manual and its departmental procedures. This undertaking shall include all relevant activities in determining the most cost-effective approach, to acquire the recognized equipment and material bulks that are consistent with the project technical, quality and commercial demands.

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Project & site engineers are responsible for the preparation of all requisition packages in accordance with the client's quality manual and procedures. The package shall be compiled to include all relevant engineering data sheets, specifications, drawings and Client's relevant Engineering Specifications.

Prior to issue at the invitation to tender stage, the project commercial and quality requirements are included in the tender package. On return of all bid information, the content shall be reviewed for compliance with the project requirements for:

- Design content
- Material requirements
- Commercial scope
- Quality requirements

Prior to commencement of Equipment manufacturer, all Vendor design criteria shall be verified for compliance with project design specification in all aspects.

## **Qualification of Vendors**

Vendors shall be selected from the Recommended Vendor List. On return of the bid inquiry documents, each commercially acceptable Vendor shall be assessed for technical and quality requirements.



This will involve, dependent upon the criticality of the supply, a visit to the Vendor to resolve any technical or quality queries and will be in the form of technical meetings or system reviews.

The Vendor will be awarded a Purchase Order, after complying with all the project requirements.

## **Procurement Control**

Administration of the Procurement Strategy is the responsibility of the Project Procurement Manager. Specific project procurement specifications shall be established, identifying the client's commercial requirements for inclusion with all invitations to tender.

Additionally, each unknown vendor shall be issued with a Quality Questionnaire to be returned for review.

The procurement activities shall be included within the internal auditing program to ensure its activities are being conducted in accordance with the project strategy.



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## Vendor's and Sub-Contractor's Quality Systems

Both Vendors and Sub-Contractors shall maintain an effective quality system in accordance with the relevant requirements of ISO 9000 series or an equivalent standard, to ensure and demonstrate that material or services conform to the specified requirements.

## Materials and Equipment Inspection

The quality control of supplied items shall be through the utilization of Quality Plans from each Vendor. These plans shall identify all the critical activities applicable to the fabrication of equipment or the supply of materials. These documents shall be reviewed and approved prior to the commencement of fabrication or the shipment of material, this will ensure that the project requirements for identification and alloy verification of materials can be fulfilled.



Copies of the approved Vendor Quality Plan shall be forwarded to the desk expeditor, enabling him to identify to the project inspection administrator when nominated inspection visits in conjunction with the project program have been reached, although the project Inspection Administrator is responsible for the control of all inspection activities.

All materials shall undergo full inspection prior to the issue of an inspection release. This shall also include verification material certification and relevant inspection dossier requirements. Equipment or materials shall

not be shipped unless the items have been released by an inspection waiver has been issued.

Administration of materials and equipment supplied to Sub-Contractors at Pre-Assembled Unit yards and site shall be investigated in accordance with the project Material Control Strategy.

## Site Construction

Prior to commencement of site activities, a Project Procedure Plan shall be formulated to address this section of the project. The plan shall be prepared by Construction Manager and will identify the organization and activities pertaining to construction, site installation, erection, testing and pre-commissioning.

The construction site Quality Assurance plan shall be prepared in accordance with the client's procedures and with the project Execution Strategy. Review shall be undertaken by the Project Manager and approved by Client.

The Field Engineering Manager shall ensure that site quality control plans are formulated by all sub-contractors to identify the specific quality practices needed to administer their activities. These plans shall be authorized by Contractor prior to commencement of their activities.

Distribution of all site quality plans shall be in accordance with the site distribution list, however, in all cases copies shall be forwarded to Client.