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PURPOSE

The purpose of this procedure is to establish a method for the progress measurement of engineering, procurement and construction for the PROJECT. This procedure defines the physical progress measurement and progress calculation method for the PROJECT.

PROGRESS PLANNING

In parallel with schedule planning, CONTRACTOR will carry out progress planning in accordance with the project schedules. The following studies will be conducted.

1. Project Management Progress Plan

   Project Management Progress Plan will be prepared by project mobilization milestones and by proportion of overall project physical progress achieved.

2. Engineering Progress Plan

   Engineering Progress Plan will be prepared by engineering milestones and by engineering deliverables for each category. Weight point of engineering deliverables for each category will be based on the estimated man-hours by CONTRACTOR.

   This engineering progress plan will be prepared based on the Project Master Schedule of the CONTRACT and on statistical analysis of CONTRACTOR‘s historical data obtained from past projects.

3. Procurement Progress Plan

   Procurement Progress Plan will be covered equipment and bulk materials to be purchased by CONTRACTOR. This plan will be prepared respectively for the milestones of purchase commitment, receipt of major raw materials to vendor shops, FOB and/or ex-works and arrival at the Site. Weight percentages for categories will be based on the costs defined in the CONTRACT.

   This procurement progress plan will be prepared based on the Project Master Schedule of the CONTRACT and on statistical analysis of CONTRACTOR’s historical data obtained from past projects.

4. Construction Progress Plan

   Construction Progress Plan will be prepared construction milestones covering mobilization, demobilization, management, temporary facilities and by construction including pre-commissioning progress for permanent facilities.

   For construction including pre-commissioning progress, the representative Bills of Quantities (B/Q) will be allocated to work packages.

   Relative weight value of each discipline will be based on the Contract Price Breakdown in Annex 1, 2 of CONTRACT. Commissioning and Start‑up progress will be separately prepared based on the cost and man-hours defined in the AGREEMENT of the CONTRACT.

   These plans will be prepared based on the Project Master Schedule of the CONTRACT and on statistical analysis of CONTRACTOR's historical data obtained from past projects.

5. Overall Progress Plan

   The Overall progress plan will be prepared by integrating the progress plans generated in above (1), (2), (3) and (4). The weight percentages for engineering, procurement, construction including pre-commissioning will be based on the Provisional Contract Price defined in the CONTRACT and AGREEMENT.

OVERALL PROGRESS BASELINE

Contractor will be prepared the progress reports based on the progress measurement system described Work Breakdown Structure. Overall progress will be composed sum of the value of each phase with following weighted percentage.

PHASE	WEIGHTED %
Engineering	6.88%
Procurement	59.97%
Construction	33.15%
OVERALL TOTAL	100.00%

PROGRESS MEASUREMENT BASELINE

Engineering Progress Measurement

Engineering Progress will be measured integrating three groups of deliverables base progress, and weight percentages for each group are follows:

PORTION	WEIGHTED %
Project Management	18.38%
Engineering Design	83.82%
ENGINEERING TOTAL	100.00%

A. Project Management Progress

The Project Management Progress will be measured as follows:

Engineering Progress	10.3%
Procurement Progress	80.7%
Total General Management Progress	100.0%

Project Management progress will be calculated by proportion of Overall Engineering and procurement physical progress achieved respectively.

B. Engineering Design Progress

1. Discipline Breakdown with Weighted Percentage.

   The weight value for each discipline is apportioned by a ratio of the engineering man-hours assigned to each discipline as follows:

DISCIPLINE	WEIGHTED %
Basic Engineering	40.1%
Process (including HSE)	4.0%
Rotating Equipment	2.4%
Static Equipment	3.7%
Piping	22 - 5%
Electrical	8.2%
Instrument	8.8%
Structure & Building	8.1%
Fire Fighting & HVAC	8.1%
Civil	1.7%
Environmental	0.4%
ENGINEERING DESIGN TOTAL	100.0%

2. Engineering Deliverables

   Progress measurement for engineering works shall be conducted on a monthly basis. The overall progress will be calculated by summing up the achieved physical progress of each discipline and the physical progress for each discipline will be measured by engineering deliverables.

   Each discipline is divided into several engineering deliverable and weighted value of each engineering deliverables assigned to each discipline is a ration of the man-hours required for each deliverable.

The basis of percentage for engineering design and weighted value of each deliverable by discipline are shown in Attachment 1.

3. Completion Milestone Percentage

A milestone completion method will be used for monitoring individual document completion percentage. The following milestones and respective percentage figures for completion of each document will be monitored on a monthly basis.

- For Approval/Review

Start	10%
Drafting	10%
Check	10%
Issue	80%
Approval	10%
Total	100%

- For information

Start	20%
Issue	80%
Total	100%

- P&ID

Start	10%
Drafting	10%
Check	10%
Issue for Review	30%
Issue for Design	30%
Issue for Construction	10%
Total	100%