





Plant <b>1.0 MTPA ALUMINA REFINERY STREAM-5</b>	Client <b>NALCO</b>	Contract Code <b>NAL</b>	Document ID <b>6695-INS-552-CA-0001</b>	Contract No. <b>66-6695</b>
	<b>Battery Limit &amp; Interfaces for Contractor - Instrumentation</b>			 नेशनल एल्युमिनियम कम्पनी लिमिटेड National Aluminium Company Ltd.
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<b>tkIS India / Vendor</b>		<b>tkIS India / Owner / Client</b>	
<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 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
<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>			
Date : __/__/____ Name : _____		Date : __/__/____ Name : _____	

00		Issued for Tender	30-10-17	YTI	30-10-17	SHD	30-10-17	SHD	-
Rev.	Status	Description	Date	Prepared	Date	Checked	Date	Approved	AC
					<h1>Barcode</h1>				Category Code: -
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## 1 GENERAL

The battery limit of LSTK Contractor for instrumentation shall be as indicated in:

- Overall Plot Plan (Dwg. No. 6695-LAY-G00-LD-0001).
- Plot Plan for Bauxite storage and handling and secondary crushing (Dwg. No. 6695-LAY-552-LD-0001).



All instrumentation items in the area indicated in above mentioned documents shall be in the LSTK Contractor's scope and shall be supplied along with necessary accessories, cabling etc. and installed by the LSTK Contractor.

In case of any difference of opinion between the LSTK Contractor and Other Contractor regarding scope, it shall be brought to the notice of Owner / Consultant . Decision on the same given by Owner / Consultant shall be binding on all the concerned parties.

## 2 BATTERY LIMIT DEFINITIONS

This is an elaboration of Battery Limit (B/L) conditions mentioned above. The scope shall include but not limited to the following:

- All instrumentation and control within the battery limit of Bauxite storage and handling and secondary crushing unit of LSTK Contractor.
- Supply of Control System (i.e. DCS System) for Bauxite storage and handling and secondary crushing unit shall **NOT** be by LSTK contractor. However if any package PLC is required for execution of the referred LSTK unit, the same shall be in the scope of LSTK Contractor.
- All types of cables for Bauxite storage and handling and secondary crushing unit areas.
- Supply and laying & termination of optical fibre cables / system cables in duct / trays / trenches.
- All types of Power Supplies and distribution of power to control system and instruments in Bauxite storage and handling and secondary crushing unit as per the philosophy mentioned in the enquiry documents. Power supply and feed to Power distribution cabinet of Control System and field instruments for Bauxite storage and handling and secondary crushing unit shall be provided by LSTK Contractor.
- Main cable trays / trenches for instrumentation of complete Bauxite storage and handling and secondary crushing unit within the battery limit.
- Cable tray routes in Bauxite storage and handling and secondary crushing unit area shall be designed and implemented by LSTK Contractor taking into account the requirement for cable space required for future.
- LSTK Contractor shall make the necessary provisions for space, infrastructure and UPS/non -UPS power inside the Rack Room for installation and operation of Control System and Operator Consoles.
- Package PLC control system for Bauxite storage and handling and secondary crushing unit areas shall be entirely separate from main control system (by others) and shall be in scope of LSTK Contractor.
- Bauxite storage and handling and secondary crushing areas Control System Marshalling and System Cabinets including that of Package unit PLC cabinets shall be located in Rack room. The Operator Consoles for Bauxite storage and handling and secondary crushing unit shall be located in the Rack Room.

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- Any other activity not explicitly specified in this section but required as per the enquiry documents for Bauxite storage and handling and secondary crushing areas are also in LSTK Contractor's scope.
- Bare laying of unarmoured special cables, RS-485 cables etc. not to be done. They shall be laid through rigid conduits.
- Main multipair / core cables from junction box of lime preparation (slaking) package and ETP to rack room located in sub station of Bauxite storage and handling and secondary crushing unit shall be supplied, laid and terminated in the marshalling cabinet by others. Cable tray supply & installation upto the battery limit of Bauxite storage and handling and secondary crushing unit shall be by others. LSTK Contractor shall consider one cable tray each of size 600 mm width for laying of cables meant for lime preparation (slaking) package and ETP.
- The LSTK Contractor shall co-ordinate and provides all the assistance required to other Contractor wherever the interfaces between the two packages are present.
- The Control system for the above unit is in the scope of Control system Vendor. LSTK contractor will terminate cables up to marshalling rack.
- Any matters of dispute between the 'LSTK Contractor' and Other LSTK Contractor shall be brought to the notice of Owner / Consultant . Decision on the same given by Owner / Consultant shall be binding on all the concerned parties.

### Overview of Battery Limit & Interfaces – Instrumentation

