







Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
	<b>Technical Questionnaire for Contractor</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev   <b>01</b>   Page   <b>2</b>   of   <b>14</b>

## Contents:

1	Aim / Purpose .....	3
2	General .....	4
3	Process .....	6
4	Rotating Equipment .....	7
5	Static Equipment .....	8
6	Piping and Material Handling Equipment .....	10
7	Electrical .....	11
8	Instrumentation .....	13
9	Civil .....	14

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
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				Rev <b>01</b> Page <b>3</b> of <b>14</b>

## 1 Aim / Purpose



This document describes the summary of key technical requirement for the Project as defined in the Tender documents, which is to be complied by Contractor for various disciplines.

The Contractor shall indicate his reply in the space provided in the Technical Questionnaire. In case space provided is not adequate, the reply may be furnished separately under suitably numbered annexure / attachments duly referred against the comment / query. Contractor has to answer all the points mentioned in this questionnaire and submit along with the technical proposal. Each page of this technical questionnaire must be duly filled, signed and stamp.

Deviation if any, shall be spelled out clearly with valid reasoning / clarification in the format enclosed along with proposal form (deviation form) included under Volume 1 of this tender.



If no deviation is listed it is deemed that all the requirement of this tender is accepted by Contractor.

Contractor to note that confirmation to this questionnaire does not absolve / relieve the Contractor from his responsibility to comply with the requirements not specifically mentioned in above list but mentioned elsewhere in the bid documents.



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				Rev <b>01</b> Page <b>4</b> of <b>14</b>

## 2 General

Sr.	Description	Contractor's Compliance	
		Yes	Deviation
1.	Contractor confirms the receipt of all specification listed in enquiry document.		
2.	Contractor has read the documents for all disciplines "Contractor's Scope of Work" and fully understood the scope of work pertaining to all disciplines.		
3.	Contractor agrees to confirm to the QA requirements for Engineering, Inspection & Construction as spelt out in the tender documents		
4.	Equipment along with all auxiliaries shall be procured from Owner/Consultant approved Supplier / Vendors only.		
5.	Contractor has read the "Project Execution Plan requirement and Construction Management Requirements" and agrees to follow the same.		
6.	Contractor has read the "List of drawings/documents for Owner/Consultant review/ approval/ information" and noted the equipment / items for which engineering drawings / documents require approval / review of Owner/Consultant.		
7.	Contractor has noted the Project Schedule duration and agrees to follow the same.		
8.	Contractor has noted all the requirements of Software and agrees to confirm to the same.		
9.	Contractor has read the Spares Philosophy and agrees to confirm to the same.		
10.	Contractor has considered all Statutory Approvals (IBR / CCOE / SMPV / OISD/TAC/NFPA/LPA/Factories Act etc. as applicable) in his proposal and list to be submitted.		
11.	Contractor has visited the site to familiarize with the site conditions and existing facilities		
12.	Contractor agrees to confirm to the HSE requirements spelt out in the tender documents		
13.	Contractor has enclosed estimated power / water consumption for construction purpose.		
14.	Contractor has enclosed area requirement for site office, warehouse, fabrication etc.		
15.	Contractor has read the document "Job Instructions" and fully understood the tender requirement.		
16.	Contractor has read the document "Scope of Work for Contractor - General" and fully understood the scope.		



Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
	<b>Technical Questionnaire for Contractor</b>			 <b>नेशनल एल्युमिनियम कम्पनी लिमिटेड</b> <b>National Aluminium Company Ltd.</b>
				Rev <b>01</b> Page <b>5</b> of <b>14</b>

Sr.	Description	Contractor's Compliance	
		Yes	Deviation
17.	Contractors must confirm to compliance to tender documents and confirm that all other requirements are strictly as per tender documents & No deviation is taken.  It may be noted that deviations to specifications are not likely to be accepted. However, as an exceptional case, for any specific deviation/s a clear reference to the document from which the deviation is sought must be given through specific proposal forms.		
18.	All deviations to the ITB shall be pointed out by contractor under deviation clause only. Any deviation not clearly pointed out under deviation clause will not be considered during execution stage.		
19.	Confirm that special tools and tackles, if required, for any of the equipment, have been included in Contractor's scope of supply.		
20.	Contractor shall develop detailed drawings and updating of existing drawings, when a modification work is carried out in existing area. These drawings shall be submitted for Owner/Consultant approval after award of contract. Confirm compliance.		
21.	Contractor has read the document "Project Inspection and Test Plan for Shop Inspection" and considered all the requirements mentioned in that.		
22.	Contractor has considered required documentation requirements laid out elsewhere in the tender documents.		
23.	Contractor has considered requirements for storage and preservation of equipment, instrument, and electrical items during transit and at site as per Tender.		
24.	Confirm that major and critical equipment shall be ordered on the Suppliers only after review / approval of the Purchase requisition by Owner/Consultant.		
25.	Contractor has submitted all the documents / drawings / filled in data sheets specified in Document matrix under DOCUMENTS REQUIRED WITH BID.		
26.	Contractor has submitted the List of documents required for statutory approval		

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
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				Rev <b>01</b> Page <b>6</b> of <b>14</b>



### 3 Process

Sr.	Description	Contractor's Compliance	
		Yes	Deviation
1.	Contractor has read the document "Contractor's Scope of Work" and fully understood the scope pertaining to the Process Engineering. Contractor to confirm that scope is as per requirement of Tender.		
2.	Contractor agrees to draft the P&ID using the software as specified in the tender. All revisions of P&I D's at various stages of the project, as specified in "Contractor's Scope of Work" have been considered.		
3.	Contractor has considered all safety studies spelt out in the Tender documents in his proposal and agrees to implement all recommendations resulting from them without any cost or time implication to Owner/Consultant.		
4.	Contractor has understood the scope related to Execution of Tie-ins in the existing refinery.		
5.	Contractor has considered HAZOP and SIL study in the scope and any implications of these will be taken aboard without any cost or time implication to Owner/Consultant.		

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
	<b>Technical Questionnaire for Contractor</b>			 <b>नालको</b> <b>NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev <b>01</b> Page <b>7</b> of <b>14</b>

#### 4 Rotating Equipment



Sr.	Description	Contractor's Compliance	
		Yes	Deviation
1.	Contractor has read the document "Contractor's Scope of Work"(for Rotating equipment) and fully understood the scope of work pertaining to the various equipment		
2.	All the requirements of technical specifications, applicable codes and standards, Project Engineering Specifications and applicable codes and standards shall be met.		
3.	<p>Contractor to note that referenced engineering specifications in respective Rotating equipment specifications have not been mentioned separately in Tender Index</p> <p>The same referenced specification is covered as part respective technical specifications Index.</p> <p>Contractor to note and confirm that all such referenced specifications shall also be complied with.</p>		
4.	Confirm that all Inspection, Test at shop and site, Certification and other QA requirements mentioned and referenced in Technical specifications and General Notes for Requisition attached in Tender documents have been included by the Contractor in his scope. Contractor to also note that referenced QA documents and procedures in Equipment data sheet shall also be complied with, by the Contractor.		
5.	The Contractor shall be responsible for providing all material, equipment and services, specified or otherwise which are required to meet the intent of this entire tender document, ensuring trouble-free erection & commissioning, high degree of reliability and ease of operation and maintenance.		
6.	The equipment and system/sub-systems shall conform to all aspects of high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to the Owner and shall also be in line with the current practice for reliable and efficient functioning of the plant.		

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
	<b>Technical Questionnaire for Contractor</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev <b>01</b> Page <b>8</b> of <b>14</b>



## 5 Static Equipment

Sr.	Description	Contractor's Compliance	
		Yes	Deviation
1.	Contractor has read the document "Contractor's Scope of Work" and "Contractor's Scope of Supply" and fully understood the scope pertaining to the Static equipment. Contractor to confirm that scope of work and supply is exactly as per requirement of Tender.		
2.	Thickness of components indicated in the Equipment Datasheets (if specified) in the Tender is minimum acceptable & shall be increased if required by design codes / applicable project Specification without any cost or time implication to OWNER/CONSULTANT. Contractor shall perform stress analysis as per applicable Design Codes complying with all requirements of Design code and applicable Project Specifications for each component and equipment.		
3.	The Contractor shall be responsible for providing all material, equipment and services, specified or otherwise which are required to meet the intent of this entire tender document, ensuring high degree of reliability and ease of operation and maintenance. Material of construction shall be as per individual specifications (data sheets, if specified as applicable) enclosed in Tender as applicable		
4.	Contractor has considered FEA analysis for cases not covered by design code for components as specified in Tender.		
5.	Contractor has considered supply of all special tools, accessories, shipping saddle, lifting beams, etc. required during transportation, execution, site hydro test and normal operation/maintenance of the equipment.		
6.	Surface preparation and painting as per 'Technical Specification painting' is considered		
7.	Name plate as per Engineering Standard attached with Project Specification is considered.		
8.	Insulation as per project specification (if applicable).		
9.	Heat treatments wherever necessary as per project specification / Code requirement has been considered		
10.	All the requirements of Technical Specification, applicable codes and standards, Project Specifications and design basis shall be met. Latest revision, issue and addenda of all Codes and Standards shall apply, unless stated otherwise in Technical Specification.		
11.	Contractor has considered requirement of Production Test Coupons as per Codes and Project Specifications.		
12.	Contractor has considered Simulated Heat Treatment and Mechanical testing of materials for pressure parts.		





Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
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				Rev <b>01</b> Page <b>9</b> of <b>14</b>

13.	For the site fabricated equipment, following is considered as a minimum (but not limited to), i) Approved drawings before fabrication commencement ii) Material identification, Approved weld and quality plans, Weld procedures etc. iii) Site PWHT procedure as applicable iv) All NDT after PHWT v) Statutory requirements / Local regulations vi) TPI approvals vii) Leak Testing, Site Hydro testing etc. viii) Inside Cleaning ix) Surface preparation, Painting & Coating (inside / outside as applicable) x) All safety requirements, confined space personal protection equipment's (PPE) xi) Release note from TPI/Owner		
14.	Anchor bolts are considered as per project specifications.		
15.	Base ring template and column davit, as applicable, is considered.		

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				Rev   <b>01</b>   Page   <b>10</b>   of   <b>14</b>



## 6 Piping and Material Handling Equipment

Sr. No.	Description	Contractor's Compliance	
		Yes	Deviation
1.	Contractor has read the document "Scope of Work for Contractor - Piping & Material Handling" and fully understood the scope of work.		
2.	Contractor has to study battery limit drawings / documents properly along with Scope of Work for Contractor to understand clearly scope of work. There should not be any interpretation during execution time and no deviation will be accepted later.		
3.	Contractor has accepted the requirements of technical specifications, applicable codes and standards, General Engineering Specifications and design basis.		
4.	Contractor has read the notes in the overall Plot plan and noted the requirements.		
5.	Contractor has noted requirements for layout and aboveground piping and the mode of extraction / preparation of various piping documents and their contents as indicated in GES along with the overall plot plan.		
6.	Contractor has submitted the overall and unit plot plans and submitted filled in data sheets specified in Document Matrix document, under DOCUMENTS REQUIRED WITH BID.		
7.	Contractor has noted the requirements for fire protection system as per GES		
8.	Contractor has noted requirements of 3-D model and review as per GES		
9.	Contractor has read the document "B/L & Interface documents" and fully understood the scope of work (Reference doc no. 6695-PIP-555-CA-0004 / 6695-PIP-599-CA-0001)		
10.	Contractor has Visited site and understood the scope and quantum of work related to Tie in connections and routing of lines from Tie in Points to Unit Battery Limits.		
11.	Contractor has noted requirements of Material Handling Equipment as per GES		
12.	Contractor has noted the requirements of flexibility analysis as per GES		

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
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				Rev <b>01</b> Page <b>11</b> of <b>14</b>



## 7 Electrical

Sr. No.	Description	Contractor's Compliance	
		Yes	Deviation
1.	Confirm categorical compliance to the document Contractor Scope of Work - Electrical, Technical Specifications and Data Sheets, as specified in the bid document and all other equipment, materials and work not explicitly mentioned but nevertheless required to fulfil the functional requirements shall be deemed to be included in the scope of contractor with no additional cost and time schedule implication to Owner.		
2.	Confirm categorical compliance to the document Battery limits & interface –Electrical document, as specified in the bid document and all other work not explicitly mentioned but nevertheless required to fulfil the functional requirements for the interfaces with the existing facilities shall be deemed to be included in the scope of contractor with no additional cost and time schedule implication to Owner.		
3.	Contractor is informed that the detailed offers from the equipment manufacturer for all equipment is not required to be furnished in the Contractor's proposal at this stage and these will not be reviewed or taken cognizance of at this stage. These details shall be treated for record purpose only and will not be contractually binding.		
4.	<p>This Technical Questionnaire with categorical confirmation against each of the clauses, deviation, if any, against the applicable specifications and codes shall be duly consolidated at one place (Under Exceptions / Deviations List).</p> <p>Please note that Supplier specific deviations will not be considered. In case no deviations are furnished, it will be presumed that all requirements are fully met.</p>		
5.	<p>Confirm that major and critical electrical equipment shall be ordered on the Suppliers only after:</p> <p>a. Review / approval of the Purchase requisition by Owner /Consultant</p> <p>b. Ensuring equipment meeting the acceptance criteria wherever specified in the bid document.</p>		
6.	Duly filled in equipment data sheets, characteristic curves for the selected Supplier / Equipment model shall be subject to Owner /Consultant approval / review to ensure compliance to bid specification during detailed engineering stage. Confirm compliance.		
7.	Confirm that obtaining statutory approval of Electrical Inspectorate of state etc. as applicable for energisation of electrical installation is included in the scope of Contractor.		

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				Rev <b>01</b> Page <b>12</b> of <b>14</b>



Sr. No.	Description	Contractor's Compliance	
		Yes	Deviation
8.	Confirm that all Inspection & Tests as required for each equipment, as per the engineering specifications and codes attached and referred to have been included by the Contractor in his proposal.		
9.	Confirm that mandatory spares, commissioning spares and spares required for <b>One year</b> of normal operational for all equipment as recommended by the equipment manufacturer has been considered by the Contractor in the his proposal. Contractor shall list out the spares for equipment or items not defined in the Annexures but included in the scope of the package.		
10.	Confirm that Special Tools & Tackles, as required for each equipment, have been included by the Contractor in his proposal. Contractor shall ensure that in case of common tools required for several equipment or functions, multiple sets are included so as to take care of likely simultaneous requirement.		
11.	Contractor shall develop detailed drawings like Single Line Diagram, Substation layout, installation arrangement drawings and updating of existing drawings, when a modification work is carried in existing area. These drawings shall be submitted for Owner /Consultant approval / review after award of contract. Confirm compliance.		
12.	Confirm that all consumables such as transformer oil, lubricants etc. for initial charge and for commissioning and site performance guarantee run have been included in the Contractor's proposal		
13.	Confirm that all drawings / documents requirements as per scope of work and as per specifications and codes attached and referred to has been included in the Contractor's proposal.		
14.	Confirm that the copies of valid type test certificates applicable for the offered equipment are available. If valid certificates are not available, confirm that type tests would be conducted on equipment's before delivery without cost and time schedule implication to Owner.		



Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-555-CA-0001</b>	Contract No. <b>66-6695</b>
	<b>Technical Questionnaire for Contractor</b>			 <b>नेशनल एल्युमिनियम कम्पनी लिमिटेड</b> <b>National Aluminium Company Ltd.</b>
				Rev <b>01</b> Page <b>13</b> of <b>14</b>

## 8 Instrumentation

Sr. No.	Description	Contractor's Compliance	
		Yes	Deviation
1.	Compliance to General Engineering Specification for Instrumentation & Control (Doc. no. 6695-INS-G00-EC-0001)		
2.	Compliance to Scope of Work for Contractor - Instrumentation (Doc. no. 6695-INS-555-CA-0002 and 6695-INS-599-CA-0002 )		
3.	Compliance to Battery Limit & Interfaces to Contractor - Instrumentation (Doc. no. 6695-INS-555-CA-0001 and 6695-INS-599-CA-0001)		
4.	Compliance to Inspection Test Plans-Instrumentation (Doc. No. 6695-INS-G00-QA-0001)		
5.	Compliance to Quality Assurance plan for Instrumentation Erection (Doc. no. 6695-INS-G00-QA-0002)		
6.	Compliance to other Instrumentation deliverables of the Tender (if any).		

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				Rev <b>01</b> Page <b>14</b> of <b>14</b>

## 9 Civil

Sr. No.	Description	Contractor's Compliance	
		Yes	Deviation
1.	Contractor to confirm that the document "Scope of Work for Contractor - Civil, Structural & Architectural" has been read and understood fully; and that the Bid proposal is in total compliance to the same.		
2.	Contractor has read the document "Job Instruction" and fully understood the tender requirement.		
3.	Contractor to confirm that the requirements of technical specifications, applicable latest standards, Project Engineering Specifications will be followed.		
4.	Contractor to confirm that the Project area has been physically surveyed and well acquainted with and that the Contractor has collected relevant site information so as to submit competitive bid.		
5.	Documents shall be submitted for review/approval of Owner /Consultant as mentioned in "The List of Documents for review".		
6.	Contractor confirms to follow the latest edition of standards as mentioned in the General Engineering Specifications.		
7.	Only Internationally accepted commercial software viz. STAAD, STAADPRO V8i or equivalent (as mentioned in IT requirement) shall be permitted for analysis and design.		
8.	General philosophy of analysis and design (Concept Note) for all the structures and equipment foundations shall be submitted during execution phase, before proceeding with the actual design calculations and construction drawings.		
9.	Structural design and drawings for any structure / building / equipment foundation shall be submitted only after the reference Architectural drawings / equipment data sheets and G.A. drawings/ Supplier drawings have been reviewed / approved by Owner /Consultant.		
10.	Contractor to confirm that the scope of work considered is complete in all respects as specified in the tender document and that all equipment, materials and work not explicitly mentioned but nevertheless required to fulfil the functional requirements have been included in the scope of Contractor with no additional cost and time implication to Owner.		
11.	When modification work is required to be carried out in existing area, existing drawings will need to be updated in addition to the new drawings that will be developed.		
12.	Contractor shall confirm that for carrying out necessary works in the existing plant, necessary barricading/shoring and other appropriate protective measures with respect to adjacent structures has been considered; so that there are no disturbances, transfer of vibration, or any damage to the existing structures / foundations of the existing structures.		