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Project Contractor Requirements for Planning & Scheduling Procedure

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Project Contractor Requirements for Planning & Scheduling Procedure

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Project Contractor Requirements for Planning & Scheduling Procedure

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Project Contractor Requirements for Planning & Scheduling Procedure

1.0 PURPOSE

To provide the planning and scheduling information requirements to all Engineering, Procurement, and Construction Contractors.

This procedure applies to works performed under all Government construction projects executed throughout the Kingdom of Saudi Arabia.

2.0 SCOPE

Applies to all Project Contractors, independent of contract scope and contract type.
But requirements can change with project/contract size.

3.0 DEFINITIONS

Refer to document "EPM-KPP-PR-000001 Project Planning and Scheduling Definitions and Concepts Procedure" for general definitions.

4.0 REFERENCES

1. EPM-KPP-PR-000001 - Project Planning and Scheduling Definitions and Concepts Procedure

5.0 RESPONSIBILITIES

5.1 Contractors

To provide submittals required by the contract completed, on time and of good industry quality.

5.2 Project Lead Planner

To verify that Contracts contain the necessary wording regarding planning and scheduling information to be provided, and participate in the Kick-Off meetings with the Contractors to review these requirements. , If Contractors lack the technical expertise, assist them in meeting the submittal requirements through coaching or occasional direct support. Once awarded, verify Contractor compliance with Planning & Scheduling Requirements.

5.3 Project Contracts Department

To assure Contracts contain the necessary wording and adequate means for initial and periodic submittals of information by the Contractors.

5.4 Contract Administrator

To coordinate with Entity Lead Planner for incorporation of Planning and Scheduling requirements into the Request for Proposal (RFP) and Contract. Once awarded, verify Contractor compliance.
For smaller and more basic contracts, contract administrator to provide Contractor required information on behalf of the Contractor to the Project.
Contract Administrator is to include Incentives/Penalties in the contract that will assure contractor compliance with contractor information requirements.



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6.0 PROCESS

6.1 Introduction

Contractor reporting needs to align with overall project reporting requirements, both in content and timing, so that information transmitted by the contractor and its subcontractors can be readily integrated into the project's reporting system. To this end, Project Controls issues a Contractor Reporting Requirement document to be included in the bid package, and incorporated in the contract.

Reporting requirements will vary with the nature and scope of the contract, but in all cases needs to be sufficient to provide sufficient visibility of progress and performance. This will allow early detection of deviations and better management of the contract.

While the form of contract, like lump sum or cost reimbursable, will significantly affect the reporting of cost, the information required to manage the execution progress and performance is essentially the same across all contract types.

6.2 Development of Contractor's Planning & Scheduling Reporting Requirements

The Entity Lead Planner works with the Entity contracts and construction departments to define the basic reporting requirements for each Contractor in accordance to Project needs and contract conditions. This includes: information required to be input into project controls tracking systems, flow down requirements of the contract on reporting methodology, frequency of reports, report content, etc.

Key elements to consider in developing the Contractor's Planning & Scheduling Reporting requirements are the following:

- **Project Coding Structure:** definition of Work Breakdown Structure (WBS) and/or other codes, code of account structure including facility, commodity and detail codes, Construction Work Package (CWP) codes, system codes, ...
- **Contract Schedule Approval Conditions:** details of form and content of the Contract schedule and conditions and timing of submittal and approval.
- **Critical Path Method (CPM) Network Hierarchy and Coding Structure:** definition of the required CPM processor, schedule hierarchy, CPM activity numbering requirements and codes
- **Schedule Requirements:** detailed progress of Engineering, Procurement, Construction Testing and Commissioning.
- Quantity tracking system requirements and Quantity and Unit Rate Reporting.
- **Report Types and Frequency:** detailed weekly and monthly reports, schedules, commodity curves and progress reporting requirements
- **Meeting Types and Frequency:** details of meeting requirements, attendance and frequency
- **Report Formats and Examples:** provides contractors with examples of report formats in PDF and/or native format.

Active involvement of Entity Project Controls in the RFP preparation and the bid evaluation process is crucial in establishing contractual requirements, facilitating schedule integration, contract interface management, and contract performance analysis. This is important to proactively detect and initiate early and effective corrections to contractor deviations.



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6.3 Pre-award Submittal requirements (Proposal stage)

Prospective contractors, in response to tender requests, shall submit an **execution plan** and a **proposal schedule** showing how they intend to organize and carry out the scope of work and complete it within the required period in accordance with milestone dates reflected in the tender documents.

The Proposal Schedule shall clearly show all activities including the start and completion of mobilization, each stage and phase, major work elements and interrelationships required to complete all work for the entire duration of the contract, and the schedule critical paths. All major project interfaces, as well as major interfaces with others that may affect progress, shall be shown.

The Proposal Schedule shall provide the project with an informed basis upon which to award the contract, including a schedule narrative and supporting documentation.

Key elements in a proposal schedule package submission that are recommended to be provided are:

- (Proposal) Management Schedule: One page summary.
- Milestone Review: Comparison of key dates and phasing with recently completed similar projects
- Planned Bulk Commodity and Staffing Curves: Production, installation, and staffing profiles
- Planned Engineering, Procurement, and Construction Progress Curves: Production, delivery, and installation percent complete profiles
- Critical Areas Analysis: Detailed review of critical paths and high risk areas
- Risk Management Table: Schedule risks, their potential impacts, and treatment methods
- Narrative: Discussion of the above elements, including schedule basis, assumptions, and qualifications
- Manpower Requirements: to carry out the work

The contractor should give consideration to all activities which are relevant to the progress of the work. A feasible method of achieving completion in the stipulated time should be presented.

The Proposal Schedule should be so constructed as to be immediately available for the contractor to prepare an Interim Schedule. The Proposal Schedule shall be used to monitor and control the project until the contractor's Interim Schedule or Baseline Schedule is approved.

6.4 Post-award Submittal requirements

6.4.1 Interim Schedule (30, 60 or 90 day schedule)

- **Interim Schedule Objectives**
Depending upon the size and complexity, a project may elect to require phased schedule submittal of the contractor. For example, small projects may require the contractor to submit a "Contract Schedule" within the first 30 days of a contract while larger or more complex projects may require a submittal of an interim schedule to cover initial activities while the overall contract schedule is being developed. Until such time, an interim schedule is to be prepared. It shall portray the contractor's working schedule and shall be used to plan, organize, execute and control the work; record and report actual progress; and forecast remaining work as of the end of each progress reporting period through the initial period of the contract. Within a specified number of calendar days after the receipt of the contract award/notice to proceed, the contractor shall deliver the Interim Schedule to the project for review and acceptance.
- **Elements of the Schedule**
The Interim Schedule shall clearly show all activities in detail, including the start and completion of mobilization and discrete work elements and work element interrelationships necessary to complete all services for the initial period (of maximum 90 calendar days) following the contract award/notice.



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In addition, the schedule shall show in summary, the proposed plan and approach for performance of all major subdivisions of work during the entire contract period. It shall contain sufficient detail to assure the project of the feasibility of the plan and approach proposed by the contractor. Schedule curves should be associated with all Contractor schedules to verify the feasibility of Critical Path Method (CPM) schedules in terms of aggregation of non-critical work bulk work over time, production/installation rates, and resource profiles required to support the schedule. They enable the scheduling and statusing of schedules in terms of work volume and provide the means to detect and control cumulative impacts.

- **Level of Detail Required**

Tasks in the Interim Schedule should be sufficiently detailed to describe activities that include, but are not limited to, the following:

- Issuance of any required drawings or documentation by the client
- Approvals required
- Permitting
- Dates for submission and approval of construction and shop drawings
- Procurement of major equipment and materials and as well as job site delivery dates
- Any off-site work
- Installation of temporary construction facilities such as access roads, field offices, temporary utilities, etc.
- Interfaces with other contractors, Owner, Government, regulatory authorities or other third parties

Activities shall be resource loaded with man-hours, major quantities and possibly equipment as established by the project.

Major quantity and equipment resources recommended to be included are:

- Excavation (construction)
- Fill (construction)
- Concrete: Cast in Place and Precast (engineering and construction)
- Structural steel (engineering, procurement and construction)
- Piping (engineering, procurement and construction)
- Electrical (engineering, procurement and construction)
- Major plant equipment (mobilization and construction)

Generally, the contractor's Interim Schedule will consist of between 150 and 200 activities, but shall contain sufficient detail to assure the project of the feasibility of the plan and approach proposed by the contractor.

- **Format**

The schedule shall be organized in a logical work breakdown, by contract stage and phase, by subcontract, or as directed by the project.

The critical path(s) must be highlighted.

- **Codes and Descriptions**

Each activity in the contractor's Intermediate Schedule shall be coded to indicate the organizational responsibility assigned by the contractor. In addition, the contractor shall assign activity codes as provided by the project. Typical codes to be assigned to each activity are:



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- Phase: Engineering, Procurement, Construction, Pre-Operational Testing
 - Contract package: identification of activity responsibility assignment by separate contractor or subcontractor, and Owner interfaces
 - Area code: project area, facility or location
 - Key Activity codes: to be provided by the project
- **Calendar**

All activity durations shall be in work days unless required otherwise by the project. All non-working time, including holidays and periods of production constraint, such as inclement weather and manufacturing slowdown due to national vacation periods shall be considered and contingent events, such as adverse weather allowances shall be identified.

- **Schedule Analysis Report**

The Interim Schedule shall be accompanied by a Schedule Analysis Report as follows:

- Schedule Report

The Schedule Report shall list all activities and events in the Contract Schedule sorted by activity identification number. The Schedule Report shall consist of the following for each activity and event:

- a. Activity identification number and description
- b. Organizational responsibility
- c. Duration expressed in work days
- d. Current early and late start and finish dates, actual start and finish dates, scheduled (target) start and finish dates
- e. Calculated total float
- f. Calculated free float
- g. Predecessor(s) and successor(s), accompanying relationships and lead/lag duration
- h. Imposed constraint dates, such as finish no later than, start no earlier than, start on, etc.
- i. Resources estimated for each activity
- j. Calendar(s) used

- Narrative Schedule Analysis

The interim schedule shall also be accompanied by a narrative statement of the expected plan and approach for the execution of contract work and the attainment of contract milestones and intermediate milestones. This narrative shall include the basis of the contractor's determination of activity duration, basis and qualifications, resources planned, activity sequencing as well as the basis of the critical path.

Resource reports and man-hour loading of activities in the Interim Schedule will not be required.

- **Interim Schedule Review, Evaluation and Approval**

Approval of contractor schedules is mandatory. Approval of interim schedules in a timely and objective manner is a critical step towards protecting Project's commercial interest. The Entity Lead Planner is required to check that the Contractor has presented an achievable planned schedule that meets all required contract milestones and respects stipulated deliverables and conditions.

It is paramount for Entity project controls to pro-actively either accept or reject contractor schedules. Acceptance of a contractor submittal as "work may proceed subject to comments" typically releases contract mobilization payment and that almost invariably leads to a cycle of contractor schedule re-submittals that do not address the required comments. Note that both acceptance and rejection of schedules must be done for substantive and substantiated reasons. Arbitrary or capricious rejection or no response to contractor submittals is in most cases deemed as "approved without comments".

The approval of the Interim Schedule is a significant step in establishing the Contractual baseline.



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- **Schedule Statusing**

Work performed by the contractor shall take into account the actual physical progress of work performed and forecast of work remaining, and shall be statused on an agreed upon reporting cycle established by the project (preferably weekly, but also biweekly or monthly).

Actual progress shall be stated in percent complete, remaining duration, and actual start and finish dates for each activity in the Interim Schedule and shall reflect work accomplished during the pre-agreed upon status period.

All activities that are behind schedule must be analyzed by the contractor and forecast in the time frame when the contractor believes the work will be accomplished.

- **Interim Schedule Revisions**

The contractor shall promptly inform the project of any proposed change in the schedule during the course of the contract.

Where such proposed change is critical and/or affects milestones, the contractor shall consult with the project concerning the necessary changes and their effect on the project. Thereafter, the contractor shall submit for approval a revised Schedule and accompanying schedule analysis, along with revised resource curves as necessary.

The schedule analysis shall indicate the sequence of operations of any and all work related to the change and the impact of changed work or changed conditions.

- **Initial Staffing Plan Submittal**

In conjunction with the submittal of the Interim Schedule, the contractor shall submit to the project a preliminary staffing plan, time phased by calendar month showing, at a summary level, the numbers of employees by classification that the contractor plans to use during the first Interim period.

Time phasing of staffing shall be consistent with the contractor's Interim Schedule and shall represent reasonable staffing resources in the required classifications to accomplish the scope and timing of contract services during the period. Variations from the staffing plan and Proposal Schedule submitted by the contractor with the Proposal shall be explained in full to the project.

6.4.2 Contract Schedule

- **Schedule Objective**

The contractor's Contract Schedule shall portray the contractor's plan for the project. The contractor shall deliver to the project within the agreed timeframe after the receipt of the contract award/notice to proceed the Contract Schedule for approval by the project. During the approval period of the proposed Contract Schedule the existing Interim Schedule will remain in effect and be used by the contractor for project scheduling requirements. The contractor shall propose intermediate milestones that describe physical deliverables that will be used as a guideline to achieving each contract milestone listed in the contract. The proposed milestones shall occur at intervals of not greater than 3 months. When approved, these intermediate milestones shall be incorporated into ALL of the contractor's schedules. Variances from the contractor's Interim Schedule must be explained to the satisfaction of the project controls representative.

- **Elements of the Schedule**

The Contract Schedule shall clearly show in detail all activities including the discrete work elements and work element interrelationships necessary and required to complete all work and separable parts, including work assigned subcontractors, and including work done during the initial Interim period (in summary form), and the schedule critical path. Activities shall be resource loaded with estimated major quantities, man-hours and equipment as established by the contractor. Man-hours shall be assigned only to activities and shall not be assigned to milestones. The category of man-hours to be used and the number of activities for the Contract Schedule will be agreed upon by the contractor and the project controls representative. Generally, the Contract Schedule should consist of between 1,000 and 2,000



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activities, depending on the size of the project, but shall contain sufficient detail to assure the project of the feasibility of the plan and approach proposed by the contractor.

- **Codes and Descriptions**

Each activity in the contractor's Contract Schedule shall be coded to indicate the organizational responsibility assigned by the contractor. In addition, the contractor shall assign activity codes as provided by the project.

Typical codes to be assigned to each activity are:

- Phase: Engineering, Procurement, Construction, Pre-Operational Testing
- Contract package - identification of activity responsibility assignment by separate contractor or subcontractor
- Area code - project area, facility or location
- Activity codes - to be provided by the project

- **Calendar**

All activity durations shall be in work days unless required otherwise by the project. All non-working time, including holidays and periods of production constraint, such as known periods of inclement weather and manufacturing slowdown due to national vacation periods shall be considered, and contingent events, such as adverse weather allowances shall be identified.

- **Schedule Analysis Report**

The Schedule Analysis Report shall list all activities and events in the Contract Schedule sorted by activity identification number. The Schedule Report shall be in the same format and including the same content as that required for each activity and event in the Interim schedule, with the addition of resource reports which shall graphically display all resources contained in the schedule with respect to time. Resources shall be presented in both cumulative and incremental format and shall be presented individually by resource. The resources to be used and the number of activities for the schedule will be agreed upon by the contractor and the project.

- **Schedule Review, Evaluation and Acceptance/Approval**

Acceptance/Approval of subcontractor schedules is mandatory. The project should meet with the Contractor within a reasonable time from the submittal of the initial contractor's Contract Schedule, for the purpose of reviewing and accepting the Contract Schedule, including the proposed tasks, activity breakdown, intermediate milestones, and accompanying Schedule Analysis Report. If revisions to the Contract Schedule are required, the final version of the Contract Schedule shall be submitted for approval by the contractor within the timeframe stipulated by the contract for approval of Contractor submittals. The Contract Schedule shall not be considered approved until the project has issued formal written approval. Remember: The initial schedule submittal upon acceptance becomes the Contractual Baseline. It becomes the benchmark for all future progress and claims.

- **Schedule Statusing**

Work performed by the contractor shall take into account the actual physical progress of work performed and forecast of work remaining, and shall be statused on an agreed upon reporting cycle established by the project (i.e., weekly, biweekly or monthly). Actual progress shall be stated in percent complete, remaining duration, and actual start and finish dates for each activity in the Contract Schedule and shall reflect work accomplished during the pre-agreed upon status period. All activities that are behind schedule must be analyzed by the contractor and forecast in the time frame when the contractor believes the work will be accomplished.

- **Schedule Revisions**

The contractor shall promptly inform the project of any proposed significant change in the schedule during the course of the contract and where such proposed change is critical and/or affects milestones, the contractor shall submit for approval a revised Contract Schedule and accompanying schedule analysis, along with revised resource curves. The schedule analysis shall indicate the sequence of operations of any and all work related to the change and the impact of changed work or changed conditions on the Contract Schedule accepted by the project and in effect at the time of the proposed change.



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- **Contract Schedule Staffing Plan Submittal**

In conjunction with submittal of the Contract Schedule, the contractor shall submit to the project for approval, a staffing plan, time-phased by calendar month, showing at a summary level, the numbers of employees by classification the contractor has planned to employ and assign to completion of contract work. Time-phasing of staffing shall be consistent with Contract Schedule and shall represent reasonable staffing resources in the required classifications to accomplish the scope and timing of contract services during the period. Variations from the staffing plan and Proposal Schedule submitted by the contractor with the Proposal shall be explained in full to the project.

6.4.3 3-Week Lookahead Schedule

The 3-Week Lookahead Schedule process is described in document "D548 Schedule Lookaheads". As the schedule process and format are well established and described in this procedure, it is suggested that the process be communicated to the Contractor in the event that they do not have similar processes in place.

- **Schedule Objective**

The 3-Week Lookahead Schedule shall expand the level of detail of the Subcontractor's Contract Schedule and graphically display the deliverables planned for the immediate future. It shall be used to plan, organize, and execute the work on a short-term basis. The Contractor shall, within 1 week after the submittal of the Contract Schedule, submit a 3-Week Lookahead Schedule (3WLA) for review and acceptance. Using the Contract Schedule, the Subcontractor shall expand each activity planned to occur during the 3 to 4 week period into a weekly and in some cases, a daily level of detail. For a 4-week Short-Term Rolling Schedule, the Subcontractor shall "roll" the schedule forward each week maintaining a 3-week "look ahead" and 1 week of actual progress. Look Ahead Schedules may vary from project to project, but generally will range from 3- to 4-week time periods. Formats will also vary, but all shall display one period of actual progress and multiple periods of planned work.

- **Type Of Schedule Required**

The Subcontractor's 3-Week Lookahead Schedule shall be presented in either bar chart or tabular listing format. Variances from the Contract Schedule must be explained to the satisfaction of the project.

- **Elements of the Schedule**

The Subcontractors' 3-Week Lookahead Schedule shall clearly show in detail all activities planned to occur in the agreed upon time period. The schedule shall clearly show how the Subcontractor will achieve each of the work items and intermediate milestones he plans to accomplish in the Contract Schedule at a greater level of detail. The Subcontractor must describe discrete deliverables required to complete all work and any separable parts including installation quantities and work assigned to lower tier subcontractors.

- **Format**

The schedule shall be organized in a logical work break down, based on the format of the Contract Schedule or as directed by the Contract. Any variances between the Short-Term Rolling Schedule forecasted milestone dates and the contractual milestone dates shall be explained to the satisfaction of the project. Significant schedule variances will require a revised schedule to be submitted.

- **Codes and Descriptions**

Each activity in the contractor's 3-Week Lookahead Schedule shall be coded to indicate the summary activity in the Contract Schedule it represents. This coding may be part of the activity number or a more sophisticated coding structure developed by the Subcontractor.

- **Calendar**

This schedule shall conform to the requirements of the Contract Schedule calendar.

- **Scheduling Statusing**

Work performed by the Subcontractor shall take into account the physical progress of the work performed and forecast of work remaining and shall be statused weekly.



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- **Schedule Review, Evaluation and Approval**

The contractor shall meet on a weekly basis with the project for the purpose of reviewing the schedule, at a date, time and place established by the project.

7.0 ATTACHMENTS

N/A