

**SPECIAL PURCHASE CONDITIONS**

**(SPC)**

**PROJECT: ALUMINA 5<sup>TH</sup> STREAM REFINERY**

**OWNER / PURCHASER: National Aluminium Company Ltd. (Nalco)**

**CONSULTANT: thyssenkrupp Industrial Solutions (India)**

**Private Limited**

**(tkIS-India)**

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<b>RFQ (MR) Number:</b>	<b>6695-PPM-G00-EC-0129</b>
<b>Date:</b>	<b>27-03-2023</b>
<b>For:</b>	<b>SS Pipes</b>

## **SPECIAL PURCHASE CONDITIONS (SPC)**

### **1. INTRODUCTION**

- 1.1. M/s National Aluminium Company Limited (Nalco) having its Corporate Office at Bhubaneswar, Odisha is a premier Public Sector Undertaking and a Navaratna Company, under the administrative control of Ministry of Mines, Government of India owns and operates a large integrated Mines-Alumina-Aluminium complex in India.

As a part of its growth plan Nalco is planning to set up one more Stream (5th Stream) in its Alumina Refinery at Damanjodi. The stream capacity would be 1.0 MTPA.

At port facilities, Visakhapatnam one Alumina silo of capacity 25000 MT and one Caustic Soda tank of capacity 5000 MT shall be constructed for export of Alumina and import of caustic soda liquor respectively.

- 1.2. Nalco (i.e. the Owner) has appointed thyssenkrupp Industrial Solutions (India) Private Limited (tkIS-India) (Formerly Uhde India Private Limited), as their EPCM Consultant & PMC for LSTK Packages (hereafter referred to as Consultant or tkIS India). The technology for the Alumina refinery expansion is being provided by M/s RTAIL (Rio-Tinto Alcan Limited).
- 1.3. thyssenkrupp Industrial Solutions (India) Private Limited, (i.e. the Consultant) on behalf of National Aluminium Company Ltd. (Nalco) invites bids against the above RFQ. These Special Purchase Conditions (SPC) are being issued by thyssenkrupp Industrial Solutions (India) Pvt. Ltd., for and on behalf of M/s. National Aluminium Company Ltd (Nalco) i.e. the Owner. These SPC and the documents mentioned in the Annexures to these SPC (along with other documents listed in the RFQ such as Nalco's General Purchase Conditions, Price Schedule Formats, Vendor Co-ordination Procedure etc.) are a part of the above referred RFQ, and may become a part of any Purchase Order that might result from submission of a Bid in response to this RFQ. All Purchase Orders will be issued by Nalco and all payments will be made only by Nalco.

### **2. PAYMENT TERMS**

In partial modification to the payment terms as mentioned in the General Purchase Conditions, the following payment terms shall be applicable.

#### **Interest Bearing Advance**

Interest bearing recoverable advance shall be paid to the vendor/supplier, if requested by them, in two instalments up to 15% of the order value (excluding taxes & duties), i.e. 10% in 1st instalment & 5% in 2nd instalment after the following conditions have been fulfilled:

- Submission of Contract cum Performance Bank Guarantee as per Contract Terms by vendor/supplier.
- Vendor/supplier shall submit Bank Guarantee(s) for an amount equivalent to 110% of the advance amount valid up to the delivery period plus one-month from any bank as per list provided by the NALCO and in a format acceptable to the NALCO.

- c. Second instalment of 5% shall be paid on submission of data such as IITP/QAP etc. as stipulated in the RFQ documents. If it is found that, the advance has been utilized by the vendor/supplier in whole or part for any other purpose; the NALCO may at its discretion forthwith recall the entire advance and without prejudice to any other right or remedy available to the NALCO, recover the same by recourse to the Bank Guarantee(s).
- d. The vendor/supplier shall at the request of the NALCO suitably extend the validity of the Bank Guarantee(s) for such period as may be required.
- e. Vendor/supplier may submit multiple BGs each BG should be not less than 25 % of the advance amount for facilitating release of BG amount equivalent to advance realized from supplier invoices.
- f. Recovery of advance paid shall start from 1st Invoice.
- g. Depending upon the percentage of advance opted by the vendor, the recovery shall be made in such a manner that the total advance is recovered when 80% of the Total Order Value gets paid. The percentage of recovery from invoices for advance shall be decided as per given formula:  

$$\% \text{ Recovery} = (\% \text{ Advance} / 80) \times 100$$
- h. The interest rate of such advance shall be variable. For the financial year 2022-23, the interest rate is 8.1% which is worked out based on MCLR rate of SBI as on April'2022 for one-year tenor plus 1%. For subsequent financial years, the interest rate for the balance amount of advance will be MCLR (1-year tenor) rate of SBI declared in the month of April of that financial year plus 1%.

No loading shall be done on account of payment of advance.

#### **Payment Terms:**

100% payment along with GST shall be payable as per following break up:

##### **(i) Supply**

- a. 90% payment on pro-rata basis against dispatch documents (along with Inspection Release Order issued by Consultant certifying the clearance of goods for shipment) received through bank, along with 100% GST on Order Value. The dispatch documents shall include the Vendor's invoice, Packing List, Delivery challan, Lorry Receipt and any other document stipulated in the Purchase Order
- b. 10% within 30 days after receipt and acceptance of materials at site and receipt of final technical documentation / drawings as per the technical specifications enclosed with the RFQ(MR).

Goods & Services Tax (GST) as applicable shall be payable extra. The vendor will have to raise invoice for the applicable GST amount as per approved format for claiming the GST paid.

NALCO, being Buyer (under Section 194Q inserted in the Income Tax Act, 1961 vide Finance Act 2021) having total sales, gross receipts, or turnover from business above Rupees Ten Crores during the last Financial Year, will deduct TDS under Section 194Q, w.e.f. 01.07.2021, at the prescribed rate of 0.1% on the purchase value of any goods, aggregate of which is exceeding the threshold limit of Rs.50 Lakhs in a Financial year.

Accordingly, Vendors/Sellers are advised not to take any action to collect tax at source under section 206C(1H) of the Act w.e.f. 01.07.2021, in case provisions of section are applicable to you.



The above is as per the current status and is subject to modification(s) based on amendments/ notifications under Income Tax Act, 1961.

Vendors / Contractors categorised/ designated as “specified person” under Section 206AB of Income Tax Act, 1961 shall be liable for TDS at higher rate as provided under the said section, by NALCO. So, vendors/ contractors are advised to submit self-certified copies of Income Tax Return (ITR) for each of the two previous years for which due date for filing of ITR has expired, along with the invoice/ bill so as to facilitate NALCO verify the applicability of Section 206AB.

**Contract Performance Bank Guarantee:**

The Vendor shall furnish a Contract Performance Bank Guarantee, for 03% of the total order value as per NALCO's format, executed by any of the banks listed in the Appendix enclosed with the ITB. The Vendor shall submit the CPBG within 21 days of placement of BOA. This CPBG shall be valid for a period of three months beyond expiry of the contractual guarantee period of 12 months from the date of successful commissioning of the Plant or 30 months from the date of last dispatch, whichever is earlier.

Each page of the Bank Guarantee must be stamped & signed by the authorized signatory(ies) of the Bank. Corrections, if any, must also be initialed by the authorized signatory(ies) of the Bank. The Bank is required to send a copy of the Bank Guarantee(s) in confirmation directly to the OWNER and for BG confirmation, the issuing bank can adopt SFMS (Structured Financial Messaging System) facility in favour of OWNER's Payee bank.

**General Notes:**

1. All despatches shall be made only after receipt of Inspection Release Order from Consultant.
2. For all Indian Vendors, the CGST & SGST or IGST shall be released only on receipt of tax compliant GST Invoice / document, against which Nalco shall be able to take the Input Tax Credit (ITC) in terms of GST provisions.
3. All Bank guarantees will be issued directly to Nalco – Damanjodi Site/ Vizag Port (as applicable) by the Bank and Vendor shall enclose copy of the same along with invoice. Banks shall be informed to send a separate confirmation immediately on request Nalco to expedite processing at Nalco's end.
4. Billing schedule (wherever applicable as per PO) shall be submitted to Nalco and tkIS India by the vendor for approval within 45 days from the date of Brief Order of Acceptance / Purchase Order (whichever is issued earlier) wherever specified in the Purchase Order. No partial dispatch or pro-rata payment shall be made without the approval of billing schedule.
5. Nalco shall establish the Letter of Credit only on receipt of Vendor's acceptance to Nalco's Brief Order of Acceptance (BOA) and on submission of 3% PBG by Vendor to Nalco within 21 days of BOA. **(Not applicable for this RFQ)**
6. All Bank Guarantees shall be sent to the following address:  
**Deputy General Manager (Finance)**  
**National Aluminium Company Limited**  
**Nalco Corporate Office,**  
**P/1, Nayapalli, Bhubaneswar – 751 013**  
**Odisha, India.**

- (i) **Ocean Freight / Air Freight (Foreign Bidder) (Not applicable for this RFQ)**  
Ocean transportation from FOB Major International Gateway Seaport of Exit (Incoterms 2010) to Kolkata/ Vishakapatnam seaport (India) shall be arranged by Nalco (for FOB Orders) through their nominated freight forwarder. Bidder shall arrange handing over the material to Nalco's designated freight forwarder at the designated port of exit.
- (ii) The request for ocean freight up to Kolkata/ Vishakapatnam seaport of entry is for comparison of bids and will not in any way, limit Nalco's right to contract on different terms.
- (iii) Nalco reserves the right to place the order on any of the specified price basis (FOB or CFR). In case of award, initially the Brief Order of Acceptance (BOA) shall be placed on FOB basis. Nalco reserves the right to convert the same to CFR basis at a later date.
- (iv) Therefore, bidder's quoted ocean freight charges should be firm and fixed and shall remain valid for the entire duration of contract irrespective of the mode of ordering by Nalco or the destination port in India.
- (v) The Bidder shall not be allowed to change port of Shipment after quoting, without the prior specific approval of Nalco.
- (vi) Where the materials are being despatched by air, the vendor shall quote on FCA Basis (Incoterms 2010) and shall also quote separately the Firm Air Freight charges up to Kolkata Airport . Nalco reserves the right to place the Purchase Order initially on FCA basis and then later on covert to CPT Basis, at their option.
- (vii) The vendor shall furnish the details of consignment such as outside dimensions, weights (both gross and net), number of packages, type and number of containers required, technical description and drawings, name of the supplier, port of loading etc. to enable Nalco to arrange the shipment. In case of ODC consignments (over dimensional consignments), the vendor shall inform Nalco and their freight forwarder the expected date of shipment well in advance (at least four weeks in advance) and obtain Nalco's specific intimation about the destination port in India. The vendor shall adhere to all instructions of Nalco in this regard. The vendor's quoted ocean freight charges shall remain firm and fixed and shall not be subject to any escalation for any reason whatsoever. The vendor shall furnish the cargo details to Nalco and Nalco's freight forwarder within three months from the date of Nalco's Brief Order of Acceptance (for package units), and within one month from the date of Nalco's Brief Order of Acceptance (for all other items). The actual cargo shipped should not exceed the cargo details furnished in terms of volume, weight and no. of containers. In case the actual cargo dispatched exceeds the cargo details furnished, the extra freight incurred by Owner will be to Seller's account. In case the order is converted to CFR basis, the free time for detention of the containers should not be less than 14 days.
- (viii) "Order Value" or "Total Order Value" means total contract value exclusive of taxes and duties in India.
- (ix) For all Purchase Orders placed on Indian vendors, the E-Way bill shall be the responsibility of the vendor. For all Purchase Orders placed on Indian vendors, the vendor shall quote the Firm freight charges up to Nalco's Site at Damanjodi / Visakhapatnam (as applicable). If any route survey is to be carried out for any consignment, then the vendor shall carry out the same at his own cost only.
7. Bidder to note wherever there is a requirement of equipment / item pertaining to the Vizag Port facilities of NALCO as mentioned in ITB, separate order will be placed on the successful Bidder and accordingly the successful Bidder needs to raise the separate invoice for enabling Purchaser to claim the ITC (Input Tax

Credit)

8. All the materials to be supplied by the vendor to NALCO against the order which will be handed over to NALCO upon completion of the package will be covered under the MCE policy taken by NALCO. However, the vendor will take insurance for his materials and his personnel used for execution of the work.

For materials to be supplied under NALCO's Insurance policy, the vendor has to give a prior intimation on the following to the insurance company in the e-mail ID [amaresh.rout@orientalinsurance.co.in](mailto:amaresh.rout@orientalinsurance.co.in) with a copy to [storesref\\_osrd@nalcoindia.co.in](mailto:storesref_osrd@nalcoindia.co.in):

- (i) Copy of Invoice
- (ii) Vehicle details
- (iii) LR number

### **3. DELETED**

### **4. TAXES AND DUTIES IN INDIA**

The taxes & duties shall as per the payment terms mentioned in this document / Purchase Order. The following provisions of GST shall be applicable:

#### **4.1. GOODS & SERVICES TAX**

- 4.1.1. Rate variation in Taxes and any new promulgated taxes after last date of the submission of price bid only on the goods and/or services applicable to invoices raised on NALCO within the contractual delivery date / contractual completion period (including extension approved if any) shall be on NALCO's Account against submission of documentary evidence.
- 4.1.2. Further, in case of delay in delivery of goods and/or services, any upward rate variation in Taxes and any new promulgated taxes imposed after the contractual delivery date / contractual completion period shall be to the Vendor's Account.
- 4.1.3. It would be the responsibility of the Vendor to get the registration with the respective Tax authorities under provision of GST. Any taxes being charged by the Vendors would be claimed by issuing proper TAX Invoice in a GSTN (Goods & Services Tax Network) acceptable format indicating details elements of all taxes charged and necessary requirements as prescribed under the respective tax laws and also to mention his correct and valid GSTN number (GSTIN) along with NALCO's GSTN number as applicable for particular supply on all invoices raised on NALCO under GST Regime.
- 4.1.4. The Vendor would be liable to reimburse or make good of any loss/claim by NALCO towards tax credit rejected / disallowed by any tax authorities due to non-deposit of taxes or non updation of the data in GSTIN network or non-filing of returns or non-compliance of tax laws by the Vendor by issuance of suitable credit note to NALCO. In case, contractor does not issue credit note to NALCO, NALCO would be constrained to recover the amount including interest payable along with Statutory levy/Tax, if any, payable on such recovery.
- 4.1.5. Tax element on any Debit Note / Supplementary invoice, raised by the Vendor will be reimbursed by NALCO as long as the same is within the permissible time limit as per the respective taxation laws and also permissible under the Purchase Order terms and conditions. Vendors to ensure that

such debit Notes are uploaded while filing the Statutory returns as may be prescribed from time to time.

- 4.1.6. The Vendor will be under obligation for quoting/charging correct rate of tax as prescribed under the respective Tax Laws. Further the Vendor shall avail and pass on benefits of all exemptions/concessions/benefits/waiver or any other benefits of similar nature or kind available under the Tax Laws. In no case, differential Tax Claims due to wrong classification of goods and/or services or understanding of law or rules or regulations or any other reasons of similar nature shall be entertained by NALCO.
- 4.1.7. In case NALCO's Input Tax Credit (ITC) is rejected on account of wrong levy of tax i.e. payment of Integrated Tax in place of Central Tax+ State/Union Territory Tax or vice versa, the Vendor is liable to make good the loss suffered by NALCO by issuance of suitable credit note to NALCO. In case Vendor does not issue credit note to NALCO, NALCO would be constrained to recover the amount including interest payable along with Statutory levy, if any, payable on such recovery.
- 4.1.8. NALCO shall reimburse GST levied as per invoice issued by the Vendor as prescribed under section 46 of the CGST Rules 2017 and respective states Act and Rules.
- 4.1.9. To enable NALCO to avail ITC, the Vendor shall furnish/submit any and all certificates, documents and declarations as are required by NALCO to avail of the ITC with respect to GST reimbursed by NALCO on materials sold to NALCO.
- 4.1.10. The HSN / SAC Code under which the goods/service will fall should be clearly mentioned along with the Rate at the time of submission of invoice for releasing payment.
- 4.1.11. In case, NALCO is not able to take Input Tax Credit due to any noncompliance / default / negligence of the Contractor, the same shall be recovered from the pending bills/dues (including any security available with NALCO).
- 4.1.12. Vendor shall be responsible to indemnify NALCO for any loss, direct or implied, accrued to NALCO on account of Vendor's failure to discharge his statutory liabilities like paying taxes on time, filing appropriate returns within the prescribed time etc.
- 4.1.13. Any benefit by way of reduction in rate of tax or increase in input tax credit arising due to introduction of GST shall be passed on to NALCO through reduction in supply value by way of commensurate reduction in Bill value.
- 4.1.14. The Vendor shall ensure that all the required documents as per the GST regulations are furnished to NALCO with their invoices failing which NALCO shall not make any reimbursement of such GST.
- 4.1.15. The applicable GST for site supervision training services by Foreign Service Provider shall be borne by NALCO on reverse charge basis.
- 4.1.16. Nalco's GST numbers are as follows:

Damanjodi Refinery: 21AAACN7449M1Z9  
Vizag: 37AAACN7449M1ZW

#### **4.2. DEDUCTION OF INCOME TAX AND TAX DEDUCTION AT SOURCE (TDS) UNDER GST**

- 4.2.1. Income Tax as applicable at the prevailing rate on the gross amount billed shall be deducted from the Vendor's bills (wherever such deduction is applicable).
- 4.2.2. As per section 51 of CGST Act 2017, to read with Notification No. 33/2017-Central Tax, dated 15.09.2017, NALCO shall deduct at source @ 1% CGST & @ 1% SGST for intra state transactions and @2% IGST in the case of interstate transactions from the payment made and credited to the supplier of taxable goods and/or services, provided if the contract value is more than Rs.2,50,000/-. This deduction is applicable from the date to be notified by the Government. The value of supply shall be taken as the amount excluding CGST, SGST, UGST and Cess indicated in the invoice.

#### **4.3. INCOME TAX**

- 4.3.1. The Vendor shall be exclusively responsible and liable to pay taxes on income comprised in all or any payments arising out of the Purchase Order, whether payable/paid in India or in any other jurisdiction and quoted prices shall be inclusive of Income Tax.
- 4.3.2. Income tax (if applicable) shall be deductible at source by NALCO on all payments to be made to the Vendor. ~~However, for payments (for services) made to Foreign Bidders in Foreign Currency, the applicable Withholding Tax shall be borne by NALCO on grossing up basis. As per extant provisions of Income Tax Act and Rules made there under following documents are mandatory for this purpose (a) Tax Residency Certificate (TRC) issued by the competent authority of the country of residence of the Vendor (b) Form 10F as described in Income Tax Rules, 1962 and (c) Permanent Account Number (PAN) or a declaration in specified format in lieu of Permanent Account Number (PAN).~~
- 4.3.3. The Indian Income Tax Act and rules made there under contains provisions permitting deduction of tax at a lesser rate if the Vendor is able to justify to the Income Tax Authorities such lesser rate of deduction. However, a deduction once made has to be deposited by the OWNER with the Income Tax Authorities in India and will not be adjustable by the OWNER. It is therefore in the interest of the Vendor that prior to release of any payment due to the Vendor under the Purchase Order, the Vendor obtains, from the relevant Income Tax Authorities in India, a certificate specifying the rate of deduction/withholding of Income tax at source, failing which, payment to the Vendor shall be made by the Nalco after Withholding/deduction at the highest rate as may be applicable to the non-resident contractors as per Provisions of Income Tax Act, 1961.

#### **4.4. NEW TAX AND STATUTORY VARIATION IN TAXES AND DUTIES**

- 4.4.1. If any new taxes or duties (including any increase in rate of any existing taxes or duties) are levied in India after the date of submission of bids/ revised price bids (whichever is later) and within the Contractual delivery / completion period or any extension thereof by NALCO, on any payments due to the Vendor under the Purchase Order, other than tax on income, wealth or profits of the Vendor, the OWNER shall reimburse the Vendor the amount of such taxes or duties lawfully paid and borne by the Vendor against proof of payment.
- 4.4.2. If there is any increase in taxes or duties or if any new taxes or duties are levied in India after the contractual delivery / completion period, such increase in taxes or duties or such new taxes or duties shall be to the Vendor's account only

## **5. DELAYED DELIVERIES**

5.1. The clauses related to delayed deliveries shall be as mentioned in Nalco's General Purchase Conditions. **The % of Price Reduction mentioned in Clause No. 23 (i) of GPC has been revised to ½ % of the Undelivered Order Value (UDOV) without GST per week of delay or part thereof, subject to a maximum of 5% of Total Order Value without GST. The date of last Lorry Receipt (LR) shall be considered as the date of delivery for the purpose of PRS.**

5.2. Non-acceptance or deviation to Price Reduction Schedule (PRS) clause is a rejection criteria.

5.3. For the purpose of calculating the PRS for delayed delivery, the contractual delivery date shall be the date of last Lorry Receipt (for Indian Vendors), and the date of last Bill of Lading or Air Way Bill (as applicable) -for foreign vendors.

## **6. SHIPPING WEIGHT**

Actual weight/ volume shall not exceed the estimated weight/ volume by bidder. In case actual weight/ volume exceeds, additional cost of shipping on this account shall be borne by the bidder. Freight quoted by Bidder shall be firm. Bidder shall intimate in advance to the Owner, Consultant & Owner's authorised Freight Forwarder / Logistic Contractor, prior despatch of equipment/item from their works.

## **7. VENDOR'S/SUPPLIER'S DEFAULT**

~~Any forfeiture / recovery made by the NALCO due to any of "vendor's/supplier's default" shall be with applicable GST at the time of settlement.~~

## **8. ANTI PROFITEERING PROVISIONS**

In compliance to GST Act, anti-profiteering provisions mandates that any reduction in tax rates or benefits of input tax credits shall be passed on to the consumer by way of commensurate reduction in prices. Indigenous bidders to take note of the same and pass on such benefits to NALCO while quoting their price as well as during execution of the contract.

Supplier / Contractor needs to submit a certificate under Section 171 of CGST Act, 2017, before or at the time of submitting final bill against the Contract/Work Order/Purchase Order/BOA to the effect that anti profiteering measure has been complied with. The certificate needs to contain the following:

"Commensurate benefit of reduction in rate of tax or benefit of input tax credit in the BOA/Purchase Order/Work Order/Contract No.....dated.....has been passed on to NALCO".

## **9. ARBITRATION & DISPUTES**

Arbitration & Disputes, if any, will be dealt as per the procedures laid down in the enclosed ANNEXURE 2 to this document.

## **10. INDIRECT OR CONSEQUENTIAL LOSS**

Neither party shall be liable to the other for any and all consequential, special, speculative, indirect and incidental damages including but not limited to loss of use, loss of profits or product, for extra cost of producing product, for extra cost of capital, or for failure to achieve or delay in achieving anticipated profits or products.

#### **11. LIMITATION OF LIABILITY**

The maximum liability of the "Supplier/Vendor/ Seller" shall be up to 100% of the Total Order Value. The maximum liability shall be exclusive of patent infringement & indemnity.

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**ANNEXURE 1 TO SPC**  
**PRICE REDUCTION CLAUSE FOR NOT MEETING GUARANTEED PERFORMANCE PARAMETERS**

**Price Reduction Clause for not meeting Guaranteed Performance Parameters is Not  
Applicable for this RFQ (MR).**

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## **ANNEXURE 2 TO SPC**

### **ARBITRATION**

#### **SETTLEMENT OF DISPUTES & ARBITRATION**

1. In the event of any question, dispute and/or difference whatsoever arising under this assignment in connection therewith including any question relating to existence, meaning and interpretation of this assignment or any alleged breach thereof, the same will be settled as far as possible by mutual discussions of the parties.
2. Notwithstanding any such claim under arbitration, the CONTRACTOR shall continue to perform the services unless it is the subject matter of the dispute of referred to arbitration.
3. All disputes or differences whatsoever which shall at any time arise between the parties hereto touching or concerning this contract or the execution or maintenance thereof of the contract or the rights touching or concerning the works or the execution or maintenance thereof of this contract or the construction meaning operation or effect thereof or to the rights or liabilities of the parties or arising out of or in relation thereto whether during or after completion of the contract or whether before or after determination, before closure or breach of the contract (other than those in respect of which the decision of any person is by the contract expressed to be final and binding) shall after written notice by either party to the contract to the other of them and to the Appointing Authority hereinafter mentioned be referred for adjudication to a sole Arbitrator to be appointed as hereinafter provided.

For the purpose of appointing the sole Arbitrator referred to above, the Appointing Authority i.e. Chairman cum Managing Director, NALCO, will send within thirty days of receipt of the notice, to the seller a panel of three names of persons.

The seller shall on receipt of the names as referred select any one of the person names to be appointed as a sole Arbitrator and communicate his name to the Appointing Authority within thirty days of receipt of the names. The appointing Authority shall there upon without any delay appoint the said person as the sole Arbitrator. If the seller fails to communicate such selection as provided above within the period specified, the Appointing Authority shall make the selection and appoint the selected person as the sole Arbitrator.

If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacate his office due to any reason whatsoever sole Arbitrators shall be appointed as aforesaid. The work under the contract shall, however continue during the arbitration proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issues notices to both the parties fixing the date of the first hearing.

The Arbitrator shall give a separate award in respect of each dispute or difference and shall give a reasoned and speaking award/ awards.

The seat of arbitration shall be at Bhubaneswar. However, if the situation so warrants venue of arbitration may be at as and where required basis, and may be held at the place where the site of work is situated.

The fees, if any, of the Arbitrator shall, if required to be paid before the award is made and published be paid half and half by each of the parties. The costs of the reference and of the award including the fees, if any of the Arbitrator shall be in the discretion of the Arbitrator who may direct to and by whom and in what manner, such costs or any part thereof shall be paid may fix or settle the amount of costs to be so paid.

The award of the arbitrator shall be final and binding on both the parties.

Subject to aforesaid, the provisions of the Arbitration and Conciliation Act, 1996 as amended by the Arbitration and Conciliation (Amendment) Act, 2015 or any statutory modification or re-enactment thereof and the rules made there under, and for the time being in force shall apply to the arbitration proceeding under this clause.

In the event of disputes or differences arising between one public sector enterprise and a Govt. Department or between two public sector enterprises the above stipulations shall not apply, the provisions DPE office memorandum No.4(1)/2013-DPE(PMA)/FTS-1835 dated 11<sup>th</sup> April, 2017 or its amendments for arbitration shall be applicable.

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**PRICED SCHEDULE FORMAT for Supply of Equipment / Items (BOQ)**

All Prices should be in INR

Name of Equipment : SS Pipes for NALCO Alumina 5th Stream Refinery

RFQ (MR) No: 6695-PPM-G00-EC-0129

Bidder Name :

This BOQ template is for reference. The priced Bid in the Excel BOQ corresponding to the price schedule formats shall be uploaded (submitted) only on the CPP Portal.

Sr. No.	Item Code	Item Description	Size 1	OD 1	Thk 1	OD 2	Thk 2	Qty Required at Nalco site at Damanjodi	Units	BASIC Unit Price in Figures to be entered by the Bidder - FOT Dispatch Point basis	Freight Charges in % to be entered by the Bidder Upto Project Site - Damanjodi, Odisha and Vizag Port	Total Price in Figures CPT Nalco Project Site - Incoterms 2010 Damanjodi, Odisha and Vizag Port
								<b>A</b>	<b>Meters</b>	<b>B</b>	<b>C</b>	<b>D = (A x B) + (A x B x C)</b>
<b>A</b>		<b>Supply of SS Pipes, including Packing &amp; Forwarding as per MR.</b>										
1	P 360C	PIPE,SMLS,SS, B36.19M, BW ENDS,SCH 10S, SEAMLESS, PIPE A312 TP304, ADD. INFORMATION, ALTERNATIVELY FOR 8" AND ABOVE, SIZES, WELDED PIPES COMPLYING A358, CL.1 WITH 100% RADIOGRAPHY CAN BE, PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	250	273	4.19	-	-	220	Meters			
2	P 440C	PIPE,SMLS,SS, B36.19M, BW ENDS,SCH 10S, SEAMLESS, PIPE A312 TP316L, ADD. INFORMATION, ALTERNATIVELY FOR 8" AND ABOVE, SIZES WELDED PIPES COMPLYING A358, CL.1 WITH 100% RADIOGRAPHY CAN, BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	50	60.3	2.77	-	-	134	Meters			
3	P 440C	PIPE,SMLS,SS, B36.19M, BW ENDS,SCH 10S, SEAMLESS, PIPE A312 TP316L, ADD. INFORMATION, ALTERNATIVELY FOR 8" AND ABOVE, SIZES WELDED PIPES COMPLYING A358, CL.1 WITH 100% RADIOGRAPHY CAN, BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	80	88.9	3.05	-	-	17	Meters			
4	P 440C	PIPE,SMLS,SS, B36.19M, BW ENDS,SCH 10S, SEAMLESS, PIPE A312 TP316L, ADD. INFORMATION, ALTERNATIVELY FOR 8" AND ABOVE, SIZES WELDED PIPES COMPLYING A358, CL.1 WITH 100% RADIOGRAPHY CAN, BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	100	114	3.05	-	-	95	Meters			
5	P 440C	PIPE,SMLS,SS, B36.19M, BW ENDS,SCH 10S, SEAMLESS, PIPE A312 TP316L, ADD. INFORMATION, ALTERNATIVELY FOR 8" AND ABOVE, SIZES WELDED PIPES COMPLYING A358, CL.1 WITH 100% RADIOGRAPHY CAN, BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	150	168	3.4	-	-	142	Meters			

**PRICED SCHEDULE FORMAT for Supply of Equipment / Items (BOQ)**

All Prices should be in INR

Name of Equipment : SS Pipes for NALCO Alumina 5th Stream Refinery

RFQ (MR) No: 6695-PPM-G00-EC-0129

Bidder Name :

This BOQ template is for reference. The priced Bid in the Excel BOQ corresponding to the price schedule formats shall be uploaded (submitted) only on the CPP Portal.

Sr. No.	Item Code	Item Description	Size 1	OD 1	Thk 1	OD 2	Thk 2	Qty Required at Nalco site at Damanjodi	Units	BASIC Unit Price in Figures to be entered by the Bidder - FOT Dispatch Point basis	Freight Charges in % to be entered by the Bidder Upto Project Site - Damanjodi, Odisha and Vizag Port	Total Price in Figures CPT Nalco Project Site - Incoterms 2010 Damanjodi, Odisha and Vizag Port
								<b>A</b>	<b>Meters</b>	<b>B</b>	<b>C</b>	<b>D = (A x B) + (A x B x C)</b>
<b>A</b>		<b>Supply of SS Pipes, including Packing &amp; Forwarding as per MR.</b>										
6	P 440C	PIPE,SMLS,SS, B36.19M, BW ENDS,SCH 10S, SEAMLESS, PIPE A312 TP316L, ADD. INFORMATION, ALTERNATIVELY FOR 8" AND ABOVE, SIZES WELDED PIPES COMPLYING A358, CL.1 WITH 100% RADIOGRAPHY CAN, BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	200	219	3.76	-	-	115	Meters			
7	P 440C	PIPE,SMLS,SS, B36.19M, BW ENDS,SCH 10S, SEAMLESS, PIPE A312 TP316L, ADD. INFORMATION, ALTERNATIVELY FOR 8" AND ABOVE, SIZES WELDED PIPES COMPLYING A358, CL.1 WITH 100% RADIOGRAPHY CAN, BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	250	273	4.19	-	-	29	Meters			
8	P 440C	PIPE,SMLS,SS, B36.19M, BW ENDS,SCH 10S, SEAMLESS, PIPE A312 TP316L, ADD. INFORMATION, ALTERNATIVELY FOR 8" AND ABOVE, SIZES WELDED PIPES COMPLYING A358, CL.1 WITH 100% RADIOGRAPHY CAN, BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	300	324	4.57	-	-	6	Meters			
9	P 540J	PIPE,DSS,SMLS, B36.19M, BW ENDS,SCH 40S, SEAMLESS, PIPE A790 UNSS31803, ADD. INFORMATION, ALTERNATIVELY WELDED PIPES WITH 100%, RADIOGRAPHY CAN BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	50	60.3	3.91	-	-	6	Meters			
10	P 540J	PIPE,DSS,SMLS, B36.19M, BW ENDS,SCH 40S, SEAMLESS, PIPE A790 UNSS31803, ADD. INFORMATION, ALTERNATIVELY WELDED PIPES WITH 100%, RADIOGRAPHY CAN BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	80	88.9	5.49	-	-	6	Meters			
11	P 540J	PIPE,DSS,SMLS, B36.19M, BW ENDS,SCH 40S, SEAMLESS, PIPE A790 UNSS31803, ADD. INFORMATION, ALTERNATIVELY WELDED PIPES WITH 100%, RADIOGRAPHY CAN BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	100	114	6.02	-	-	6	Meters			

**PRICED SCHEDULE FORMAT for Supply of Equipment / Items (BOQ)**

All Prices should be in INR

Name of Equipment : SS Pipes for NALCO Alumina 5th Stream Refinery

RFQ (MR) No: 6695-PPM-G00-EC-0129



Bidder Name :

This BOQ template is for reference. The priced Bid in the Excel BOQ corresponding to the price schedule formats shall be uploaded (submitted) only on the CPP Portal.




Sr. No.	Item Code	Item Description	Size 1	OD 1	Thk 1	OD 2	Thk 2	Qty Required at Nalco site at Damanjodi	Units	BASIC Unit Price in Figures to be entered by the Bidder - FOT Dispatch Point basis	Freight Charges in % to be entered by the Bidder Upto Project Site - Damanjodi, Odisha and Vizag Port	Total Price in Figures CPT Nalco Project Site - Incoterms 2010 Damanjodi, Odisha and Vizag Port
								<b>A</b>	<b>Meters</b>	<b>B</b>	<b>C</b>	<b>D = (A x B) + (A x B x C)</b>
<b>A</b>		<b>Supply of SS Pipes, including Packing &amp; Forwarding as per MR.</b>										
12	P 540J	PIPE,DSS,SMLS, B36.19M, BW ENDS,SCH 40S, SEAMLESS, PIPE A790 UNSS31803, ADD. INFORMATION, ALTERNATIVELY WELDED PIPES WITH 100%, RADIOGRAPHY CAN BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	200	219	8.18	-	-	6	Meters			
13	P 540J	PIPE,DSS,SMLS, B36.19M, BW ENDS,SCH 40S, SEAMLESS, PIPE A790 UNSS31803, ADD. INFORMATION, ALTERNATIVELY WELDED PIPES WITH 100%, RADIOGRAPHY CAN BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	350	356	9.53	-	-	11	Meters			
14	P 540J	PIPE,DSS,SMLS, B36.19M, BW ENDS,SCH 40S, SEAMLESS, PIPE A790 UNSS31803, ADD. INFORMATION, ALTERNATIVELY WELDED PIPES WITH 100%, RADIOGRAPHY CAN BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	400	406	9.53	-	-	9	Meters			
15	P 540J	PIPE,DSS,SMLS, B36.19M, BW ENDS,SCH 40S, SEAMLESS, PIPE A790 UNSS31803, ADD. INFORMATION, ALTERNATIVELY WELDED PIPES WITH 100%, RADIOGRAPHY CAN BE PROVIDED., FOR GENL TECH. REQ. REFER DOC., 6695-PIP-G00-EC-0007	500	508	9.53	-	-	13	Meters			
16	PB 360J	PIPE,SMLS,SS, B36.19M, PE,SCH 40S, SEAMLESS, PIPE A312 TP304	20	26.7	2.87	-	-	6	Meters			
								<b>821</b>	<b>Meters</b>	<b>Total Charges for Supply</b>		



**Notes for BOQ:**

- Bidder should quote Basic Unit rate in Rs/meter in column B. The Basic unit rate quoted in Column B (BASIC Unit Price in Figures to be entered by the Bidder -FOT Dispatch Point basis).
- Bidder to quote the Unit Price applicable in Rs / Meter in Column "BASIC Unit Price in Figures to be entered by the Bidder - FOT Dispatch Point basis". Accordingly "Total Price in Figures CPT Nalco Project Site - Incoterms 2010 Damanjodi, Odisha" shall be calculated as multiplying = (Total Quantity x Basic Unit Price) + (Total Quantity x Basic Unit Price x % of Freight Charges) (Example BOQ Sr No. 1 Total qty is 220 Meter - Unit Rate 100 Rs/ meter, Freight 10%. Hence total price on CPT NALCO Project Site will be (220 x 100)+(220x100x10%)= Total Rs.24200.00
- Bidder to quote the freight charges accordingly. The freight charges quoted in % in Column C (Freight Charges in % to be entered by the Bidder Upto Project Site - Damanjodi, Odisha) shall be applied for bid evaluation and ordering purpose
- \* Note : Unit of Measurement for Pipe is Meter and for Other Items is Number**
- Above Prices should be exclusive of GST.

Plant 1.0 MTPA ALUMINA REFINERY STREAM-	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PMG-G00-BD-0008</b>	Contract No. <b>66-6695</b>
	<h2>Vendor Co-ordination Procedure</h2>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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<p><b>tkIS India / Vendor</b></p> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Category Codes (Submission Purpose)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 For Approval  <input type="checkbox"/> 2 For Review / Comments  <input type="checkbox"/> 3 For Information  <input type="checkbox"/> 4 For Engineering  <input type="checkbox"/> 5 For Enquiry  <input type="checkbox"/> 6 For Order Placement  <input type="checkbox"/> 7 Final &amp; Approved  <input type="checkbox"/> 8 Released for Construction         </div> </div> <hr/> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Acceptance Codes (Approval Codes)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 Approved  <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked  <input type="checkbox"/> 3 Not Approved / Resubmit  <input type="checkbox"/> 4 Retained for Information / Records  <input type="checkbox"/> 5 Reviewed  <input type="checkbox"/> 6 Reviewed as Noted / Resubmit         </div> </div> <p style="font-size: x-small; margin-top: 10px;"> <b>Remarks for AC2 :</b> This marked-up drawings is hereby approved for fabrication / manufacturing and shall be re-submitted after revision. This drawing should be revised only to the extent of tkIS India / Owner / Client comments. Any other changes made by you will not be considered unless clearly highlighted in covering letter asking for approval.         </p> <p style="font-size: x-small; margin-top: 10px;"> <b>This approval / review does not absolve the supplier from the full responsibility for design and fabrication.</b> </p> <p style="font-size: x-small; margin-top: 10px;">         Date : ___/___/___      Name : _____       </p>	<p><b>tkIS India / Owner / Client</b></p> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Category Codes (Submission Purpose)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 For Approval  <input type="checkbox"/> 2 For Review / Comments  <input type="checkbox"/> 3 For Information  <input type="checkbox"/> 4 For Engineering  <input type="checkbox"/> 5 For Enquiry  <input type="checkbox"/> 6 For Order Placement  <input type="checkbox"/> 7 Final &amp; Approved  <input type="checkbox"/> 8 Released for Construction         </div> </div> <hr/> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Acceptance Codes (Approval Codes)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 Approved  <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked  <input type="checkbox"/> 3 Not Approved / Resubmit  <input type="checkbox"/> 4 Retained for Information / Records  <input type="checkbox"/> 5 Reviewed  <input type="checkbox"/> 6 Reviewed as Noted / Resubmit         </div> </div> <p style="font-size: x-small; margin-top: 10px;">         Date : ___/___/___      Name : _____       </p>
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0		For Implementation	20/01/22	SAGAR	20/01/22	GGM / BJ	20/01/22	GGM	
Rev.	Status	Description	Date	Prepared	Date	Checked	Date	Approved	AC
				Barcode					Category Code: -8
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	<b>Vendor Co-ordination Procedure</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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This Document is updated version of document ID 6695-PDM-G00-BD-0002 R01

## 1 INTRODUCTION:

### 1.1 Purpose

This document outlines the Project Co-ordination Procedure to be adopted for the execution of order under the terms and conditions of NALCO BOA.

The main purpose of this document is to describe the Project Co-ordination and Communication Procedure (PCP), which will be followed during execution of this Project. This document is intended to provide consolidated guidelines for co-ordination and communication procedures to be adopted for the execution of the project under the terms and conditions of the Contract Agreement between **National Aluminium Company Limited** (hereinafter defined as **NALCO**) and **Vendor**.

In the event of any omission or any contradiction between this document and the contract agreement, provisions of contract agreement shall prevail. The definitions used in the contract agreement are also applicable to this document.

### 1.2 Brief on Project

National Aluminium Company Limited (NALCO), hereafter referred to as OWNER, a Government of India undertaking and Navaratna Company, owns and operates a large integrated Mines-Alumina-Aluminium Complex in India.

As a part of its growth plan NALCO is planning to set up one more Stream (5th Stream) in its Alumina Refinery under 3<sup>rd</sup> phase expansion at Damanjodi based on Pottangi Bauxite Deposits. Mining of bauxite will be sourced from South Block of the Panchpatmali mine till the commissioning of Pottangi Bauxite Mine to meet the present requirement. The stream capacity would be 1.0 MTPA Alumina and processing technology will be based on medium pressure digestion keeping in view of higher liquor productivity and its associated advantages.



At port facilities, Visakhapatnam one Alumina silo of capacity 25000 MT and one Caustic Soda tank of capacity 5000 MT shall be constructed for export of Alumina and import of caustic soda liquor respectively.

NALCO has appointed thyssenkrupp Industrial Solutions (India) Private Limited (tkIS-India) (Formerly Uhde India Private Limited), as their EPCM Consultant & PMC for LSTK Packages (hereafter referred as CONSULTANT).

..



NALCO, tkIS-India and Supplier, hereinafter referred as "Vendor" will generally be guided by the procedure given in the following chapters, for the smooth execution of the work under the above BOA. Any changes shall be made only with mutual agreement and confirmation by all parties in writing.



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## 2 PROJECT DETAILS

Project Name	:	1.0 MTPA Alumina Refinery Stream-5
OWNER	:	National Aluminium Company Limited (NALCO)
CONSULTANT	:	thyssenkrupp Industrial Solutions (India) Pvt Ltd. (tkIS-India)
Project No. (tkIS-India)	:	66-6695
Site Location	:	Damanjodi, Odisha, India
Name of Unit Licensors	:	Rio-Tinto Alcan Limited (RTAIL)
tkIS India's Project Management & Contact Particulars	:	<p>1) Mr. Girish G. Masurkar, Project Manager  Tel : +91 22 6723 3908  Mobile : +91 9167251412  Email : <a href="mailto:girish.masurkar@thyssenkrupp.com">girish.masurkar@thyssenkrupp.com</a></p> <p>2) Mr. Sulesh Pradhan. Engineering Manager  Tel : +91 22 6723 3919  Mobile : +91 98702 24133  Email : <a href="mailto:sulesh.pradhan@thyssenkrupp.com">sulesh.pradhan@thyssenkrupp.com</a></p> <p>Mailing Address :  thyssenkrupp Industrial Solutions (India) Pvt Ltd  Uhde House, L.B.S. Marg , Vikhroli (W), Mumbai 400 083, India</p>
NALCO, Project Owner & his Contact Particulars	:	<p>Mr. Niranjan Samal, GM(Chem)  Project &amp; Technical Department,  Nalco Corporate Office, Bhubaneswar  Mobile : +91 94370 55419  Email : <a href="mailto:niranjan.samal@nalcoindia.co.in">niranjan.samal@nalcoindia.co.in</a></p> <p>Mailing Address:  Nalco Bhavan, P/1, Nayapalli, Bhubaneswar - 751013</p>
NALCO, Site office	:	<p>1) Damanjodi site:  Mr. R. S. Raju, GM (Mech)  Mobile : +91 943709 5638  Email : <a href="mailto:rudraraju.raju@nalcoindia.co.in">rudraraju.raju@nalcoindia.co.in</a></p> <p>Mailing address:  Mines &amp; Refinery Complex, Damanjodi-763 008, Dist. – Korakut, Odisha</p> <p>2) NALCO Vizag Port:  Mr. A.V. Subba Rao, GM (Mech)  Mobile : +91 891 2878204  Email : <a href="mailto:vsubbarao.amperayani@nalcoindia.co.in">vsubbarao.amperayani@nalcoindia.co.in</a></p> <p>Mailing address:  Port Area, Opp. Ore Handling Complex,  Visakhapatnam – 530 035, India</p>

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	<b>Vendor Co-ordination Procedure</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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### 3 EDC & CDD

Vendor shall refer to BOA issued by NALCO for Effective date of contract (EDC) and contractual delivery date (CDD)

### 4 COMMUNICATION:

Communication Title: Vendor to mention "Unit name / Tag No. against NALCO BOA No. in all correspondence. All email subject headline should identify the subject matter clearly and Package name.

Communication between NALCO, tkIS-India and Vendor.

All communication between the companies will be addressed for the attention of the following, who will arrange further internal distribution

#### 4.1 Communication to tkIS-India / NALCO:

Please address all communication to tkIS India as mentioned below: -



**Note: Vendor to Communicate with tkIS-India HO:**

- a) Technical Team - For any drawing approval / submission / technical query
- b) Inspection & Expediting - For any inspection
- c) Commercial team - For any Commercial matters

All correspondence shall state NALCO BOA Number and Tag No. In the subject of communication.



**Communication related to tkIS Home office:** Details of Package owner from NALCO and tkIS will be provided separately

Technical email To	Technical: CC	Company
<a href="mailto:tkISIndia.nalcotf@thyssenkrupp.com">tkISIndia.nalcotf@thyssenkrupp.com</a>	<a href="mailto:girish.masurkar@thyssenkrupp.com">girish.masurkar@thyssenkrupp.com</a> , <a href="mailto:sulesh.pradhan@thyssenkrupp.com">sulesh.pradhan@thyssenkrupp.com</a> <a href="mailto:sonali.nair@thyssenkrupp.com">sonali.nair@thyssenkrupp.com</a> Package owner of tkIS	tkIS-HO
	<a href="mailto:niranjan.samal@nalcoindia.co.in">niranjan.samal@nalcoindia.co.in</a> <a href="mailto:ashok3.patra@nalcoindia.co.in">ashok3.patra@nalcoindia.co.in</a> Package owner of NALCO-HO	NALCO-HO
	<a href="mailto:rudraraju.raju@nalcoindia.co.in">rudraraju.raju@nalcoindia.co.in</a> Package owner of NALCO-Site	NALCO-Site

Plant 1.0 MTPA ALUMINA REFINERY STREAM-	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PGM-G00-BD-0008</b>	Contract No. <b>66-6695</b>
	<b>Vendor Co-ordination Procedure</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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Inspection related To	Inspection CC	
<a href="mailto:tkISIndia.nalcotf@thyssenkrupp.com">tkISIndia.nalcotf@thyssenkrupp.com</a>  For Foreign Vendors & for components ordered on foreign suppliers by Indian vendors; Owner approved Third Party Inspection Agencies	Package owner of tkIS <a href="mailto:vijay.gujar@thyssenkrupp.com">vijay.gujar@thyssenkrupp.com</a> <a href="mailto:girish.masurkar@thyssenkrupp.com">girish.masurkar@thyssenkrupp.com</a> <a href="mailto:sulesh.pradhan@thyssenkrupp.com">sulesh.pradhan@thyssenkrupp.com</a> <a href="mailto:sonali.nair@thyssenkrupp.com">sonali.nair@thyssenkrupp.com</a> <a href="mailto:tkisindia.ex@thyssenkrupp.com">tkisindia.ex@thyssenkrupp.com</a> tkIS Inspection Engineer - Details will be provided separately M/s. Lloyd's Register, M/s. Bureau Veritas, M/s. DNV & M/s. TUV India Private limited / TUV Nord / TUV SUD / TUV Rhineland.	tkIS-HO

Commercial email To (Excluding invoices)	Commercial :CC	
<a href="mailto:tkISIndia.nalcotf@thyssenkrupp.com">tkISIndia.nalcotf@thyssenkrupp.com</a>	<a href="mailto:bharadwaj.ts.external@thyssenkrupp.com">bharadwaj.ts.external@thyssenkrupp.com</a> <a href="mailto:abhay.budgude@thyssenkrupp.com">abhay.budgude@thyssenkrupp.com</a> <a href="mailto:girish.masurkar@thyssenkrupp.com">girish.masurkar@thyssenkrupp.com</a> , Package owner of tkIS <a href="mailto:sulesh.pradhan@thyssenkrupp.com">sulesh.pradhan@thyssenkrupp.com</a> <a href="mailto:sonali.nair@thyssenkrupp.com">sonali.nair@thyssenkrupp.com</a>	tkIS-HO
	<a href="mailto:niranjan.samal@nalcoindia.co.in">niranjan.samal@nalcoindia.co.in</a> <a href="mailto:sadashiv.samantaray@nalcoindia.co.in">sadashiv.samantaray@nalcoindia.co.in</a> <a href="mailto:siddhartha.das@nalcoindia.co.in">siddhartha.das@nalcoindia.co.in</a> <a href="mailto:sudesh.pattnaik@nalcoindia.co.in">sudesh.pattnaik@nalcoindia.co.in</a> <a href="mailto:madhumita.sahoo@nalcoindia.co.in">madhumita.sahoo@nalcoindia.co.in</a> <a href="mailto:ashok3.patra@nalcoindia.co.in">ashok3.patra@nalcoindia.co.in</a> Package owner of NALCO-HO	NALCO-HO
	<a href="mailto:sushil.padhee@nalcoindia.co.in">sushil.padhee@nalcoindia.co.in</a> <a href="mailto:rudraraju.raju@nalcoindia.co.in">rudraraju.raju@nalcoindia.co.in</a> <a href="mailto:somanath.behera@nalcoindia.co.in">somanath.behera@nalcoindia.co.in</a> <a href="mailto:darbhamalla.kumar@nalcoindia.co.in">darbhamalla.kumar@nalcoindia.co.in</a> Package owner of NALCO-Site Commercial person of NALCO-Site	NALCO-Site

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#### 4.2 Communication to Site:

Technical email To (Including invoices related communication)	Technical: CC	Company
<a href="mailto:tkisindia.nalcosite@thyssenkrupp.com">tkisindia.nalcosite@thyssenkrupp.com</a>	<a href="mailto:tkISIndia.nalcotf@thyssenkrupp.com">tkISIndia.nalcotf@thyssenkrupp.com</a> <a href="mailto:jaykrushna.pradhan@thyssenkrupp.com">jaykrushna.pradhan@thyssenkrupp.com</a> <a href="mailto:kalla.viswanadham@thyssenkrupp.com">kalla.viswanadham@thyssenkrupp.com</a> <a href="mailto:dibyaranjan.nayak@thyssenkrupp.com">dibyaranjan.nayak@thyssenkrupp.com</a> <a href="mailto:girish.masurkar@thyssenkrupp.com">girish.masurkar@thyssenkrupp.com</a> , <a href="mailto:sulesh.pradhan@thyssenkrupp.com">sulesh.pradhan@thyssenkrupp.com</a> <a href="mailto:sonali.nair@thyssenkrupp.com">sonali.nair@thyssenkrupp.com</a> Package owner of tkIS <a href="mailto:tkisindia.ex@thyssenkrupp.com">tkisindia.ex@thyssenkrupp.com</a> <a href="mailto:bharadwaj.ts.external@thyssenkrupp.com">bharadwaj.ts.external@thyssenkrupp.com</a> <a href="mailto:abhay.budgude@thyssenkrupp.com">abhay.budgude@thyssenkrupp.com</a> ,	tkIS-Site & tkIS-HO
	<a href="mailto:niranjan.samal@nalcoindia.co.in">niranjan.samal@nalcoindia.co.in</a> <a href="mailto:ashok3.patra@nalcoindia.co.in">ashok3.patra@nalcoindia.co.in</a> Package Owner of NALCO HO <a href="mailto:debashis.mohanty@nalcoindia.co.in">debashis.mohanty@nalcoindia.co.in</a> <a href="mailto:siddhartha.das@nalcoindia.co.in">siddhartha.das@nalcoindia.co.in</a> <a href="mailto:madhumita.sahoo@nalcoindia.co.in">madhumita.sahoo@nalcoindia.co.in</a> <a href="mailto:sudesh.pattnaik@nalcoindia.co.in">sudesh.pattnaik@nalcoindia.co.in</a>	NALCO-HO
	<a href="mailto:rudraraju.raju@nalcoindia.co.in">rudraraju.raju@nalcoindia.co.in</a> Package Owner of NALCO SITE Commercial person of NALCO-Site	NALCO-Site



All site related email /communications / correspondences (e.g. readiness of dispatch/delivery, receipt of material site / milestone approval related to receipt of material / final documentation at site) should be addressed to RCM of tkIS India (Mr. Jaykrushna Pradhan). Email should be marked "TO" tkIS Site id at [tkisindia.nalcosite@thyssenkrupp.com](mailto:tkisindia.nalcosite@thyssenkrupp.com) with "CC" to following as a minimum. Changes in above matrix will be communicated to Vendor during course of execution.

#### 4.3 Communication to Vendor:

Vendor to specify unique email id to which email should be marked who in turn will distribute email internally.

#### 4.4 Address:

NALCO HO (Bhubaneshwar): National Aluminium Company Limited  
Nalco Bhavan, P/1, Nayapalli,  
Bhubaneswar - 751013  
Odisha, India

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NALCO Site (Damanjodi): National Aluminium Company Limited  
M & R Complex,  
Damanjodi 763008  
Koraput Dt | Odisha | India

tkIS-India, Mumbai: thyssenkrupp Industrial Solutions (India) Private Limited  
(Head Office) Uhde House  
L.B.S. Marg, Vikhroli (West),  
Mumbai - 400 083.

tkIS-India, Site: tkIS-India Private Limited  
(Site Office) C/O NALCO site – M & R Complex  
Damanjodi 763008  
Koraput Dt | Odisha | India  
(Further details to be notified later)

#### 4.5 Correspondence:

All correspondence shall be in English language.  
All correspondence shall be numbered as enumerated hereunder:

Each correspondence shall contain a relevant subject and project title as “**66-6695/NALCO**”  
Each document shall preferably deal with one subject only.

Minutes of Meeting (MOM) shall be prepared and will be signed by at least one representative of tkIS-India / NALCO and **Vendor** on the conclusive day of discussion itself. The MOM shall be factual statements and agreements, and not verbatim reproduction of the proceedings.

The MOM prepared will be serially numbered as follows:  
**M-6695-PIN-VEN-0001, 0002....**

#### 4.6 Correspondence between Vendor and tkIS-India HO:



For all correspondence between **Vendor** and tkIS-India, the following numbering system will be adopted. These shall be serially numbered as indicated below:

tkIS-India to **Vendor**:  
E-6695-PIN-**VEN**-0001, 0002.....(For E-Mail)  
L-6695-PIN-**VEN**-0001, 0002.....(For Letter)  
T-6695-PIN-**VEN**-0001, 0002..... (For Transmittal)

E-6695-PINS-**VEN**-0001, 0002.....(For E-Mail issued from tkIS Site)  
L-6695-PINS-**VEN**-0001, 0002.....(For Letter issued from tkIS Site)  
T-6695-PINS-**VEN**-0001, 0002..... (For Transmittal issued from tkIS Site)

**Vendor** to tkIS-India:  
**E-6695-VEN-PIN**-0001, 0002.....(For E-Mail)  
**L-6695-VEN-PIN**-0001, 0002.....(For Letter)  
**T-6695-VEN-PIN**-0001, 0002.....(For Transmittal)

**E-6695-VEN-PINS**-0001, 0002.....(For E-Mail issued to tkIS Site)  
**L-6695-VEN-PINS**-0001, 0002.....(For Letter issued to tkIS Site)  
**T-6695-VEN-PINS**-0001, 0002.....(For Transmittal issued to tkIS Site)

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#### 4.7 Transmittals:

tkIS-India will use its standard Document Transmittal system for the issue of all documents (excluding letters and e-mails) to **Vendor**. Wherever large volume of drawing / documents to be exchanged, tkIS India will provide link for the FTP server for transmission of documents / drawings or "Cryptshare" platform will be used. Changes, if any, for document transfer shall be communicated during the execution, as applicable.

#### 4.8 Telephone Notes:

All important and critical discussions and decisions conveyed over phone between Vendor and tkIS-India shall be confirmed in writing by Letter / E-mail by originating party.

### 5 PROJECT CO-ORDINATION:

#### 5.1 Project schedule:

The Project Schedule agreed between Vendor and tkIS-India / NALCO shall be the basis for implementation of the project and the same shall be considered as an integral part of work order or contract document / agreement. The project schedule bar-chart will be prepared by Vendor within **2 weeks of BOA** and will be submitted to tkIS-India. The schedule shall be updated on monthly basis unless requested for shorter cut-off period. The Project Schedule shall contain detailed activities at each stage for all the individual components.

#### 5.2 Review meetings:

**Vendor** shall present the project progress details to tkIS-India. The review meeting will be generally held at tkIS-India's Mumbai office and Time / Date shall be communicated at least 2 days in advance. Additional meetings at tkIS-India, Mumbai Office or Vendor Works or at NALCO may be requested depending on the progress of work.

#### 5.3 Progress reporting (if requested by tkIS):

Monthly Progress Report will be produced with cut-off date of 22<sup>nd</sup> of each month and progress report to be forwarded to tkIS-India on or before 25<sup>th</sup> of that month. In case, site activities are involved, Progress Report shall include Photographs of ongoing construction / site activities, showing the factual position of the construction activities at site. Photographs from shop / site progress also shall be submitted in the progress report.



The project will be monitored on Overall Schedule Basis.

Also vendor will provide relevant copies of certificates manufacturing progress data, third party inspection report, un-priced P.O. copies, etc. wherever necessary / required, as applicable/

### 6 ENGINEERING PROCEDURE:

#### 6.1 Basis of Engineering:

Vendor shall follow the Order Specification given by tkIS-India/NALCO.

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## 6.2 Detailed Engineering:

### 6.2.1 DRAWINGS / DOCUMENTS SUBMISSION

Detailed engineering documents prepared by Vendor will be forwarded by Vendor to tkIS-India for their information / comments / approval as per the Order Specification. Vendor documentation procedure attached with Material Requisition (MR) shall be followed by Vendor.

Copies of the vendor drawings and documents for Final Documentation shall be also as per MR / Order Specification.

### 6.2.2 Vendor shall indicate following information block on all drawings / documents:

Client: National Aluminium Company Limited (NALCO)  
Consultant: thyssenkrupp Industrial Solutions (India) Private Limited  
Project No.: 66-6695-700/NALCO  
LOI / P.O. No.: XXXXXXXXXXXX Dated XX-XX-20XX  
Equipment: Package Name (Tag No. XXXXX)

## 7 DETAIL DRAWING TEMPLATE

Drawing template and document template to be followed (various size of documents) will be provided subsequent to award of Contract.

## 8 INSTRUCTION TO VENDOR FOR SENDING SOFT COPIES (PDF FILES)



For sending soft copies for tkIS-India approval kindly follow instructions given Vendor documentation procedure 6695-PDM-G00-BD-0002

## 9 DISPATCH INSTRUCTIONS

Before dispatching consignment, kindly ensure that the following Technical & Commercial obligations are fulfilled with respect to completeness of order.

1. All the requirements of Purchase Order Specification have been implemented.
2. All drawings including QAP are approved by tkIS-India (Code 1)
3. Reference of approved QAP number, along with revision number / approved Drawing number and revision number, are appearing in Inspection Release Note (IRN).
4. After completion of Inspection and prior to dispatch, please ensure QAP & supporting documents are duly signed & stamped by tkIS-India / TPIA Inspector (as applicable).
5. Ensure IRN is duly certified by tkIS-India / TPIA Inspector (as applicable by inspection agency).
6. Ensure that the vendor inspector shall review the packing list and submit the final packing list to tkIS-India inspector for review & verification. All spares, tools and tackles are dispatched with final goods.
7. E-Waybill shall be valid enough to allow delivery up to destination.





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8. E-Waybill should contain Consignor name, Consignor address, Consignor TIN No. Consignor and consignee GST registration number and any other details as may be mentioned in the BOA. Consignor state, Place of dispatch of goods, State of dispatch of goods, Expected/actual date of dispatch of goods, Name of entry gate in Odisha & NALCO PO No, etc. in Word or Excel format to following person.
9. Upon readiness for dispatch / final inspection release by tkIS-India / TPI, vendor shall inform NALCO and tkIS-India immediately about their intent to dispatch the goods. Vendor should submit IRN duly stamped & signed to tkIS-India-HO & tkIS India site (email id – tkISIndia.nalcotf@thyssenkrupp.com and tkisindia.ex@thyssenkrupp.com )
10. Site Address for NALCO-Damanjodi  
  
Kind Attention: AGM (Materials), Central Stores,  
  
National Aluminium Company Limited  
M & R Complex | Damanjodi | 763008  
Koraput Dt | Odisha | India  
  
Site Address for NALCO-Vizag Port  
  
Kind Attention: Mr. A. V. Subba Rao, GM (Mech)  
  
National Aluminium Company Limited  
PORT area, Opp. Ore Handling Complex,  
Visakhapatnam - 530 035, India
11. Kindly fill the Dispatch Intimation (Annexure 1 & 2) and Packing list format (Annexure 3) which is attached with this procedure and submit the same, along with photographs of equipment / material after loading into transportation vehicle, vide email. The email of this Dispatch Intimation along with vendor's declaration through Form A2 should be marked to following (refer table)

<b>Email should be marked TO</b>	
Mr. Jaykrushna Pradhan (tkIS RCM at Site)	<a href="mailto:jaykrushna.pradhan@thyssenkrupp.com">jaykrushna.pradhan@thyssenkrupp.com</a> , <a href="mailto:tkisindia.nalcosite@thyssenkrupp.com">tkisindia.nalcosite@thyssenkrupp.com</a> ;
<b>Email should be copied in CC</b>	
tkIS expediting team & tkIS taskforce email id	<a href="mailto:tkisindia.ex@thyssenkrupp.com">tkisindia.ex@thyssenkrupp.com</a> <a href="mailto:tkISIndia.nalcotf@thyssenkrupp.com">tkISIndia.nalcotf@thyssenkrupp.com</a>
Mr. T. S. Bharadwaj	<a href="mailto:bharadwaj.ts.external@thyssenkrupp.com">bharadwaj.ts.external@thyssenkrupp.com</a>
Mr. Abhay Budgude	<a href="mailto:abhay.budgude@thyssenkrupp.com">abhay.budgude@thyssenkrupp.com</a>
Mr. Vijay Gujar	<a href="mailto:vijay.gujar@thyssenkrupp.com">vijay.gujar@thyssenkrupp.com</a>
Mr. Girish G. Masurkar	<a href="mailto:girish.masurkar@thyssenkrupp.com">girish.masurkar@thyssenkrupp.com</a>





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Mr. Sulesh Pradhan	<a href="mailto:sulesh.pradhan@thyssenkrupp.com">sulesh.pradhan@thyssenkrupp.com</a>
tkIS Package owner	tkIS Package owner - Email Id
Ms. Sonali Nair	<a href="mailto:sonali.nair@thyssenkrupp.com">sonali.nair@thyssenkrupp.com</a>
Mr. Nayak Dibya Ranjan	<a href="mailto:dibyaranjan.nayak@thyssenkrupp.com">dibyaranjan.nayak@thyssenkrupp.com</a>
Mr. Kalla Viswanandham	<a href="mailto:kalla.viswanadham@thyssenkrupp.com">kalla.viswanadham@thyssenkrupp.com</a>
Mr. R. S. Raju	<a href="mailto:rudraraju.raju@nalcoindia.co.in">rudraraju.raju@nalcoindia.co.in</a>
Mr. Siddhartha Das	<a href="mailto:siddhartha.das@nalcoindia.co.in">siddhartha.das@nalcoindia.co.in</a>
Mr. Ashok Patra	<a href="mailto:ashok3.patra@nalcoindia.co.in">ashok3.patra@nalcoindia.co.in</a>
Nalco package owner	
<b>For Electrical &amp; Instrumentation items</b>	<b>Additional names at CO &amp; Site</b>
Mr. J. P. Rath	<a href="mailto: jyoti.rath@nalcoindia.co.in">jyoti.rath@nalcoindia.co.in</a>
Mr. Debashis Mohanty	<a href="mailto:debashis.mohanty@nalcoindia.co.in">debashis.mohanty@nalcoindia.co.in</a>
Mr. Saqib Khan	<a href="mailto:saqib.khan@nalcoindia.co.in">saqib.khan@nalcoindia.co.in</a>
Mr. Somanath Behera	<a href="mailto:somanath.behera@nalcoindia.co.in">somanath.behera@nalcoindia.co.in</a>
Mr. D S kumar	<a href="mailto:darbhamalla.kumar@nalcoindia.co.in">darbhamalla.kumar@nalcoindia.co.in</a>
Mr. Debashisha Chhotaray	<a href="mailto:debashisha.chhotaray@nalcoindia.co.in">debashisha.chhotaray@nalcoindia.co.in</a>
<b>For Mechanical, Piping/ Process items</b>	<b>Additional names at CO &amp; Site</b>
Mr. Sanjay K Pal	<a href="mailto:sanjay.pal@nalcoindia.co.in">sanjay.pal@nalcoindia.co.in</a>
Mr. Soumendu K Pattnaik	<a href="mailto:soumendu.pattnaik@nalcoindia.co.in">soumendu.pattnaik@nalcoindia.co.in</a>
Mr. Suman Kumar Rout	<a href="mailto:suman.rout@nalcoindia.co.in">suman.rout@nalcoindia.co.in</a>
Mr. H S Pradhan	<a href="mailto:himansu.pradhan@nalcoindia.co.in">himansu.pradhan@nalcoindia.co.in</a>
<b>Other members as per communication procedure.</b>	
Ms. Madumita Sahoo	<a href="mailto:madhumita.sahoo@nalcoindia.co.in">madhumita.sahoo@nalcoindia.co.in</a>
Mr. Sudesh Pattnaik	<a href="mailto:sudesh.pattnaik@nalcoindia.co.in">sudesh.pattnaik@nalcoindia.co.in</a>
Ms. Tripti Roy	<a href="mailto:tripti.roy@nalcoindia.co.in">tripti.roy@nalcoindia.co.in</a>
Mr. M. V. Surya	<a href="mailto:malayanur.surya@nalcoindia.co.in">malayanur.surya@nalcoindia.co.in</a>

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12. Before dispatch, Vendor ensure that requirements of Transit Insurance as stated in NALCO BOA are complied with Transit insurance from dispatch point to NALCO Project Site shall be arranged and paid by the Owner. For the purpose of arranging transit insurance, the vendor shall, immediately on booking each consignment, inform the following details by way of e-mail directly the insurance company as per the details mentioned in NALCO's BOA with copy to NALCO Corporate Office / HO material team / and such other persons as mentioned in NALCO's BOA.
- Brief Order of Acceptance number and date
  - Name of Transporter
  - Lorry Receipt Number and date
  - Invoice Number and date
  - Invoice value
  - Number of packages
  - Number and type of containers
  - Gross weight & net weight in Kg
  - Any other details as mentioned in NALCO's BOA
13. Marine cover and erection risk cover policy for indigenous items of NALCO project
- Please refer to NALCO's BOA for the details of the Insurance cover obtained by Nalco, and adhere to the requirements mentioned in the BOA.
14. Marine cover and erection risk cover policy for imported items of NALCO project
- Please refer to NALCO's BOA for the details of the Insurance cover obtained by Nalco, and adhere to the requirements mentioned in the BOA.
15. Nodal Office & Officers for Claim:  
Contact Persons:
- a) [tripti.roy@nalcoindia.co.in](mailto:tripti.roy@nalcoindia.co.in)
  - b) [malayanur.surya@nalcoindia.co.in](mailto:malayanur.surya@nalcoindia.co.in)
  - c) [siddhartha.das@nalcoindia.co.in](mailto:siddhartha.das@nalcoindia.co.in)
  - d) [madhumita.sahoo@nalcoindia.co.in](mailto:madhumita.sahoo@nalcoindia.co.in)
  - e) [sudesh.pattnaik@nalcoindia.co.in](mailto:sudesh.pattnaik@nalcoindia.co.in)
  - f) [amaresh.rout@orientalinsurance.co.in](mailto:amaresh.rout@orientalinsurance.co.in)
  - g) [storesref\\_osrd@nalcoindia.co.in](mailto:storesref_osrd@nalcoindia.co.in)
16. Local Service Branch of Insurance Company: Please refer to NALCO's BOA for the details of the Insurance cover obtained by Nalco, and adhere to the requirements mentioned in the BOA.
17. It is advised that goods need to be dispatched after completing IRN certified by tkIS / TPI as may be the case, in line BOA terms and conditions.
18. Before dispatch of all ODC and OWC cargo, please send declaration to Insurance Company as well as to Insurance Agency Ltd. and tkIS India & NALCO as mentioned below
19. As soon as goods are dispatched, kindly forward scanned copy of following documents to following:

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 thyssenkrupp	Vendor Co-ordination Procedure			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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Insurance Company: [amaresh.rout@orientalinsurance.co.in](mailto:amaresh.rout@orientalinsurance.co.in);  
[storesref\\_osrd@nalcoindia.co.in](mailto:storesref_osrd@nalcoindia.co.in)

Please refer to NALCO's BOA for the details of the Insurance cover obtained by Nalco.

#### **NALCO**

Ms. Tripti Roy : [tripti.roy@nalcoindia.co.in](mailto:tripti.roy@nalcoindia.co.in)  
Mr. M. V. Surya : [malayanur.surya@nalcoindia.co.in](mailto:malayanur.surya@nalcoindia.co.in) :  
Mr. Siddhartha das : [siddhartha.das@nalcoindia.co.in](mailto:siddhartha.das@nalcoindia.co.in)  
Ms. Madumita Sahoo : [madhumita.sahoo@nalcoindia.co.in](mailto:madhumita.sahoo@nalcoindia.co.in)  
Mr. Sudesh Pattnaik : [sudesh.pattnaik@nalcoindia.co.in](mailto:sudesh.pattnaik@nalcoindia.co.in)

#### **tkIS-India (as an advance intimation)**

tkIS HO : [tkISIndia.nalcotf@thyssenkrupp.com](mailto:tkISIndia.nalcotf@thyssenkrupp.com)

tkIS-India Site Stores : [tkisindia.nalcosite@thyssenkrupp.com](mailto:tkisindia.nalcosite@thyssenkrupp.com)

(All originals shall be submitted along with payment invoice sent to NALCO-site office for dispatched items).

#### **For Indian Supplies**



- Copy of Invoices & Challans
- Copy of Packing List
- Copy of IRN & MTCs
- Copy of IBR certificate (if IBR items are in order)
- Copy of Guarantee Certificate
- Copy of LR
- Copy of Dispatch Intimation issued to tkIS and NALCO.
- any other document as may be mentioned in the PO or subsequently by Nalco / tkIS India

#### **For Foreign Supplies & for all components ordered on foreign suppliers by Indian vendors**

- Shipment Invoice
- Bill of lading
- Port of Loading
- Certificate of origin
- Third Party Inspection Release Note
- Test Certificates
- Packing List
- LR / RR / Bill of Coastal Goods
- Warranty Certificate
- Any other document as may be mentioned in the PO or subsequently by Nalco / tkIS India

Please refer NALCO's BOA for all details related to name of insurance company and related information. In addition to the e-mail ids mentioned in this document, please also send the insurance/dispatch related intimation to the e-mail ids mentioned in SI. NO. 15 above.

20. For IBR materials please ensure that all original IBR documents applicable are sent to tkIS-India, Mumbai office.
21. It is mandatory to attach our Dispatch Intimation & Inspection Release Note (IRN) with all Invoices against supply of material. This is mandatory for clearing payments by NALCO.

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PGM-G00-BD-0008</b>	Contract No. <b>66-6695</b>
	<b>Vendor Co-ordination Procedure</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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22. Kindly mention tkIS-India Material / Item code, NALCO LOI Sr. No. & BOA Material Code clearly in the Invoice and IRN and the Packing list for better identification of material at site. GST compliant Invoices against engineering milestones, if applicable as per BOA conditions then the same should be sent to tkIS for approval prior to issue of Invoice. Only upon receipt of approval from tkIS on such engineering milestones Invoice should be sent to NALCO.
23. Attachments, spare parts of the equipment and small items shall be packaged separately in wooden cases. Each item shall be appropriately tagged with identification of main equipment, item denomination and reference number of the respective assembly drawing. Separate box & packing to be used for Capital, Commissioning, Mandatory and 1 year' operating spares, wherever is applicable, from Main Equipment box. Prior to packing / dispatch the Supplier is to take adequate precautions regarding treatment and protection of Work / Equipment / Items against corrosion / any damage during transits
24. Supplier to ensure that all the material is TAGGED and packed appropriately. The material will be loaded on the truck such that the items can be easily transported and unloaded at site safely. If any specific instructions or sequence is to be followed while unloading, then the supplier will indicate the same. It will be ensured that the truck drivers follow the rules and requirements of safety as per good industrial practices since the unloading may be done inside the operating plant. Vendor should follow SOP for Material Loading at his Factory which should take care safety aspect towards loading and unloading
25. All packaging should be done in such a manner so as to reduce the volume. The equipment shall be dismantled into major components suitable for shipment (as per route survey) and shall be properly packed to provide adequate protection during shipment. All assemblies shall be properly match marked for site erection.

If COVID pandemic situation continues and material require to be transported during such time period, then Vendor should take care of following points

- Origin of material manufactured & to be dispatched (Category of Zone: Red / Orange / Green).
- SOP for Transportation from your factory to NALCO project site.
- Transportation route (avoid all hotspot/Red Zone) & Driver Travel History of last 15 Days



**Please Note:**

1. Vendor should declare in their request for dispatch intimation whether the dispatch is for partial or final 100%.
2. Once the ordered work is completed, Vendor to submit applicable sets of final technical document as stated in vendor documentation procedure doc no. 6695-PDM-G00-BD-0002 within 7 days, to tkIS-India, Mumbai office



## **10 INVOICING INSTRUCTION TO VENDOR**

Following procedure shall be followed for handing of vendor invoices:

1. For engineering milestones, Vendor shall submit payment requests along with necessary documentation evidences like drawings approval transmittal, submission transmittal, back up email etc...through email. Email should be marked to tkIS HO with copy to NALCO HO and NALCO Site team, as described above under Sr no.4.1.

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PGM-G00-BD-0008</b>	Contract No. <b>66-6695</b>
	<b>Vendor Co-ordination Procedure</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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2. tkIS project execution team will certify the engineering billing milestones and inform vendor through email as Recommendation / clearance to issue invoice for certified billing milestones.
3. Vendor shall submit original invoice, upon certification of payment requests from tkIS, directly to the concerned Commercial In-Charge at NALCO Project. HO. Invoice shall be transmitted with a letter by Vendor clearly stating the List of Documents attached.
4. For certification of payment requests against delivery of equipment / items at site, vendor should provide all dispatch documents and other necessary evidences like E-Waybill, lorry challan, gate entry etc. through email. All such correspondences shall be marked to tkIS Site with copy to tkIS HO, NALCO HO and NALCO site team.
5. tkIS Site team will certify payment requests as per BOA terms and conditions and will provide recommendation to raise the Invoice as per BOA terms and conditions.
6. Vendor shall submit original invoice upon payment requests certification from tkIS directly to the concerned Commercial In-Charge at NALCO Project. Site. Invoice shall be transmitted with a letter by Vendor clearly stating the List of Documents attached.
7. Vendor shall submit their invoice in accordance with the provisions of BOA. Necessary documentation evidence like drawings approval transmittal, submission transmittal, vendor purchase order (unpriced copies), bank guarantees (wherever applicable) shall be attached with the invoice to demonstrate achievement of payment milestone.
8. A copy (soft) of the invoice also shall be marked to tkIS-India / NALCO
9. Based on above certification, payment will be released by NALCO to the Vendor as per the provisions of BOA.
10. All the bank guarantees in original (along with other relevant documents) shall be directly sent to NALCO Site, along with the Invoice. Copies of Bank Guarantees may be enclosed (wherever any BG copies are required to be submitted to tkIS)
11. Payment shall be directly made by NALCO to Vendor.

Plant 1.0 MTPA ALUMINA REFINERY STREAM-	Client  NALCO	Contract Code  NAL	Document ID  6695-PGM-G00-BD-0008	Contract No.  66-6695
 thyssenkrupp	Vendor Co-ordination Procedure			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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### Annexure-1: Form A1: Dispatch Intimation Format

 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.	<b>Form A1 : Dispatch Intimation</b>	Vendor Logo
--	--------------------------------------	-------------

To,

XX/ XXXX

Date: XX /

For Damanjodi Refinery Complex

**Kind Attention:** RCM (tkIS) / AGM (Materials), Central Stores,  
National Aluminium Company Limited  
M & R Complex | Damanjodi | 763008  
Koraput Dt | Odisha | India



For NALCO Vizag Port

**Kind Attention:** Site in charge (tkIS) / Mr. A.V.Subba rao, (GM (Mech)  
National Aluminium Company Limited  
PORT area, Opp. Ore Handling Complex,  
Visakhapatnam -530 035, India

Name of material supplier			
Place of material origin			
BOA No.			
Invoice No. & Date			Value:
LR No. & Date		Name of Transporter	
Nature of packing		No. of packages	
Approx. weight of material		Expected date of material delivery @ Site	
Part Quantity/Full Quantity :		Order Completed : Yes / No	
Inspection Release Note (IRN) No. & Date		..... (refer attached)	

Following documents are being dispatched along with consignment:

Sr.	Name of Document	Y / N	If No, please specify the reason
1	LR (Consignee copy and Driver's copy)		
2	Invoice (Duplicate for Transporter)		
3	Detailed Packing List		
4	Inspection Release Note (IRN)		
5	Material Test Certificates		

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PGM-G00-BD-0008</b>	Contract No. <b>66-6695</b>
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6	State Entry Permit, as applicable		
7	Dispatch Intimation Form 2		
8	Any other documents (Please specify):		



for (Name of material supplier)

Authorized Signatory

Name & Contact No. of authorised person at supplier's side:

The email of this Dispatch Intimation along with vendor's declaration through **Form A2** should be marked to identified persons under sr.no. 11 & 19 of clause no. 9 (Dispatch Instructions) of this document

In addition to the e-mail ids mentioned above, the dispatch / insurance related information should also be sent any other additional personnel as may be informed by NALCO / tkIS India from time to time.

Plant 1.0 MTPA ALUMINA REFINERY STREAM-	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PGM-G00-BD-0008</b>	Contract No. <b>66-6695</b>
	<b>Vendor Co-ordination Procedure</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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**Annexure-2: Form A2: DISPATCH INTIMATION TO NALCO SITE (to be issued by Vendor on their company letter head)**

**DC No.: 6695-DC-ABCD-NALCO-00NN**

**Date: XX/XX/XXXX**

To:

For Damanjodi Refinery Complex

**Kind Attention:** RCM (tkIS) / AGM (Materials), Central Stores,  
National Aluminium Company Limited  
M & R Complex | Damanjodi | 763008  
Koraput Dt | Odisha | India

For NALCO Vizag Port

**Kind Attention:** Site in charge (tkIS) / Mr. A.V.Subba rao, (GM (Mech)  
National Aluminium Company Limited  
PORT area, Opp. Ore Handling Complex,  
Visakhapatnam -530 035, India

**Sub:** Dispatch Intimation for **XX No. XXXXXX Unit (Tag No. ZZZZZZZ)** against NALCO BOA

**Ref:** BOA No. \_\_\_\_\_ Dated \_\_\_\_\_



**IRN No.:** \_\_\_\_\_

Dear Sir,

With reference to above mentioned order and material details, we hereby confirm following:

- 1) This Dispatch Intimation is issued for the material as per attached Inspection Release Note (IRN).
- 2) All packaging is done in such a manner so as to reduce the volume and properly packed to provide adequate protection during shipment.
- 3) All assemblies are properly match marked for site erection
- 4) The material is being dispatched strictly as per specification, IRN and Clearance of the Inspection.
- 5) This dispatch intimation is applicable to only goods duly certified and where IRN is received.
- 6) Dispatch of material is in compliance with agreed terms & conditions of BOA (Copy of IRN attached for reference).
- 7) Packing list has been checked for completeness of Supplies.
- 8) Special Instructions, if any is provided to our logistic partner / service provider.
- 9) E-Waybill is valid enough to allow delivery up to destination.



Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PGM-G00-BD-0008</b>	Contract No. <b>66-6695</b>
	<b>Vendor Co-ordination Procedure</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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- 10) Vendor shall submit GST compliant invoice(s) containing all the particulars as per GST legislation and Rules, along with the Challan One complete set of Dispatch Documents sent to tkIS-India-HO and tkIS Site Address for Payment Certification, as applicable.
- 11) Final technical Documentation will be submitted as per order specification.

Thanking you,  
for (Name of material supplier)

Authorized Signatory  
Name & Contact No. of contact person at supplier's side:



# **NATIONAL ALUMINIUM COMPANY LIMITED**

## **5TH STREAM ALUMINA REFINERY EXPANSION PROJECT**

### **GENERAL PURCHASE CONDITIONS (INDIGENOUS) (FOR SUPPLY)**

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**NATIONAL ALUMINIUM COMPANY LIMITED** (hereinafter referred to as Owner) intends to procure machinery, equipment, materials and other items for their Alumina Refinery Expansion Project under the terms and conditions set out hereunder:

## **1.0 DEFINITIONS:**

Following expressions used in these terms and conditions and/or in the Purchase Order shall have the meaning as detailed hereunder against each of them.

- |                                  |   |
|----------------------------------|---|
| <b>ORDER</b>                     | - Supply, delivery & completion of obligations in accordance with the requirements defined in NALCO's Purchase Order (including all attachments and exhibits thereto) together with any subsequent modifications thereof.   |
| <b>SELLER</b>                    | - A firm or a company or persons to whom the order is issued and includes its successors and assignees.   |
| <b>OWNER</b>                     | - <b>NATIONAL ALUMINIUM COMPANY LIMITED (NALCO)</b> , a Company incorporated in India having its Registered Office at NALCO Bhawan, P/1, Nayapalli, Bhubaneswar-751013, Odisha including its successors and assignees.  |
| <b>CONSULTANT</b>                | - <b>tkIS (Thyssenkrupp Industrial Solutions (India) PVT Ltd.)</b> having its Registered Office at Mumbai who are acting as Consultant for and on behalf of the Owner or any other consultant who may be appointed by the Owner.  |
| <b>GOODS/MATERIALS</b>           | - Goods and/or materials, shall mean any of the articles, materials, machinery, equipments supplies, drawings, data and other property and all services/work including but not limited to design, manufacture, delivery, installation, inspection, testing and commissioning specified or required to complete the Purchase Order.  |
| <b>Contractual Delivery Date</b> | - Contractual delivery date is the date by which goods shall be delivered F.O.R. dispatching point/destination in accordance with the terms of the Purchase Order. The contractual delivery date/period is inclusive of all the lead time for engineering, procurement of raw materials, manufacturing, inspection, testing, packing and any other activity whatsoever required to be accomplished for effecting the delivery at the agreed delivery point. |

**Procurement Coordinators-Owner's** authorized representative appointed as  
**/Manager** procurement coordinators/ Managers

**INSPECTORS** - Inspectors deputed by Owner or Procurement  
Coordinators/Managers and Consultants.

**PROJECT** - NALCO's 5th Stream Alumina Refinery Expansion  
Project.

‘Plant’, ‘Equipment’, ‘Works’ shall mean and include  
plant stores and materials to be provided and work to be  
done by the Seller.

‘Commercial Operation’ shall mean the condition of  
operation in which the complete equipment covered  
under the Purchase Order is officially declared by the  
Owner to be available for continuous operation at  
different loads upto and including rated capacity.

## **2.0 REFERENCE FOR DOCUMENTATION:**

Purchase Order number must appear on order confirmation correspondence, drawings, invoices, shipping notes, packing and/or any documents or paper connected with the order.

## **3.0 ACCEPTANCE OF ORDER:**

This order is expressly conditioned on Seller's acceptance of all the terms and conditions hereof and constitute the entire agreement between parties hereto. With the acceptance of the Order, Seller waives and considers as void all his general sales conditions. The Seller shall sign, stamp and date two copies of the Purchase Order and return within ten days after receipt of Order one copy to owner and the other to TKIS as token of having accepted the order without reservation. Notwithstanding such non-return as stated above, the order shall be deemed to have been accepted with these conditions unless there is an express, communication in writing by the Seller to that effect with specific reasons and details.

## **4.0 SALES CONDITIONS:**

Seller's Standard Sales Conditions, if any, shall not be applicable to the offer and only the Purchaser's General Purchase Conditions shall apply with the exception of deviations specifically agreed between the Seller and the Purchaser and/or brought out in the Purchase Order.

## **5.0 COMPLETE AGREEMENT:**

The Terms & Conditions of the Purchase Order constitute the entire Agreement between the parties hereto. Changes will be binding only if the amendments are made in writing and signed by an authorized representative of the Owner and the Seller.

## **6.0 MODIFICATIONS & AMENDMENT:**

Notwithstanding the above, Owner shall have the right to modify or amend this order subject to an adjustment in the price and/or delivery date in accordance with the applicable provision of the order, if any, or pursuant to mutual agreement.

The Seller shall carry out such amendments to the Order and shall be bound by the same terms and conditions incorporated in the original order.

Claims, if any, for adjustment in Price /delivery date shall be made within fifteen (15) days from the date when revisions/changes are ordered, failing which it will amount to an absolute waiver of any such claim. Such claims shall not prejudice the rights of Owner to claim a refund of any amount advanced or paid to the Seller.

## **7.0 DELAYS OR NON-DELIVERY:**

Time of delivery at every stage of activities is the essence of this Order till the completion date and no variation shall be permitted except with prior authorization in writing from the Owner.

Where no delivery period is expressly stated, it shall be constructed as Seven days from the date of placing the order. The Owner reserves the right to defer the period of delivery in writing.

Goods shall be delivered in accordance with the Order to such place(s) as is specified therein and at such time(s) as Owner or its authorized representative shall have notified to the Seller in response to the Seller's request for instructions.

If upon receipt of the order at any time thereafter it is found that the goods or materials called for can not be completed within the time specified in the order, notice thereof must be given immediately and at the earliest possible time well in advance of the due date of delivery together with reasons for delay by fax/e-mail and confirmed by Registered mail to Owner together with the best completion date that can be offered. Such notice should not be construed as acceptance of the revised date by the Owner, unless specifically so communicated by the Owner in writing. Failure to deliver the goods or material before the date specified in the Order shall entitle the Owner at its option to terminate the order under provisions stated in Article 8 without prejudice to any other rights, TKIS/Owner may have as a result thereof. The mere acceptance of revised schedule as above will not absolve the Seller from any of its liabilities for such delivery.

## **8.0 TERMINATION/CANCELLATION**

- (I) Owner may at any time, terminate any part of the work or all works remaining to be done in connection with this order with effect from such date as Owner may specify upon such terms and conditions as may be indicated at time of such termination.

Owner shall have the right to buy at its option and at an agreed price from the Seller, the cancelled goods and components and also to recover all materials supplied by the Owner to the Seller for use on the Order.

In the event of a termination of the order or part thereof, the Seller shall forthwith carry out instructions of the Owner in connection of sub-orders the Seller may have placed with other suppliers.

Owner and/or their authorized representatives shall have free access to the Seller's works and those of their suppliers to examine the materials and fabrication status reached at time of the order cancellation and to agree to a reasonable price with the Seller and to take over the goods on as is where is basis or on completion.

If cancellation/termination of the Order, whether in full or in part is caused by reasons attributable to the Seller, Seller agrees to reimburse Owner, the extra cost incurred by Owner in procuring the cancelled goods from other resources. Security deposit, if any, shall be liable for forfeiture.

Without prejudice to the generality of the terms, breach of contract, the following will also include such breach and/or will entail termination of the order:

- (a) The Seller fails to comply with the terms of this Purchase Order.
- (b) The Seller fails to deliver the goods on time and/or replace the rejected goods promptly.
- (c) The Seller becomes bankrupt or goes into liquidation.
- (d) The Seller makes a general assignment for the benefits of creditors.
- (e) A receiver is appointed for any of the properties owned by the Seller.
- (f) Any reason directly attributable to Seller different from Sl. No. (a) to (e).

The Seller is aware that the said goods are required by the Owner for the ultimate purpose of material production and that non delivery may cause loss of production and consequently loss or profit to the Owner. In the event of the Owner exercising the option to claim damages for non-delivery other than by way of difference between the market price and the contract price, the Seller shall pay to the Owner, the fair compensation to be agreed upon between the Owner and the Seller.

- (II) Owner may, if considered necessary, cancel/terminate the order either in full or in part, without assigning any reasons whatsoever and take necessary action for Procurement repairing, rectification, etc. at the risk and cost of the Seller.

## **9.0 ASSIGNMENT AND SUBLETTING:**

Except for raw materials or any part of this Order for which the makers are named in this Order, the Seller shall not assign the Order or any part thereof, or any monies due hereunder, or subject this order or any part thereof, without the prior written consent of Owner or its authorized representative.

All sub-orders shall bear Owner's Order Number and shall contain the following words, "The equipments/materials being supplied against this Order is subject to inspection/expediting by NALCO and/or their assigned representatives including the insurance authority of NALCO.

The Seller agrees to furnish to Owner or its authorized representative, three unpriced copies of all sub-orders issued for raw materials and components within seven days of placement of such sub-orders.

## **10.0 FORCE MAJEURE:**

Shall subject to its being a direct impact on the execution of this order, mean and be limited to the following:

- (a) Any war /hostilities.
- (b) Any riot or civil commotion
- (c) Any earthquake, flood, tempest, lightning or other natural physical disaster.
- (d) Any strike or lock-out (only those exceeding ten (10) continuous days in duration) affecting the performance of the Seller's obligation.
- (e) Major power-cuts for a consecutive minimum period of 30 days.
- (f) Any restriction imposed by the Government (Central or State) or other Statutory bodies which prevents/delays the execution of the order by the Seller.

The Seller shall advise Owner or its authorized representative by a registered letter duly certified by Local Chamber of Commerce or Statutory authorities, the beginning and end of the above causes of delay within seven (7) days of occurrence and cessation of such Force Majeure conditions. In the event of delay lasting over one month, if arising out of causes of Force Majeure, Owner reserves the right to cancel the order and provisions governing Termination/Cancellation stated under Article 8 shall apply.

For delays arising out of Force Majeure, the Seller shall not claim extension in completion date for a period exceeding the period of delay attributable to the causes of Force majeure, and neither Owner nor Seller shall be liable to pay extra costs provided it is mutually established that Force Majeure Conditions did actually exist.

The delivery date specified on the order takes into account the extent of Force Majeure conditions prevalent in Seller's Works (such as power restrictions, etc.) at the time of acceptance of order and no extension to delivery date shall be allowed on this account.



## **11.0 INSPECTION AND EXPEDITING:**

All inspections and tests shall be made as required by the specifications attached to or made part of the order and/or amendments issued by Owner. All goods or materials shall be subject to inspection by Owner or Owner's authorized representatives. Such tests and/or inspections by TKIS may be held in conjunction with the representatives of the Owner/Insurance Authority.

Inspector shall have the right to carry out the inspection and testing which will include the raw materials at manufacturer's shop/place at fabricator's shop and at time of actual dispatch before and after completion of packing.

Seller shall advise the Owner or its authorized representative in writing, as the circumstances warrant at least fifteen (15) days in advance of the date of the final tests and/or inspection.

Owner's representative or consultant's inspector shall be authorized inspection spokesman and all matters including the Owner's Insurance Authority requirements shall be handled with the Seller through such inspector. Such inspection, or failure to inspect shall in no way relieve the Seller of any responsibility or liability with respect to such materials nor prejudice the right of Owner/its authorized representative to reject unsuitable material after arrival at the destination.

All tests, mechanical and others and particularly those required by codes will be performed at Seller's expenses and in accordance with Inspector's instructions. The Seller will also bear the expenses concerning preparation and rendering of tests required by Boiler Inspectorate or such other statutory testing agencies or by Lloyds Register Industrial Services or any other agency as may be required. For non-IBR items, inspecting authority shall be Owner or its authorized representative.

Unless specifically stated to the contrary on the order, all expenses relevant to inspection and expediting, preparation of test report or certificate, etc. shall be borne by the Seller EXCEPT for the salaries, fees, travelling, lodging and boarding expenses of Owner's representatives.

The Seller shall:

- Inform Procurement Coordinators/Managers at least eight days in advance of the exact place, date and time of rendering the equipment of materials for required inspection.
- Provide free access to inspectors during normal working hours to vendors or his/its sub-vendor's works and place at their disposal all useful means of performing, marking, testing, inspection and final stamping.

The Seller shall submit to TKIS within four weeks from the date of this Order a Bar-Chart showing start and finish dates for various activities forming part of the execution of this order and identifying the delivery dates to this activity schedule. Seller shall update this Bar-Chart every month showing the actual performance of the activities and how the delivery date has been affected thereby. Copies of the updated Bar charts

will also be submitted to Owner or its authorized representative for review of the progress of the Order. Seller shall also furnish un-priced copies of suborders/sub contractors, phased Programme of item wise manufacturing, testing and delivery and any other information/documentation as may be called for by Procurement Coordinators/Managers.

When deemed advisable by Owner or its authorized representative, the Order and Seller's sub-orders shall be subject to personal expediting by Owner's representatives. Such expediting shall in no way relieve the Seller of the time or delivery obligations under the terms of the order. At all reasonable times and places, before, during and after manufacture, the Seller shall grant and provide access to Owner or its authorized representative to all parts of the Seller's work and their Sub-supplier's works involved in the manufacture or processing of the goods or materials. All post order correspondence shall be addressed to the designated person of TKIS ..with copies to the Owner.

#### **12.0 OFFICIAL INSTITUTIONAL TESTING:**

In addition to testing and inspection by inspectors mentioned above, Lloyds Register Industrial Services or similar institutional agencies like Boiler – Inspectorate may be assigned for official testing of all coded equipment. The Seller shall ensure that all Procedures for preparation and Performance of test prescribed by such Institutions shall be completed scrupulously.

The Seller is required to send to such Institutions as may be designated by the Owner at least three sets of construction drawings for each equipment and calculations. All manufacturer's mill test certificates and analytical reports from material laboratories in respect of all raw material and components employed shall have to be presented to such institution's inspectors in the number of copies required. Seller shall be responsible for any delay in submission of necessary certificates. The Seller shall maintain close liaison with Procurement Coordinators and Institution's Inspectors to maintain Schedule and delay if any, in this process will not be taken into consideration as a cause of Force Majeure.

#### **13.0 WEIGHTS AND MEASUREMENTS:**

All weights and measurements recorded by Procurement Co-ordinators/managers on receipt of goods at the site will be treated as final and binding on the Seller.

Sellers shipping documents and invoices must contain the following data :

- (i) Unit net weight
- (ii) Unit gross weight (packing included)
- (iii) Dimensions of packing.

#### **14.0 OIL & LUBRICANTS:**

The first filling oils and lubricants, if any, required for every equipment shall be included in the price. The Seller shall also recommend the quality and quantity of oils and lubricants required for one year continuous operation.

## **15.0 SPARE PARTS:**

The Seller must furnish item wise and priced list of spare parts required for two year's operation of the main equipment and prime movers also.

The Seller shall provide the necessary cross sectional drawing to identify the spare parts numbers and their location as well as interchangeability chart.

## **16.0 GUARANTEE:**

All goods or materials shall be supplied strictly in accordance with the specifications, drawings, data sheets, other attachments and conditions stated on the order. No deviation from such specifications or alternations of these conditions shall be made without TKIS's/Owner's agreement in writing which must be obtained before any work against the order is commenced. All materials furnished by the Seller pursuant to this order (irrespective of whether engineering, design data or other information has been furnished reviewed or approved by TKIS and Owner) are guaranteed to be of the best quality of their respective kinds (unless otherwise specifically authorized in writing by TKIS/Owner) and shall be free from faulty design to the extent such design is not furnished by TKIS/Owner workmanship and materials, and to be of sufficient size and capacity and of proper materials so as to fulfill in all respects all operating conditions, if any, specified in this order.

Checking of Seller's drawings by procurement Coordinators/Managers and their approval and permission to ship or dispatch the equipment and materials granted by Inspectors shall not relieve the Seller of any part of his/its responsibilities of proper fulfillment of the requirements.

If any trouble or defect originating with the design, materials, workmanship or operating characteristics of any materials arise at any time prior to twelve (12) months from the date of the first commercial operation of the Plant of which the materials supplied under this order form a part thereof, or thirty (30) months from the date of last dispatch/shipment, whichever period shall first expire and the Seller is notified thereof. Seller, at its own expense and as promptly as possible make such alterations, repairs and replacements as may be necessary to permit the materials to function in accordance with the specifications and fulfill the foregoing guarantees.

TKIS/Owner may, at its option, remove such defective materials, at Seller's expense, in which event Seller shall, without cost to TKIS/Owner and as promptly as possible, furnish and install proper materials. Repaired or replaced materials shall be similarly guaranteed for a period of not less than twelve (12) months starting from the date on which the replacement are put in service or thirty (30) months from the date of despatch/shipment. In the event that the materials supplied do not meet the specifications and/or are not in accordance with the drawings, data sheets or the terms of this order and rectification is required at Site, TKIS/Owner shall notify the Seller giving full details of deficiencies. The Seller shall attend the site within seven (7) days of receipt of such notice to meet and agree with the representatives of TKIS/Owner the action required to correct the deficiencies. Should the Seller fail to attend meeting at site within time prescribed above, TKIS/Owner shall immediately

rectify the works/materials and Seller shall reimburse TKIS/Owner ~~at~~ all costs and expenses incurred in connection with such trouble or defect.

The Seller shall furnish a bank guarantee (as per proforma hereunder) to support Seller's performance. This bank guarantee shall not be deemed a waiver of any right of the Owner or Procurement Coordinators/Managers to insist upon the strict performance thereof or of any of his or their right or remedies as to any such goods regardless of when goods are shipped, received or accepted nor shall any purported oral modification or revision, the order by Procurement Coordinators/Managers act as waiver of the terms hereof.

#### **17.0 PATENT INDEMNITY:**

The Seller shall fully indemnify TKIS/Owner, vendors and users of the materials furnished hereunder, against any action, claim or demand, costs and expenses, arising from or incurred by reasons of, any infringement or alleged infringement of any letters Patent, registered design, Trade Mark or name, Royalties copy right or any other protected rights in respect of any materials supplied or any arrangements, system or methods of using, fixing or working used by the Seller.

The prices quoted by the Seller shall include all charges for Royalties payable in respect of the use of any letters patent, registered design, Trade Mark or name, drawing or technical information which may be involved in the performance of this order or in the construction or use of any plant, material or apparatus supplied by the Seller.

In the event of any claim or demand being made or action brought against TKIS/Owner in respect of an of the aforesaid matters, the Seller shall be notified thereof immediately and the Seller shall, at its own expense with (if necessary) the assistance of TKIS/Owner (whose all expenses shall be reimbursed by the Seller) conduct all negotiation for the settlement of the same and/or any litigation which may arise therefrom.

#### **18.0 LIABILITY AGREEMENT:**

Seller shall defend and hold TKIS/Owner harmless from all claims and liability for injuries to and/or death of any and all persons and for loss of and/or damage of property caused in whole or in part by the negligence or willful acts of the Seller, arising under or by reasons of materials furnished hereunder including without limitation, the installation, erection, repair rectification, adjustment or operation of the materials covered by this order.

In addition, Seller, shall, if he elects to utilize materials, tools, equipment or facilities made available to Seller by TKIS/Owner for use by the Seller and not to be incorporated in the work, as additional consideration thereof, defend and save TKIS/Owner harmless from all claims and liability for injuries to, and/or death of any and all persons, and or loss of and/or damage to property resulting from or by reasons of the Seller's utilization thereof, whether or not caused partially or totally by the

negligence of TKIS/Owner employees, contractors, sub-contractor's, agent or representative.

In any case where it is necessary for employees or representatives of Seller to go upon the premises of TKIS/Owner, Seller agrees to assume full responsibility for the proper conduct of such employees/representatives while on the said premises and to comply with all applicable workmen's Compensation Laws, other applicable government regulations and ordinances and all plant rules and regulations particularly in regard to safety precautions and fire hazards. If this order requires Seller to furnish labour at site, Seller shall furnish Owner with a certificate, or other evidence satisfactory of Owner indicating that such labour is adequately covered by Workmen's compensation Insurance and Employer's Liability Insurance with limits acceptable to TKIS/Owner.

The Seller shall also procure and keep in force at his own cost comprehensive Automobile Liability Insurance for adequate coverage in respect of all his vehicle visiting or plying in project premises. The Seller shall also be responsible for compliance of existing laws in respect of their workmen and employees.

#### **19.0 PRICES:**

Unless otherwise specified in the order, the order price shall remain firm and will not be subject to any escalation of imposition, any description during the pendency of the order, notwithstanding the change in the cost of materials, labour and/or variations in taxes, duties and other levies on materials and components that may take place while the order is under execution, even if the execution of the order is delayed beyond the delivery period/completion date specified in the order for any reason whatsoever.

The price shall be:

- a) Inclusive of adequate packing and forwarding charges for delivery terms on F.O.T. despatch point and freight whenever F.O.T. destination delivery terms are agreed to but exclusive of transit insurance.
- b) Exclusive of applicable GST which is leviable by law on sales of finished goods to Owner. The nature and extent of such levies shall be shown separately.

Divisibility of Order

Unit prices and discounts, if any, shall be applicable for ordering without any stipulation of Minimum order value or on the basis of total order for items covered in the requisition.

#### **20.0 TAXES, DUTIES, UNEMPLOYMENT BENEFITS, ETC.:**

GST applicable at the destination on the finished goods alone will be payable by the Owner at actuals against documentary evidence to be furnished by the Seller. All other taxes, duties, levies and impost will be to the Seller's account.

The Seller accepts full and exclusive liability for the payment of any and all applicable taxes (CGST, SGST, IGST, UTGST), levies and statutory payments payable under all or any of the prevailing Central/ State statutes.

The Seller shall comply with all the provisions of the GST Act/ Rules/ requirements like providing of tax invoices, payment of taxes to the authorities within the due dates, filing of returns within the due dates etc. to enable NALCO to take Input Tax Credit. The vendor shall also comply any modification in the prescribed rules by GST council/ appropriate authority from time to time during execution of the contract.

In case, NALCO is not able to take Input Tax Credit due to any noncompliance/ default/negligence of the seller, the same shall be recovered from the pending bills/dues (including security deposit, BG etc.).

Seller shall be responsible to indemnify NALCO for any loss, direct or implied, accrued to NALCO on account of supplier's failure to discharge his statutory liabilities like paying taxes on time, filing appropriate returns within the prescribed time etc

Seller shall adjust taxes, duties, cess or levies wherever required if the Owner furnishes exemption certificates even retrospectively.

Seller hereby accepts exclusively liability for and agrees to Indemnify Owner against liability for the payment of any and all contributions or taxes for unemployment insurance, old age pensions or annuities or other purposes prevalent under the present legislation or hereafter imposed by the Govt. of India/or by any unit or sub-division or authority thereof, which are in whole or in part measured by and/or based upon the wages, salaries or other remuneration paid to persons employed by Seller on work in connection with this order.

## **21.0 CONTROL REGULATIONS:**

The supply, despatch and delivery of goods shall be arranged by the Seller in strict conformity with the statutory regulations including provisions of Industries (Development and Regulation) Act, 1951 and any amendment thereof as applicable from time to time. The Owner disowns any responsibility for any irregularity or contravention of any of the statutory regulations in manufacture or supply of his stores covered by this order.

## **22.0 TERMS OF PAYMENT:**

The Owner will make payments, as they fall due, to the Seller directly for the goods and materials purchased or released under this order in accordance with the relevant terms of the order, on satisfaction that, the goods or materials furnished by the Seller and the invoices therefor, are in accordance with the payment terms and all other conditions of this Order. However, such payments will not be deemed to constitute acceptance of goods if the goods are later found to be defective.

Such delay in receiving invoices in the number of copies specified, (or errors and omissions) or failure or delay in providing the documents and/or certificates required

in the order, or failure to comply with the provisions of owner Invoicing Instructions shall be considered just cause for withholding payment without loss of discount privilege, and any demurrage or wharfage resulting thereby shall be borne by Seller's invoices and documents shall be negotiated strictly in the manner specified in the order and all bank charges, if any, shall be to the Seller's account.

The time for payment of invoices or for accepting any discounts offered shall be only from the date of approval specified in the order or receipt of Seller's correct invoices whichever is later.

All costs, damages or expenses for which the Seller is liable under this order may be deducted from moneys, due or becoming due to the Seller or may be recovered by action at law or arbitration pursuant to Article 37.

Terms of payment shall be as follows, unless otherwise specified :

90% against despatch documents through Owner's bank. All bank charges will be to Seller's account.

10% balance within 30 days of receipt and acceptance of Equipment/Material at project site against a Performance Bank Guarantee as a security for the like amount from any Nationalized Bank valid till 30 months from the date of last receipt at site as per Owner's Standard Proforma on an appropriate value of Stamp Paper (in case of P.O. value upto Rs. Ten Lakhs) The Performance Bank Guarantee will be released after the expiry of the period of Performance Guarantee.

Necessary Contact cum Performance Bank Guarantee separately @ **10.00%** of P.O. value **along with applicable GST** as a security to be submitted within 30 days of TOI/Brief Order, in case P.O. value is more than Rupees Ten Lakhs. The Contract cum Performance Bank Guarantee will be released after the expiry of the period of Performance Guarantee.

Financial settlement of Seller's invoices is liable to be withheld/balance 10% payment shall not be released, unless the vendor furnishes prints/reproducibles of approved drawings as specified in vendor data requirement, data, full documentation, manual as called for in Purchase Order and a list of all the dispatches of material made against the Purchase Order.

A certificate to the effect that nothing is due to the Seller from Purchaser (No dues certificate/No claim Certificate) shall form part of the documents to be submitted while claiming last payment/final payment/or in case of full payment.

### **23.0 PRICE REDUCTION SCHEDULE FOR DELAYED DELIVERY:**

The time and date of delivery of stores/materials/equipment as stipulated in the order shall be deemed to be the essence of the contract.

**If any delay is anticipated by the Seller in the delivery of the material(s) beyond the stipulated date(s) of Delivery, the Seller shall forthwith inform NALCO in writing of such anticipated delay and of the steps being taken by the Seller to**

**remove or reduce the anticipated delay, and shall promptly keep NALCO informed of all subsequent developments.**

Unless and otherwise specified, in case of delays in completion of the order, the Owner will have the following rights:

- (i) Should the Seller fail to complete the order on or before the completion date specified in order or any extension granted thereto in writing by Owner shall have the right to recover from the Seller 1/2% (half percent) of the order price of goods or materials not supplied and/or unfinished, per week or part week of delay thereof, subject to a maximum 5% (five percent) of the total order price, **along with applicable GST**. Such reduction of prices shall not relieve the Seller of his delivery obligations under the order, or any other rights of the Owner.
- (ii) Cancel the order in part or full without any liability/cancellation charges and purchase such cancelled quantities from elsewhere on account and at the risk of the Seller, without prejudice to its rights under (i) above in respect to goods delivered.

#### **24.0 REJECTION, REMOVAL OF REJECTED GOODS & REPLACEMENT**

In case the testing and inspection at any stage by Inspectors reveal that the equipment, materials and workmanship do not comply with specification and requirements, the same shall be removed by the Seller at his/its own expense and risk within the time allowed by the Owner. The Owner shall be at liberty to dispose of such rejected goods in such manner as he may think appropriate. In the event the Seller fails to remove the rejected goods within the period as aforesaid all expenses incurred by the Owner for such disposal shall be to the account of the Seller. The freight paid by the Owner, if any, on the inward journey of the rejected materials shall be reimbursed by the Seller to the Owner before the rejected materials are removed by the Seller.

#### **25.0 STATUTORY REQUIREMENTS**

Seller warrants that all goods and materials covered by this Order have been produced, supplied, sold, dispatched, delivered and furnished in strict compliance with all applicable laws, regulations, labour agreements, working conditions and technical codes and requirements as applicable from time to time. Seller shall execute and deliver such documents as may be required to affect or to evidence such compliance. All laws and regulations required to be incorporated in agreement of this character are hereby deemed to be incorporated by this reference. The Seller shall furnish the industrial license number or pertinent details to show whether he has a valid license to manufacture the subject machinery, equipment and materials ordered on them under Industries (Development & Regulations) Act or any other applicable statute or whether he is an authorized representative of a licenced manufacturer and has a valid license. Owner disowns any responsibility for any irregularity or contravention of any of the statutory regulations in the manufacture or supply of goods covered by this order.



The Seller shall ensure compliance with the above by all his sub-vendors/suppliers and shall indemnify Owner or its authorized representative against any actions, damages, costs and expenses of any failure to comply of aforesaid.

**26.0 TRANSIT RISK INSURANCE:**

Covers for finished goods from Seller's works upto the time of delivery at the storage yard/warehouse of Owner shall be furnished by the Owner. The Seller shall furnish immediately on booking each consignment all information required to arrange transit risk insurance. This shall in no way relieve the Seller of his responsibility to provide proper packing and protection as stated elsewhere in this order. The Seller shall also furnish the despatch particulars to underwriters, TKIS and Owner immediately.

**27.0 PACKING, CRATING, MARKING, FORWARDING, CARTAGE/SHIPMENT:**

The cost of all special Packing, boxing, marking, crating or cartage is included in the price specified on the face of this order unless otherwise specifically agreed to in this order.

All packing, boxing, crating, marking, forwarding and cartage/shipment shall conform to the specifications or requirements detailed in the respective attachment to the Order. The Seller shall be held liable for damage or breakage of the goods due to defective or insufficient packing or protection. The Seller shall not charge anything extra for such packing or any dues or levies on packing or protection.

**28.0 NON-CONFORMANCE:**

Owner reserve the right to claim damages for use of defective or sub-standard goods supplies by the Seller irrespective of the fact whether goods were inspected by Owner or its authorized representative or not and without prejudice to rights of Owner for any other action.

**29.0 NON ASSIGNMENT:**

The Seller shall act as an independent agency and not as an agent or employee of Consultant/Owner and the Seller shall not assign or sub-contract this order any part thereof or any money to become due hereunder, without the prior written consent of owner/authorized representative.

Any such permitted assignment or sub-contracting shall not relieve the Seller of any of his obligation against this order. The Seller shall be bound to execute the contract notwithstanding any change in Seller's constitution. In the event of any change in the constitution of the Seller, the contract will be liable to be terminated by the Owner.

**30.0 NON-WAIVER:**

Failure of the Owner or its authorized representatives to insist upon strict performance of any of the terms and conditions incorporated in the Order, failure or delayed to exercise of any rights detailed here failure to properly notify the Seller in the event of

breach of any obligations contained herein, shall not constitute a waiver of any other obligation contained herein. Any waiver to be effective must be in writing.

**31.0 RECOVERY OF SUMS DUE:**

Whenever any claim against the Seller for payment of sum of money arises out of or under the contract the Owner shall be entitled to recover sums from any sum then due or which at any time thereafter may become due from the Seller under this or any other contract with the Owner and should this sum be not sufficient to cover the recoverable amount, the Seller shall pay to the Owner on demand the balance remaining due.

If any details shown on the drawings are omitted from the specifications or vice-versa, the Seller shall notwithstanding such omissions, supply in accordance with such details and shall be deemed to have included the cost for such work in the price.

The Seller shall treat as confidential all information (whether written or otherwise) supplied by TKIS/Owner hereunder and shall use his best endeavors to ensure that such information is not divulged to any third party except where necessary for the purpose of performance of this order by the Seller, of course, with the consent of TKIS/Owner. In such cases, Seller shall ensure that third parties in question undertake a similar obligation of confidence. This obligation does not apply to information, which at the time of disclosure is in the public domain or is in the Seller's lawful possession without restriction on disclosure.

The Seller shall be required to sign a secrecy agreement for certain proprietary items of equipment which will be specified by Owner later.

**32.0 PART ORDER, REPEAT ORDER:**

Seller hereby agrees to accept part order at Owner's option without any limitation whatsoever and also agrees to accept repeat order(s) during a period of twelve months from the date of original Purchase Order on same unit prices, terms & conditions as that of the original purchase order.

**33.0 TECHNICAL INFORMATION:**

Drawing, specifications and details shall be the property of the Owner and shall be returned by the Seller on demand. The Seller shall not make use of drawings and specification for any purpose at any time save and except for the purpose of the Owner.

The Seller shall not disclose the technical information furnished to or gained by the Seller under or by virtue of or as a result of the implementation of the Purchase Order to any person, firm or body or corporate authority and shall make all endeavors to ensure that the technical information is kept CONFIDENTIAL. The technical information imparted and supplied to the Seller by Owner shall at all times remain the absolute property of the Owner.

### **34.0 HEADINGS:**

The headings of the conditions hereof shall not effect construction thereof.

### **35.0 MATERIALS FURNISHED BY TKIS/OWNER:**

If specifically agreed to in the Order, Owner shall furnish to the Seller such materials/equipment (hereinafter called Owner's materials) as agreed for incorporation into the manufacture, fabrication, testing or processing of the goods or materials subject to availability.

Owner's materials shall be consigned on "freight paid basis" to the nearest Railway point to Seller's works to which railway will accept the consignment depending upon the nature of the consignment (whether wagon load/small). Seller shall arrange to promptly collect such materials from the Railways and transport to his works at Seller own cost. Any duty, ~~octroi~~ or local taxes levied by the local bodies at the Seller's end will be to the account of the Seller.

Seller shall arrange to properly store and provide adequate security and protection to Owner's materials. Seller shall be solely responsible for the safe keeping of such materials and shall indemnify TKIS and Owner against any loss or damage due to misuse or misappropriation whatsoever of Owner's materials while in the possession of the Seller or his sub-suppliers. The property in such goods shall always remain with the Owner and the title in such goods will not pass to the Seller's.

The Seller shall arrange to provide at his own cost and experience the necessary insurance cover against all risks for owner's materials.

Seller shall, if required by Consultant/Owner, furnish a Bank Guarantee/Insurance Bond equal to the total value of free issue materials and such guarantees shall remain valid till the material accounting towards satisfactory utilization and the return surplus free issue materials are completed.

The Seller shall maintain systematic records of receipt and issue of Owner's materials and shall be accountable at all times to Consultant/Owner regarding the utilization thereof.

Unused surplus materials or scrap from material supplied by the Owner to the Seller shall be returned by the Seller to the Owner or if the Owner so directs the Seller may dispose of the same by sale or otherwise on such terms and conditions as the Owner may stipulate and the Seller shall pay to the Owner the sale proceeds of the material so disposed off by the sale deducting therefrom expenses incurred by the Seller on such sale, the quantum of such deduction to be mutually agreed upon in advance between the Owner and the Seller.

For such of Owner's materials which the Seller can not return within a reasonable time (not exceeding 2 months from the date of last despatch of equipments ordered) nor account for as legitimately utilized, the Seller shall be liable to pay to the Owner the expenses incurred by Consultant/Owner in procuring, expediting, inspection, testing, packing, shipping handling, incurring payment of duties and taxes and financing of

purchases as notified by TKIS or Owner regardless of the issue price to Seller, if any, agreed to on the Order.

**36.0 ORDER OF PRECEDENCE:**

In case of any difference between these conditions of order and special conditions, if any, referred to or incorporated in a particular order, the latter shall prevail.

**37.0 ARBITRATION:**

All the disputes and differences arising under the contract whether during or after completion of the contract or whether before or after determination, foreclosure or breach of the contract (other than those in respect of which the decision of any person is by the contract expressed to be final and binding) shall after written notice by either party to the contract to the other of them and to appointing authority hereinafter mentioned be referred for adjudication to a sole arbitrator to be appointed as hereinafter provided.

For the purpose of appointing the sole Arbitrator referred to above, CMD NALCO who shall be appointing authority will send within thirty days of receipt of the notice, to the Seller a panel of three names of persons.

The Seller shall on receipt of the names as referred select any one of the person names to be appointed as a sole Arbitrator and communicate his name to the Appointing Authority within thirty days of receipt of the names. The Appointing Authority shall thereupon appoint the said person as the Sole Arbitrator. If the Seller fails to communicate such selection as provided above within the period specified, the Appointing Authority shall make the selection and appoint the selected person as the sole Arbitrator.

If Arbitrator so appointed is unable to/unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever, arbitrator shall be appointed as aforesaid. The work under the contract shall not be stopped during the arbitration proceedings.

The Arbitrator shall normally be deemed to have entered on the reference on the date he issues notices to both the parties fixing the date of the first hearing.

The Arbitrator may, from time to time, with the consent of the parties, enlarge the time for making and publishing the award.

The Arbitrator shall give a separate award in respect of each dispute or difference and shall give a reasoned and speaking award/awards.

The venue of arbitration shall be at Bhubaneswar. However, if the situation so warrants, at marginally & when required be held at the place where the site of work is situated.

The fees, if any, of the Arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The costs of the reference and of the award including the fees, if any, of the Arbitrator shall be in the discretion of the arbitrator who may direct to and by whom and in what manner, such costs or any part thereof shall be paid and may fix or settle the amount of costs to be so paid.

The award of the Arbitrator shall be final and binding on both the parties.

Subject as aforesaid the provisions of the Arbitrator and Conciliation Act 1996 or any statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force shall apply to the Arbitrator proceedings under this clause.

For Public Sector Enterprises guidelines as per circular of BPE No. 15.09.86 – BPE (fin) dtd. 30.03.89 as amended from time to time will be applicable for resolving any dispute.

### **38.0 GOVERNING LAW AND JURISDICTION:**

All actions at law or suits arising out of or in connection with this order or the subject matter thereof and whether as to construction or otherwise shall be instituted in a court of competent jurisdiction in the State of Orissa.

### **39.0 TRANSFER OF PROPERTY:**

In the absence of any provision to the contrary, transfer of property in the goods shall be deemed to have taken place as follows:

- (i) F.O.R. or F.O.T. Despatch Point

On handling over the goods to the authorized carrier against a receipt and such receipt having been received by TKIS/Owner.

- (ii) F.O.R. destination station : On taking delivery from the Railway at the Destination Station.

- (iii) Equipment sent freight paid : On arrival under lifting hook at the to the 5TH STREAM ALUMINA job site.  
REFINERY EXPANSION  
PROJECT SITE

On temporary acceptance by TKIS/Owner at job site.


Transfer of property in the Goods shall be without prejudice to any guarantee or liability of the Seller as to the quality suitability or performance of the Goods.

**40.0 PUBLICITY AND ADVERTISING:**




Seller shall not without the written permission of Consultant/Owner or any Company affiliated with TKIS/Owner or to the destination or the description of the goods or services supplied to the Owner in any publication, publicity or advertising media.

**41.0 VENDOR DATA REQUIREMENTS:**

The submission by the Seller to TKIS/Owner of drawings and data documentation is an integral part of the Order. The number of copies (reproducibles and Prints) and time limits for submitting these documents by the Seller are specified on the Order. These requirements must be respected failing which the order will not be deemed to have been duly executed for all purpose.

Plant	Client	Contract Code	Document ID	Contract No.				
1.0 MTPA ALUMINA REFINERY STREAM-5	NALCO	NAL	6695-LEX-G00-EC-0002	66-6695				
ThyssenKrupp Industrial Solutions (India)	Project Inspection and Test Plan for Shop Inspection – EPCM Supply			नालको  NALCO नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.				
				Rev	01	Page	01	of

tkIS India / Vendor		tkIS India / Owner / Client	
<b>Category Codes</b> (Submission Purpose)	<input type="checkbox"/> 1 For Approval <input type="checkbox"/> 2 For Review / Comments <input type="checkbox"/> 3 For Information <input type="checkbox"/> 4 For Engineering <input type="checkbox"/> 5 For Enquiry <input type="checkbox"/> 6 For Order Placement <input type="checkbox"/> 7 Final & Approved <input type="checkbox"/> 8 Released for Construction	<b>Category Codes</b> (Submission Purpose)	<input checked="" type="checkbox"/> 1 For Approval <input type="checkbox"/> 2 For Review / Comments <input type="checkbox"/> 3 For Information <input type="checkbox"/> 4 For Engineering <input type="checkbox"/> 5 For Enquiry <input type="checkbox"/> 6 For Order Placement <input type="checkbox"/> 7 Final & Approved <input type="checkbox"/> 8 Released for Construction
<b>Acceptance Codes</b> (Approval Codes)	<input type="checkbox"/> 1 Approved <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked <input type="checkbox"/> 3 Not Approved / Resubmit <input type="checkbox"/> 4 Retained for Information / Records <input type="checkbox"/> 5 Reviewed <input type="checkbox"/> 6 Reviewed as Noted / Resubmit	<b>Acceptance Codes</b> (Approval Codes)	<input type="checkbox"/> 1 Approved <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked <input type="checkbox"/> 3 Not Approved / Resubmit <input type="checkbox"/> 4 Retained for Information / Records <input type="checkbox"/> 5 Reviewed <input type="checkbox"/> 6 Reviewed as Noted / Resubmit
Remarks for AC2 : This marked-up drawings is hereby approved for fabrication / manufacturing and shall be re-submitted after revision. This drawing should be revised only to the extent of tkIS India / Owner / Client comments. Any other changes made by you will not be considered unless clearly highlighted in covering letter asking for approval.			
This approval / review does not absolve the supplier from the full responsibility for design and fabrication.			
Date : <u>    </u> / <u>    </u> / <u>    </u> Name : <u>                                </u>		Date : <u>18/05/2020</u> Name : <u>                                </u>	

									
01		For Owner's approval	14-05-20		17-05-20		18-05-20		
00		Project Inspection and Test Plan	18-07-18	Vgg	18-07-18	Tvs	18-07-18	Nss	
Rev.	Status	Description	Date	Prepared	Date	Checked	Date	Approved	AC
<div>© Copyright 2015 : All rights reserved ThyssenKrupp Industrial Solutions (India) Private Limited</div>			<div>Barcode</div>						Category Code:


PIN-LI-PDM-01-F01 01-2015

Plant  1.0 MTPA ALUMINA REFINERY STREAM-5	Client  NALCO	Contract Code  NAL	Document ID  6695-LEX-G00-EC- 0002	Contract No.  66-6695
ThyssenKrupp Industrial Solutions (India)	Project Inspection and Test Plan for Shop Inspection – EPCM supply			<div> <div> <div>नालको</div> <div>NALCO</div> <div>नेशनल एल्युमिनियम कम्पनी लिमिटेड</div> <div>National Aluminium Company Ltd.</div> </div> <div> <div>Rev</div> <div>01</div> <div>Page</div> <div>02</div> <div>of</div> <div>09</div> </div> </div>

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2	Indicative Inspection and Test plan for Process Package –N2 PSA Unit / De-Oxo Unit, PSA Based Hydrogen Plant, Stand-Alone Air Drying Plant, Compressor with Air-dryer Plant, Gas Drying Plant, Air Separation Unit, Side Stream Filtration Unit, Oil Separation Package, Effluent Treatment plant, Water treatment plant, Reverse Osmosis, Incineration Unit, Chlorine Plant, Sulphuric Acid Plant	6695-LEX-G00-EC-0001-A102	0	6
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### 1.0 Purpose :

This document describes the procedures followed by EPCM consultant for Inspection of Static equipment, Package units and Piping bulk items being procured by Owner for-3rd Phase Expansion stream 5 of NALCO Alumina Refinery, Damanjodi, Odisha, to ensure compliance to quality standards during execution of the contracted services.

### 2.0 Scope :

This procedure is applicable to EPCM consultant Vendors for Engineering, Procurement, Manufacturing and supply of Static equipment, Package units and Piping bulk material like pipes, fittings, flanges, valves, Fasteners, Gaskets etc.

For Civil and structural, Electrical and Instrumentation bulk items, respective technical specifications to be referred. Electrical & Instrumentation scope coming in this document is only part of package items which are sub-orders of packages.

### 3.0 Definitions :

3.1 Vendor : means the person(s), firm, company, organization from whom Owner procures items / services as part of their obligation towards Owner for the project. Supplier, seller, agents and manufacturer: are considered synonymous to Vendor.

3.2 EPCM Consultant : thyssenkrupp Industrial Solutions(India) Private Limited

3.3 Owner: M/s National Aluminium Company Limited (NALCO).

3.4 TPIA : Third Party Inspection Agency appointed by vendor & approved by Owner. This shall be the agency for inspection, in case of vendor is outside India.

3.5 Equipment Classification groups:

Grouping of various static equipment is based upon safety, fluid characteristics, operational significance, availability & accessibility, design maturity, business economics and manufacturing complexity. Equipment are grouped into 4 classification groups as indicated in the DDS part of order technical specification.

Package units are categorized in 4 categories .i.e. Category A,B,C & D based upon safety, fluid characteristics, operational significance, availability & accessibility, design maturity, business economics, manufacturing complexity. Category of packages is marked in order specifications.


3.6 Item / Material / Equipment / Piping Bulk: means any mechanical item, static equipment, piping bulk items, rotary equipment's, package units, electrical items, process items and instrumentation items.

3.7 ITP: Inspection and Test Plan.

IITP : Indicative Inspection and Test Plan.

Inspection Authority : EPCM Consultant for inspection in India. TPIA - for inspection to be carried out for all items ordered outside India, including sub-orders / components ordered in India - for all such orders outside India. Inspection by TPIA, for components / equipment, ordered on vendors outside India, is mandatory. Consultant / Owner reserves the right to participate in any stage identified in the QAP / PITP.



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#### 4.0 General :

- 4.1 The inspection of shop fabricated static equipment, process packages, utility package units & piping bulk items will be carried out by EPCM Consultant. Rotary equipment, Electrical, Instrumentation & process items will be carried out by the EPCM consultant respective disciplines, as necessary, for equipment / items.
- 4.2 EPCM Consultant reserves the right to change inspection classification group at the time of approval of manufacturers ITP plan or any time during execution.
- 4.3 EPCM Consultant / Owner reserves the right to visit vendor office / vendor workshop / sub-vendor workshop where the ordered items are under manufacturing for the purpose of inspection or expediting - irrespective of whether or not the stage of inspection is hold / witness / review or even if the stage is not mentioned in approved ITP.
- 4.4 The language of communication is English. All vendor reports, certificates and documents shall be in English.
- 4.5 Approved vendors: All items / equipment shall have to be procured from Owner / Consultant approved vendors for this Project. Any deviation to the approved vendor list needs Owner / Consultant's prior approval.

In case of request for additional vendor is necessary, then Vendor shall provide their recommendation, on their letter-head, signed by authorized signatory - based on recent supporting PTRs - with specific reasoning and back up, for consideration of EPCM consultant / Owner.


List of Owner / Consultant approved vendors is attached elsewhere in this Tender. In this regard, no difference is made between the equipment and materials purchased by the Vendors directly or through his vendors / sub-vendors.

If the items are ordered on Owner Approved Traders, Traders shall supply the items manufactured by the Owner / Consultant approved Vendors.

- 4.6 All items, for all the stages shall be inspected by vendor, before offering to inspection authority and also irrespective of offered or not offered to Inspection Authority.
- 4.7 Owner approved Third Party inspection agencies :
  1. M/s Lloyd's Register
  2. M/s Bureau Veritas
  3. M/s DNV
  4. M/S.TUV India Private Limited / TUV Nord / TUV SUD / TUV Rheinland,
- 4.7 In addition to testing and inspection by inspectors mentioned above, inspection by Competent authorized inspectors from inspection agencies like Lloyds Register, BV, DNV, TUV India / SUD / Nord / Rheinland, IBR or similar institutional agencies to be assigned - for official testing of all coded equipment / Statutory equipment. The Seller shall ensure that all Procedures for preparation and Performance of test prescribed by such Institutions shall be completed scrupulously.

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## 5.0 Procedure for Inspection:

### 5.1. Inspection and Test Plan :

- Vendor ITP - will be reviewed by EPCM Consultant only after the drawings are approved at least in code-2.
- Equipment Classification Group  
Equipment's are Grouped based upon as explained in CI 3.5 above.
- Minimum stages of Inspection for Static Equipment are outlined in Indicative Inspection and Test Plan (Attached as Annexure-I).

Vendor shall prepare item specific detail ITP (including for items for which 'Indicative Test Plans' & 'Quality Assurance Plans' are not attached with this document); considering - IITP attached with PITP, Equipment Classification, Order Specification, Project requirements - shall be reviewed and approved by Consultant.

ITP will cover stages such as material identification, qualification / review of welding procedures, weld set ups, examination of welding in stages / completed welding, pre / post weld heat treatments, NDT, PMI (Positive Material Identification) as applicable, performance tests, functional tests, hydro tests, painting, lining etc., covering all requirements of Project Specification for particular equipment.

- Vendor's ITP(s) is reviewed and commented by respective Inspection Engineer. It is also co-reviewed and commented by Inspection Lead Engineer (LE) and marked with 'Acceptance Code'. If required, ITP may be co-reviewed and commented by Group Head / LE for other projects / HOF of Inspection.
- Following are the Acceptance Code for ITP :

Acceptance Code 1	=	Approved
Acceptance Code 2	=	Approved for Manufacturing / Fabrication with Comments as marked
Acceptance Code 3	=	Not Approved / Resubmit

- NDT and Testing procedures will be reviewed and commented by EPCM Consultant for critical items. Manufacturing / fabrication Procedures such as those based on Manufacturer's Standard are retained for information. Following are the Acceptance Codes assigned :


Acceptance Code 4	=	Retained for information/records
Acceptance Code 5	=	Reviewed
Acceptance Code 6	=	Reviewed with Comments

### 5.3. Pre-Inspection Meeting :

Purpose: Pre-Inspection meeting is conducted to confirm all contract requirements are fully understood by all the parties.

Pre-inspection meetings with Vendors will be carried out for critical items, the same shall be decided based on discussion between the visiting inspector and 'Lead engineer - IEX'.



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#### 5.4. Inspection :

a. Inspection Authority shall carry out inspection as per approved ITP.

b. Inspection stages are categorized as follows:

##### Hold Stage (H) :

An activity which requires inspection / verification and acceptance by Inspection authority before any further processing is permitted.

Vendor shall not process activity / item beyond a 'hold point' without written approval from Inspection authority, except where prior written permission for further processing is obtained.

##### Witness Stage (W) :

An activity which requires witnessing by Inspection authority as the activity is performed. After proper notification has been provided, the Vendor is not obliged to hold further processing if Inspection authority is not available to witness the activity or does not provide the comments before the date notified.

##### Review Stage (R) :

An activity carried out by Vendor and documents reviewed by Inspection authority. Documents for review stage shall be offered to Inspection authority for review during the immediate subsequent visit.

Inspection by EPCM Consultant and TPIA does not absolve manufactures / suppliers of their responsibility.

c. Inspection Call :

Vendor shall raise inspection calls for "Hold" & "Witness" inspection stages as per approved ITP.


d. Based on the "Inspection and Test Plan (ITP)" approved by EPCM Consultant, Vendor shall send invitation for inspection activities. Inspection calls to tkIS India or Inspection agency, as applicable shall be sent by vendor directly by Email, with below notice time minimum:

- 1) For indigenous items - tkIS India inspection - 3 working days.
- 2) For inspection by Client (If agreed) - 15 working days
- 3) For inspection of imported items - by EPCM Consultant or Owner - (If agreed) - 1 month (considering VISA formalities)

The VENDOR shall inform in the inspection call:

- Details of Item which shall be inspected,
- Quantity of equipment / parts per P.O. item, ready for inspection,
- Definition of inspection activity,
- Inspection date,



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- If applicable, Sub-vendor job number, if the inspection will take place at sub-vendor's premises,
  - Address of the place of inspection,
  - Contact person at Vendor's works (name, phone / fax number and e-mail address),
- e. Documents – Released for fabrication drawings (CODE-2), Approved ITP's are minimum requirement for carrying out inspection. However, during final inspection code-1 documents are required.
- f. Inspection stage - meeting - Code / Specification / Drawing requirements - will be released for further processing.
- For non-conformity to Code / Specification / Drawing, rectification / corrective action shall be carried out by Vendor and re-offered to Inspection Authority. Fresh inspection call shall be raised as per clause: "5.4 c" above.
- g. Inspection activity is concluded with the Inspection Report that will consist of :
- i. Manufacturer's name,
  - ii. Job No. / Project Title / P.O. No. / Date of report / Item Tag No. / Name of item,
  - iii. Date & place of inspection, name of inspection agency and inspection engineer,
  - iv. Details of inspection carried out,
  - v. Result of inspection. In case of non-conformity, the points where the rectification is required shall be clearly spelt,
  - vi. Signature of Manufacturer and Inspection Engineer,
  - vii. The Report can be generated by Vendor or by EPCM Consultant and shall be supplemented by necessary annexures,
- h. Records of calibration of measuring and test instruments will be reviewed by inspection authority and maintained by Vendor.

#### 5.5. Piping Bulk items - Pipes, Fittings, Flanges, Valves, Gaskets and Fasteners.

Inspections will be as per annexure 2. For these items, ITP prepared by vendor shall not be reviewed / approved by EPCM Consultant.

1. Vendor / manufacturer shall have and maintain a quality control system which will establish that all specified requirements - including raw material control system, manufacturing, heat treatment, NDT and all other tests - are met. Vendors shall offer the products for inspection authority for inspection at manufacturer's place with all necessary calibrated gauges and measuring instruments. The following evaluation / inspection shall be carried out by inspection authority (as per attached ITP- annexure II ).
2. All shop test certificate and records as defined in technical specification shall confirm to the corresponding ASME / ASTM / API / BS specifications.
3. Where corrosion test is specified as a supplementary requirement, it shall be carried out for at least one sample per size, per heat, per heat treatment lot.



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4. Review of test procedures for critical requirement like Helium leak test, fugitive emission test, cryogenic test etc. followed by manufacturer.
  5. Identification / review of raw material test certificate / records.
  6. Review of heat treatment charts.
  7. Review of manufacturer's certificates / reports.
  8. Verification of marking / stamping on each item.
  9. Review / witness NDT, as per ITP.
  10. 100% visual inspection - surfaces of fittings shall be free from rust, rust preventive coating, mill scales, etc.
    - C.S. Fittings shall be offered in shot blasted condition and SS Fittings shall be offered after pickling and passivation.
    - Flanges shall be offered in machined condition, before applying rust preventive.
  11. Dimensional inspection: - Manufacturer must ensure that 100% items are dimensionally inspected by them - before offering for inspection. Inspection authority shall carryout inspection as per ITP.
  12. Fasteners inspection shall be carried out with GO- NOGO gauges.
  13. Witness random physical / IGC test etc., as per ITP.
  14. Fittings / flanges shall be subjected to hardness test as per ITP.
  15. Butt weld edge preparation of fittings / flanges shall be subject to DP Test, as per ITP.
  16. Percentage of radiography shall be as specified in individual order technical specification.
  17. For fittings, 10% radiography means 10% of quantity ordered per size / heat / lot / visit.
  18. For pipes, 10% radiography means 10% of running pipe length per size / heat / lot / visit.
  19. Where extent of radiography, for example, is specified as 300 mm per pipe length, it shall be distributed at least two places, along the pipe length.
  20. Review stage for radiography means review of radiograph films.
  21. UT- if specified, 100% examination must be performed by vendor, duly certified by Level-II, and reports will be reviewed by Inspection authority.
  22. Fittings and flanges should not be repaired by welding - without EPCM Consultant's written approval.
  23. Alloy steel and stainless steel pipes, flanges, fittings, valves, gaskets, fasteners etc shall be subjected to 100% PMI Test - as per ITP. Material & welds, wherever applicable
  24. 100% fittings / flanges shall be stamped with "inspection authority" control marks - after satisfactory inspection.
  25. Manufacturer's certificate shall be countersigned by inspection authority after satisfactory inspection.
  26. Any non-conformity observed during sampling inspection will lead to rejection of full lot of material, offered for inspection to inspection authority.
  27. Percentage inspection by inspection authority specified in ITP may be increased by EPCM Consultant at any stage of order execution.
- Above requirements are minimum and any other purchase order / project specifications requirements - must also be fulfilled by the manufacturer.


5.6 After completion of final inspection and closure of all outstanding points, Inspection authority shall issue 'Release Order' for dispatch of item/s.

5.7 Statutory Requirement: If any Statutory Requirement is applicable for any item, the required documents shall be approved by the appropriate agency / Statutory Authority and inspection shall be

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carried out by the Authorized agency / Statutory in addition to document approval and inspection by EPCM Consultant / Owner.

In case of part shipment also, the required documents shall be approved by EPCM consultant / TPIA / Client, as the case may be, in addition to the inspection.

In case of coded equipment, vendors shall submit partial MDR (for partial supply) and full MDR (for complete supply) for verification & approval prior to inspection clearance.

#### 6.0 Quality Assurance:

6.1 All work / services to be performed by the vendor shall be of specified quality and the Vendor shall maintain 'QUALITY ASSURANCE / CONTROL (QA/QC) SYSTEM' during the performance of various activities.

6.2 Review / approval of the activities by inspection authority shall not however, dilute the responsibility of the vendor for maintaining quality.

#### 7.0 Dispatch Clearance

After completion of final inspection and closure of all outstanding points, tkIS India shall issue Release Order. The release order by tkIS India shall mention the code-1 approved drawing and QAP number.

Vendor shall also provide photos of preservation & packing - before & after packing / boxing of each equipment / item.

#### 8.0 The tests indicated in IITP & QAP are general minimum requirements of tkIS-India.

All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes, tkIS-India Specifications, Licensor's Specifications and Standards. In case of discrepancies between the Inspection Test Plan and the workshop documents Approved / Reviewed by tkIS India, the latter shall apply. The Manufacturer shall be responsible for the required Tests to be performed and for the Inspector to be invited in due time to witness the Tests. The Manufacturer shall try to perform as many individual Tests as possible on same day, provided that the fabrication process permits such a procedure.

#### 7.0 Enclosures:



Refer page 2 for Enclosures.

Enclosures:

Annexure 1 - Indicative Inspection & Test plans

Annexure 2 - Inspection test plan for standard bulk items.





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<p><b>tkIS India / Vendor</b></p> <div style="display: flex; align-items: flex-start;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 10px;">Category Codes (Submission Purpose)</div> <div> <input type="checkbox"/> 1 For Approval  <input type="checkbox"/> 2 For Review / Comments  <input type="checkbox"/> 3 For Information  <input type="checkbox"/> 4 For Engineering  <input type="checkbox"/> 5 For Enquiry  <input type="checkbox"/> 6 For Order Placement  <input type="checkbox"/> 7 Final &amp; Approved  <input type="checkbox"/> 8 Released for Construction         </div> </div> <hr/> <div style="display: flex; align-items: flex-start;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 10px;">Acceptance Codes (Approval Codes)</div> <div> <input type="checkbox"/> 1 Approved  <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked  <input type="checkbox"/> 3 Not Approved / Resubmit  <input type="checkbox"/> 4 Retained for Information / Records  <input type="checkbox"/> 5 Reviewed  <input type="checkbox"/> 6 Reviewed as Noted / Resubmit         </div> </div> <p>Remarks for AC2 : This marked-up drawings is hereby approved for fabrication / manufacturing and shall be re-sbmitted after revision. This drawing should be revised only to the extent of tkIS India / Owner / Client comments. Any other changes made by you will not be considered unless clearly highlighted in covering letter asking for approval.</p> <p>This approval / review does not absolve the supplier from the full responsibility for design and fabrication.</p> <p>Date : ____/____/____ Name : _____</p>	<p><b>tkIS India / Owner / Client</b></p> <div style="display: flex; align-items: flex-start;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 10px;">Category Codes (Submission Purpose)</div> <div> <input type="checkbox"/> 1 For Approval  <input type="checkbox"/> 2 For Review / Comments  <input type="checkbox"/> 3 For Information  <input type="checkbox"/> 4 For Engineering  <input type="checkbox"/> 5 For Enquiry  <input type="checkbox"/> 6 For Order Placement  <input type="checkbox"/> 7 Final &amp; Approved  <input type="checkbox"/> 8 Released for Construction         </div> </div> <hr/> <div style="display: flex; align-items: flex-start;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 10px;">Acceptance Codes (Approval Codes)</div> <div> <input type="checkbox"/> 1 Approved  <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked  <input type="checkbox"/> 3 Not Approved / Resubmit  <input type="checkbox"/> 4 Retained for Information / Records  <input type="checkbox"/> 5 Reviewed  <input type="checkbox"/> 6 Reviewed as Noted / Resubmit         </div> </div> <p>Date : ____/____/____ Name : _____</p>
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03	IFE	Site Address Updated	11.08.2022	SST	11.08.2022	PVG / KM	11.08.2022	SJP / GGM	
02	IFE	Updaed as per Client comment	22.06.2020	PVG	22.06.2020	SNR	22.06.2020	SJP / GGM	-
01	IFE	Updaed as per Client Requirement	11.06.2020	PVG	11.06.2020	SNR	11.06.2020	SJP / GGM	-
00	IFR	First Issue	16.10.2017	AKK	18.10.2017	SNR / PVG	16.10.2017	SJP / WAR	-
Rev.	Status	Description	Date	Prepared	Date	Checked	Date	Approved	AC
Barcode									Category Code: 3



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## Attachments and forms:

Attachment 01: Contract specific requirements

Attachment 02: Number of copies

Attachment 03: Instructions for Vendors for submission of drawings / documents electronically to EPCM Contractor

Attachment 04: Structure of documentation binders

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### 1. Scope

This procedure shall apply to the EPC/LSTK Contractors and EPCM Vendors (including project partners) contractually obliged to supply project material and associated drawings and project related services, documents including complete set of final documentation for their scope of supply / work for the following contract.

EPCM Contractor Project Code : NALCO-ALUMINA REFINERY PROJECT

EPCM Contractor Contract No.: 66-6695

These requirements shall be practiced for components with equipment number (Equipment Tag), material with item number, components with TAG number (electrical / instrumentation material) and completely engineered systems and equipment packages (package units).

These requirements shall not apply to piping components with an item number requiring quality certificates below 3.1 acc. to. EN 10204 and to individually ordered bolts and nuts.

### 2. Aim / purpose



This procedure shall provide instructions for preparation, handling of EPC/LSTK contractor's and Vendor's document, drawings and compiled sets of documentation to facilitate handover of documentation to customer.

This procedure shall guide EPC/LSTK contractor / vendor to follow uniform concepts in addition to the purchase order documents, the "Discipline-Specific Requirements, and technical information requirement indicated in the Technical Specifications / Datasheets.

Purchase order execution shall not be deemed to be complete until after all requirements for the documentation are satisfied.

### 3. Abbreviations and Definitions

Client	Means recipient of a product, e.g. plant or services NALCO
EPCM Consultant	thyssenkrupp Industrial Solutions (India) Private Limited and other offices of EPCM Contractor responsible for execution of the project wherever applicable
Vendor / Contractor	EPC/LSTK Contractor or Vendor shall mean the bidder during the bidding phase and the supplier / contractor after purchase order award. The Vendor supplies the equipment and/or services as specified by EPCM Contractor.
Construction Documentation (CD)	The Construction Documentation shall mean latest revisions of vendor's documents required for construction, erection and on-site preservation of equipment / machinery.
Final Vendor Documentation (FD)	The Final Vendor Documentation shall mean latest revisions of vendor's all technical documents (including As-Built - i.e. as fabricated at vendor's works), spare parts list, list of special tools and other manufacturer instructions / procedures (QA / testing plans / procedures and storage, installation, maintenance, operation instructions etc.).
Manufacturer's Data Report (MDR)	The MDR comprises the quality assurance documentation consisting material test certificates, inspection records / reports, as well as all other reports and certificates as indicated in Order Specification in accordance with sections 8.2 of this document.
Doc-ID Code / Doc-ID Number	EPCM Contractor document identification number
Document	Individual document (or Drawing) as described in purchase order, order specifications / data sheets or any other contractual document etc.
Documentation	Documents compiled in files as per the sequence / guidelines given and issued for specific purpose (i.e. "for Construction")

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TAG

Equipment designation identified as per the numbering system of NALCO

#### 4. Procedure: Preparation of Documents

##### 4.1 General

Documents shall follow the industry practice for preparation of technical drawings and documents based on relevant standards.

As a rule, a separate document shall be prepared for each itemised Equipment TAG. The presentation of several equipment items with different item numbers in a single document shall not be allowed. Exceptions from this rule are flow diagrams, common arrangement drawings etc. as well as standby machines if these are identical with the main machine (same type, construction, material, dimensions, weight, accessories, connections etc.). For this, conformation is to be obtained from the person In-Charge (i.e. Lead Engineer) before preparation of the drawing / document.

If one TAG and/or Item number includes more than one drawing, these additional drawing numbers / document identification numbers shall be listed on the general arrangement drawing. Each of these additional drawings shall contain cross-references to the general arrangement drawing.

All information submitted through Drawings / Documents shall be explicit, rule out misinterpretations and relate to the specific application or operating conditions of the equipment supplied. The number of documents shall be kept to a minimum, i.e. as much information as possible should be incorporated in one document. Exceptionally long documents shall be split into logical parts / sections.

##### 4.2 Document identification and attributes

For the unique identification of a document all documents shall be unambiguously marked by the following information at least.

- EPCM Consultant's Contract number,
- EPCM Consultant's Doc-ID code wherever applicable,
- Revision No.

In addition to the above mentioned information for the document identification all documents shall bear



- the document title,
- the vendor Name,
- the purchase order number,
- the applicable TAG / Item / Part Number and its description,
- the revision date,

##### 4.3 Document layout

The drawings / documents shall be prepared using EPCM Consultant supplied templates. Vendors shall adopt the native files of the drawing / document templates to the Engineering tool being used for execution. Vendors can use their own title block in addition to the EPCM Consultant provided title block. However, to avoid any inconsistency, revision index must be single (Common).

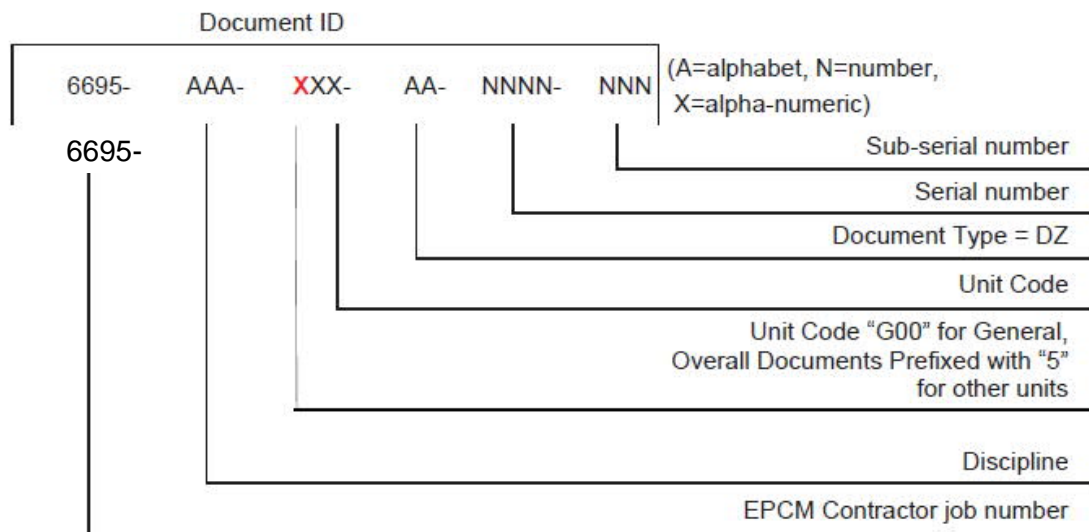
The information for the documents identification and the corresponding attributes as listed in chapter 4.24.2 shall be mentioned at the specified location in the drawing title-block or on the cover page of the document.

Alternatively, the information listed in chapter 4.2 shall be incorporated with contract-specific mark-up on the first page of the standard document / manual / brochures or typical drawings clearly indicating the exact applicable type / model and/or relevant dimensions.

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#### 4.4 Doc-ID code (EPCM consultant document identification number)

All documents to be submitted shall be marked by a defined Doc-ID code pre-determined and given by EPCM consultant. The structure of the Doc-ID shall be as given below;



The vendor shall submit the "Master Document Index" (list of deliverables) for each of the ordered TAG / Item to EPCM Consultant as per format attached as attachment-A0, immediately after the equipment / item is ordered with the letter-of-intent / purchase order. EPCM consultant shall review this list and inform vendor the vendor document series for each TAG / Item indicating the EPCM consultant Doc-IDs for the documents listed in Master Document Index. For any new / additional documents vendor shall allocate subsequent incremental sub-serial numbers and update the Master Document Index. Vendor shall indicate the EPCM consultant Doc-ID on all drawings / documents submitted to EPCM consultant. EPCM consultant may reject the drawings / documents submission if the formal aspects are not fulfilled according to this instruction. This Master Document Index shall be submitted by vendor to EPCM consultant along with the monthly status reports.

#### 4.5 Revision index

The revision index shall also be indicated on each document. The level of progress shall be indicated unambiguously by the revision index on the title block.

The first issue of a document shall also indicate the revision index appropriately.

The content of the modification/purpose shall be briefly stated in the revision column. For example, the following descriptions shall be used:

Rev. 00 First issue

Rev. 01 EPCM consultant's comments / remarks incorporated

Rev. 02 Issued for Fabrication / Construction



The terms "last revision" or "total revision" shall not be used.

Each document modification and distribution, whether internal for vendor or for external distribution to EPCM consultant, shall increase the revision index by one counter.

All revisions of the Vendor documents shall have passed the Vendor's internal review and approval procedure. The date of review and approval shall be indicated on the document. With this vendor confirms that the documents have been checked for conformance with the requirements of the purchase order documents.

Each revised drawing / document shall be prepared, checked, approved and distributed like the first issue of the document. Each document revision shall be submitted to EPCM consultant only once. While re-submission of the revised documents all triangles and clouds relating to the previous revision shall be removed. In the case of revision, the complete document affected by the revision shall be resubmitted as one pdf document. The submission of part document with specific revised content individually shall not be allowed.

All modifications, contained in the latest revision as compared to the previous one, shall be clearly marked in the document. (The revision index shall be indicated in a triangle following the modification.) Modified parts of a drawing shall be marked by enclosing them in "clouds" with revision index triangle. Any intermediate

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revisions not submitted to EPCM consultant shall also be submitted for information along with the latest revision. This is to enable EPCM consultant to track changes happened during intermediate revisions. However, review of the revised documents shall be limited to the marked revisions and EPCM consultant shall provide approval/comments/receipt-confirmation only on the last revision submitted.

As-Built documents shall not show any revision triangles and clouds and shall be indicated as "As-Built" in the revision index. As-Built Drawings / documents shall be submitted as part of Final Documentation.

#### 4.6 Contractual language

All documents to be submitted shall be prepared in English language.

#### 4.7 Document formats

The sheet sizes of drawings and documents shall correspond to ISO standards generally followed as per the industry practice. The contractual sheet sizes are listed in Attachment 01 "Contract-specific requirements".

Text documents shall generally be prepared in the A4 format. Documents, consisting of several pages shall exclusively include the A4 and/or A3 formats with cover page). Page number and total number of pages shall generally be shown on each page of vendor's documents. As general rule, information on the back side of the document shall not be allowed. Exceptions shall be limited only for standard printed product catalogues, printed manuals or large calculations or voluminous data from a software tool.

All documents greater than A4 shall be folded to A4 so that the title block shall be visible on top. The location of the title block is given in the templates.

All documents, except the reduced sizes of documents which are implemented in the operation and maintenance instruction, have to be delivered in the original size.

By using colours in documents the substance of information shall not be lost in black and white copies.

#### 4.8 Document quality

Copies of drawings and documents shall be made on white paper on good quality commercially available paper of having minimum thickness of at-least 70g/m2 (gsm).

All documents shall have a 2 cm free margin and 4-hole punching. The 4-hole-punched paper of documents greater than A3 shall either be fitted with hole reinforcements or adhesive reinforcing strips.

### 5. Procedure: Handling of documents and documentation binders

#### 5.1 Submission of documents and documentation binders

The number and scope of the documents and documentation binders to be submitted shall be as specified in the "Summary of Engineering Documents" / "Document Request Form" attached to the technical specification of the purchase order. The minimum number of documentation is indicated in Attachment 02 "Number of copies". Each TON of a purchase order requires an independent documentation (per TON at least one binder), exceptions to be advised during Engineering Phase by EPCM consultant.



The vendor shall submit the documents and documentation binders to EPCM Contractor at the dates indicated in the said annexure "Summary of Engineering Documents" / "Document Request Form" to ensure further engineering and proper review and/or forwarding.

Documents and documentation binders shall be submitted with an accompanying letter (transmittal), which shall contain:

- EPCM consultant Contract number, Transmittal-ID
- EPCM consultant Doc-ID Code, Revision No., Document title of the attached documents / documentation binders
- The purpose of transmission ("for information/action", "for review", "for approval"),
- and in the case of the submission of documentation binders the purpose of the binders, e.g. "for construction" or "final documentation" etc.

#### 5.2 Guidelines for documentation binders

In order to ensure a uniform appearance of the documentation binders, the vendor shall use binders as specified in Attachment A01 "Contract-specific requirements". The binders shall only be filled to a maximum level of 90 % to leave space for revisions or amendments.

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For the delivery of the documentation binders, the binders shall be placed into parcels in suitable position and sent via courier service to the delivery address of the documentation as indicated in Attachment 01 "Contract-specific requirements".

The vendor shall submit the first edition of the documentation binders (one set draft or master file) of the construction/final documentation binders including index to EPCM consultant for approval through transmittal listing the Table of Contents.

After the review of the construction/final documentation binders EPCM consultant shall provide approval/review comments, the Table of Contents and the spine labels for each approved/commented binders back to the vendor also through transmittal listing the Table of Contents.

Only after EPCM consultant approval the required number of binders shall be submitted by vendor in line with the Table of Contents (documentation grouping and sequence) and considering EPCM consultant approval/review comments. Direct submission of final copies without approval from EPCM consultant will not be accepted and the vendor will have to submit all required number of binders again after incorporating the changes given by EPCM consultant.

### 5.3 Guidelines for expediting documents

Expediting documents shall be submitted as specified and must be clearly identified. Material delivery schedules, fabrication and construction time schedules shall be submitted not later than on the date of the first drawing submittal for review. Updated versions shall thereafter be submitted monthly without specific request by EPCM consultant. The expediting document shall show all schedule-critical materials and the critical path, regardless of whether they have been ordered or not. Moreover, the material delivery schedules of subcontractors or manufacturers of key equipment shall be shown. The expediting documents shall show the scheduled completion dates as indicated in the original time schedule and the actual status together with the updated time schedule. Expediting documents are for EPCM consultant information only.

### 5.4 Guidelines for generation of electronic files

In case documents are exchanged via e-mail or a collaboration tool, vendor shall submit only soft copies in PDF file format to EPCM consultant. Vendor shall ensure that PDF files shall not be encrypted or password protected to allow access, modification and management.

Native Files shall be submitted only along with Final / As-Built Documentation if required. Native files submission during the engineering phase for approval if any shall be as per the specific instructions of the technical responsible Lead Engineer.

Separate pdf files shall be submitted for each individual documents identified with one Doc-ID Code. Multiple drawings / documents with several Doc-IDs merged to one single pdf file shall not be accepted. All drawings / documents greater than A3 shall have individual single page pdf files with individual Doc-IDs. A4 and A3 size documents can be multi-page pdf files.

The orientation of pdf files shall be in reading orientation for all sizes irrespective of the size of document and number of pages.

Name of the pdf file shall be:

Doc-ID Code\_000\_Rev.pdf

For Example: 6695-EQS-09-DZ-0003-005\_000\_04.pdf

Following restrictions shall be taken into account naming of pdf files for electronic transfers.



- Length of file name must not exceed 128 characters. The whole length of path name and file name together must not exceed 200 characters.
- Blanks are not allowed (use underscore "\_" instead of blank to separate parts of the file name)
- Special characters (e.g. /, \, :, \*, ?, ", <, >, !) and umlauts are not allowed

### 5.5 Electronic submission

In case that documents are exchanged electronically in pdf format through e-mail or a collaboration tool., the details regarding the handling of the collaboration tool are described in a contract-specific annexure as listed in Attachment 01 "Contract-specific requirements".

Transmittal as well as drawings / documents shall be submitted electronically. Whenever collaboration tool does not generate automatic intimations to the recipient's e-mail intimation shall be sent by the originator to recipient. E-mail transfer of individual documents without transmittal / reference details is not allowed.



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Date of receipt of document will be considered only when EPCM consultant can open and view the documents and transmittal properly. If EPCM consultant can't open or view the documents submission, it will be treated as invalid / void / rejected.

All files submitted on CD / DVD or other data carrier as part of Final / As-Built Documentation must be accompanied by a table of contents and a structure description for native files if applicable. (Description of layer allocation, pin allocation, list of fonts applied). The files shall be named according the file naming convention explained in this procedure (refer to chapter 6.4).

#### 6. Approvals by EPCM consultant

EPCM consultant shall review the documents to be submitted by vendor with respect to the requirements specified in the purchase order / technical specifications. EPCM consultant will provide review comments and return the document with acceptance code. The acceptance code will be clearly marked on the in-built CC-AC Code Block or Electronic stamp on the drawings / document. (In case of Physical documents the documents will be Rubber Stamped, clearly indicating the Acceptance Code).

EPCM consultant shall check/comment the documents within a period of ten (10) working days after receipt. Vendor shall consider this review period in his manufacturing schedule. However, in exceptional situations, for critical documents and considering the urgency for schedule the review cycle can be reduced to five (5) working days based on the specific requests from vendor substantiating with the reason thereof. Such exceptional situations/urgency for schedule to be agreed with Project Manager during Project Execution and to be clearly indicated on Transmittal Subject line as "Urgent Approval Required – Approve in 5 days by dd/mm/yyyy".

Once the commented Documents are received by vendor, Vendor will submit the revised Drawings/ Documents with next revision within a period of ten (10) working days.

#### 6.1 Category Codes

Category Codes are the codes followed to indicate the Document Submission Requirements or the Document Status. Following are the Category Codes;

- 1 for Approval
- 2 for Review / Comments
- 3 for Information
- 4 for Engineering
- 5 for Enquiry
- 6 for Order Placement
- 7 Final & Approved
- 8 Released for Construction

#### 6.2 Acceptance Codes

Acceptance Codes are the codes followed to indicate the Document Approval Status confirmed by the Approving Authority. Following are the Acceptance Codes;



- 1 Approved
- 2 Approved for Manufacturing / Fabrication with comments as marked
- 3 Not Approved / Resubmit
- 4 Retained for Information / Records
- 5 Reviewed
- 6 Reviewed as noted

Note: The Category Codes and Acceptance Codes will be abbreviated in the footer of the Transmittal.

#### 6.3 General

Approval or review of the vendor's drawings and documents, shall not relief the vendor of his responsibility for the correctness of drawings and documents.

If the vendor starts the fabrication without approved drawings/documents by EPCM consultant, he has the full responsibility without releasing him from any obligations e.g. modification or repetition of the work in a later stage after receiving the approval of EPCM consultant. Cost related to consequences due to the start of fabrication without approved documents/drawings shall be borne by the vendor.

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If within the period agreed no remark / approval shall be received by the vendor, he shall contact EPCM consultant accordingly in written form.

#### 6.4 Documentation binders as part of final inspection

Final documentation binders are part of successful final inspection by EPCM consultant. A waiver of inspection with regard to equipment does not include a waiver of inspection of the related documentation.

No purchase order shall be considered completed until data and documents/documentation required by the purchase order have been received by EPCM consultant / client.

#### 7. Structure of documentation binders

The documentation binders shall be structured in sections A, B and C as described in the following table (CON = Construction Documentation / FIN = Final Documentation, also refer to Attachment A04 "Structure of the vendor's documentation".)



##### Section A, Design documents

Group No.	Examples for the documents which are part of the defined group no.	Part of Documentation	
01	Block diagrams, flow diagrams, piping and instrumentation diagrams (PIDs), process flow diagrams (PFDs), overview diagrams (as applicable)	CD	FD
02	Foundation data, fixing plate details, anchoring data, mounting details (as applicable)	CD	FD
03	Overall arrangement diagrams, general arrangement drawings, overall layout, plot plan etc. (as applicable)	CD	FD
04	Detailed drawings, part lists, detailed assembly drawings, sectional views, calculations (as applicable)	CD	FD
05	Fabrication instructions / procedures, welding instructions, heat treatment instructions and other fabrication instructions (as applicable)	CD	FD
06	Packing / transportation, storage and preservation instructions (as applicable)	CD	FD
07	Electrical and instrumentation documents, switching and control diagrams, interlocking diagrams, wiring / circuit and terminal diagram, hook-ups (as applicable)	CD	FD
08	Special documents / product catalogues, catalogues of installed single components, hydraulic diagrams (as applicable)	CD	FD

##### Section B, Operating and maintenance instructions

Group No.	Current Group Description	Part of Documentation	
09	Installation and erection instructions, sequence of assembly and erection, installation drawings	CD	FD
10	Operating and maintenance instructions or user manuals incl. recommended spare parts and lubricants	-	FD
12	Spare Parts List (unpriced), including mandatory spares as per BOA requirement wherever applicable.	-	FD
13	List of Lubricants / Feedstocks	-	FD



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#### Section C, Fabrication verification and inspection documents

Group No.	Current Group Description	Part of Documentation	
11	Test certificates and inspection reports, fabrication and inspection documents manufacturer's declaration, declaration of conformity, evidence of origin, test reports and material test certificates, EPCM consultant non-conformance report	-	FD

#### 7.1 Documentation structure for package units and heavy machinery

Package units are understood to mean independent and operative plant sections consisting of several components. As a rule, the PU are designed, manufactured, erected and commissioned as complete units by the manufacturer.

If advised by the responsible lead engineer, documentation structure for these units shall be as follows:



- 1.) All general documents of a package unit (e.g. PIDs of the unit, user instructions of the unit, instrumentation, bulk material, equipment without TAG number, etc.) shall be sorted according to the following sections:
  - Section A, Design documents
  - Section B, Operating and maintenance instructions
  - Section C, Fabrication verification and inspection documents
- 2.) The documentation for the individual equipment items within the package unit shall be sorted accordingly as substructure within the package unit documentation or as advised by the responsible Lead Engineer.

#### 7.2 Test Certificates and inspection reports submitted as part of section C

Fabrication verification and inspection documents shall be submitted with a cover sheet and a table of contents including page numbers for a completeness check.

Examples for inspection documents applicable according to Code of Process Vessels and Heat Exchangers belonging to one TAG are given below:

- Inspection release note
- Approved QAP / approved-signed test procedures
- Weld plan and WPS/PQR
- Factory acceptance test reports / certificates
- Manufacturer's test certificate, guarantee certificate, certificate of compliance and performance test reports, declaration of conformity etc.
- Statutory / authority approval documents / third party approval records
- Material certificates & material heat charts
- Material traceability lists
- Inspection reports
- Dimensional check records
- UT-test reports
- MP-test reports
- PT-test reports
- X-ray-test reports
- Hydrostatic test reports
- Air test reports
- Record of production test plates
- Records of tube to tube sheet examination
- NDT drawings / logs
- Welds map indicating welder's qualification

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- Heat treatment diagrams
- Results of corrosion tests
- Evidence of origin
- EPCM Contractor non-conformance report
- EPCM Contractor quality certificate

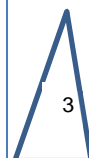
### 7.3 Inspection Release Note (IRN) and Documentation submission for Bulk Materials



Bulk material vendors shall submit the required number of Final Documentation sets consisting of following documents as applicable for particular item.

- Final Inspection Release Note with "Order Status" as "Complete"
- Unpriced BOA Copy
- GA Drawings in "Approved" status
- Inspection and Test Plan (ITP)
- Installation, Operation & Maintenance Manual
- Product Catalogue as applicable
- Lot-Wise Inspection Release Notes containing associated documents of each of the IRNs as listed below in same sequence as applicable for the respective item.
  - Inspection Release Note issued by tkIS.
  - Material Test certificates duly signed by tkIS
  - NDT reports duly signed by tkIS
  - Heat treatment records, if any
  - Final visual and dimensional inspection reports duly signed by tkIS
  - Final painting report duly signed by tkIS
  - Warranty / Guarantee certificates.
  - Submission of Required

The Final Inspection Release Note with "Order Status" as "Complete" is to be included in the Final Documentation twice as Sr. No. [1] (only Final Inspection Release Note) and Lot-Wise (all Inspection Release Note (including Final IRN) along with associated documents listed in last bullet point of this chapter.

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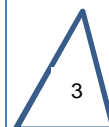


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#### Attachment 01: Contract Specific Requirements

##### Shipping address

thyssenkrupp Industrial Solutions (India) Private Limited (EPCM consultant) – Site Office	Mr. Dharmendra Kumar tkIS Site Document Controller C/o Mr. Jaykrushna Pradhan (RCM) thyssenkrupp Industrial Solutions (India) Pvt. Ltd. Quarter No.: E/10, Sector – III, NALCO Township, Damanjodi, District – Koraput, Orissa – 763008. Contact No.– 7857954996 / 7854946934 e-mail : <a href="mailto:tkisindia.nalcosite@thyssenkrupp.com">tkisindia.nalcosite@thyssenkrupp.com</a> CC : <a href="mailto:tkISIndia.nalcotf@thyssenkrupp.com">tkISIndia.nalcotf@thyssenkrupp.com</a>
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##### Admissible sheet sizes:

A0 landscape format / separate Doc-ID required per sheet (Exceptional case only)  
A1 landscape format / separate Doc-ID required per sheet  
A2 landscape format / separate Doc-ID required per sheet  
A3 landscape format  
A4 portrait / landscape format  
For drawing formats larger than A2, a minimum character height of 2.5 mm shall be used.

##### Contractual language of documentation:

English

##### Operating manual language:

English

##### Symbols / units of measurement:



Metric and US units

##### Types of lever arch files to be used for the documentation:

Black colour File (Folder/Binder), made from plastic or Cardboard laminated with polypropylene film, 4-ring lever arch file (double DIN A5 Cross-wise storage), with edge protection and grip holes (locking eyelets), 70 mm wide (back width), with transparent plastic spine pocket for insertion of interchangeable labels.

##### Dividers:

Paper weight @ 160g/m<sup>2</sup>  
Dimensions 240mm \* 105mm  
Colour white

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#### Attachment 02: Number of copies



During engineering approval, the drawings / documents shall be submitted via e-mail to the taskforce e-mail-ID or through the collaboration tool. In addition to hard-copies (paper prints) shall be submitted according to the. "Summary of Engineering Documents" / "Document Request Form" attached to technical specification and/or as per the protocol of negotiations for placement of purchase order.

#### Minimum number of paper copies of documentation files:

Documentation Type	Number of Sets
<u>Documentation submission by EPCM Vendors</u>	
<u>draft</u> Construction Documentation (for approval)	Electronic Submission (through email / tkIS Cryptshare document transfer platform)
Construction Documentation (after approval)	4 Hard copy Sets + 3 CD/DVDs (to project construction site)
<u>draft</u> Final Documentation (for approval)	Electronic Submission (through email / tkIS Cryptshare document transfer platform)
Final Documentation (after approval)	6 Hard Copy Sets + 3 CD/DVDs (Refer Note 1 below)
<u>Documentation submission by LSTK Contractors</u>	
<u>draft</u> Construction Documentation (for approval)	Electronic Submission through cFolders
Construction Documentation (after approval)	4 Hard Copy Sets (to project construction site) + Electronic copy through cFolders
<u>draft</u> Final Documentation (for approval)	Electronic Submission through cFolders
Final Documentation (after approval)	6 Hard Copy Sets + 3 Nos. USB Drives / External USB Hard-Discs of reputed make (Refer Note 2 below)

#### Notes :

- (1) EPCM vendors to handover final documentation (Engineering, Vendor & Sub-Vendor Documentation) to tkIS in CD/DVD. tkIS to provide consolidated Final documentation of EPCM Scope one time as Final Hand-over in USB drives / External Hard disc of reputed make to NALCO.
- (2) LSTK Contractors to handover complete Final Documentation (Engineering, Vendor & Sub-Vendor Documentation) one time as Final Hand-over in USB Drives / External USB Hard-Discs of reputed make to NALCO / tkIS

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PDM-G00-BD-0002</b>	Contract No. <b>66-6695</b>
	<b>Vendor's Documentation</b>			
				Rev <b>03</b> Page <b>14</b> of <b>15</b>

Attachment 03: Instructions for submission of drawings / documents electronically to EPCM Contractor

- Vendor shall submit only soft copies (pdf) to EPCM consultant for review. Hard copies shall be submitted to EPCM consultant only for Construction / Final / As-Built Documentation.
- As far as possible Vendor shall prepare pdf file directly from the source/native file/application. In exceptional cases scanned pdf files shall be accepted. Care shall be taken that e-mail size (Total data size for drawings, documents and transmittals for one submission) does not exceed 5 MB.
- pdf file of document shall be sent through authorized e-mail-ID of the vendor as agreed during Kick-off-meeting. Vendor to maintain the Original signed copy as master copy and to be offered for verification for EPCM Contractor's / Third party Approval Agency's inspector upon request / during audit.
- Name of the pdf file shall be: Doc-ID\_Rev\_TON\_short description.

For example, for equipment TON 24F001 General Arrangement Rev.00 file name shall be;



NNNNA-AA-XXX-DZ-NNNNN-NNN\_00\_24F001\_GA.pdf

Following restrictions shall be taken into account to avoid problems while transfer of documents through e-mail / ftp server.

- Length of file name must not exceed 128 characters. The whole length of path name and file name together must not exceed 200 characters.
- Blanks are not allowed (use underscore "\_" instead of blank to separate parts of names)
- Special characters (e.g. / , \ , : , \* , ? , " , < , > , ! ) and umlauts are not allowed
- Transmittal shall be prepared for documents to be sent to EPCM consultant clearly indicating EPCM consultant Contract No., PO No., TAG No., EPCM consultant Document ID, Revision and document description.
- pdf files shall be sent to EPCM consultant by e-mail to EPCM consultant's Task Force e-mail-ID or to be uploaded in the collaboration folder as advised.
- Each e-mail should contain files related to one transmittal only. Separate e-mails shall be sent for 2 different transmittals. Subject of the transmittal shall indicate EPCM consultant's Project No. at the start and followed by the transmittal reference number.
- Date of receipt of document shall be considered only when EPCM consultant can open and view the documents and transmittal properly. If EPCM consultant can't open or view the documents submission will be treated as invalid / void. Vendor shall ensure that pdf files shall not be encrypted or protected.
- After reviewing document EPCM consultant shall return approved/commented documents with transmittal by e-mail. No hard copy shall be sent. Once the commented documents are received by vendor, vendor will submit the revised documents with next revision within a period of ten (10) working days. As far as possible vendor shall not change the position of details in the drawing / document in next revision.
- In-case documents are not received back with approval / comments within 2 weeks of submission to EPCM Contractor, vendor to send expediting/follow-up mail to EPCM consultant's Taskforce e-mail-ID
- Vendor shall maintain document index with EPCM consultant's Doc. ID-Code, date of submission & date of return. The same shall be sent for EPCM consultant's information on monthly interval.

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Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-GOO-EC-0057</b>	Contract No. <b>66-6695</b>
 thyssenkrupp	<h2>COLOUR CODING OF PIPING ITEMS</h2>			 <b>नालको NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev <b>00</b> Page <b>1</b> of <b>5</b>

<p><b>tkIS India / Vendor</b></p> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Category Codes (Submission Purpose)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 For Approval  <input type="checkbox"/> 2 For Review / Comments  <input type="checkbox"/> 3 For Information  <input type="checkbox"/> 4 For Engineering  <input type="checkbox"/> 5 For Enquiry  <input type="checkbox"/> 6 For Order Placement  <input type="checkbox"/> 7 Final &amp; Approved  <input type="checkbox"/> 8 Released for Construction </div> </div> <hr/> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Acceptance Codes (Approval Codes)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 Approved  <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked  <input type="checkbox"/> 3 Not Approved / Resubmit  <input type="checkbox"/> 4 Retained for Information / Records  <input type="checkbox"/> 5 Reviewed  <input type="checkbox"/> 6 Reviewed as Noted / Resubmit </div> </div> <p><b>Remarks for AC2 :</b> This marked-up drawings is hereby approved for fabrication / manufacturing and shall be re-sbmitted after revision. This drawing should be revised only to the extent of tkIS India / Owner / Client comments. Any other changes made by you will not be considered unless clearly highlighted in covering letter asking for approval.</p> <p><b>This approval / review does not absolve the supplier from the full responsibility for design and fabrication.</b></p> <p>Date : ___/___/___      Name : _____</p>	<p><b>tkIS India / Owner / Client</b></p> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Category Codes (Submission Purpose)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 For Approval  <input checked="" type="checkbox"/> 2 For Review / Comments  <input type="checkbox"/> 3 For Information  <input type="checkbox"/> 4 For Engineering  <input type="checkbox"/> 5 For Enquiry  <input type="checkbox"/> 6 For Order Placement  <input type="checkbox"/> 7 Final &amp; Approved  <input type="checkbox"/> 8 Released for Construction </div> </div> <hr/> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Acceptance Codes (Approval Codes)</div> <div style="margin-left: 10px;"> <input type="checkbox"/> 1 Approved  <input type="checkbox"/> 2 Approved for Manufacturing / Fabrication with Comments as marked  <input type="checkbox"/> 3 Not Approved / Resubmit  <input type="checkbox"/> 4 Retained for Information / Records  <input type="checkbox"/> 5 Reviewed  <input type="checkbox"/> 6 Reviewed as Noted / Resubmit </div> </div> <p>Date : ___/___/___      Name : _____</p>
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00	IFR	ISSUED FOR INFORMATION	01.06.20	PTE	01.06.20	SHK	01.06.20	NNG	-
Rev.	Status	Description	Date	Prepared	Date	Checked	Date	Approved	AC
<div style="font-size: 2em; font-weight: bold;">Barcode</div>				<div style="font-size: 1.5em; font-weight: bold;">Barcode</div>					
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Category Code: -3



Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-G00-EC-0057</b>	Contract No. <b>66-6695</b>
 thyssenkrupp	<b>COLOUR CODING OF PIPING ITEMS</b>			<b>नालको</b>  <b>NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev <b>00</b> Page <b>2</b> of <b>5</b>

## Scope

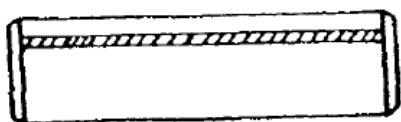
To minimize metallurgy mix due to improper identification of materials during project construction stage it is essential to give different colours for different material grades.

This document covers requirements for colour code marking of bulk piping materials. Refer below listed details for colour code marking location and material specific colour code marking.



Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-G00-EC-0057</b>	Contract No. <b>66-6695</b>
 thyssenkrupp	<b>COLOUR CODING OF PIPING ITEMS</b>			<b>नालको</b>  <b>NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev <b>00</b> Page <b>3</b> of <b>5</b>

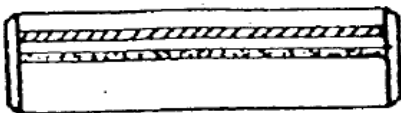
## COLOUR IDENTIFICATION OF PIPES & FITTINGS



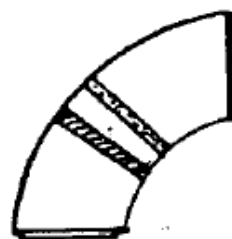
PIPE - ONE COLOUR



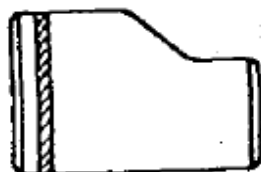
ELBOW - ONE COLOUR



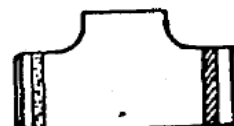
PIPE - TWO COLOUR



ELBOW - TWO COLOUR



REDUCER - ONE COLOUR



TEE - ONE OR TWO COLOURS



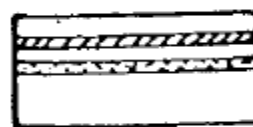
REDUCER - TWO COLOUR



STUB END - ONE OR TWO COLOURS





CAP - ONE OR TWO COLOURS



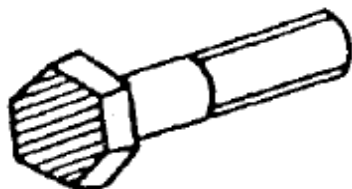
COUPLING - ONE OR TWO COLOURS

Note: 1) The strip width shall be minimum 1/2".

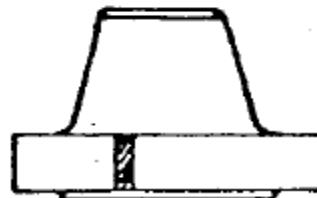
2) The colour band/strip should not cover material stenciling heat numbers, Inspector's seal and any other details given on the item.

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-G00-EC-0057</b>	Contract No. <b>66-6695</b>
 thyssenkrupp	<b>COLOUR CODING OF PIPING ITEMS</b>			<b>नालको</b>  <b>NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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## COLOUR IDENTIFICATION OF FLANGES,GASKETS& NUTS



MACHINE BOLT



FLANGES - ONE COLOUR



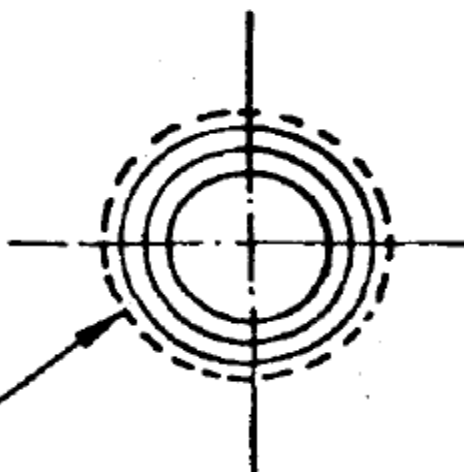
STUD BOLT



FLANGES - TWO COLOURS



NUT





**TO BE COLOURED AS SPECIFIED**

GASKET - Color coding shall be conform to ASME B16.20.

Note 1) The strip width shall be minimum 1/2".



2) The colour band/strip should not cover material stenciling heat numbers, Inspector's seal and any other details given on the item.

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 thyssenkrupp	COLOUR CODING OF PIPING ITEMS			नालको  NALCO नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.		
				Rev	00	Page

## COLOR CODING FOR PIPING MATERIALS



<b>For Pipe, Fittings and Flanges</b>		
<b>Sr.No.</b>	<b>Type of Material</b>	<b>Colour code (As per IS-5)</b>
1	A106 GR.B/ A234 GR.WPB/ A105	No colour
2	A106 GR.B- IBR/ A234 GR.WPB-IBR/ A105-IBR	Signal Red (single band) (No.537)
3	API 5L GR.X52/ A860 GR.WPHY52/ A694 GR.F52	Satin Blue (single band) (No.177)
4	A672 Gr.B60 CL.32	Salmon Pink (single band) (No.443)
5	A672 Gr.B60 CL.32 - IBR	Signal Red (double band) (No.537)
6	A672 Gr.B65 CL.22	Light Salmon Pink (single band) (No.442)
7	A53 GR.B	Grass Green (single band) (No.218)
8	A53 GR.B GALV/ A234 GR.WPB-GALV/ A105 GALV	No colour
9	API 5L GR.B	Sliver Grey (single band) (No.628)
10	SS 304	Dark Blue Grey (single band) (No.695)
11	SS 316L	Dark Brown (single band) (No.412)
12	UNS S31803/ A182 GR.F51	Canary Yellow (single band) (No.309)

<b>For Fasteners</b>			
<b>Sr.No.</b>	<b>Stud &amp; Bolt Material</b>	<b>Nut Material</b>	<b>Colour code (As per IS-5)</b>
1	A 193 Gr.B7	A 194 Gr.2H	No colour
2	A 193 Gr.B7 GALV	A 194 Gr.2H GALV	No colour
3	A193 Gr.B8M	A194 Gr.8M	Canary Yellow (No.309)

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 thyssenkrupp	<b>TECHNICAL REQUIREMENTS FOR PIPES, FITTINGS, FLANGES, GASKETS &amp; FASTENERS</b>			 <b>NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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<b>tkIS India / Vendor</b>		<b>tkIS India / Owner / Client</b>	
Category Codes (Submission Purpose)	<input type="checkbox"/> 1 For Approval <input type="checkbox"/> 2 For Review / Comments <input type="checkbox"/> 3 For Information <input type="checkbox"/> 4 For Engineering <input type="checkbox"/> 5 For Enquiry <input type="checkbox"/> 6 For Order Placement <input type="checkbox"/> 7 Final & Approved <input type="checkbox"/> 8 Released for Construction	Category Codes (Submission Purpose)	<input type="checkbox"/> 1 For Approval <input type="checkbox"/> 2 For Review / Comments <input type="checkbox"/> 3 For Information <input type="checkbox"/> 4 For Engineering <input type="checkbox"/> 5 For Enquiry <input checked="" type="checkbox"/> 6 For Order Placement <input type="checkbox"/> 7 Final & Approved <input type="checkbox"/> 8 Released for Construction
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<b>Remarks for AC2 :</b> This marked-up drawings is hereby approved for fabrication / manufacturing and shall be re-submitted after revision. This drawing should be revised only to the extent of tkIS India / Owner / Client comments. Any other changes made by you will not be considered unless clearly highlighted in covering letter asking for approval.			
<b>This approval / review does not absolve the supplier from the full responsibility for design and fabrication.</b>			
Date : ___/___/___ Name : _____		Date : ___/___/___ Name : _____	

04	IFP	ISSUED FOR ORDER	27.12.21	PTE	27.12.21	SHK	27.12.21	NNG	
03	IFI	REVISED AS MARKED & RE- ISSUED FOR ENQUIRY	13.08.21	PTE	13.08.21	SHK	13.08.21	NNG	-
02	IFI	ISSUED FOR ENQUIRY	27.05.20	PTE	27.05.20	SHK	27.05.20	NNG	-
01	IFD	Finalized after NALCO's review & Issued for Engineering	05.01.18	PTE	05.01.18	SHK	05.01.18	NNG	-
00	IFR	ISSUED FOR REVIEW	04.10.17	PTE	04.10.17	SHK	04.10.17	NNG	-
Rev.	Status	Description	Date	Prepared	Date	Checked	Date	Approved	AC
				Barcode					Category Code: -5
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Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-G00-EC-0007</b>	Contract No. <b>66-6695</b>
	<b>TECHNICAL REQUIREMENTS FOR PIPES, FITTINGS, FLANGES, GASKETS &amp; FASTENERS</b>			 <b>नेशनल एल्युमिनियम कम्पनी लिमिटेड</b> <b>National Aluminium Company Ltd.</b>
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<b>3</b>	<b>RADIOGRAPHY .....</b>	<b>6</b>
<b>4</b>	<b>HYDROTEST .....</b>	<b>6</b>
<b>5</b>	<b>MARKINGS .....</b>	<b>6</b>
<b>6</b>	<b>PACKING .....</b>	<b>6</b>

Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-G00-EC-0007</b>	Contract No. <b>66-6695</b>
 thyssenkrupp	<b>TECHNICAL REQUIREMENTS FOR PIPES, FITTINGS, FLANGES, GASKETS &amp; FASTENERS</b>			 <b>नालको NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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## 1 GENERAL

- 1.1 Unless otherwise specified, for order quantity > 3meters, pipes shall be supplied in single random length of 4-7meters. At the time of supply, positive quantity tolerance of maximum one single random length of 4-7 meters is acceptable. However, negative quantity tolerance is not acceptable.
- 1.2 In case of low temperature carbon steel pipes and fittings, material certificates for impact test as per relevant codes shall be furnished.
- 1.3 All socket weld and slip-on flanges shall suit pipe O/D as per ASME B36.10 / ASME B36.19 unless specifically asked to suit pipe O/D of IS 1239 pipes.
- 1.4 Slip-on flanges NS 4" & above shall have 1/8" diameter drilled hole through the hub for venting of gases during welding.
- 1.5 The surface finish for flanges shall be obtained by cylindrical machining so that no radial tool marks are created on the finish surface during machining.
- 1.6 All gasket design shall be such that the gasket factor (m) and minimum gasket design seating stress (y) shall conform to the requirements of ASME B16.5.
- 1.7 Unless otherwise specified, all threaded items shall have NPT threads as per ASME B 1.20.1.
- 1.8 For pipes and fittings required to be galvanised, the zinc coating shall be in accordance with IS 4736 for IS pipes and fittings and as per ASTM A123 for ASTM pipes and fittings respectively.
- 1.9 For welded tees (longitudinally welded), set-on type branching is not permissible.
- 1.10 In case of fasteners, the first size specified indicates bolt / stud diameter in mm and second dimension indicates length in mm.
- 1.11 Unless otherwise specified, spiral wound gaskets shall have inner & outer ring construction. Inner ring bore shall be equal to pipe bore.
- 1.12 All SW flanges & fittings should be as per ASME B16.11.
- 1.13 All BW ends should be as per ASME B16.25.
- 1.14 For stud bolts, rolled / formed threads are only allowed (no cut threads).
- 1.15 For bolts, heat treatment & threading sequence shall be as specified in the applicable codes.
- 1.16 Fasteners & washers, if required galvanized, the galvanizing shall be as per ASTM A153 OR shall be Electroplated.
- 1.17 For Fasteners
  - 1.17.1 Thread std. (bolt) : ASME B1.1 CL.2A /B1.13M / Thread std. (Nut) : ASME B1.1CL.2B/ /B1.13M.
  - 1.17.2 UNC thd. for  $\leq 1"$  dia & UN8 thd. for  $> 1"$  dia.
  - 1.17.3 End machining of Studs shall be to DIN 976 Type B / ISO 4753 (chamfered ends).
- 1.18 Any conflict between this document and technical specification, the latter shall govern.
- 1.19 The technical part of the offer must consist of Contractor Technical Specification for the particular item in which the vendor has to mark clearly 'YES' against each line of the specification sheet under the column "Bidder's Comments", in case the bidder is taking a deviation from Contractor spec. The bidder should

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 thyssenkrupp	TECHNICAL REQUIREMENTS FOR PIPES, FITTINGS, FLANGES, GASKETS & FASTENERS			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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clearly state the alternative offered. Deviations indicated anywhere else will not be entertained. The sheet must bear the seal and signature of the bidder in the technical specification sheet.

1.20 Tolerance for components shall be as per applicable codes.

1.21 All welded pipes & fittings shall have max. longitudinal welding seams as stated below:

	<u>Pipes</u>	<u>Fittings</u>
≤ 24"	Max. 1 longitudinal welding seam	Max. 1 longitudinal welding seam
26" – 48"	Max. 2 longitudinal welding seams	Max. 2 longitudinal welding seams
50" – 72"	Max. 3 longitudinal welding seams	Max. 4 longitudinal welding seams
> 72"	Max. 4 longitudinal welding seams	Max. 4 longitudinal welding seams

Circumferential welding seams are not permitted.

For parts with welding factor E=1.0 the welding seams shall be 100% radiographed.

1.22 Weld penetrations shall be ground flush where possible. If grinding is not possible max. acceptable weld penetration shall not exceed 1 mm. TIG root runs may be specified.

1.23 The carbon percentage shall be as per individual ASTM material grade.

## **2 INSPECTION AND TEST**

Vendor / manufacturer shall have and maintain a quality control system which will establish that all specified requirements including raw material control system, manufacturing, heat treatment, NDT and all other tests will be met. Vendor shall follow standard ITP submitted by Contractor. Vendor shall offer the products for Contractor inspection at manufacturer's place with all necessary gauges and measuring instruments. The following evaluation / inspection shall be carried out by Contractor as per attached standard ITP.

2.1 All shop test certificates and records as defined in the technical specification shall conform to the corresponding ASME / ASTM / API / BS / IS / IBR specifications.

2.2 Where corrosion test is specified as a supplementary requirement, it shall be carried out for at least one sample per size / Heat / heat treatment lot (Lot is as defined in ASTM A960).

2.3 Review of manufacturing / inspection procedure followed by manufacturer.

2.4 Identification / review of raw material test certificate / records.



2.5 Review of heat treatment charts.

2.6 Review of manufacturer's Test certificates / Reports.

2.7 Verification of marking / stamping on each item.

2.8 100% visual inspection by Contractor– Surface of fittings shall be free from rust, rust preventive coating, mill scales etc. CS fittings shall be offered in shot blasted condition and SS fittings shall be offered after pickling and passivation. Flanges shall be offered in machined condition before applying rust preventive.

2.9 Dimensional inspection: - Manufacturer must ensure that 100% pipes, fittings, flanges, gaskets are dimensionally inspected by them and item wise major dimensions are recorded in an inspection report before offering to Contractor. Contractor will carryout dimensional inspection. Refer standard ITP for extent of inspection by Contractor. Fasteners – Inspection with "GO" and "NO GO" gauge -100% inspection by manufacturer & 10% inspection by Contractor.



Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client NALCO	Contract Code NAL	Document ID 6695-PIP-G00-EC-0007	Contract No. 66-6695
 thyssenkrupp	TECHNICAL REQUIREMENTS FOR PIPES, FITTINGS, FLANGES, GASKETS & FASTENERS			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev 04

- 2.10 Review of chemical & witness random Physical / IGC test etc., as per standard ITP.
- 2.11 Fittings / Flanges shall be subject to hardness test of CS & AS material as per standard ITP.
- 2.12 Butt weld edge preparation of Fittings / Flanges shall be subject to DP test as per standard ITP.
- 2.13 Pipes, Fittings and Flanges of Alloy steel, Stainless steel and Non-Ferrous materials (except carbon steel), shall be subjected to PMI Test as per below listed table.

Sr.No	Scope	Material of Construction	Manufacturer	Trader	Contractor / TPI	Remarks
1	1) Pipes and Fittings – material and welds 2) Flanges 3) Spectacle blinds 4) RTJ Gasket	Stainless Steel Alloy Steel Non-Ferrous	100%	-	as per standard ITP	*In the case of imported items, scope to be decided by Client / Contractor.
			-	100%	100%*	
2	Fasteners	Stainless Steel Alloy Steel Non-Ferrous	Up to 100 lot size : 2% ( min. 2) > 100 up to 500 lot size : 1% ( min 3) > 500 lot size : 0.5% ( min 5)			
Note:- 1) Contractor reserves the right to increase the % of Witness based on vendor past performance. 2) In case of failures noticed during witness by Contractor, additional sampling shall be in accordance with API 578.						

- 2.14 Radiography - Extent of radiography shall be as per applicable code / Contractor specification. All RT films shall be reviewed by manufacturer & offered to Contractor for review.  
UT - If specified, 100% examination must be performed by manufacturer & Contractor shall review the UT report.
- 2.15 Hydro test of Pipes – 100% by manufacturer. For pipes ordered on manufacturer, inspection shall be as per standard ITP. Post / pre order, the % of witness by Contractor may be increased at discretion of Contractor.
- 2.16 No repair is permitted on the base material.
- 2.17 Steel Insert Rubber Gaskets – 100% shall be spark tested at min 15 kV.  
PTFE Enveloped Gaskets – 100% shall be spark tested at 5 kV / mm thickness of gasket.
- 2.18 Any non-conformity during sampling inspection will lead to rejection of total lot of material offered for inspection.
- 2.19 100% Pipes, Fittings, Flanges shall be stamped with “Contractor” control marks after satisfactory inspection. In case of Gaskets and Fasteners – Tags to be stamped by Contractor.
- 2.20 Manufacturer’s certificate shall be countersigned by Contractor after satisfactory inspection.
- 2.21 Above requirements are minimum and any other purchase order / project specific requirements must also be fulfilled by the Manufacturer / Vendor.
- 2.22 All measuring gauges and instruments shall have valid calibration certificate.



Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-PIP-G00-EC-0007</b>	Contract No. <b>66-6695</b>
 thyssenkrupp	<b>TECHNICAL REQUIREMENTS FOR PIPES, FITTINGS, FLANGES, GASKETS &amp; FASTENERS</b>			 <b>नालको NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev <b>04</b> Page <b>6</b> of <b>6</b>

- 2.23 All welded duplex stainless steel components shall be passivated in conformance with ASTM A380 and ASTM A967 as applicable.

### **3 RADIOGRAPHY**

- 3.1 For fittings, 10% radiography means 10% of the quantity ordered per tag size, per heat, per lot per visit & for pipes, 10% radiography means 10% of the running pipe length per heat lot / per size / per visit.
- 3.2 100% radiography means entire quantity for all sizes has to be radiographed.
- 3.3 Where extent of radiography is specified as 300mm per pipe length, it shall be distributed at least two places along the pipe length.

### **4 HYDROTEST**

- 4.1 Hydrotest for the pipes shall be as defined under Clause 22 of ASTM A530 or Clause 22.2 of ASTM A999 as applicable. For hydrotest the chloride content in water shall not exceed 25 ppm for SS items unless otherwise specified.

### **5 MARKINGS**

- 5.1 Pipes, flanges and fittings shall be furnished with weatherproof marking as per respective technical specification sheets. However, for NS 1" and below the code no. & size shall be minimum specified and other details should be furnished with a metal tag in the packing box.
- 5.2 As far as possible hard stamping shall be avoided for wall thickness less than 3.2mm. Any other suitable means of identification shall be used instead. Light metals, like Al, Ti, Ni, Monel and Hastelloy should not be hard stamped.

### **6 PACKING**

- 6.1 Machined surfaces of flanges and all threaded and welding ends shall be protected against damage during transit and storage. For flanges the machined surfaces shall be coated with easily removable rust preventive grease or protective coating and the surface shall then be covered with heavy-duty plastic or wooden or metallic covers.
- 6.2 Where wood fiber or metal covers are used, plastic sheet shall be placed between the flange and the cover for additional protection.
- 6.3 Varnish or other suitable protective coating to be applied to pipes, fittings and flanges before delivery to protect during shipment and storage.
- 6.4 Packing should be sea worthy for items intended to be transported by ship.
- 6.5 All pipes shall be supplied thoroughly cleaned from inside and with ends plugged properly.

## Checklist To be submitted along with offer

**Project Name : NALCO Alumina Refinery Expansion Project**

**Project No : 66-6695      RFQ NO: \_\_\_\_\_**

**Vendor's Name: \_\_\_\_\_**

**Vendor's Offer No : \_\_\_\_\_ Date \_\_\_\_\_**

S. No.	Documents	Document No (s)	Accepted With Deviation/ W/o
1	Technical documents		
a	Standard Abbreviation List		
b	ITP for Seamless, ERW & EFW Pipes ordered on manufacturers		
c	ITP for Seamless, ERW & EFW PIPES ordered on traders		
d	Technical requirements for Pipes-Fittings-Flanges-Gaskets and Fasteners		
e	Project Inspection and Test plan		
f	Colour coding of piping items		
g	Vendor Documentation Procedure		
2	Techno-Commercial document		
a	Annexure-I, Priced Bid Format and Bill of Material with Technical specifications (PriceBid)		

**Note 1 : Bidder should stipulate their deviations, if any, to the tender documents, only in below referred deviation sheets marked as " Technical Deviation" and " Commercial Deviations". If vendor stipulates deviation any where else in their bid, such deviations shall be ignored.**

Sr No	Documents	Document No	Enclosed (Yes/No)
1	List of Technical Deviation		



**Authorised Signatory**

**Name: \_\_\_\_\_**

**Contact No : \_\_\_\_\_**

**Vendor's Name : \_\_\_\_\_**

**Vendor Company Stamp**

Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client  NALCO	Contract Code  NAL	Document ID  6695-LEX-G00-EC-0001-B201	Contract No.  66-6695				
 thyssenkrupp	ITP FOR SEAMLESS, ERW & EFW PIPES ORDERED ON MANUFACTURERS			<div>नालको  NALCO</div> <div>नेशनल एल्युमिनियम कम्पनी लिमिटेड</div> <div>National Aluminium Company Ltd.</div>				
				Rev	00	Page	1	of

The tests indicated are general minimum requirements of EPCM Consultant. All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes, EPCM Consultant Specifications, Licensor's Specifications and Standards. In case of discrepancies between the Inspection Test Plan and the workshop documents Approved / Reviewed by EPCM Consultant, the latter shall apply. The Manufacturer shall be responsible for the required Tests to be performed and for the Inspector to be invited in due time to witness the Tests. The Manufacturer shall try to perform as many individual Tests as possible on same day, provided that the fabrication process permits such a procedure.



Sr. No.	Inspection / Test Stage	Checks	Type of Inspection	Frequency of Check	Reference Document	Acceptance Norm	Format of Record	Inspection By		
								Vendor	EPCM Consultant / TPIA	Owner

A	Receiving Inspection									
1	Inspection of Coils / Billets / Plates	Mechanical & Chemical Properties	Review of Mechanical & Chemical Properties	One sample per Heat / Coil	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	MTC	P	R Note 1	
B	In-Process Inspection / Testing									
1	Welding ( For EFW Pipes)	Welding Procedure / Technique / Quality	Review of WPS / PQR / Welder Qualification	100%	As per ASME Section IX	As per ASME IX	WPS / PQR	P	R for existing WPS/PQR under TPIA. W for New WPS/PQR	
2	Heat Treatment	As per Code / Order Specification	Heat Treatment Cycle	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Heat Treatment Chart	P	R	
3	NDT	Soundness of Pipe	Flux leakage. UT / Eddy Current Test. As applicable.	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	NDE Report	P	R	
4	NDT For EFW	Soundness of Weld	Radiography of Weld, if applicable	As per Applicable Material & Order Specifications	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Radiography Test Report	P	R- Review of RT Films	
5	Hydrostatic Testing	Leak Tightness	Visual & Records Review	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Inspection report	P	Refer attached table	

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Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client  NALCO	Contract Code  <b>NAL</b>	Document ID  <b>6695-IEX-G00-EC-0001-B201</b>	Contract No.  <b>66-6695</b>
	ITP FOR SEAMLESS, ERW & EFW PIPES ORDERED ON MANUFACTURERS			 नेशनल एल्यूमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev <b>00</b> Page <b>2</b> of <b>4</b>

The tests indicated are general minimum requirements of EPCM Consultant. All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes, EPCM Consultant Specifications, Licensor's Specifications and Standards. In case of discrepancies between the Inspection Test Plan and the workshop documents Approved / Reviewed by EPCM Consultant, the latter shall apply. The Manufacturer shall be responsible for the required Tests to be performed and for the Inspector to be invited in due time to witness the Tests. The Manufacturer shall try to perform as many individual Tests as possible on same day, provided that the fabrication process permits such a procedure.



Sr. No.	Inspection / Test Stage	Checks	Type of Inspection	Frequency of Check	Reference Document	Acceptance Norm	Format of Record	Inspection By		
								Vendor	EPCM Consultant / TPIA	Owner

C	Product testing									
1	Test piece identification by EPCM Consultant / TPIA	1. Chemical Analysis (2) Max Carbon Equivalent -0.42 for Carbon steel	Review of Chemical properties	Per Heat	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Lab test certificate	P	R	
		2. YS, UTS, EL, R.A, Flatness & Bend Test as applicable & IGC test	ASTM A370 A262	As per Code / EPCM Consultant Specification				P	W**, In case, already tested under TPIA, Review of test reports to be carried out.	
		3. Hardness as applicable.	ASTM A370							
		4. Impact Test ( if Applicable )	ASTM A370							
D	Final inspection	1. Surface Condition	Visual	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Inspection report	P	H (refer table attached)	
		2. Dimension & End Finish BW / PE	Measurement & check	100% by Mfr				H		
		3. Marking as per Material Specification, Order Specification, and EPCM Consultant Code No.	Visual	100%				H		
		4. Galvanizing for Galvanized items	As per Specification ASTM A153	Coating Thickness. Other tests as per ASTM A153				P		
E	PMI check for parent material and welds	Alloying Elements	As per Specification	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	PMI Report	P		

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Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client  NALCO	Contract Code  <b>NAL</b>	Document ID  <b>6695-IEX-G00-EC-0001-B201</b>	Contract No.  <b>66-6695</b>
	ITP FOR SEAMLESS, ERW & EFW PIPES ORDERED ON MANUFACTURERS			 नेशनल एल्यूमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
				Rev <b>00</b> Page <b>3</b> of <b>4</b>

The tests indicated are general minimum requirements of EPCM Consultant. All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes, EPCM Consultant Specifications, Licensor's Specifications and Standards. In case of discrepancies between the Inspection Test Plan and the workshop documents Approved / Reviewed by EPCM Consultant, the latter shall apply. The Manufacturer shall be responsible for the required Tests to be performed and for the Inspector to be invited in due time to witness the Tests. The Manufacturer shall try to perform as many individual Tests as possible on same day, provided that the fabrication process permits such a procedure.



Sr. No.	Inspection / Test Stage	Checks	Type of Inspection	Frequency of Check	Reference Document	Acceptance Norm	Format of Record	Inspection By		
								Vendor	EPCM Consultant / TPIA	Owner

G	Final Stamping by EPCM Consultant / TPIA	Surface Protection & Colour Coding	Visual	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	MTC	P		
H	Inspection documentation & Issue of Release Note by EPCM consultant / TPIA	Material Test Certificate	Review of Documents	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	MTC With back up reports	P	H	
I	Final documentation	Manufacturer Test certificate & Release note	Review of Documents	100%	As per Order & Order Specification	Conformance to Order & Order Specification	--	P	R	

Notes - All requirements shall be in accordance with EPCM consultant GES reference no: 6695-PIP-G00-EC-0008; Rev.02. Following salient points as applicable to be met

- Where ever origin of material is restricted check test is not acceptable for Raw material. Manufacturer test certificate for Raw material shall be reviewed before start of production.
- Where ever % of inspection is mentioned it is per EPCM Consultant Code, per Size, per visit. For PMI - per code, per heat, per size, per visit. (PMI - Material & welds, wherever applicable)
- Any other test, if specified in order, order specifications, order attachments, like IGC etc., shall be tested and test to be witnessed by Inspection authority.
- W\*\*List of existing items already tested under TPIA shall be discussed and agreed upon during first expediting visit / kick-off meeting / Inspection visit.
- In addition to the requirements of ITP, all requirements of Purchase order, Material specification, Order specification and Order Technical requirements shall be fulfilled.
- EPCM Consultant reserves the right to increase percentage of inspection up to 100%, if any rejection or non-conformity is observed during sampling inspection or EPCM Consultant's past experience with vendor.
- EPCM Consultant reserves the right to decrease percentage of inspection in consultation with LE & HOF.



Plant 1.0 MTPA ALUMINA REFINERY STREAM-5	Client  NALCO	Contract Code  NAL	Document ID  6695-LEX-G00-EC-0001-B201	Contract No.  66-6695				
 thyssenkrupp	ITP FOR SEAMLESS, ERW & EFW PIPES ORDERED ON MANUFACTURERS			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.				
				Rev	00	Page	4	of

The tests indicated are general minimum requirements of EPCM Consultant. All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes, EPCM Consultant Specifications, Licensor's Specifications and Standards. In case of discrepancies between the Inspection Test Plan and the workshop documents Approved / Reviewed by EPCM Consultant, the latter shall apply. The Manufacturer shall be responsible for the required Tests to be performed and for the Inspector to be invited in due time to witness the Tests. The Manufacturer shall try to perform as many individual Tests as possible on same day, provided that the fabrication process permits such a procedure.

Sr. No.	Inspection / Test Stage	Checks	Type of Inspection	Frequency of Check	Reference Document	Acceptance Norm	Format of Record	Inspection By		
								Vendor	EPCM Consultant / TPIA	Owner



8. Inspection within India by EPCM Consultant. Inspection outside India by **Owner** approved TPIA.
9. Hydro test of pipes shall be as defined under clause 21 of ASTM A 530 or clause 22.2 of ASTM A999 as applicable. For hydro test the chloride content in water shall not exceed 25 PPM for SS items unless otherwise specified.

Legends: W - Witness, R - Review, H - Hold, P-Perform

EPCM Consultant / TPIA Inspection scope for Seamless, ERW & EFW pipes ordered on Manufacturer				
	Type of tests	IS 1239 - ERW	CS, LTCS, LAS seamless pipes	All welded and all SS pipes
1	Visual	Review	100%	100%
2	Dimensional	Review	10%	10%
3	Hydrotest	Review	Review	10%
4	PMI (PMI - Material & welds, wherever applicable)	--	10 % for specified MOC	10 % for specified MOC
5	Hardness test as applicable	Review	10%	10%
6	Ferrite number , FN ( For SS welded pipes)	--	--	10%
7	Galvanizing Thickness	Review	10%	--
8	Final stamping	--	100%	100%

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Vijay G. Gujar		T. V. Sundar		N. S. Syam	
Prepared by: LE		Checked by: GH/LE		Approved by: HOF	

Plant 1.0 MTPA ALUMINA REFINERY STREAM- 5	Client NALCO	Contract Code <b>NAL</b>	Document ID <b>6695-LEX-G00-EC-0001-B202</b>	Contract No. <b>66-6695</b>
 thyssenkrupp	ITP FOR SEAMLESS, ERW & EFW PIPES ORDERED ON TRADERS			 <b>नेशनल एल्यूमिनियम कम्पनी लिमिटेड</b> <b>National Aluminium Company Ltd.</b>
				Rev <b>00</b> Page <b>1</b> of <b>3</b>

The tests indicated are general minimum requirements of EPCM Consultant. All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes, EPCM Consultant Specifications, Licensor's Specifications and Standards. In case of discrepancies between the Inspection Test Plan and the workshop documents Approved / Reviewed by EPCM Consultant, the latter shall apply. The Manufacturer shall be responsible for the required Tests to be performed and for the Inspector to be invited in due time to witness the Tests. The Manufacturer shall try to perform as many individual Tests as possible on same day, provided that the fabrication process permits such a procedure.

Sr. No.	Inspection / Test Stage	Checks	Type of Inspection	Frequency of Check	Reference Document	Acceptance Norm	Format of Record	Inspection By		
								Vend or	EPCM Consult ant / TPIA	Owner



<b>A</b>	Stage Inspection / Testing									
1	Submission of Original Manufacturer Certificate	Chemical Properties, Mechanical Properties, Heat treatment, NDT, Hydrotest pressure, Max allowable Carbon Equivalent-0.42 for Carbon steel	Certificate Review & Co-relation of Certificate with Material	100%	As per Applicable Material & Order Specifications	Conformanc e to Codes & Order Specification	Manufacturer Certificate	P	R	
2	Physical Testing	Mechanical Properties	UTS, Yield, Elongation, Flattening, Hardness, Impact as applicable.	As per specification / Code	As per Applicable Material & Order Specifications	Conformanc e to Codes & Order Specification	Inspection report	P	W** (Sample will be selected by EPCM Consultant / TPIA, if improper corelation with original mill T.C)	
3	Chemical Testing	Chemical Composition	Review of Chemical properties					P	R	
B	Final inspection	1. Surface Condition	Visual	100%	As per Applicable Material & Order Specifications	Conformanc e to Codes & Order Specification	Inspection report	P	100%H	
		2. Dimension & End Finish BW / PE	Measurement & check	100% by Mfr				H	25%H	
		3. Marking (with EPCM Consultant Code)	Visual	100%				H	100%H	
		4. Galvanizing thk for Galvanized items	As per Specification ASTM A 153	100% by Mfr				P	10%H	

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Plant  1.0 MTPA ALUMINA REFINERY STREAM- 5	Client  NALCO	Contract Code  NAL	Document ID  6695-LEX-G00-EC-0001-B202	Contract No.  66-6695				
 thyssenkrupp	ITP FOR SEAMLESS, ERW & EFW PIPES ORDERED ON TRADERS			<div>नालको  NALCO</div> <div>नेशनल एल्युमिनियम कम्पनी लिमिटेड</div> <div>National Aluminium Company Ltd.</div>				
				Rev	00	Page	2	of

The tests indicated are general minimum requirements of EPCM Consultant. All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes, EPCM Consultant Specifications, Licensor's Specifications and Standards. In case of discrepancies between the Inspection Test Plan and the workshop documents Approved / Reviewed by EPCM Consultant, the latter shall apply. The Manufacturer shall be responsible for the required Tests to be performed and for the Inspector to be invited in due time to witness the Tests. The Manufacturer shall try to perform as many individual Tests as possible on same day, provided that the fabrication process permits such a procedure.

Sr. No.	Inspection / Test Stage	Checks	Type of Inspection	Frequency of Check	Reference Document	Acceptance Norm	Format of Record	Inspection By		
								Vend or	EPCM Consultant / TPIA	Owner

C	PMI check for parent material and welds	Alloying Elements	As per Specification	100%	As per Applicable Material & Order Specifications	Conformanc e to Codes & Order Specification	PMI Report	P	100%H	
D	Final Stamping by EPCM Consultant /Owner.	Surface Protection & Colour Coding	Visual	100%	As per Applicable Material & Order Specifications	Conformanc e to Codes & Order Specification	MTC	P	100%H	
E	Inspection documentation & Issue of Release Note by EPCM Consultant / TPIA	Material Test Certificate	Review of Documents	100%	As per Applicable Material & Order Specifications	Conformanc e to Codes & Order Specification	MTC With back up reports	P	H	
F	Final documentation	Manufacturer Test certificate & Release note	Review of Documents	100%	As per Order & Order Specification	Conformanc e to Order & Order Specification	--	P	R	


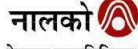
**Notes** - All requirements shall be in accordance with EPCM consultant GES reference no: 6695-PIP-G00-EC-0007; Rev.01. Following salient points as applicable to be met

1. In case Original Mill test certificate (EN10204:3.1) is submitted by traders & is co-related with materials, EPCM Consultant / TPIA shall carry out inspection as mentioned in Sr.No. B, C, D,E & F.
2. Pipes shall be procured from EPCM consultant approved pipe manufacturers only.
3. Wherever % of inspection is mentioned it is per EPCM Consultant's Code, per Size, per visit. For PMI, per Code, per heat, per size, per visit. (PMI - Material & welds, wherever applicable)
4. Any other tests if specified in order, order specifications, order attachments, like IGC etc., shall be tested and test witnessed by Inspection authority.
5. W\*\* List of existing items already tested under TPIA shall be discussed and agreed upon during first expediting visit / kick-off meeting / Inspection visit.
6. In addition to the requirements of ITP, all requirements of Purchase order, Material specification and Order specification shall be fulfilled.
7. All pipes shall be hydro tested. Hydro test of pipes shall be as defined under clause 21 of ASTM A 530 or clause 22.2 of ASTM A999 as applicable. For hydro test the chloride content in water shall not exceed 25 PPM for SS items - unless otherwise specified.
8. EPCM Consultant reserves the right to increase percentage of inspection up to 100% if any rejection or non-conformity is observed during sampling inspection or EPCM Consultant's past experience with vendor.





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Plant  1.0 MTPA ALUMINA REFINERY STREAM- 5	Client  NALCO	Contract Code  NAL	Document ID  6695-LEX-G00-EC-0001-B202	Contract No.  66-6695			
 thyssenkrupp	ITP FOR SEAMLESS, ERW & EFW PIPES ORDERED ON TRADERS			<div><b>नालको NALCO</b> नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.</div>			
				Rev	00	Page	3

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Sr. No.	Inspection / Test Stage	Checks	Type of Inspection	Frequency of Check	Reference Document	Acceptance Norm	Format of Record	Inspection By		
								Vend or	EPCM Consultan t / TPIA	Owner

9. PMI check shall be carried out for Alloy steel, Stainless steel and Non-Ferrous or as specified. (PMI - Material & welds, wherever applicable)
10. EPCM Consultant reserves the right to decrease percentage of inspection in consultation with LE & HOF.
11. Inspection within India by EPCM Consultant. Inspection outside India by Owner approved TPI.

Legends: W - Witness, R - Review, H - Hold, P- Perform

Vijay G. Gujar		T. V. Sundar		N. S. Syam	
Prepared by: LE		Checked by: GH / LE		Approved by: HOF	

MASTER ABBREVIATION LIST

Abbreviations	Description	Remark
+	WITH	
13% Cr.	13% CHROMIUM	
°C	DEGREES CENTIGRADE	
°F	DEGREES FAHRENHEIT	
125 Ra	Ra=125-250 m. In	
16 Ra	Ra=16-32 m. In	
250 Ra	Ra=250-500 m. In	
45DEG	45 DEGREE	
63 Ra	Ra=63-125 m. In	
90DEG.	90 DEGREE	
A-20	ALLOY 20	
ABP	ANTI BLOW OUT PROOF STEM	
AS	ALLOY STEEL	
ASB	ASBESTOS	
B18.2.2	THRD. STD (BOLT) ASME B 1.1 CL2A, THRD. STD (NUT) ASME B 1.1 CL2B, <=1" AND UN8 THRD FOR >1" DIA	UNC THRD FOR
Ball valve(LP):	Ball valve per long pattern	
BB	BOLTED BONNET	
BC	BOLTED COVER	
BE	BEVELED END TO B16.25	
BET	THREADED BOTH ENDS	
BF	BLIND FLANGE	
BLE	BEVELLED LARGE END	
BOE	BEVELLED ONE END	
BS	BELLOW SEALED	
BW	BUTT WELDING	
C & W	COATED AND WRAPPED	
CA	CORROSION ALLOWANCE	
CAP	PIPE CAP	
CF	COLD FORMED (EX HEX NUTS,MACH.BOLTS ETC.)	
CI	CAST IRON	
CL	CLASS	
CON RED	CONCENTRIC REDUCER	
CONC.	CONCENTRIC	
CORR	CORRUGATED	
CP	CONVENTIONAL PORT	
CRS	CROSS	
CS	CARBON STEEL	
CTFE	CARBON GRAPHITE REINFORCED TEFLON	
CVR	COVER	
DEG	DEGREE	
DI	DUCTILE IRON	
Dia.	DIAMETER	
DIPH	DIAPHRAGM	
DN	NOMINAL DIA	
DPR	DESIGN PRESSURE	
ECC RED	ECCENTRIC REDUCER	
EFW	ELECTRIC FUSION WELDED	
ELB	ELBOW	
ERW	ELECTRIC RESISTANCE WELDED	
EX:	EXAMPLE	
FB	FULL BORE	
FBE	FLANGED BOTH ENDS	
FBE FLG	FIXED FLANGE BOTH ENDS	
FBP	FABRICATED FROM PIPE	
FCPL	FULL COUPLING	
FF	FLAT FACE	
FLEXI DISC	FLEXIBLE DISC	
FLG	FLANGE	
FLGD	FLANGED	
FNPT	SCREWED TO NPT(F) TO B 1.20.1	
FOE	FLANGED ONE END	
FS	FORGED STEEL	
FT	FEET	
Ft/sec	FEET PER SECOND	
FW	FIELD WELD	
GALV	GALVANIZED	
GASK	GASKET	

MASTER ABBREVIATION LIST

Abbreviations	Description	Remark
GE	GROOVCD ENDS	
GF	GLASS FILLED	
GI	GALVANIZED IRON	
GJ	GROUND JOINT	
GNLLY	GENERALLY	
GO	GEAR OPERATED	
Gr.	GRADE	
GRF	GRAFOIL	
GRPH ASB + INC WIRE	GRAPHITED ASBESTOS WITH INCONEL WIRE	
HCPL	HALF COUPLING	
HDPE	HIGH DENSITY POLYETHYLENE	
HEX	HEXAGONAL	
HF	HOT FINISHED	
HO	HAND WHEEL OPERATED	
HP	HIGH PRESSURE	
HPR	HYDROSTATIC PRESSURE	
HRL	HARD RUBBER LINED	
Hvy.	HEAVY	
HYP	HYPALON	
IBBM	IRON BODY BRASS MOUNTING	
ID	INSIDE DIAMETER	
IN	INCH OR INCHES	
IPS	IRON PIPE SIZE	
ISNRS	INSIDE SCREW NON RISING STEM	
ISRS	INSIDE SCREW RISING STEM	
JG	J / U GROOVE ( FOR HIGH THICKNESS PIPE)	
LAS	LOW ALLOY STEEL	
Lb	POUND	
LBE FLG	LOOSE FLANGE BOTH END	
LE	LAMINATED ENDS, TYPE L	
LEB	LONG END BUTT WELDED	
LEB & SET	LONG END BEVELLED & SHORT END B.W. THREADED	
LEFLG	LARGE END FLANGED	
LEL	LARGE END LAMINATED, TYPE L	
LET	LONG END THREADED	
LET & SEB	LONG END THREADED & SHORT END B.W.	
LG	LARGE GROOVE	
LIN	LINED	
LJ	LAP JOINT FLANGES	
LLET	LATROLET	
LO	LEVER OPERATED	
LOE	LAMINATED OTHER END TO TYPE L5	
LOE FLG	LOOSE FLANGE ONE END	
LP	LOW PRESSURE	
LR	LONG RADIUS(1.5D)	
LT	LARGE TONGUE	
LTCS	LOW TEMPERATURE C.S.	
LW	LONGITUDINALLY WELDED	
Mach.	MACHINED	
MATL	MATERIAL	
Max.	MAXIMUM	
MBOLT	MACHINE BOLT WITH HEAVY NUT	
MFG STD	MANUFACTURER'S STANDARD	
MI	MALLEABLE IRON	
MJ	MECHANICAL JOINT	
MNPT	SCREWED TO NPT(M) TO B 1.20.1	
MP	MEDIUM PRESSURE	
MSS	MANUFACTURERS STANDARDIZATION SOCIETY	
NAT	NATURAL	
NC	NATIONAL COARSE THREAD (BOLTING)	
NI	NICKEL	
NIP	NIPPLE	
NLET	NIPOLET	
NOD	NODULAR	
Nom	NOMINAL	
NRL	NATURAL RUBBER LINED	
OD	OUTSIDE DIAMETER	
OEB	ONE END BUTT WELDED	
OEP	ONE END PLAIN	

MASTER ABBREVIATION LIST

Abbreviations	Description	Remark
OET	ONE END THREADED	
OQ	OIL QUENCHED (E.G. HEX NUTS)	
OS&Y	OUTSIDE SCREW AND YOKE	
PBE	PLAIN BOTH END	
PE	PLAIN END	
PLG	PLUG	
POE	PLAIN ONE END	
PP	POLY PROPYLENE	
PSB	PRESSURE SEAL BONNET	
PSIA	POUNDS PER SQUARE INCH ABSOLUTE	
PSIG	POUNDS PER SQUARE INCH GAUGE	
PTFE	POLY TETRA FLUORO ETHYLENE	
Rad	RADIUS	
RB	REDUCED BORE	
RCPL	REDUCING COUPLING	
RED	REDUCER	
RF	RAISED FACE	
RFSF	RAISED FACE SMOOTH	
RL	RUBBER LINED	
RST	RAISING STEM	
RTJ	RING JOINT	
RUB	RUBBER	
SAW	SUBMERGED ARC WELDING	
SBLD	SPECTACLE BLIND	
SBOLT	STUD BOLT WITH TWO HEAVY NUTS	
SC	SQUARE CUT	
SCH	SCHEDULE	
Sch.	SCHEDULE SCRD SCREWED	
SCRB	SCREWED BONNET	
SCRD	SCREWED	
SCRD(F), IS554(Rc)	SCREWED(F) TO IS554(Rc), Taper Internal Pipe thread	
SCRD(F), IS554(Rp)	SCREWED(F) TO IS554(T), Parallel Internal Pipe thread	
SCRD(M), IS554(R)	SCREWED(M) TO IS554(T), Taper External Pipe thread	
SEB	SHORT END BUTT WELDED	
Sec.	SECONDS	
SEFLG	SMALL END FLANGED	
SEL	SMALL END LAMINATED, TYPE L	
SET	SHORT END THREADED	
SG	SMALL GROOVE	
SL	SEAL	
SLET	SOCKOLET	
SMLS	SEAMLESS	
SO	SLIP-ON	
SOL	SOCKOLET	
SOLWDG	SOLID WEDGE SP.	
SP WD SS304+GRPH	SPIRAL WOUND SS 304 WITH GRAPH. FILLER	
SP WD SS304+PTFE	SPIRAL WOUND SS 304 WITH PTFE FILLER	
Sp.wnd	SPIRAL WOUND	
SR	SHORT RADIUS(1D)	
SS	STAINLESS STEEL	
ST	SMALL TONGUE	
Std.Wt.	STANDARD WEIGHT	
STL	STEEL	
STLD	STELLITED/HARD FACED	
STND	STUB END	
SW	SOCKET WELDING	
SWP	STEAM WORKING PRESSURE	
TEE	TEE	
TLET	THREADOLET	
TOE	THREADED ONE END	
TBE	THREADED BOTH ENDS	
TPR	TEST PRESSURE	
UON	UNION	
WLD	WELDED	
WLET	WELDOLET	
WN	WELD NECK	