





Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695		
 thyssenkrupp	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			नालको  NALCO नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
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1 Introduction

The Contractor is required to institute and maintain an effective planning, scheduling and monitoring system and employ professionally qualified and experienced Planning Engineer(s) for the Project. The system developed shall be capable to support and enforce proper control mechanism in the project. It shall be based on hierarchical break-down of works with elaborate level of detailing and control. The levels of controls shall be such that it supports and foster controls at activity level, function level and management level with greater emphasis on target, scope and commitment at various levels of contract for accountability and action planning. Such multi-level / multi-tier system of planning, scheduling and monitoring, supports, effective information generation, assimilation, summarization and reporting in an adequate manner is required. The system shall be predictive type and should constitute early warning mechanism to diagnose and anticipate the problem well in advance and provide preventive features / measures. It is required that work breakdown structure shall consist of details of systems, work packages, functions, work items and activities from monitoring point of view at micro level and summarization at higher levels.

2 Definitions

Schedule

Means detailed project schedule unless type of schedule is specified

Work Breakdown Structure (WBS)

Hierarchical arrangement of the products and services produced by and during the project. The WBS divides the project into meaningful and logical units for the purpose of planning and control. WBS elements can be rolled up and summarized from lower to upper levels.

Functions

Functions mean basic components of the projects like Engineering, Procurement, Manufacturing & Delivery, Construction & Commissioning. Each function is further divided into various disciplines. In case of Engineering, the various disciplines are like process, mechanical, piping, civil, electrical & instrumentation.

3 Abbreviations

WBS - Work Breakdown Structure
AFC - Approved for Construction
EDC - Effective Date of Contract



Note:

- Refer "Scope of work for Contractor – General" for the definition of Owner, Consultant, Contractor & Licensor.

4 Documentation to be submitted with Bid.



The Bidders shall submit the following documents along with the offer:

- Overall project schedule of execution of Contractor's scope of work is given in Annexure-1. Bidder shall submit their proposed schedule along with offer, which will be in line with this schedule, by including all major activities for Engineering, Procurement, Construction, Pre-commissioning, Commissioning and PGTR phases.

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- b) Write-up on Project Planning, Scheduling, Monitoring and Control systems of the bidder, as a part of their bid.
- c) Organizational set up for Planning, Scheduling, Monitoring and Control at Bidder's Engineering office and Site Office.
- d) Manpower deployment plan, in the form of histograms, for carrying out engineering, procurement, inspection & expediting and construction supervision, in line with the duration stated in the proposed schedule of bidder. Also the Contractor shall submit plan for construction manpower and machinery required in line with the duration stated in the proposed schedule of bidder.
- e) Software's to be used for planning. (Refer 6695-PMG-G00-BD-0005 - IT Requirements)
- f) Resume of Lead Planning Engineers considered to be working for project execution at engineering & Home.
- g) Contractor to provide documents as mentioned in Annexure-4 "Distribution of documents"
- h) Contractor shall also include key milestones (3 to 4 milestones every month) in their schedule. The contractor shall adhere to following major milestones. These milestones are minimum required and detail list of milestones / sub milestones shall be prepared & submitted by Contractor.

Sr.No.	Activity Name	Ordinal Month from EDC
1	Effective Date of Contract	
2	Kick off Meeting	
3	Submission of Planning Package	
4	Mobilisation & setting of site office by Contractor with posting of RCM	
5	Process Flow Diagram, Piping & Instrumentation Diagram, Plot Plan - First Issue	
6	Interface milestones with Owner / Other LSTK contractor eg. Interface for any Free issue material etc.	
7	Any statutory requirements	
8	Complete ordering of Critical Equipment / LLI / Packages	
9	Complete Ordering of balance equipment	
10	HAZOP, SIL & any other studies required	
11	Finalisation of Billing Schedule	
12	Start of Piling Works at site	
13	First model review	
14	First Piping MTO – Ordering	
15	Commence Civil Works	



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Sr.No.	Activity Name	Ordinal Month from EDC
16	Completion of AFC drawings for: a) Civil / Structural b) Mechanical c) Electrical d) Instrumentation	
17	Commence Structural Fabrication works at site	
18	Completion of Ordering of Balance Equipment (including Electrical & Instrumentation including, but not limited to items such as Control System, Analyzers, Control Valves)	
19	Completion of Piling works at site	
20	Commence Piping fabrication work at site	
21	Final model review	
22	Completion of All Civil works	
23	Commence Electrical / Instrumentation works	
24	Receipt of Balance Equipment at site (including Electrical & Instrumentation including, but not limited to items such as Control System, Analyzers, Control Valves)	
25	Receipt at site of all Long Lead Items	
26	Achieving progress at site e) Work progress of 20% f) Work progress of 40% g) Work progress of 60% h) Work progress of 80%	
27	Completion of all Civil works at site	
28	Completion of Mechanical works at site	
29	Completion of Electrical / Instrumentation works at site	
30	Mechanical Completion including precommissioning	
31	Completion of Commissioning	
32	Completion of Performance Guarantee Test Runs	

5 Kick off Meeting after award of LSTK Contract

Contractor is required to submit the following documents before kick-off meeting. The same will be discussed during the kick-off meeting to establish planning requirements, inputs and outputs for overall schedule, monitoring and progress reporting:

- Planning deliverables required for Project Monitoring and Control
- WBS for Overall Project Schedules
- Procedure for Project Planning, Scheduling, Monitoring and Control
- Progress Measurement Methodology. This will also include weightage breakdown in units, functions, disciplines and deliverables.
- Distribution of planning documents by Contractor will be as per Annexure-4. Cut-off dates for progress reports and schedule updates as mentioned in point 7.
- Billing Milestones for LSTK package.
- List of LLI Items
- Any other document as required.

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In this kick-off meeting, it will be endeavored to reach complete understanding with Contractor on activities, inputs and logic to establish Planning Documents for monitoring.

6 90 days front end schedule

Contractor shall prepare and submit a detailed 90 days front-end schedule within two weeks of award of contract. Till finalization of detailed project schedule, this 90 day schedule will be basis of monitoring of front end activities. The schedule shall cover all activities to be carried out during initial 90 days period of the contract. This schedule shall be updated every week and shall be issued to Owner / Consultant along with the weekly progress reports, until such time detailed project schedule is finalized and issued for implementation.

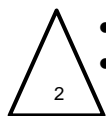
7 Project Calendar

Within two weeks from the EDC, contractor shall submit the “Project Calendar” containing the following details for Owner / Consultant review /approval:

- Effective date
- Contractual completion date
- Local holidays

Contractor should also include following events in the above. (Cut off dates and submission dates will be discussed and finalized during kick off meeting).

- Cut-off dates for weekly report will be Friday.
- Weekly report to be submitted to Owner / Consultant every Monday.
- Cut-off dates for monthly progress reports will be 25th of every month.
- Updated Progress S curves (Engineering – Procurement – Construction) must be submitted by 27th of every month.
- Monthly report to be submitted to Owner / Consultant within 3 working days after cut-off.
- Monthly progress review meeting schedule.
- Weekly Progress Review Meeting schedule.



8 Master Document Control Index



Contractor should submit within 30 calendar days of EDC, Master Document List of each engineering discipline wherein contractor need to categories the documents for Approval or for Review or for Information as specified in the bid. This will be reviewed by Consultant / Owner.

9 Planning Package

The Contractor shall submit within 45 (forty five) calendar days of EDC, complete planning package.

The planning package shall consist of the following:

- Introduction
- Project WBS
- Progress measurement methodology
- Detailed Project Schedule
- Detailed work element schedule
- Progress “S” Curves (Made in Excel format)
- Sample Reporting formats
- Manpower & Machinery Schedule.

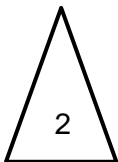
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10 Detailed Project Schedule

Contractor will submit detailed project schedule showing Project work load i.e. Tenders, Material Requisitions, Construction Drawings, equipment's etc. along with sufficient details in the activity network form, clearly indicating the major milestones, inter relationship / interdependencies between various activities such as engineering, procurement, tendering, manufacture / delivery, construction etc. together with a computer analysis of critical path and floats as well as quantum of work for major activities.

Major milestones shall be depicted at the beginning of the network. The detailed project schedule shall be prepared for contractual duration, without considering any grace period, if any, as per Contract.

Contractor will support OWNER for obtaining all necessary statutory approvals by way of providing necessary documentation & technical support, as needed, as part of their scope of work.

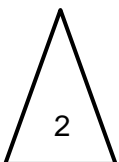


Contractor to include all interface activities between Contractor and Owner eg. Free issue material from owner (All the activities like inputs from Contractor, review/approval cycle of 10 working days from Owner/Consultant, Procurement cycle by owner, Required on site dates, installation / erection activities etc. are to be captured).

The Detailed Project Schedule will be prepared using Primavera Project Planner P6 (Version8.2).

The detailed project schedule will be reviewed and approved by Owner / Consultant and the comments, if any, shall be incorporated in the network within two calendar weeks from receipt of comments. The network thus finalized will become the basis for developing further detailed work element schedule. This schedule will not be revised without the prior permission from the Owner / Consultant during the entire period of contract. The changes made during revision of the contract, if any, shall be approved by Owner / Consultant. Approved schedule will be baseline & will be used for the monitoring.

11 Statutory Approvals



Contractor shall depict phase-wise statutory approvals requirement in the milestones as well as activities level. All the relevant engineering documents, to be generated by contractor, and input/s required from owner shall be captured in detailed project Schedule. Sufficient float to be considered while scheduling these engineering documents.



Contractor to refer "6695-PMG-G00-BD-0005 - Project execution plan for LSTK contract" while developing and updating Detailed project schedule.

12 Detailed Work Element Schedule

Contractor shall prepare, for all functions, detailed work element schedules including following.

A. Engineering Schedule

Contractor will submit a schedule of all deliverable drawings / documents such as AFC drawings, Isometrics, Specifications, Design calculations etc. refer Annexure 05 page 17 & 18.

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B. Ordering Schedule

Contractor will submit schedule for all ordering items refer Annexure 05 page 20 & 21.

C. Manufacturing & Delivery Schedule

Contractor shall submit a schedule for manufacturing and delivery activities as per Annexure-05 (Refer page 25). These shall include all orders listed in the ordering schedule. The progress at function level shall be summarized considering weighted values of tagged items and bulk material to report manufacturing and delivery progress.

In addition to the above, for critical items as mutually agreed between Contractor and Owner / Consultant, Contractor shall ensure that vendor prepares and updates network for manufacturing & delivery. The same shall be submitted on weekly or monthly basis to Owner / Consultant, if asked for.

Contractor shall also submit Equipment / Bulk Material Status reports. Refer Annexure 5 page 22,23 & 24.

D. Sub-Contracting Schedule

Contractor shall submit schedule for all sub-contracting as per Annexure 05 page 26.

E. Construction Schedule



Contractor shall develop and submit a detailed construction schedule (Network) unit-wise as a part of detailed project schedule. Contractor shall plan for manpower and machinery required to be mobilized at site as per this schedule. Contractor shall submit program for resource deployment at site as per Annexure 05 pages 33 & 34. The construction schedule shall have interface with other detailed work element schedules. The construction quantity for each activity shall be also defined. Contractor shall plan discipline-wise Construction progress 'S' curves and quantum schedule. Construction Schedule in detail micro level to be developed & maintained at site after the approval of planning package.

Contractor shall furnish following write up along with the schedule.

- Construction Philosophy and Construction Plan
- Erection plan and Construction sequence for equipment's which are critical from construction view point. Rigging scheme and detailed plan for erection of this equipment's need to be furnished.
- Special measures and mechanization considered for speedy construction.
- List of imported items with their cycle time of procurement
- Details of transportation for all major ODC.

F. Sub-Contractor Schedule (construction work at site)

Contractor shall ensure preparation of detailed schedules for each sub-contract and progress 'S' curve for each of the sub-contract. These shall be updated on monthly basis. Owner / Consultant reserve the right to check these schedules at any time.

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13 System-wise / Commissioning Schedule:

To supplement the monitoring of construction when project moves towards commissioning, the following schedules shall be prepared by Contractor.

A. Loop-wise Piping Completion Schedule

Contractor shall prepare schedule at micro-level for completion of piping activities and submit to Consultant / Owner for review at least three months before the start of hydro-testing as scheduled. The schedule shall cover unit-wise / system-wise / loop-wise, the following activities remaining as of the date of preparation as per Annexure 05 page 31.

- Status of balance piping materials
- Status of balance equipment and in-line instrument items
- Welding workload in inch-dia. for shop fabrication and field welding separately.
- Erection in inch-meter
- Radiography in no. of joints
- Stress relieving in no. of joints
- Hydro testing in inch meter

B. System-wise Completion Schedule

Contractor shall prepare unit-wise / system-wise micro-level schedule for completion of remaining activities. The schedule shall be submitted by Contractor to Consultant / Owner for review three months before scheduled system completion as per unit-wise construction schedule. The schedule shall cover discipline-wise remaining activities.

C. Pre-commissioning / Commissioning /PGTR Schedule

Contractor shall prepare unit-wise / system-wise pre-commissioning & commissioning schedule. These schedules shall be submitted by Contractor to Owner / Consultant for review three months before starting pre-commissioning activities. For preparing commissioning schedule, Licensor's inputs shall be taken into account. Commissioning and handing over- Discipline wise organogram is required with sufficient number of Rotary and stationary equipment experienced personal along with manpower.



D. Handing Over Schedule

Contractor shall prepare this schedule for final documentation, material reconciliation, final bills, etc. This schedule shall be submitted by Contractor to Owner / Consultant for review one month before mechanical completion. This shall be updated weekly.

14 Progress Measurement Methodology

The Contractor is required to submit during the Kick Off Meeting, the detail methodology of progress measurement of Engineering, Procurement, Manufacturing / Delivery, Construction, Pre-commissioning, Commissioning & PGTR (computation of total service / physical progress at the unit-wise level and on the overall basis).

Contractor shall submit proposed weightages to be adopted for calculation of progress in enclosed Annexure 03. The same shall be discussed during kick-off meeting.

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Weighted values for the following along with basis of their derivation shall be submitted by Contractor for review to Owner / Consultant:

- Discipline-wise within each function
- Deliverable level

The above mentioned weightages shall be discussed during kick-off meeting.

Sample WBS for weightages is enclosed herewith as Annexure-02.

Progress figures shall be summarized from deliverable level.

The progress basis shall be physical realization of work such as in terms of deliverables and construction quantity / volume accomplished. The amalgamation of such output across the project to compute overall progress shall be suitably established with proper rational and norms and maintained throughout the project. Owner / Consultant reserve the right to modify the methodology in part or in full.

Progress 'S' curves shall be developed on this basis.

15 Overall Progress 'S' Curves

Contractor shall prepare Overall Progress 'S' curve showing cumulative schedule progress 'S' curves for all functions i.e. Engineering; Ordering, Manufacturing, Inspection & Delivery; Construction, Pre-commissioning, commissioning and Handing over. The Overall Progress "S" curve and function-wise progress "S" curves shall be submitted for review to Owner / Consultant. The Overall progress 'S' curve and function-wise progress 'S' curves shall be updated and submitted with Monthly Progress Report. The Schedule progress 'S' curves shall not be changed during the execution of project without prior approval of Owner / Consultant. Contractor shall also prepare and update discipline-wise 'S' curves and submit the same to Owner / Consultant, whenever called for.

16 Recovery Schedule (Catch-up plan)

If there is delay / lag in the project, Contractor shall prepare and submit recovery schedule (catch up plan) for completion of all balance activities without change in contractual completion date with detailed resource reinforcement as and when asked by Owner / Consultant.



On consent of Owner / Consultant, progress 'S' curves for recovery schedules shall be made and shown along with the original schedules and actual progress 'S' curves.

17 Monthly Programme

Contractor shall prepare monthly quantitative programme in line with detailed overall schedule for all the functions.

The program for construction shall be accompanied by list of resources planned to be deployed to achieve the programme. Hold-ups and its probable resolution during the project execution shall be indicated.

Monthly programme, other than construction, shall be submitted within 3 (three) calendar days of cut-off date for Monthly Progress Report to Owner / Consultant. Cut-off date for Monthly Progress Report is 25th of every month.

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For construction, monthly programme shall be finalized in consultation with Owner / Consultant's Site representative and submit within two calendar days of cut-off date for monthly progress report. The decision of Owner / Consultant for extent of targets set out in monthly program shall be final and binding.

The monthly programme shall be further broken down into weekly program and indicated in weekly reports for better monitoring.

18 Update of Project Schedules

The various schedules described herein shall be updated for submission to Owner / Consultant. Updating of the schedule is to determine the project trend, with the objective of taking preventive /corrective action. Detailed Project Schedule approved by Owner / Consultant shall not be revised without the prior written permission of Owner / Consultant. The indication of delays in progress reporting shall not absolve the Contractor of his contractual obligations as per the Contract.

A. Detailed Project Schedule

This schedule shall be updated on monthly basis and submitted with monthly progress report. The updates shall be compared with the original baseline schedule. On a six monthly basis complete the detailed schedule review in order to provide formal forecast updates of project delivery date.

B. Detailed Work Element Schedule

The updated detailed work element schedules compared with baseline schedules shall be submitted to Owner / Consultant on fortnightly / monthly basis.

C. System Completion / Commissioning Schedules



The following schedules shall be updated on a weekly basis and submitted to Owner / Consultant before the weekly review meeting at site. The updated schedules shall be compared with baseline schedule.

- Loop wise piping completion schedule
- System wise completion schedule
- Pre-commissioning / Commissioning schedule

19 Computerization and Software

The Contractor should follow effective computerized control at their Engineering and Site Offices for at least following project modules.

- Activity network at Engineering and Site Office
- Engineering (Residual & Detail)
- Material control at Engineering Office
- Procurement, Delivery & Expediting at Engineering Office
- Tendering
- Construction Planning and Control
- Material allocation and Control at site
- Warehousing control at site
- Project Documentation at Engineering Office & Site Office

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The above distinct but integrated components of project should be monitored as deliverable and quantum level. To perform such elaborate level of input-output control at each deliverable, the packages used should forecast resources based on recovery plan in dynamic manner for adequate control.

Contractor shall use Primavera Project Planner version P6 (version 8.2) for preparation and analysis of Schedule / Network. The electronic files for all other deliverables shall be compatible with Microsoft Office 2010. Contractor shall submit back up of the schedules on CD discs along with the hard copy whenever submissions of the schedules are called for. On request from Owner / Consultant, native files of the schedules / documents shall be sent over by e-mail by Contractor.

20 Progress Reporting



Contractor shall submit the following reports on regular basis for Owner / Consultant's information / review.

A. Monthly Progress Report

The report shall be submitted on monthly basis within 3 calendar days from cut-off date or as agreed upon, covering overall of the project. A copy of the specified formats for the report is enclosed herewith as per Annexure 05.

The report shall include, but not limited, to the following:

- Executive summary - Summary of major events / activities.
- Schedule (Baseline) v/s actual percentage progress and progress S curves for detailed engineering, sub-ordering, manufacturing / delivery, contracting, construction commissioning and overall.
- Delay analysis, if any.
- Areas of concern/problem/holds-ups, impact and recovery action plans/catch-up plan.
- Activities (engineering, ordering, manufacturing status, delivery at site, construction status) executed, achievements during the months and target for the following month
- Critical path
- Analysis of critical path activities and impact on overall completion.
- Updated Project Schedules like Overall Project Schedule, Detailed Work Element Schedules, etc. .pdf and .xer files of updated overall schedule to be provided every month.
- Chronological achievements of key events indicating schedules and actual occurrence date.
- Annexure giving status summary for drawings material requisitions, equipment and materials delivery, contracting & construction.
- Summary status of engineering documents
- Resource requirement deployment status.
- Lessons learnt during month
- Change order status.
- Invoice status.

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B. Weekly Progress Report (Complete Report – Engineering, Procurement, Manufacturing and Construction)

This report shall be prepared by Contractor and issued on weekly basis to Owner / Consultant. Contractor shall submit .pdf and native file of the weekly progress report. The report shall include but not limited to the following:

- Executive Summary with activities completed
- Project Exception (planned but not achieved with reasons for non-achievements)
- Work Programme for the next week
- Action taken / to be taken for slippages.
- Progress statistics
- Summary status of engineering documents
- Material order status
- Progress on procurement activities with material ordered and material dispatched
- Constraints, if any
- Quantity-wise work completed against programme with reasons for shortfall
- Fronts available
- Resources deployed against planned with reasons for shortfall
- List of materials and equipment received at site during the week

C. Daily Progress Report (Construction)



Contractor shall submit daily progress report to Consultant / Owner before noon for the previous working day including the following:

- Programme v/s Progress for the day
- Programme for the next day
- Materials / Equipment receipt for the day
- Manpower / machinery required v/s deployed

D. Expediting Report:

Contractor shall submit fortnightly expediting report based on his representative's visit to vendor's work for orders where delivery of materials is critical and important for project completion.

In addition to the above, expediting report for all balance items (discipline wise) also shall be submitted. This shall also form part of Monthly Progress Report.

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21 Material Control

It is essential that the Contractor follows an integrated material control system for the Project in the system, material identification in the drawing, procurement and allocation, are all channelized and controlled in an orderly manner. Contractor should follow a system for material identification like system-wise / area wise / zone-wise, and should give construction orientation to material control. Contractor, right from the beginning, at the Engineering office stage will start identifying materials system-wise or area-wise. The system will be based upon backing of material from the material take off stage through material requisitioning, placement of purchase order, manufacturing at vendor's shop up to receipt at site for making the material available for performing planned and sequential construction work.

At the construction site, Contractor shall develop and implement a system of inspection, receipt and effective utilization of materials received by reexamining the work front availability and priority between and amongst various systems and areas.

Contractor must follow proper warehousing procedure at Project store to maintain dynamic stock status records. Through periodic reviews, Contractor will have a system of generating hold up reports well in advance to identify exception on material availability and to track such material by the expeditors through a systematic follow up procedure from the Vendors.

Owner / Consultant desires to introduce check points at identification, procurement allocation and construction stages to know the development, status and effectiveness of the system and Contractor shall submit the following reports on monthly basis:

- Bulk Material Status Report
- Material hold up/shortage report.

22 Project Review Meetings



Contractor shall present the programme and status at various review meetings as described below. The presentation materials shall be submitted by contractor to Owner / Consultant at least two days before the date of the meeting for management level review meetings and monthly/fortnightly review meetings.

A. Senior Management Review Meetings

Level of participation: Senior Management of Owner, Consultant & Board members of Contractor

Agenda, venue and frequency: To be decided by Owner / Consultant.

Total number of such meetings shall be less compared to total number of monthly review meetings.

Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695		
 thyssenkrupp	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			नालको  NALCO नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
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B. Monthly / Fortnightly Review Meeting

Level of participation: Owner, Consultant and Contractor

Agenda:

- Monthly programme V/s Progress statistics / status
- Completion outlook
- Areas of concern with action plan
- Recovery action plan

Venue and timing of the meeting shall be decided by Owner / Consultant. In case of criticality of the project status, Owner / Consultant may decide to hold meeting fortnightly for certain duration.

C. Weekly Review Meeting (for Contractor's design office activities)

Level of participation: Owner, Consultant and Contractor

Agenda:

- Weekly programme V/s Progress Statistics / Status for residual basic engineering, detailed engineering, ordering, manufacturing, delivery and sub-contracting.
- Areas of concern
- Work programme for next week
- Action taken for slippages
- Status of various resources deployed Vs. Planned.



D. Weekly Review Meeting (at site)

Level of participation: Owner, Consultant and Contractor

Agenda:

- Weekly programme V/s Progress Statistics / Status
- Areas of concern
- Work programme for next week
- Work front availability
- Reasons for shortfall and recovery schedule
- Resource mobilization and deployed v/s planned

In case Owner / Consultant finds need for improvement in coordination between Engineering Office and site of Contractor, then participation from Engineering Office of Contractor shall also be required in the meeting.

Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695		
 thyssenkrupp	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
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E. Weekly Quality Monitoring Meeting

Level of participation: Owner, Consultant and Contractor Quality Groups and other.

Agenda:

- Weekly observations and inspection reports.
- Inspection's and quality checks for next week.

23 Project Control Room of Contractor at site



Contractor shall display in Site-in-Charge room / conference room, charts featuring salient information of the project, schedules, status of progress, resource deployment, plot plan etc. The status shall be updated at sufficient frequency but at least on weekly basis. This display shall provide information at a glance to project team including management of Owner & Consultant during site visits.

24 Documentation

	Category	No. of Copies of Documents to be issued by Contractor for Approval / Review/Information			
		NALCO-HO	Consultant-HO	NALCO-Site	Consultant-Site
Project Schedule	Approval	3H+1S	1S	3H+1S	1H+1S
Monthly Progress reports	Information	3H+1S	1S	2H+1S	1H+1S
Drawing Index	Information	3H + 1S	1S	3H + 1S	1H+1S
Monthly Inspection & Expediting Reports	Information	1H + 1S	1S	1S	1S
Material Status Reports	Information	2H + 1S	1S	1S	1S

Note:

1. All the document requirements are indicative only and Contractor has to meet the actual requirements at no extra cost.
2. Soft copies of document (in MS Word, Excel, PowerPoint, .xer (primavera native file) shall be submitted to Owner / Consultant on demand.



Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695		
 thyssenkrupp	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			नालको  NALCO नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
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ANNEXURE-01: OVERALL PROJECT SCHEDULE

TO



DOC. NO. 6695-PSC-G00-0006

FOR CONTRACTOR

Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695		
 thyssenkrupp	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			नालको  NALCO नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
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Overall Project Schedule

As mentioned in Special Conditions (Part A) – Appendix 1 for this tender.

Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695
	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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ANNEXURE-02 : WBS FOR WEIGHTAGES

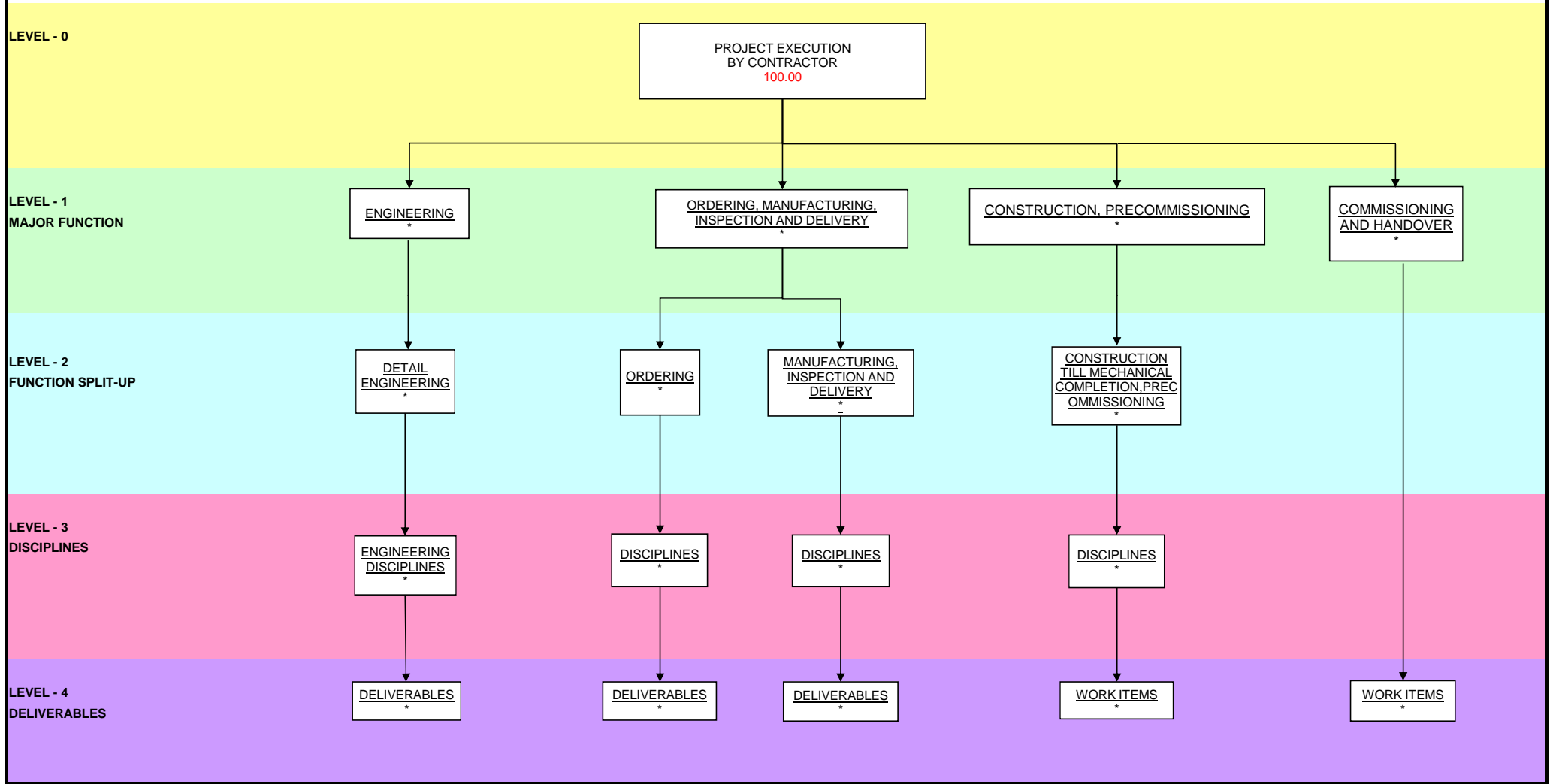
TO

DOC. NO. 6695-PSC-G00-0006



FOR CONTRACTOR

ANNEXURE - 02 TO DOC. NO. 6695-PSC-G00-BE-0006

WBS FOR WEIGHTAGES



Note: * To be provided by Contractor

Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695		
 thyssenkrupp	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
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ANNEXURE-03 : PROPOSED WEIGHTAGES FOR WBS

TO
DOC. NO. 6695-PSC-G00-0006

FOR CONTRACTOR

ANNEXURE - 03 TO DOC. NO. 6695-PSC-G00-BE-0006

PROPOSED WEIGHTAGES FOR WBS



SL. NO.	ACTIVITY DESCRIPTION	WEIGHTAGE FACTOR	
1.0	FUNCTION-WISE MAJOR WEIGHTAGES (THESE ARE FIXED AND NOT TO BE CHANGED)		
1.1	ENGINEERING	XX	
1.2	ORDERING, MANUFACTURING, INSPECTION AND DELIVERY	XX	
1.3	CONSTRUCTION, PRECOMMISSIONING	XX	
1.4	COMMISSIONING AND HANDING OVER	XX	
	TOTAL OF SL.NO. 1.0	100	
	PROPOSED WEIGHTAGES AS FOLLOWING TO BE USED BY CONTRACTOR CONTRACTOR TO ENSURE UNIFORMITY IN REPORTING.		
2.0	FUNCTION-WISE WEIGHTAGES SPLITUP		
2.1	ENGINEERING		
2.2	ORDERING, MANUFACTURING, INSPECTION AND DELIVERY		
2.2.1	ORDERING	XX	
2.2.2	MANUFACTURING, INSPECTION AND DELIVERY	XX	
2.3	CONSTRUCTION, PRECOMMISSIONING, COMMISSIONING AND HANDING OVER		
2.3.1	CONSTRUCTION TILL MECHANICAL COMPLETION	XX	
2.3.2	COMMISSIONING & HANDOVER	XX	
	TOTAL OF SL.NO. 2.0	100	
3.0	DISCIPLINE-WISE WEIGHTAGES		
3.1	<u>ENGINEERING</u>		
3.1.1	PROCESS	XX	
3.1.2	STATIC / ROTATING	XX	
3.1.3	PIPING	XX	
3.1.4	INSTRUMENTATION	XX	
3.1.5	ELECTRICAL	XX	
3.1.6	CIVIL & STRUCTURAL	XX	
	TOTAL OF SL.NO. 3.1	100	
3.2	<u>ORDERING</u>		
3.2.1	PROCESS EQUIPMENT	XX	
3.2.2	STATIC / ROTATING EQUIPMENT	XX	
3.2.3	PIPING	XX	
3.2.4	INSTRUMENTATION	XX	
3.2.5	ELECTRICAL	XX	
3.2.6	CIVIL & STRUCTURAL BULK	XX	
	TOTAL OF SL.NO. 3.2	100	

ANNEXURE - 03 TO DOC. NO. 6695-PSC-G00-BE-0006			
PROPOSED WEIGHTAGES FOR WBS			
SL. NO.	ACTIVITY DESCRIPTION	WEIGHTAGE FACTOR	
3.3	<u>MANUFACTURING, INSPECTION AND DELIVERY</u>	XX	
3.3.1	PROCESS EQUIPMENT	XX	
3.3.2	STATIC / ROTATING EQUIPMENT	XX	
3.3.3	PIPING	XX	
3.3.4	INSTRUMENTATION	XX	
3.3.5	ELECTRICAL	XX	
3.3.6	CIVIL & STRUCTURAL BULK	XX	
	TOTAL OF SL.NO. 3.3	100	
3.4	<u>CONSTRUCTION</u>		
3.4.1	CIVIL WORKS	XX	
3.4.2	STRUCTURAL WORKS	XX	
3.4.3	PIPING FABRICATION / ERECTION	XX	
3.4.4	EQUIPMENT ERECTION	XX	
3.4.5	PAINTING / INSULATION	XX	
3.4.6	ELECTRICAL	XX	
3.4.7	INSTRUMENTATION	XX	
	TOTAL OF SL.NO. 3.4	100	
4.0	DELIVERABLE WEIGHTAGES		
4.1	<u>ENGINEERING</u>		
4.1.1	DRAWINGS AND DESIGN DOCUMENTS	APPROVAL/REVIEW CATEGORY	INFORMATION CATEGORY
4.1.1	DRAFTING COMPLETE	XX	XX
4.1.2	CHECKING COMPLETE	XX	XX
4.1.3	ISSUE FOR APPROVAL	XX	-
4.1.4	RECEIVE COMMENTS	XX	-
4.1.5	ISSUED FOR CONSTRUCTION	XX	XX
4.1.6	FURTHER UPDATES AND REVISIONS	XX	XX
		100	100
4.1.2	PROCUREMENT ENGG.	EQUIPMENT	BULK
4.1.2.1	TECHNICAL SPECIFICATIONS	XX	XX
4.1.2.2	TECHNICAL RECOMMENDATION	XX	XX
4.1.2.3	ORDER SPECIFICATION	XX	XX
4.1.2.4	VENDOR DRAWING REVIEW	XX	
		100	100
4.2	<u>ORDERING</u>		
4.2.1	ISSUE ENQUIRY	XX	
4.2.2	RECEIPT OF QUOTATIONS	XX	
4.2.3	TECHNO-COMMERCIAL RECOMMENDATION	XX	
4.2.4	ISSUE OF LOI	XX	
4.2.5	ISSUE OF P.O. WITH ORDER SPECIFICATIONS	XX	
4.2.6	UNPRICED PO TO CONSULTANT/OWNER	XX	
	TOTAL OF SL.NO. 4.2	100	

ANNEXURE - 03 TO DOC. NO. 6695-PSC-G00-BE-0006			
PROPOSED WEIGHTAGES FOR WBS			
SL. NO.	ACTIVITY DESCRIPTION	WEIGHTAGE FACTOR	
4.3	<u>MANUFACTURING, INSPECTION AND DELIVERY</u>		
4.3.1	ACCEPTANCE OF ORDER BY VENDOR	XX	
4.3.2	VENDOR DRG./DESIGN DOC. SUBMISSION & APPROVAL	XX	
4.3.3	QA PLAN	XX	
4.3.4	MANUFACTURING SCHEDULE/ BAR CHART	XX	
4.3.5	ORDERING OF MAJOR ITEMS BY VENDOR	XX	
4.3.6	RECEIPT OF MAJOR ITEMS BY VENDOR	XX	
4.3.7	FABRICATION FIRST STAGE	XX	
4.3.8	FABRICATION SECOND STAGE	XX	
4.3.9	FABRICATION FINAL STAGE/READY FOR HYDROTESTING OR TESTING	XX	
4.3.10	FINAL INSPECTION & TESTING	XX	
4.3.11	DESPATCH	XX	
4.3.12	RECEIPT AT SITE	XX	
4.3.13	FINAL DOCUMENTATION	XX	
	TOTAL OF SL.NO. 4.3	100	
4.4	<u>SUB-CONTRACTING BY LSTK CONTRACTOR</u>		
4.4.1	ISSUE ENQUIRY	XX	
4.4.2	RECEIPT OF OFFERS	XX	
4.4.3	TECHNO-COMMERCIAL RECOMMENDATION	XX	
4.4.4	ISSUE LOI/PO TO SUB-ONTRACTOR	XX	
	TOTAL OF SL.NO. 4.4	100	

NOTE:

'XX' SHALL BE SPECIFIED BY CONTRACTOR AND BASIS SHALL BE FURNISHED TO THE SATISFACTION OF CONSULTANT / OWNER

Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695		
 thyssenkrupp	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			नालको  NALCO नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
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ANNEXURE-04 : DISTRIBUTION OF DOCUMENTS BY CONTRACTOR

TO
DOC. NO. 6695-PSC-G00-0006

FOR CONTRACTOR

ANNEXURE - 04 TO DOC. NO. 6695-PSC-G00-BE-0006

DISTRIBUTION OF DOCUMENTS BY CONTRACTOR

SL NO.	DESCRIPTION OF DOCUMENT	FREQUENCY/TIME OF RECEIPT	NO. OF COPIES						DOCUMENT CATEGORY
			Client		CONSULTANT				
			NALCO		ENGG OFF.		SITE OFF		
			H	S	H	S	H	S	
Along with the BID/Offer									
1	Proposed Project Schedule	Along with the BID/Offer							Review
2	Write-up on Project Planning, Scheduling, Monitoring and Control System	Along with the BID/Offer							Review
3	Planning Organizational setup at Engg & Site Office	Along with the BID/Offer							Review
5	Manpower Deployment Schedule including for Planning	Along with the BID/Offer							Review
6	Softwares to be used for Planning	Along with the BID/Offer							Review
7	Resume for Planning Engineers	Along with the BID/Offer							Review
8	Confirmation of Compliance with Planning requirements	Along with the BID/Offer							Review
Post award									
9	Front End Schedule (for 90 days)	Within 2 week of EDC.							Review
10	List of Work packages/areas/units/functions	Before Kick-off Meeting							Review
11	Planning Deliverables	Before Kick-off Meeting							Review
12	Contract Schedule	Finalisation during Bid Discussion (after receipt of LSTK Bids)							Review
13	WBS for detail poject Schedules & Function Schedules	Before Kick-off Meeting							Review
14	Procedure for Project Planning, Scheduling, Monitoring and Control	Before Kick-off Meeting							Review
15	Progress Measurement Methodology	Before Kick-off Meeting							Review
16	WBS for weightages	Before Kick-off Meeting							Review
17	Weightages	Before Kick-off Meeting							Review
18	Distribution List	Before Kick-off Meeting							Review
19	Planning Package	Within 45 calendar days of EDC							Review
20.1	Detailed Project Schedule	Part of planning package							Review
20.2	UpdatEDetailed Schedule	Monthly with MPR							Information
21.1	Engineering Schedule	Part of planning package							Review
21.2	UpdatEEngineering Schedule	Monthly with MPR							Information
22.1	Ordering Schedule	Part of planning package							Review
22.2	UpdatEOOrdering Schedule	Monthly with MPR							Information

ANNEXURE - 04 TO DOC. NO. 6695-PSC-G00-BE-0006

DISTRIBUTION OF DOCUMENTS BY CONTRACTOR

SL NO.	DESCRIPTION OF DOCUMENT	FREQUENCY/TIME OF RECEIPT	NO. OF COPIES						DOCUMENT CATEGORY
			Client		CONSULTANT				
			NALCO		ENGG OFF.		SITE OFF		
			H	S	H	S	H	S	
23.1	Manufacturing & Delivery Schedule	Part of planning package							Review
23.2	UpdatEManufacturing & Delivery Schedule	Monthly with MPR							Information
24.1	Subcontracting Schedule	To be started once subcontracting commences							Review
24.2	UpdatESubcontracting & Package units Schedule	Monthly with MPR							Information
25.1	Construction Schedule with Writeup	Part of planning package							Review
25.2	UpdatEConstruction Schedule	Monthly with MPR							Information
26.1	Sub-Contractor Schedule	To be prepared within three weeks of award of Subcontract							Review
26.2	UpdatESub-Contractor Schedule	Monthly with MPR							Information
27.1	Overall 'S' Curve and Functional 'S' Curves	Part of planning package							Review
27.2	UpdatEOverall 'S' Curve and Functional 'S' Curves	Monthly with MPR							Information
28.1	Loopwise Piping Completion Schedule	Three months before scheduled start of hydrotesting							Review
28.2	UpdatEPiping Completion Schedule	Weekly							Information
29.1	Systemwise Completion Schedule	Three months before Systemwise scheduled completion							Review
29.2	UpdatESystemwise Completion Schedule	Weekly							Information
30.1	Pre-commissioning / Commissioning Schedule	Three months before commencement of Precommissioning							Review
30.2	UpdatEPrecommissioning/ Commissioning Schedule	Weekly							Information
31.1	Handing Over Schedule	One month before Mech. Completion							Review
31.2	UpdatEHanding Over Schedule	Weekly							Information
32.1	Recovery Schedule	In case of delay in the scheduled activities / As per requirement of Owner or Consultant							Review



ANNEXURE - 04 TO DOC. NO. 6695-PSC-G00-BE-0006

DISTRIBUTION OF DOCUMENTS BY CONTRACTOR

SL NO.	DESCRIPTION OF DOCUMENT	FREQUENCY/TIME OF RECEIPT	NO. OF COPIES						DOCUMENT CATEGORY
			Client		CONSULTANT				
			NALCO		ENGG OFF.		SITE OFF		
			H	S	H	S	H	S	
32.2	UpdatERecovery Schedule	As per requirement of Owner or Consultant							Information
33	Monthly Programme other than construction	Within three calendar days from cut-off date for MPR							Review
34	Monthly Programme for construction	Within two calendar days from cut-off date for MPR							Review
35	Monthly Progress Report	Monthly within three calendar days from cut-off date							Information
36	Fortnightly Progress Report (excl. construction)	Within three calendar days from cut-off date							Information
37	Weekly Progress Report (Construction)	Within one calendar day from cut-off date							Information
38	Daily Progress Report (Construction)	Daily before noon							Information
39	Expediting Report	Fortnightly (Shall also be part of MPR)							Information
40	Bulk Material status Report	Monthly with MPR							Information
41	Material Hold-up/shortage Report	Monthly with MPR							Information
42	Project Photographs	Monthly with MPR							Information

Note : Above reports are for guideline purpose. Additional reports may be added by contractors as per requirement.

LEGEND: H - Hard Copy; S - Soft Copy; MPR- Monthly Progress Report

Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PSC-G00-BE-0006	Contract No. 66-6695		
 thyssenkrupp	PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM FOR CONTRACTOR			नालको  NALCO नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
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ANNEXURE-05 : DRAFT FORMAT FOR MONTHLY PROGRESS REPORT

TO
DOC. NO. 6695-PSC-G00-0006

FOR CONTRACTOR

CLIENT : National Aluminium Company Ltd.
CONSULTANT : thyssenkrupp Industrial Solutions India Pvt. Ltd.
PROJECT TITLE : 1.0MTPA Alumina Refinery Stream - 5

MONTHLY PROGRESS REPORT - MONTH

PDMS VIEW OF PLANT

CLIENT : National Aluminium Company Ltd.
CONSULTANT : thyssenkrupp Industrial Solutions India Pvt. Ltd.
PROJECT TITLE : 1.0MTPA Alumina Refinery Stream - 5

Page No: x of xx

MONTHLY PROGRESS REPORT NO. XX

Month

PROJECT MANAGER

SIGNATURE :

NAME :

DATE :

CLIENT National Aluminium Company Ltd.
CONSULTANT thyssenkrupp Industrial Solutions India Pvt. Ltd.
PROJECT TITLE 1.0MTPA Alumina Refinery Stream - 5

Month
 Project No:
 Page No: 2 of 37

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE NO
I	INTRODUCTION	
II	EXECUTIVE SUMMARY	
III	DETAILED STATUS	
IV	AREAS OF CONCERN WITH ACTION PLAN	
V	PROGRESS STATISTICS	
VI	MILESTONE STATUS	
VII	PROBLEMS / HOLD-UPS	
VIII	SUMMARY STATUS OF ENGINEERING DRAWINGS	
IX	DRAWINGS/DOCUMENTS RELEASE SCHEDULE	
X	VENDOR/PACKAGE CONTRACTOR DRAWINGS/DOCUMENTS RELEASE SCHEDULE	
XI	ORDERING STATUS (SUMMARY)	
XII	ORDERING STATUS (DETAILED)	
XIII	EQUIPMENT DELIVERY STATUS	
XIV	EQUIPMENT RECEIPT AND ERECTION STATUS(DETAILED)	
XV	BULK MATERIAL STATUS(SUMMARY)	
XVI	MANUFACTURING / DELIVERY STATUS	
XVII	SUB CONTRACTING STATUS	
XVIII	UNIT-WISE STATUS OF CONSTRUCTION QUANTITY RELEASED.	
XIX	QUANTITATIVE MONTHLY CONSTRUCTION PROGRESS STATUS	
XX	PROGRESS OF STRUCTURAL STEEL FABRICATION	
XXI	STATUS OF CONSTRUCTION	
XXII	LOOPWISE HYDROTESTING STATUS	
XXIII	SYSTEM HANDING OVER STATUS	
XXIV	UNITWISE DEPLOYMENT OF LSTK PERSONNEL AT CONSTRUCTION SITE	
XXV	UNITWISE RESOURCE DEPLOYMENT STATUS - EQUIPMENT AND MACHINERY	
XXVI	STATUTORY APPROVAL STATUS	
XXVII	INVOICE STATUS	
XXVIII	VALUE ADDED MAJOR DECISION/INNOVATION/LEARNINGS	
	ANNEXURE	
A	S' CURVES	
B	UPDATED OVERALL PROJECT SCHEDULE	
C	SITE PHOTOGRAPHS	

CLIENT
CONSULTANT
PROJECT TITLE

National Aluminium Company Ltd.
 thyssenkrupp Industrial Solutions India Pvt. Ltd.
 1.0MTPA Alumina Refinery Stream - 5

Month
 Project No:
 Page No: 3 of 37

I – INTRODUCTION

CLIENT	:	M/S. National Aluminium Company Ltd.
PROJECT LOCATION	:	
DESIGN CAPACITY	:	UNIT CAPACITY
CONTRACT VALUE	:	
SCOPE OF WORK	:	
PROJECT TARGET DATES		
Zero Date	:	
Effective Start Date	:	
Mechanical Completion Dates (Contractual)	:	
Mechanical Completion Dates (Target)	:	
Commissioning Date (Contractual)	:	
Commissioning Date (Target)	:	
PROJECT DURATION	:	
TIME ELAPSED	:	

CLIENT National Aluminium Company Ltd.
CONSULTANT thyssenkrupp Industrial Solutions India Pvt. Ltd.
PROJECT TITLE 1.0MTPA Alumina Refinery Stream - 5

Month
Project No :
Page No: 4 of 37

II – EXECUTIVE SUMMARY

- Overall Physical Progress
- Physical Progress achieved during this month
- Major achievements (Disciplinewise)

CLIENT	National Aluminium Company Ltd.	Month
CONSULTANT	thyssenkrupp Industrial Solutions India Pvt. Ltd.	Project No :
PROJECT TITLE	1.0MTPA Alumina Refinery Stream - 5	Page No: 5 of 37

III- DETAILED STATUS

A Residual Basic Engineering

- Achieved during the month
-
- Planned for the next month
-

B Detailed Engineering (Disciplinewise)

- Achieved during the month
-

CLIENT	National Aluminium Company Ltd.	Month
CONSULTANT	thyssenkrupp Industrial Solutions India Pvt. Ltd.	Project No :
PROJECT TITLE	1.0MTPA Alumina Refinery Stream - 5	Page No: 6 of 37

III- DETAILED STATUS

B Detailed Engineering (Disciplinewise)

- Achieved during the month

CLIENT National Aluminium Company Ltd.

CONSULTANT thyssenkrupp Industrial Solutions India Pvt. Ltd.

PROJECT TITLE 1.0MTPA Alumina Refinery Stream - 5

Month

Project No :

Page No: 7 of 37

III- DETAILED STATUS

C Procurement (Disciplinewise)

- Achieved during the month

-

CLIENT National Aluminium Company Ltd.
CONSULTANT thyssenkrupp Industrial Solutions India Pvt. Ltd.
PROJECT TITLE 1.0MTPA Alumina Refinery Stream - 5

Month
Project No :
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III- DETAILED STATUS

C Procurement (Disciplinewise)

- Planned for the next month

-

CLIENT National Aluminium Company Ltd.
CONSULTANT thyssenkrupp Industrial Solutions India Pvt. Ltd.
PROJECT TITLE 1.0MTPA Alumina Refinery Stream - 5

Month
Project No :
Page No: 9 of 37

III- DETAILED STATUS

D Manufacturing & Delivery (Disciplinewise)

- Achieved during the month
-
- Planned for the next month
-

CLIENT
 CONSULTANT
 PROJECT TITLE

National Aluminium Company Ltd.
 thyssenkrupp Industrial Solutions India Pvt. Ltd.
 1.0MTPA Alumina Refinery Stream - 5

Month
 Project No :
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III- DETAILED STATUS

E Construction (Disciplinewise)

- Achieved during the month
-

CLIENT	National Aluminium Company Ltd.	Month
CONSULTANT	thyssenkrupp Industrial Solutions India Pvt. Ltd.	Project No :
PROJECT TITLE	1.0MTPA Alumina Refinery Stream - 5	Page No: 11 of 37

III- DETAILED STATUS

E Construction (Disciplinewise)

- Planned for the next month

CLIENT CONSULTANT PROJECT TITLE		National Aluminium Company Ltd. thyssenkrupp Industrial Solutions India Pvt. Ltd. 1.0MTPA Alumina Refinery Stream - 5			Month Project No : Page No: 12 of 37	
IV – AREAS OF CONCERN WITH ACTION PLAN						
SR NO.	AREA OF CONCERN	CONSTRAINTS / ACTION TAKEN	IMPACT ON SCHEDULE (IN MONTHS)	ACTION PLAN	ACTION BY	TARGET DATE

CLIENT
CONSULTANT
PROJECT TITLE

National Aluminium Company Ltd.
 thyssenkrupp Industrial Solutions India Pvt. Ltd.
 1.0MTPA Alumina Refinery Stream - 5

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V- PROGRESS STATISTICS

OVERALL PROJECT PROGRESS

DESCRIPTION	WTD % AGE	DURING THE MONTH		CUMULATIVE	
	COMPLEX	SCHEDULE %	ACTUAL %	SCHEDULE %	ACTUAL %
RESIDUAL BASIC ENGINEERING					
DETAILED ENGINEERING					
ORDERING					
MANUFACTURING / DELIVERY					
CONSTRUCTION					
COMMISSIONING					
OVERALL PROGRESS PHYSICAL					

CLIENT
 CONSULTANT
 PROJECT TITLE

National Aluminium Company Ltd.
 thyssenkrupp Industrial Solutions India Pvt. Ltd.
 1.0MTPA Alumina Refinery Stream - 5
OVERALL DETAILED PROGRESS STATUS

Month
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Sl.no	Description	Weightages		DURING THE MONTH		CUMULATIVE	
				SCHEDULE %	ACTUAL %	SCHEDULE %	ACTUAL %
A	RESIDUAL BASIC ENGINEERING						
B	DETAILED ENGINEERING						
	PROCESS						
	MECHANICAL						
	PIPING						
	CIVIL						
	ELECTRICAL						
	INSTRUMENTATION						
C	ORDERING						
	PACKAGES						
	PROCESS						
	MECHANICAL						
	PIPING						
	ELECTRICAL						
	INSTRUMENTATION						
	TENDERS						
	PIPING -ADDITIONAL MTO						
D	MANUFACTURING & DELIVERY						
	MECHANICAL/PIPING/PKGS						
	ELECTRICAL						
	INSTRUMENTATION						
E	CONSTRUCTION						
	CIVIL WORKS						
	MECHANICAL/PIPING						
	ELECTRICAL						
	INSTRUMENTATION						
	PRE-COMMISSIONING						
F	COMISSIONNING / HAND OVER						
	Total Weightage						

CLIENT		National Aluminium Company Ltd.				Month	
CONSULTANT		thyssenkrupp Industrial Solutions India Pvt. Ltd.				Project No :	
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VI - MILESTONES STATUS							
STATUS AS ON: Month							
SR NO	MILESTONE DESCRIPTION	SCHEDULE DATE	LATEST ALLOWABLE DATE	ACTUAL DATE	FORECAST DATE	STATUS / REMARKS	
		MM-YY					
		MM-YY					
		MM-YY					
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CLIENT
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VII – PROBLEMS HOLD-UPS

[illegible]

CLIENT
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SUMMARY STATUS OF ENGINEERING DRAWINGS

DISCIPLINE	TOTAL DRAWINGS NOS.	DRAWINGS RELEASED (NOS.)				SUBMISSION PROGRAM FOR NEXT MONTH	REMARKS
		DURING THE MONTH		CUMULATIVE			
		SCH.	ACT.	SCH.	ACT.		
ARCHITECTURAL							
GENERAL CIVIL							
STRUCTURAL							
PIPING							
UNIT PLOT PLANS							
GAD'S							
ISO'S							
ELECTRICAL							
INSTRUMENTATION							
TOTAL							

[illegible]

Month
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(UNITWISE / DISCIPLINEWISE)

[illegible]

CLIENT CONSULTANT PROJECT TITLE		National Aluminium Company Ltd. thyssenkrupp Industrial Solutions India Pvt. Ltd. 1.0MTPA Alumina Refinery Stream - 5 ORDERING STATUS (SUMMARY)						Month Project No : Page No: 20 of 37	
CATEGORY	TOTAL MRS	ISSUE ENQUIRY		TBE / CBE		LOI ISSUED		PO ISSUED	
		SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
PROCESS									
MECHANICAL									
PIPING									
ELECTRICAL									
INSTRUMENTATION									
TENDERS									
TOTAL	0	0	0	0	0	0	0	0	0
SUMMARY OF MAJOR TAGGED ITEMS ORDERED(AS PER EQUIPMENT LIST		QTY. REQUIRED		QTY. ORDERED		BALANCE QTY. FOR ORDERING			
VESSELS / DRUMS / SILOS									
PUMPS / BLOWERS									
AGITATORS									
FILTERS AND EJECTORS									
MATERIAL HANDLING ITEMS,if any									
MISCELLANEOUS									
TOTAL									

Month
Project No :
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ORDERING STATUS (DETAILED)

DISCIPLINE WISE FOR EACH UNIT

UNIT

[illegible]

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[illegible]

CLIENT	National Aluminium Company Ltd.	Month
CONSULTANT	thyssenkrupp Industrial Solutions India Pvt. Ltd.	Project No:
PROJECT TITLE	1.0MTPA Alumina Refinery Stream - 5	Page No : 23 of 37

EQUIPMENT RECEIPT AND ERECTION STATUS (DETAILED)

(UNITWISE / DISCIPLINEWISE)

[illegible]

CLIENT	National Aluminium Company Ltd.	Month
CONSULTANT	thyssenkrupp Industrial Solutions India Pvt. Ltd.	Project No :
PROJECT TITLE	1.0MTPA Alumina Refinery Stream - 5	Page No : 24 of 37

UNIT NAME / SUMMARY LEVEL

BULK MATERIAL STATUS (SUMMARY)

{LOCAL (INDIAN) AND FOREIGN PROCUREMENT SEPARATELY}

[illegible]

[illegible]

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Month
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DISCIPLINE-WISE STATUS OF CONSTRUCTION QUANTITIES RELEASED

SL.NO.	DISCIPLINE & MAJOR WORK ITEM	UOM	LIKELY QTY.	CUM RELEASED QTY	BALANCE QTY TO BE RELEASED	PROGRAMME FOR BALANCE MONTHS				QTY UNDER HOLD AND REASON FOR THE SAME
						DD-MM	DD-MM	DD-MM		
A	PILING	Nos								
B	RCC Total									
1	EQUIPMENT FDN.	CuM								
2	PIPE RACK	CuM								
3	TECHNOLOGICAL STRUCTURE	CuM								
4	RCC FDN FOR BUILDING FDN.	CuM								
5	RCC SUPER STR.-BUILDING	CuM								
6	SITE WORKS	CuM								
C	ROADS , PAYMENTS & GRADESLABS	CuM								
D	STRUCTURAL STEEL WORK									
1	PIPE RACK,if any	MT								
2	ANY OTHER STRUCTURAL WORKS	MT								
E	TANKAGES									
1	FABRICATION	MT								
2	ERECTION	MT								
F	U/G PIPING	IM								
1	FABRICATION	ID								
2	ERECTION	IM								
G	U/G PIPING (RCC) - LAYING	RM								
H	A/G PIPING	IM								
1	FABRICATION	ID								
2	ERECTION	IM								
I	ELECTRICAL CABLE LAYING	RM								
J	INSTRUMENT CABLE LAYING	RM								

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(UNIT WISE / DISCIPLINE WISE)

CLIENT	National Aluminium Company Ltd.															
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																Page No : 29 of 37

<u>PROGRESS OF STRUCTURAL STEEL FABRICATION</u>																		Status as on Month	
SL. NO.	WORK ORDER		UOM	WORK LOAD	STATUS	CUMUL. TO DATE	Year												REMARKS
	UNIT DESCRIPTION	CONTRACTOR					MONTHS												
1					SCH.														
					PROG.														
					ACT.														
2					SCH.														
					PROG.														
					ACT.														
3					SCH.														
					PROG.														
					ACT.														
	GRAND TOTAL				SCH.														
					PROG.														
					ACT.														

LEGENDS:			
UOM : UNIT OF MEASUREMENT	SCH : SCHEDULE	PROG. : PROGRAM	ACT. : ACTUAL

Month
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STATUS OF CONSTRUCTION

[illegible]

Month
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LOOPWISE HYDROTESTING STATUS

[illegible]

CLIENT
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SYSTEM HANDING OVER STATUS (UNIT WISE)

SR. NO.	SYSTEM DESCRIPTION		FORMAT I ISSUE DATE	FORMAT II ISSUE DATE	FORMAT III ISSUE DATE	FORMAT IV ISSUE DATE	FORMAT V ISSUE DATE
A.	SYSTEM I	TARGET DATE					
		ACTUAL DATE					
B.	SYSTEM II	TARGET DATE					
		ACTUAL DATE					
C.	SYSTEM III	TARGET DATE					
		ACTUAL DATE					
D.	SYSTEM IV	TARGET DATE					
		ACTUAL DATE					
E.	SYSTEM V	TARGET DATE					
		ACTUAL DATE					
	GRAND TOTAL	TARGET DATE					
		ACTUAL DATE					

LEGEND:

FORMAT I : INFORMATION REGARDING SYSTEM COMPLETION
 FORMAT II : CHECK LIST
 FORMAT III : READY FOR PRE-COMMISSIONING / MECH COMPLETION CERTIFICATE
 FORMAT IV : READY FOR COMMISSIONING CERTIFICATE
 FORMAT V : COMPLETION OF COMMISSIONING CERTIFICATE

[illegible]

[illegible]

CLIENT CONSULTANT PROJECT TITLE		National Aluminium Company Ltd. thyssenkrupp Industrial Solutions India Pvt. Ltd. 1.0MTPA Alumina Refinery Stream - 5		Month Project No : Page No : 35 of 37
<u>STATUTORY APPROVAL STATUS</u>				
S.No.	Approvals	Status	Remarks	
1	Chief Insp of Factories for plant layout (i) Constn (ii) As-Built			
2	Municipal Corp for various bldg			
3	Civil Aviation for Stack of charge heater			
4	Fire & Nuisance dept for Furnace stack			
5	NOC from Municipal Corp for all facilities			
6	IBR for steam piping & Equip			
7	IBR for charge heater			
8	TAC for Fire water & Fire fighting system			
9	CCE for plant layout, fire fighting system & tanks			
10	CEI approval for H.V. Electrical distribution system			

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INVOICING STATUS AS ON DD.MM.YY[illegible]

[illegible]