INDEX SHEET

RFQ No.: **NJP0000005**

PROJECT: **TANGEDCO/UDANGUDI 2 X 660MW STPP,**

NTPL / TUTICORIN FGD PACKAGE 2 X 500MW TPP,

NTPC-NORTH KARANPURA 3x660MW FGD AND

WBPDCL BAKRESHWAR (210MW) TPP UNIT#4

ITEM DESCRIPTION: **LIE/LIR**

ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division
PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 003- Rev 02

SPECIAL COMMERCIAL CONDITIONS OF CONTRACT

Reference is brought to BHEL's Instructions to Bidders (Document Ref: CE: PR: 001- Rev 04) and General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 03).

These two documents along with Special Conditions of Contract annexed to this RFQ will form an integral part of the contract as and when the RFQ culminates into a Purchase Order / Contract.

RFQ No. : **NJP0000005**
RFQ Date : As per E-procurement website
RFQ Due Date : As per E-procurement website
Scope Description : **LIE/LIR**
Customer/Project : **As listed below;**

Sl No.	Project Name	Consignee address (City and State)
1	TANGEDCO/UDANGUDI 2 X 660MW STPP	THOOTHUKUDI DISTRICT, TAMIL NADU
2	NTPL / TUTICORIN FGD PACKAGE 2 X 500MW TPP	TUTICORIN, TAMIL NADU
3	NTPC-NORTH KARANPURA 3x660MW FGD	NORTH KARANPURA, JHARKHAND
4	WBPDCL BAKRESHWAR (210MW) TPP UNIT#4	WEST BENGAL

Kindly submit your quotation as **two part bid** (Pre-Qualification Criteria & Techno-Commercial bid-1st part & Price bid-2nd Part) in E-Procurement System portal: https://eprocurebhel.co.in within the Due- Date of __ As per E-procurement website _____ before _ As per E-procurement website _____ hours IST and note that tenders will be opened on the same day at _ As per E-procurement website _____hours IST.

Purchase Executives: Clarifications with regard to the tender shall be addressed to purchase officers whose e-mail IDs are given below:
_____nandjee@bhel.in_____ or ____rk.pandey@bhel.in_____

Splitting of tendered quantity to MSE vendors for Purchase preference: Non-Splitable

Destination: For Indigenous scope of supply, items are to be directly despatched to BHEL site office/stores located at __ **As mentioned above** in _ **As mentioned above** ___ state respectively, India. Detailed Consignee details will be issued by BHEL along with Despatch Clearance.

Terms of Delivery:

- **Indigenous scope of supply:** Ex-works, ___<indicate station of dispatch>_____ (including Packing & Forwarding charges but excluding Taxes).

Under-mentioned details shall be provided against indigenous supplies & services:

a. GSTIN of place of supply : _____

b. HSN (Harmonized System of Nomenclature) code : _____
Applicable tax and Rate : _____&_____

c. GSTIN of place of supply of service : _____

d. SAC (Service Accounting Code) :_____
Applicable tax and Rate : _____&_____

e. GeM Seller ID mandatorily required for PO placement: _____

f. MSE vendor : Yes-MSE supporting documents enclosed/No
(If MSE, supporting documents such as Udyam certificate to be enclosed)

I. Bidders to mandatorily provide confirmation/compliance for the under-mentioned terms:

SL NO.	TERMS	BHEL ACCEPTABLE TERM	BIDDER'S CONFIRMATION	REMARKS,if any
01	**Reverse Auction (RA)**	BHEL shall be resorting to Reverse Auction (Guidelines as available on http://www.bhel.com/index.php/vender) for this tender. RA shall be conducted among all the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.	AGREE	
03	**Delivery Period**	Within _10_ weeks from the date of issue of Manufacturing clearance along with approved document. Delay in contractual delivery will attract Penalty as per GCC Clause no.:04.b. Manufacturing clearance will be provided as per latest site delivery schedule. Present tentative delivery schedule is indicated as below: Delivery schedule for Udangudi Unit#1 : 30th November 2023 & Unit#2: 30th March 2024. Delivery schedule for Tuticorin : 30th December 2023. Delivery schedule for North Karanpura Main Supply : 30th December 2023 and Mandatory Spares: 30th June 2024. Delivery schedule for Bakreshwar: 30th October 2023	AGREE …… weeks	

04	**Terms of Payment at the time of material supply**	Refer Clause "F" of Instructions to Bidder for BHEL standard Payment terms and loading factors applicable for non-compliance against payment terms: **Indigenous Scope :** **b)Supply only** ~~**Imported Scope :**~~ ~~c)Supply with Service(s)~~ ~~**High Sea sales :**~~ ~~e)Supply with Service(s)~~ ~~**Spares :**~~ ~~b) and/or d)/f) depending upon the scope~~	AGREE	
05	**Declaration of local content :** The 'Class-I local supplier' shall be required to indicate percentage of local content and provide certification that the item offered meets the local content requirement for 'Class-I local supplier'.	'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent. {'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under Public procurement order no.P-45021/2/2017-PP (BE-II) dt: 16.09.2020. In the event of any Nodal Ministry prescribing higher or lower margin of purchase preference and/or higher or lower percentage of local content in respect of this procurement, same shall be applicable}.' (Refer Clause 'A' Sl. No. 12 of Instructions to Bidders). Note: Non Local suppliers are also eligible to participate in the tender	Percentage of local content : _____% Details of the Location(s) at which the local value addition is made : _____	
06	Declaration as a Compliance of Restrictions under Rule 144 (xi) of GFR 2017 as per DOE Order (Public Procurement No.4) dated 23.02.2023 (as amended from time to time)	The below declaration is to be submitted on Company Letter head duly signed and sealed by authorised signatory, for ascertaining the eligibility of offer in the tender. "I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that our firm is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that our firm fulfils all requirements in this regard and is eligible to be considered." (Refer Clause 'A' Sl. No. 13 of Instructions to Bidders).		

II. **Bidder to note that Deviations shall not be permitted for the below mentioned terms and are deemed to be complied. In case of non-compliance/deviation, offer shall be liable for rejection:**

(1) **Submission of documents post PO viz., drawings /data sheet etc. as indicated in Cl: 04 of GCC:** Within _03_ weeks from the date of receipt of Purchase Order. Delay in submission of complete set of specified documents in NIT, will attract Penalty as per GCC Clause no.:04.a.

(2) **Validity:** The offer will be valid for a period of _90_ days from the date of part-I bid opening and in case of Negotiation/ Counter-offer/RA, price validity will apply afresh for a period of _60_ days from the date of according final price by bidder (or) up to original validity period, whichever is later.

(3) **Warranty: Udangudi & Tuticorin projetcs:**_36_ months from the date of dispatch of goods.
North Karanpura & Bakreshwar projetcs:_24_ months from the date of dispatch of goods.

(4) **Despatch Documents:** Complete set of despatch documents (original + 1 photocopy set) as per Purchase Order shall be forwarded to Purchase Executive/BHEL directly. Depending upon the project/customer demands, Despatch documents may include one (or) more documents from the following:

Invoice (01 original and 01 copy with original sign & seal / digitally signed invoice), Lorry Receipt (L/R), Packing List, NIL Short-Shipment Certificate, Warranty certificate, insurance intimation letter, E-way bill, and original POD (Proof of Delivery) on L/R.

The precise list of despatch documents needed for the project will be specified in the Purchase Order.

One set of Invoice, Packing List, Lorry Receipt (or) AWB/BOL shall be e-mailed immediately to BHEL-EDN at the time of despatch.

Note: Detailed Packing List should indicate package-wise content details and also Net & Gross weight of each package.

(5) **Freight Charges:** Freight charges shall be to vendor's account. Bidder to quote reasonable Freight charges along with applicable tax, in price bid.

(6) **Evaluation criteria to determine L1 bidder**:
(b) Items will not be split on item-wise lowest offer. Evaluation of the lowest bidder will be done as a combined package basis.

(7) Integrity Pact:

Execution of Integrity Pact is applicable for this tender (Refer clause “K” of Instructions to Bidders). The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid . Only those Bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.

With this, we hereby confirm that all the terms & conditions as indicated in Instructions to Bidders (Document Ref: CE: PR: 001- Rev 04) & General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 03) are accepted without any deviation.

Vendor’s Signature with Seal

ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division
PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 002- Rev 03

GENERAL COMMERCIAL CONDITIONS FOR CONTRACT

These 'General Commercial Conditions for Contract for Purchase' herein after referred to as GCC apply to all enquiries, tenders, requests for quotations, orders, contracts and agreements concerning the supply of goods and the rendering of related services (hereinafter referred to as "deliveries") to Bharat Heavy Electricals Limited and any of its units, regions or divisions (hereinafter referred to as "BHEL" or the Purchaser) or its projects/ customers.

Any deviations from or additions to these GCC require BHEL's express written consent. The general terms of business or sale of the vendor shall not apply to BHEL. Acceptance, receipt of shipments or services or effecting payment shall not mean that the general terms of business or sale of the vendor have been accepted.

Orders, agreements and amendments thereto shall be binding if made or confirmed by BHEL in writing. Only the Purchasing department of BHEL is authorized to issue the Purchase Order or any amendment thereof.

Definitions: Throughout these conditions and in the specifications, the following terms shall have the meanings assigned to them, unless the subject matter or the context requires otherwise.

a) 'The Purchaser' means Bharat Heavy Electricals Limited, Electronics division, Mysore road, Bangalore 560 026, a Unit of Bharat Heavy Electricals Limited (A Govt. of India Undertaking) incorporated under the Companies Act having its registered office at BHEL House, Siri Fort, New Delhi-110049, India and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.
b) 'The vendor' means the person, firm, company or organization on whom the Purchase Order is placed and shall be deemed to include the vendor's successors, representative heirs, executors and administrator as the case may be. It may also be referred to as Seller, Contractor or Supplier.
c) 'Contract' shall mean and include the Purchase Order incorporating various agreements, viz. tender/ RFQ, offer, letter of intent/acceptance/ award, the General Conditions of Contract and Special Conditions of Contract for Purchase, Specifications, Inspection/ Quality Plan, Schedule of Prices and Quantities, Drawings, if any enclosed or to be provided by BHEL or his authorized nominee and the samples or patterns if any to be provided under the provisions of the contract.
d) 'Parties to the Contract' shall mean the 'The Vendor' and the Purchaser as named in the main body of the Purchase Order.

Order of Precedence:

In case of any inconsistency or contradiction between any of the documents, the order of precedence shall be Purchase Order, LOI / LOA, Special Conditions of Contract and General Conditions of Contract for commercial conditions; and specific agreement on technical conditions, RFQ/offer and specification for Technical Conditions.

Interpretation:

In the contract, except where the context requires otherwise:

a) words indicating one gender include all genders;
b) words indicating the singular also include the plural and words indicating the plural also include the singular;

c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and
d) "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

Applicable Conditions:

1. Price Basis: All prices shall be firm until the purchase order is executed / completed in all respects. No price variations / escalation shall be permitted.

2. Ordering and confirmation of Order:Vendor shall send the order acceptance on their company letter head/ through e-mail within a week from the date of receipt of Purchase Order or such other period as specified/ agreed by BHEL. BHEL reserves the right to revoke the order placed if the order confirmation differs from the original order placed. The acceptance of goods/services/supplies by BHEL as well as payments made in this regard shall not imply acceptance of any deviations.
   The purchase order will be deemed to have been accepted if no communication to the contrary is received within one week (or the time limit as specified/agreed by BHEL) from the date of receipt of the purchase order.

3. Documentation:After receipt of Purchase Order, vendor should submit necessary documents(if & as applicable) like drawings specified, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and/or any other relevant documents as per Specification/Purchase Order, as and when required by BHEL/Customer.
   At any stage within the contract period, the vendor shall notify of any error, fault or other defect found in BHEL's documents /specifications or any other items for reference. If and to the extent that (taking account of cost and time) any vendor exercising due care would have discovered the error, fault or other defect when examining the documents/specifications before submitting the tender, the time for completion shall not be extended. However if errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the vendor's documents, they shall be corrected at his cost, notwithstanding any consent or approval.

4. Penalty:
   a. For delay in documentation: In the event of delay in submission of complete set of specified documents ((like drawings, bill of materials, datasheets, catalogues, quality plan etc. as called in tender specifications including soft copies wherever applicable) in required sets beyond two(02) weeks (or as agreed/indicated in the SCC/Purchase Order) from the date of receipt of Purchase Order(by email), penalty at 0.5% (half percent) per week or part thereof, limited to a maximum of 5% (five percent) of the basic material value of the Purchase Order will be applicable.

      Penalty for delayed documentation if applicable, shall be deducted at the time of first supply payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be deducted. GST as applicable will be recovered along with penalty amount.

   b. For delay in delivery: In the event of delay in agreed contractual delivery as per Purchase Order, penalty @ 0.5 % (half percent) per week or part thereof but limited to a max of 10% (ten percent) value of undelivered portion (basic material cost) will be applicable. Delivery will commence from the date of issue of Manufacturing clearance along with approved document. The date for which Inspection call is issued by vendor along with test certificates / test reports /Certificate of Conformance / calibration reports, as proof of completion of manufacturing will be treated as date of deemed delivery for penalty calculation. In the absence of furnishing such document indicated above as proof of completion of manufacturing along with inspection call, actual date of inspection will be considered as date of deemed delivery and BHEL will not be responsible for delay in actual date of inspection.

Penalty for delayed delivery if applicable, shall be deducted at the time of first supply payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be deducted. GST as applicable will be recovered along with penalty amount.

5. Contract variations (Increase or decrease in the scope of supply): BHEL may vary the contracted scope as per requirements at site. If vendor is of the opinion that the variation has an effect on the agreed price or delivery period, BHEL shall be informed of this immediately in writing along with technical details. Where unit rates are available in the Contract, the same shall be the basis for such additional work. Vendor shall not perform additional work before BHEL has issued written instructions/ amendment to the Purchase Order to that effect. The work which the vendor should have or could have anticipated in terms of delivering the service(s) and functionality (i.e.) as described in this agreement, or which is considered to be the result of an attributable error on the vendor's part, shall not be considered additional work.

6. Inspection: Prior written notice of at least 10 days shall be given along with internal test certificates/COC and applicable test certificates. Materials will be inspected by BHEL-EDN-QS/CQS or BHEL nominated Third Party Inspection Agency (TPIA) or BHEL authorized Inspection Agency or Customer / Consultant or jointly by BHEL & Customer / consultant. All tests have to be conducted as applicable in line with approved Quality plan or QA Checklist or Purchase specification and original reports shall be furnished to BHEL-EDN, Bangalore for verification/acceptance for issue of dispatch clearance. BHEL reserves the right for conducting repeat test, if required.
   All costs related to inspections & re-inspections shall be borne by vendor. Whether the Contract provides for tests on the premises of the vendor or any of his Sub-contractor/s, vendor shall be responsible to provide such assistance, labour, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by BHEL only if specifically agreed to in the purchase order.

7. Transit Insurance: Transit insurance coverage between vendor's works and project site shall be to the account of BHEL, unless specifically agreed otherwise. However, vendor shall send intimation directly to insurance agency (as mentioned in dispatch instructions issued by BHEL) through fax/courier/e-mail, immediately on dispatch of goods for covering insurance. A copy of such intimation sent by vendor to insurance agency shall be given to BHEL along with dispatch documents. Dispatch documents will be treated as incomplete without such intimation copy. BHEL shall not be responsible for sending intimations to insurance agency on behalf of the vendor.

8. Mode of dispatch:
   Indigenous Scope: By road on Door Delivery Consignee Copy attached basis through your approved transporter (unless otherwise indicated in Dispatch Instructions), only on receipt of Despatch Clearance from BHEL.
   Imported Scope: By Air/Sea through BHEL approved Freight Forwarder/supplier approved Consolidator respectively as per agreed contractual terms, only on receipt of Dispatch Clearance from BHEL.

9. Changes in Statutory levies:
   If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the execution of Contract, which was or will be assessed on the bidder in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction there from, as the case may be. However, these adjustments would be restricted to direct transactions between BHEL and the bidder /agent of foreign bidder (if applicable). These adjustments shall not be applicable on procurement of raw materials, intermediary components etc. by the bidder /agent.

10. Availing duty/tax exemption benefits by bidder, wherever applicable: BHEL shall issue the required Certificate/s, as per relevant policies of the Govt. of India, to facilitate the bidders to avail any such benefits under the Contract. In case of failure of the bidders to receive the benefits partly or fully from the Govt. of India and/or in case of any delay in receipt of such benefits, BHEL shall neither be liable nor responsible in any manner whatsoever.

11. Taxes against sub-vendor dispatches: All taxes/levies, as applicable in respect of all components, equipments and material to be despatched directly from the sub-vendor's works to Site irrespective of the fact whether such taxes and levies are assessable and chargeable on Vendor or the BHEL, shall be to the vendor's account and no separate claim in this regard will be entertained by BHEL.

12. High Sea Sales (HSS): Customs clearance of the consignment landed on Indian Sea/Air ports will be done by BHEL based on the original HSS documents provided by vendors.
    Any delay in submission of complete/correct HSS documents to BHEL may incur demurrage charges. All demurrage charges on account of incomplete /incorrect HSS documents submission by vendor will be to vendor's account and all such charges will be recovered from any of the available vendor bills with BHEL.

13. Packaging and dispatch:The Seller shall package the goods safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by Sea/ Air / Rail/ Road to its destination suitably protected against loss, damage, corrosion in transit and the effect of tropical salt laden atmosphere. The packages shall be provided with fixtures/ hooks and sling marks as may be required for easy and safe handling. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols / instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.
    The packing, shipping, storage and processing of the goods must comply with the prevailing legislation and regulations concerning safety, the environment and working conditions. *For facilitating smooth movement of shipment, the consignment has to be in stackable condition*. Any Imported/Physical Exports items packed with raw/ solid wood packing material should be treated as per ISPM – 15 (fumigation) and accompanied by Phytosanitory/ Fumigation certificate. If safety information sheets (MSDS – Material Safety Data Sheet) exist for an item or the packaging, vendor must provide this information without fail along with the consignment.
    Each package must be marked with Consignee name, Purchase order number, Package number, Gross weight and net weight, dimensions (LxBxH) and Seller's name. Packing list of goods inside each package with PO item number and quantity must also be fixed securely outside the box to indicate the contents of each box. Total number of packages in the consignment must also be indicated in the packing list.
    Separate packing & identification of items should be as follows.
    1. Main Scope - All items must be tagged with part no. & item description.
    2. Commissioning accessories/spares - All items must be tagged with part no. & item description.
    3. Mandatory spares - All items must be tagged with part no. & item description.
    Nevertheless, vendor shall adhere to dispatch & packing instructions issued by BHEL at the time of dispatch.

14. Assignment of Rights & Obligations; Subcontracting: Vendor is not permitted to subcontract the delivery or any part thereof to third party or to assign the rights and obligations resulting from this agreement in whole or in part to third parties without prior written permission from BHEL. Any permission or approval given by the BHEL shall, however, not absolve the vendor of the responsibility of his obligations under the Contract.

15. Progress report: Vendor shall render such report as to the progress of work and in such form as may be called for by the concerned purchase officer from time to time. The submission and acceptance of such reports shall not prejudice the rights of BHEL in any manner.

16. Non-disclosure and Information Obligations: Vendor shall provide with all necessary information pertaining to the goods as it could be of importance to BHEL. Vendor shall not reveal any specified confidential information that may be divulged by BHEL to Vendor's employees not involved with the tender/ contract & its execution and delivery or to third parties, unless BHEL has agreed to this in writing beforehand. Vendor shall not be entitled to use the BHEL name in advertisements and other commercial publications without prior written permission from BHEL.

17. Cancellation /Termination of contract: BHEL shall have the right to completely or partially terminate the agreement by means of written notice to that effect. Termination of the Contract, for whatever reason, shall be without prejudice to the rights of the parties accrued under the Contract up to the time of termination.

BHEL shall have the right to cancel/foreclose the Order/ Contract, wholly or in part, in case it is constrained to do so on account of any decline, diminution, curtailment or stoppage of the business.

18. Risk Purchase Clause: In case of failure of supplier, BHEL at its discretion may make purchase of the materials / services not supplied / rendered in time at the RISK & COST of the supplier. Under such situation, the supplier who fails to supply the goods in time shall be wholly liable to make good to BHEL any loss due to risk purchase.

    In case of items demanding services at site like erection and commissioning, vendor should send his servicemen/representatives within 7 days from the service call. In case a vendor fails to attend to the service call, BHEL at its discretion may also make arrangements to attend such service by other parties at the **RISK & COST** of the supplier. Under such situation the supplier who fails to attend the service shall be wholly liable to make good to BHEL any loss due to risk purchase/service including additional handling charges due to the change.

19. Shortages: In the event of shortage on receipt of goods and/or on opening of packages at site, all such shortages, caused by supplier's act or omission, shall be made good at free of cost within a reasonable time that BHEL may allow from such intimation.

    Transit Damages: In the event of receipt of goods in damaged condition or having found them so upon opening of packages at site, supplier shall make good of all such damages within a reasonable time from such intimation by BHEL. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will be reimbursed to supplier.

20. Remedial work: Notwithstanding any previous test or certification, BHEL may instruct the vendor to remove and replace materials/goods or remove and re-execute works/services which are not in accordance with the purchase order. Similarly BHEL may ask the vendor to supply materials or to execute any services which are urgently required for any safety reasons, whether arising out of or because of an accident, unforeseeable event or otherwise. In such an event, Vendor shall provide such services within a reasonable time as specified by BHEL.

21. Indemnity Clause: Vendor shall comply with all applicable safety regulations and take care for the safety of all persons involved. Vendor is fully responsible for the safety of its personnel or that of his subcontractor's men / property, during execution of the Purchase Order and related services. All statutory payments including PF, ESI or other related charges have to be borne by the vendor. Vendor is fully responsible for ensuring that all legal compliances are followed in course of such employment. Vendor shall fully indemnify and keep indemnified BHEL against all claims of whatsoever nature arising during the course and out of execution of this Order/Contract.

22. Product Information, Drawings and Documents: All specified drawings, technical documents or other technical information received by Vendor from BHEL or vice versa shall not, without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the Disclosing party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are binding only to the extent that they are by reference expressly included in the contract.

    Vendor, as per agreed date/s but not later than the date of delivery, provide free of charge information and drawings which are necessary to permit and enable BHEL to erect, commission, operate and maintain the product. Such information and drawings shall be supplied in as many numbers of copies as may be agreed upon.

    All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the Contract shall continue to be the property of the disclosing party.

23. Intellectual Property Rights, Licenses: If any Patent, design, Trade mark or any other intellectual property rights apply to the delivery (goods/related service) or accompanying documentation shall be the exclusive

property of the Vendor and BHEL shall be entitled to the legal use thereof free of charge by means of a non-exclusive, worldwide, perpetual license. All intellectual property rights that arise during the execution of the Purchase Order/ contract for delivery by vendor and/or by its employees or third parties involved by the vendor for performance of the agreement shall belong to BHEL. Vendor shall perform everything necessary to obtain or establish the above mentioned rights. The Vendor guarantees that the delivery does not infringe on any of the intellectual property rights of third parties. The Vendor shall do everything necessary to obtain or establish the alternate acceptable arrangement pending resolution of any (alleged) claims by third parties. The Vendor shall indemnify BHEL against any (alleged) claims by third parties in this regard and shall reimburse BHEL for any damages suffered as a result thereof.

24. Force Majeure: Notwithstanding anything contained in the purchase order or any other document relevant thereto, neither party shall be liable for any failure or delay in performance to the extent said failures or delays are caused by the "Act of God" and occurring without its fault or negligence, provided that, force majeure will apply only if the failure to perform could not be avoided by the exercise of due care and vendor doing everything reasonably possible to resume its performance.

    A party affected by an event of force majeure which may include fire, tempest, floods, earthquake, riot, war, damage by aircraft etc., shall give the other party written notice, with full details as soon as possible and in any event not later than seven (7) calendar days of the occurrence of the cause relied upon. If force majeure applies, dates by which performance obligations are scheduled to be met will be extended for a period of time equal to the time lost due to any delay so caused.

    Notwithstanding above provisions, in an event of Force Majeure, BHEL reserves for itself the right to cancel the order/ contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of deliveries and other schedules.

25. Warranty:
    Wherever required, and so provided in the specifications/ Purchaser Order, the Seller shall ensure that the goods supplied shall comply with the specifications laid down, for materials, workmanship and performance.

    Unless otherwise specified in SCC, warranty period shall be applicable for a period of 24 months from the date of delivery of goods or 18 months from the date of commissioning of goods, whichever is earlier.

    The warranty period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery. Unless otherwise specifically provided in the Purchase Order, Vendor's liability shall be co terminus with the expiration of the applicable warranty period.

26. Limitation of Liability: Vendor's liability towards this contract is limited to a maximum of 100% of the contract value and consequential damages are excluded. However the limits of liability will have no effect in cases of criminal negligence or wilful misconduct.

    The total liability of Vendor for all claims arising out of or relating to the performance or breach of the Contract or use of any Products or Services or any order shall not exceed the total Contract price.

27. Liability during warranty: Vendor shall arrange replacement / repair of all the defective materials / services under its obligation during the warranty period. The rejected goods shall be taken away by vendor and replaced / repaired. In the event of the vendor's failure to comply, BHEL may take appropriate action including disposal of rejections and replenishment by any other sources at the cost and risk of the vendor.

    In case, defects attributable to vendor are detected during Warranty period or where the commissioning call is issued within the warranty period, vendor shall be responsible for replacement/ repair of the goods as required by BHEL at vendor's cost even after expiry of warranty period.

    Further if the equipment or any part thereof cannot be used by reason of such defect and/or making good of such defect, the warranty period of the equipment or such part, as the case may be, shall be extended by a period equal to the period during which the equipment or such part cannot be used by BHEL because

of any of the aforesaid reasons. Upon correction of the defects in the facilities or any part thereof by repair/replacement, such repair/replacement shall have the warranty period for a period of twelve (12) months from the time such replacement/repair of the equipment or any part thereof has been completed.

28. Liability after warranty period: At the end of the warranty, the Vendor's liability ceases except for latent defects. For the purpose of this clause, latent defects shall be the defects inherently lying within the material or arising out of design deficiency which do not manifest themselves during the warranty Period, but later. The Contractor's liability for latent defects warranty for the equipment including spares shall be limited to a period of six months from the end of the warranty period of the respective equipment including spares or first time commissioning, whichever is later but not later than one (01) year from the date of expiry of warranty period.

29. Compliance with Laws: Vendor shall, in performing the contract, comply with all applicable laws. The vendor shall make all remittances, give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the laws in relation to the execution and completion of the contract and for remedying of any defects; and the Contractor shall indemnify and hold BHEL harmless against and from the consequences of any failure to do so.

30. Settlement of Disputes:Except as otherwise specifically provided in the Purchase Order, decision of BHEL shall be binding on the vendor with respect to all questions relating to the interpretation or meaning of the terms and conditions and instructions herein before mentioned and as to the completion of supplies/work/services, other questions, claim, right, matter or things whatsoever in any way arising out of or relating to the contract, instructions, orders or these conditions or otherwise concerning the supply or the execution or failure to execute the order, whether arising during the schedule of supply/work or after the completion or abandonment thereof. Any disputes or differences among the parties shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration. Vendor shall continue to perform the contract, pending settlement of dispute(s).

31. Arbitration Clause in case of Contract with vendors other than Public Sector Enterprise (PSE) or a Government Department:

    Arbitration & Conciliation:

    The parties shall attempt to settle any disputes or difference arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, or in connection with this contract through friendly discussions. In case no amicable settlement can be reached between the parties through such discussions, in respect of any dispute; then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration of an arbitrator appointed by Head of the BHEL–EDN. Such Sole Arbitrator appointed, shall conduct the arbitration in English language.

    The Arbitrator shall pass a reasoned award and the award of the Arbitration shall be final and binding upon the Parties.

    Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be Bangalore.
    The cost of arbitration shall be borne as decided by the Arbitrator upon him entering the reference.
    Subject to the Arbitration Clause as above, the Courts at Bangalore alone shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.

    Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the parties shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and efficiency in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.

Arbitration Clause in case of Contract with a Public Sector Enterprise (PSE) or a Government Department:

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred by either party for Arbitration to the Sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any Party aggrieved by such Award may make further reference for setting aside or revision of the Award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the Parties hereto finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.'

32. Applicable Laws and Jurisdiction of Courts: Prevailing Indian laws both substantive and procedural, including modifications thereto, shall govern the Contract. Subject to the conditions as aforesaid, the competent courts in Bangalore alone shall have jurisdiction to consider over any matters touching upon this contract.

33. General Terms: That any non-exercise, forbearance or omission of any of the powers conferred on BHEL and /or any of its authorities will not in any manner constitute waiver of the conditions hereto contained in these presents.
That the headings used in this agreement are for convenience of reference only.
That all notices etc., to be given under the Purchase order shall be in writing, type script or printed and if sent by registered post or by courier service to the address given in this document shall be deemed to have been served on the date when in the ordinary course, they would have been delivered to the addressee.

34. *Conflict of Interest among Bidders/Agents*:

"A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. ***The bidder found to have a conflict of interest shall be disqualified.*** *A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:*

a) *they have controlling partner (s) in common;* ***or***

b) *they receive or have received any direct or indirect subsidy/ financial stake from any of them;* ***or***

c) *they have the same legal representative/agent for purposes of this bid;* ***or***

d) *they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder;* ***or***

e) *Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid;* ***or***

f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorise only one agent/dealer. There can be only one bid from the following:

1. *The principal manufacturer directly or through one Indian agent on his behalf; and*
2. *Indian/foreign agent on behalf of only one principal;*

or

g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; ***or***

h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business."

ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division
PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE:PR:001- Rev 04

INSTRUCTIONS TO BIDDERS

Bidder is requested to read the instructions carefully and submit their quotation taking into consideration of all the points:

A. GENERAL INSTRUCTIONS:

1. Any Purchase Order resulting from this enquiry shall be governed by the Instructions to Bidders (document reference: CE: PR: 001 – Rev 03), General Conditions of Contract (document reference: CE: PR: 002 - Rev 02) and Special Conditions of Contract, if any, of the enquiry.
2. Any deviations from or additions to the "General Conditions of Contract"or "Special Conditions of Contract" require BHEL's express written consent. The general terms of business or sale of the bidder shall not apply to this tender.
3. Regret letter (either through post or by mail or by EPS) indicating reasons for not quoting must be submitted without fail, in case of non-participation in this tender.

   Supplier shall be liable for removal as a registered vendor of BHEL when the supplier fails to quote against four consecutive tender enquiries for the same item or all enquiries in last two years for the same item, whichever is earlier.
4. Procurement directly from the manufacturers is preferred. However, if the OEM/ Principal insist on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer/ supplier in the same tender.

   Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer/ supplier could bid directly but not both. Agent/Representative authorized by the OEM/Principal in turn cannot further sub authorize any other firm for submitting the offer or for placement of order.

   In case bids are received from the manufacturer/ supplier and his agent, bid received from the agent shall be ignored.
5. Consultant / firm (and any of its affiliates) shall not be eligible to participate in the tender/s for the related goods for the same project if they were engaged for consultancy services for the same project.
6. If an Indian representative/associate/liaison office quotes on behalf of a foreign based bidder, such representative shall furnish the following documents:
   a. Authorization letter to quote and negotiate on behalf of such foreign-based bidder.
   b. Undertaking from such foreign based bidder that such contract will be honored and executed according to agreed scope of supply and commercial terms and conditions.
   c. Undertaking shall be furnished by the Indian representative stating that the co-ordination and smooth execution of the contract and settlement of shortages/damages/replacement/repair of imported scope

till the equipment is commissioned and handed over to customer will be the sole responsibility of the Indian representative/associates/agent/liaison office.

d. Refer **Annexure I** on "Guidelines for Indian Agents".

7. In case of imported scope of supply, customs clearance & customs duty payment will be to BHEL account after the consignment is received at Indian Airport /Seaport. Bidders must provide all original documents required for completing the customs clearance along with the shipment.

   Warehousing charges due to incomplete or missing documentation will be to supplier's account. All offers for imported scope of supply by air, must be made from any of the gateway ports (within the country) indicated **(Refer Annexure II).**

8. The offers of the bidders who are on the banned list and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of the banned firms is available on BHEL website: http://www.bhel.com/vender_registration/vender.php

9. Business dealings with bidders will be suspended if they are found to have indulged in any malpractices/misconduct which are contrary to business ethics like bribery, corruption, fraud, pilferage, cartel formation, submission of fake/false/forged documents, certificates, information to BHEL or if they tamper with tendering procedure affecting the ordering process or fail to execute a contract, or rejection of 3 consecutive supplies or if their firms / works are under strike/lockout for a long period. Bidder may refer "Guidelines for Suspension of Business Dealings with Suppliers/ Contractors" available on www.bhel.com for more details.

   The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies / guidelines.

10. The bidder along with its associate/collaborators/sub-contractors/sub-vendors/consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to your notice.

11. Offer is to be submitted in English language only.

12. For this procurement, the local content to categorize a supplier as a Class-I local supplier/ Class-II local supplier/ Non-local supplier and purchase preference to Class-I local supplier, is as defined in Public procurement (Preference to Make in India), Order 2017 dated 16.09.2020 issued by DPIIT.

    In case of subsequent Orders issued by the Nodal Ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of price bids against this NIT. Default margin of purchase preference shall be 20% for Class-I local supplier only.

13. The Bidder shall mandatorily submit Declaration as mentioned under Rule 144(xi) of General Financial Rules, 2017 amendment dt 23.07.2020 issued by Ministry of Finance, Govt. of India. Where applicable, evidence of valid registration by the Competent Authority shall be attached.

    The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT). Refer Annexure-X for 'Restrictions under Rule 144(Xi) of General Financial Rules,2017 amendment dt: 23.07.2020'.

B. GUIDELINES FOR PREPARATION OF OFFER:

1. Quotation shall be submitted in Single Part Bid, Two Part Bid or Three Part Bid, as called for in the tender:

   - **SINGLE PART BID**: Technical and Commercial Bid with prices along with price summary & filled in BHEL Standard Commercial terms and conditions in a single sealed envelope.

   - **TWO PART BID**: Unpriced offer i.e. "Techno-commercial Bid" with filled in BHEL Standard Commercial terms and conditions in a sealed envelope **along with the copy of the "Price Bid"without the prices** should be enclosed in one cover and the cover must be super scribed **"Techno-commercial offer)** and Priced offer i.e. "Price Bid"containing price summary in a separate sealed envelope and must be super scribed **"Price Bid"**.

     Both these envelopes shall be enclosed in a single sealed envelope superscribed with enquiry number, due date of tender and any other details as called for in the tender document.

   - **THREE PART BID**: Pre-qualification Bid (Part-I), Techno Commercial Bid with filled in BHEL Standard Commercial terms and conditions (Part-II), and Price Bid (Part-III). All three envelopes shall be enclosed in a single sealed envelope superscribed with enquiry number, due date of tender and any other details as called for in the tender document.

   If any of the offers (Part I, Part II or Part III) are not submitted before the due date and time of submission (or) if any part of the offer is incomplete, the entire offer of the bidder is liable for rejection.

2. Supplier shall ensure to superscribe each envelope with RFQ number, RFQ Date, RFQ Due date and time, Item Description and Project clearly & boldly. Also mention on the envelope whether it is "Techno Commercial Bid" or "Price Bid" or "Pre-Qualification Bid".

   Please ensure complete address, department name and purchase executive name is mentioned on the envelope (before dropping in the tender box or handing over) so that the tender is available in time for bid opening.

3. BHEL standard Commercial Terms and Conditions (duly filled, signed & stamped) must accompany Technical-Commercial offer without fail and should be submitted in original only.

   The above indicated submission of Offers in "sealed envelope/hard copy" as mentioned in points B.1-B.3 is applicable for tenders that are not floated through E-Procurement System (EPS).

4. Validity: Unless otherwise specified in SCC (special commercial conditions of contract), the offer will be valid for a period of 90 days from the date of part-I bid opening and in case of Negotiation/Counter-offer/Reverse Auction, price validity will apply afresh for a period of 60 days from the date of according final price by bidder (or) up to original validity period, whichever is later.

5. Any of the terms and conditions not acceptable to supplier, shall be explicitly mentioned in the Techno-Commercial Bid.

   If no deviations are brought out in the offer it will be treated as if all terms and conditions of this enquiry are accepted by the supplier without deviation.

6. Deviation to this specification/item description, if any, shall be brought out clearly indicating "DEVIATION TO BHEL SPECIFICATION" without fail, as a part of Techno-Commercial Bid.

   If no deviations are brought out in the offer it will be treated as if the entire specification of this enquiry is accepted without deviation.

7. Suppliers shall submit one set of original catalogue, datasheets, bill of materials, dimensional drawings, mounting details and/or any other relevant documents called in purchase specification as part of Technical Bid.
8. "Price Bid" shall be complete in all respects containing price break-up of all components along with all applicable taxes and duties, freight charges (if applicable) etc. Once submitted no modification / addition / deletion will be allowed in the "Price Bid." Bidders are advised to thoroughly check the unit price, total price to avoid any discrepancy.
9. In addition, bidder shall also quote for erection & commissioning charges/erection supervision & commissioning charges (E&C service charges), documentation charges, testing Charges (type & routine), training charges etc. if & as applicable along with corresponding tax. The price summary must indicate all the elements clearly.
10. Wherever applicable, bidders should indicate "lumpsum" Erection and Commissioning (or) Erection Supervision and Commissioning charges, as applicable (including To & Fro Fare, Boarding, Lodging, Local Conveyance etc.) for carrying out E&C activity and further handing over to customer.

    The quotation shall clearly indicate scope of work, likely duration of commissioning, pre-commissioning checklist (if any).
11. Wherever bidders require PAC (Project Authority Certificate)/applicable certificates for import of raw materials, components required for DECC,EPCG Power Projects, Export Projects or other similar projects wherein supplies are eligible for customs duty benefits, lists and quantities of such items and their values (CIF) has to be mentioned in the offer. Prices must be quoted taking into account of such benefits.
12. Prices should be indicated in both figures & words**.** Bid should be free from correction/overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection.

    Any typographical error, totalling mistakes, currency mistake, multiplication mistake, summing mistakes etc. observed in the price bids will be evaluated as per **Annexure III** "Guidelines for dealing with Discrepancy in Words & Figures – quoted in price bid" and BHEL decision will be final.
13. Documents submitted with the offer shall be signed and stamped in each page by authorized representative of the bidder. However, this requirement is not mandatory for offers uploaded through E-Procurement System (EPS).

C. <u>GUIDELINES FOR OFFER SUBMISSION:</u>

The under-mentioned clauses 1, 2&3 will not be applicable for EPS tenders.

1. Offers / Quotations must be dropped in tender box before 13.00 Hrs. on or before due date mentioned in RFQ.The offers are to be dropped in the proper slot of the Tender Box kept in our reception area with caption "CE, SC&PV, DEFENCE".

   Tenders are opened on 3 days in a week (Monday/Wednesday/Friday). Tender must be deposited in the slot corresponding to the day (Monday - Box no.4/Wednesday - Box no. 6 /Friday - Box no.8) while depositing the offer.

2. E-Mail/ Internet/EDI offers received in time shall be considered only when such offers are complete in all respects. In case of offers received through E-mail, please send the offer to the email ID specified in the SCC document of the tender.

3. Offers of Vendors who already have a valid Technical/Commercial MOU with BHEL-EDN for the items of the RFQ shall mention the relevant MOU reference no. and give only such other details not covered in the MOU.

4. In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand or through posts/couriers, the offers are to be handed over either of the two purchase officers whose names are mentioned in the SCC document of tender RFQ.
5. Tenders will be opened on due date, time and venue as indicated in the RFQ in the presence of bidders at the venue indicated in the RFQ. For EPS tenders, e-mail notifications will be automatically generated and forwarded to registered e-mail ID/s of bidders during opening of tenders.
6. Bidder will be solely responsible:
   a. For submission of offers before due date and time. Offers submitted after due date and time will be treated as "Late offers" and will be rejected.

   b. For submission of offers in the correct compartment of the tender box based on the day of due date (Monday/Wednesday/Friday). Please check before dropping your offer in the correct tender box.

   c. For depositing offers in proper sealed condition in the tender box. If the bidder drops the tender in the wrong tender box (or) if the tender document is handed over to the wrong person, BHEL will not be responsible for any such delays.

   d. For offers received through email etc., suppliers are fully responsible for lack of secrecy on information and ensuring timely receipt of such offers in the tender box before due date & time (This clause will not be applicable for EPS tenders).

   The above indicated submission of Offers as mentioned in points 6.a-6.d is applicable for tenders that are not floated through EPS.

   e. In case of e-tender, all required documents should be uploaded before due date and time. Availability of power, internet connections, system/software requirements etc. will be the sole responsibility of the bidder.

      Wherever assistance is needed for submission of e-tenders, help-line numbers as available in the web-site of service provider of BHEL may be contacted.

      Purchase Executive/ BHEL shall not be responsible for any of the activities relating to submission of offer.

D. <u>PROCESSING OF OFFERS RECEIVED:</u>

1. Any discount/ revised offer submitted by the supplier on its own shall be accepted provided it is received on or before the due date and time of offer submission (i.e. Part-I bid).

   The discount shall be applied on pro-rata basis to all items unless specified otherwise by the bidder.
2. Changes in offers or Revised offers given after Part-I bid opening shall not be considered as a part of the original offer unless such changes/revisions are requested by BHEL.

   In case of withdrawal of any Technical/Commercial deviation(s) by the bidder before opening of price bids/conducting the Reverse Auction, revision of price/impact bid will not be accepted.
3. In case there is no change in the technical scope and/ or specifications and/ or commercial terms & conditions, the supplier will not be allowed to change any of their bids after Technical bids are opened (after the due date and time of tender opening).

4. In case of changes in scope and/ or technical specifications and/ or commercial terms & conditions by BHEL and it accounts for price implications from bidders, all techno-commercially acceptable bidders shall be asked by BHEL (after freezing the scope, technical specifications and commercial terms & conditions) to submit the impact of such changes on their price bid.

   Impact price will be applicable only for changes in technical specification / commercial conditions by BHEL. The impact price must be submitted on or before the cut-off date specified by BHEL and the original price bid and the price impact bid will be opened together at the time of price bid opening.

5. Un-opened bids (including price bids) will be returned to the respective bidders after release of Purchase order.

   Regarding Offers for EPS tenders that get rejected on PQC/ techno-commercial grounds, the bids for the subsequent parts will not be opened i.e., both technical bid and price bid (Parts-II & III)will not be opened in case of rejection on PQC ground and price bid (Part-II/Part-III, as applicable) will not be opened in case of rejection on techno-commercial ground.

6. After receipt of Purchase Order, supplier should submit required documents viz.,specified drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report , O & M Manuals and/or any other relevant documents as per Specification/Purchase Order, as and when required by BHEL/Customer.

7. Any deviation to the terms and conditions not mentioned in the quotation by supplier in response to this enquiry will not be considered, if put forth subsequently or after issue of Purchase Order, unless clarification is sought for by BHEL and agreed upon in the Purchase Order.

8. Evaluation shall be on the basis of delivered cost (i.e. “Total Cost to BHEL").

   “Total Cost to BHEL” shall include total basic cost, packing & forwarding charges, taxes and/or duties(as applicable), freight charges, taxes on Services, customs clearance charges for imported items, any other cost indicated by bidder for execution of the contract and loading factors (for non-compliance to BHEL Standard Commercial Terms & Conditions).

   Benefits arising out of Nil Import Duty on DEEC, EPCG, DFIA Projects, Physical Exports or such 100% exemptions (statutory benefits), project imports, customer reimbursements of statutory duties (like Basic Customs Duty and cess on customs duty), Input tax credits as applicable will also be taken into account for arriving at the Total cost to BHEL (wherever applicable and as indicated in SCC document of tender).

   For EPS tenders, it shall be noted that the prices (including discounts) vis-a-vis currency quoted in EPS portal only will be considered as Final for the purpose of evaluation of the lowest bidder.

   Bidder shall ensure to indicate the applicable taxes against each line item in online portal, failing to which the same will be considered as inclusive/NIL.

   In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discounts from the respective L-1 bidders.

   Incase more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss/draw of lots, in the presence of the respective L-1 bidder(s) or their representative(s).

   Ranking will be done accordingly. BHEL’s decision in such situations shall be final and binding.

9. The evaluation currency for this tender shall be INR. For evaluation of offers in foreign currency, the exchange rate (TT selling rate of SBI) shall be taken as under:

   Single part bids: Date of tender opening

   Two/three part bids: Date of Part-I bid opening

   Reverse Auction: Date of Part-I bid opening

   In case of Performance Bank Guarantee (PBG) also, exchange rate will be considered as mentioned above for converting foreign currency to Indian currency and vice versa.

   If the relevant day happens to be a bank holiday, then the exchange rate as on the previous working day of the bank (SBI) shall be taken.

10. Ranking (L-1, L-2 etc.) shall be done only for the techno-commercially acceptable offers.
11. GeM Seller ID shall be mandatory before placement of order/award of contract for goods and services to the successful bidder(s), for orders exceeding Rs.25 lakhs (including all taxes etc.).

    Department of Expenditure (DoE) OM no.6/9/2020-PPD dated: 24.08.2020 may be referred in this regard.

E. <u>INFORMATION ON PAYMENT TERMS:</u>

1. All payments will be through Electronic Fund transfer (EFT). Vendor has to furnish necessary details as per BHEL standard format **(Refer Annexure IV)** for receiving all payments through NEFT.(Applicable for Indian vendors only).
2. In case of High Sea Sales transaction, customs clearance of the consignment landed on Indian Sea/Air ports will be done by BHEL based on the original HSS documents provided by vendors.

   All warehousing charges due to delay in submission of complete and or correct HSS documents to BHEL will be to supplier's account only. Such recovery will be made out of any of the available bills **(Refer Annexure V)**.
3. Statutory deductions, if any, will be made and the deduction certificate shall be issued.

   A. In case vendor does not provide PAN details, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act.

   In addition to the above, Foreign vendors shall also submit relevant details of their bankers like Swift Code, Banker's Name &Address etc.

   B. TDS deduction as per section 51 of CGST Act,2017 shall be applicable as per Gazette Notification No. 50/2018-Central Tax, Dated: 13th September 2018. TDS deduction is also applicable on purchase of goods as per the latest notification under section 194Q, and subsequent notification(s) as and when released by Govt. authorities.
4. Procurement of Goods/ Works/ Services/ Consultancy Services [under clause relating to "Income Tax and Corporate Tax" or "TDS" of Model ITBs]

   a) Provision w.r.t. TDS on Purchase of Goods under section 194Q of Income Tax Act applicable from 01.07.2021 is as under:

      i. TDS as applicable will be deducted by BHEL under section 194Q of the Income Tax Act, 1961 on Purchases exceeds, the amount of Rupees. 50 Lakhs or limit defined therein from time to time during the financial year under the Indian Income Tax act 1961.

      ii. Since BHEL is liable to deduct Income Tax TDS under section 194Q, the provision of TCS as per section 206C(1H) of the Income Tax Act, 1961 shall not be applicable.

b) Higher rate of TDS for non-filers of ITR as per Section 206AB of Income Tax Act, 1961, in case of any vendor who does not filed their Income Tax Return for both of the two previous years preceding to current year and aggregate amount of TDS is more than or equal to Rs. 50,000/- in each of those previous two years (or limit defined by Govt. from time to time), then TDS will be deducted at the higher of following rates:

(i) Twice the rate mentioned in relevant TDS section.

(ii) Twice the rate or rates in force

(iii) 5%

5. Incomplete documentation will not be accepted. Delayed submission of invoice / documents may result in corresponding delay in payment. In this connection, request to also refer clause: G about invoicing & payment formalities under GST regime.

   Applicable documents shall be submitted to the purchaser at the time of execution of supplies/services for availing GST input credits.

F. STANDARD PAYMENT TERMS OF BHEL-EDN:

PURCHASE ORDERS FOR:	**SUPPLY WITH SERVICE(S)**	**SUPPLY ONLY**
INDIGENOUS PROCUREMENT	a. 100% of basic value with taxes and freight will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation, whichever is later. Note: In case PBG is not furnished, only 90% payment will be released against 100% claim without the consent of Vendor. This 10% basic amount withheld towards PBG will be paid either against submission of supplementary invoice & Original PBG (or) against supplementary invoice without PBG after expiry of Warranty period.	b. 100% of PO value with taxes and freight will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation, whichever is later.
IMPORT PROCUREMENT	c. 100% of basic value will be paid against usance draft of 45 days from the date of AWB/BOL on submission of complete set of documents. Note: In case PBG is not furnished, only 90% payment will be released against 100% claim without the consent of Vendor. This 10% basic amount withheld towards PBG will be paid either against submission of supplementary invoice & Original PBG (or) against supplementary invoice without PBG after expiry of Warranty period.	d. 100% of PO value will be paid against usance draft of 45 days from the date of AWB/BOL on submission of complete set of documents.

HIGH-SEA SALES PROCUREMENT	e. 100% of basic value will be paid in 45 days from the date of signing of High Sea Sale agreement or 15 days from the date of submission of complete set of documentation, whichever is later Note: In case PBG is not furnished, only 90% payment will be released against 100% claim without the consent of Vendor. This 10% basic amount withheld towards PBG will be paid either against submission of supplementary invoice & Original PBG (or) against supplementary invoice without PBG after expiry of Warranty period.	f. 100% of basic value will be paid in 45 days from the date of signing of High Sea Sale agreement or 15 days from the date of submission of complete set of documentation, whichever is later.

g. Erection and Commissioning:

Evaluation methodology: Unless and otherwise specified in SCC, E&C charges should not be less than 10% of the main supply value. In case the quoted total E&C value is less than 10% of the main supply value, BHEL shall evaluate Bidders Price deducting differential amount from main supply price proportionally from all items and apportioning towards E&C charges.
Payment term: 100% E&C charges along with tax as applicable, will be paid in 15 days from the date of submission of supplementary invoice/documents against proof of completion of E&C.

h. Erection Supervision and Commissioning:

Evaluation methodology: Unless and otherwise specified in SCC, E&C charges should not be less than 5% of the main supply value. In case the quoted total E&C value is less than 5% of the main supply value, BHEL shall evaluate Bidders Price deducting differential amount from main supply price proportionally from all items and apportioning towards E&C charges.
Payment term: 100% E&C charges along with tax as applicable, will be paid in 15 days from the date of submission of supplementary invoice/documents against proof of completion of E&C.

i. Comprehensive Annual Maintenance Contract:

Evaluation methodology: Unless and otherwise specified in SCC, CAMC will be applicable for a period of 04 years from the date of expiry of warranty period (or) from the date of completion of commissioning of equipment, whichever is later and the total CAMC value should not be less than 20% of the main supply value. In case the quoted total CAMC value is less than 20% of the main supply value, BHEL shall evaluate Bidders Price deducting differential amount from main supply price proportionally from all items and apportioning towards CAMC charges.

Payment terms: 100% CAMC charges along with tax as applicable, will be paid in 15 days from the date of submission of supplementary invoice/documents against proof of completion of CAMC on yearly basis.

j. Terms of Payment for Training: 100% payment will be made in 45 days from the date of completion of Training or 15 days from the date of submission of complete set of invoice along with documentary evidence, whichever is later.

LOADING FACTORS FOR DEVIATION IN PAYMENT TERMS (APPLICABLE FOR IMPORT PROCUREMENT ONLY):

1) For offers received with Sight draft payment term in place of Usance draft, loading applicable will be 1.0% of basic value.

2) For offers received with Letter of Credit payment term with Usance of 45 days, loading applicable will be 2.5% of basic value.
Additional loading of 2% will be applicable for payment term as Letter of Credit at Sight.

k. Any payment term with credit period of less than 45 days for indigenous supply/HSS and any other variation of payment terms are liable for rejection.

l. Standard payment terms indicated in Clauses: F (a), (b), (c), (d), (e), (f), (g), (h), (i) & (j) will not attract any loading.

Note 1: Basic value of Purchase Order mentioned above will include all components of the purchase order and will exclude only taxes, duties, freight, training charges, E&C and AMC charges (wherever applicable). Wherever the Purchase Order is split into import portion and indigenous portion of supply, minimum % to be quoted for Services, wherever mentioned, will be of both purchase order values put together.

Note 2: In case of multiple packages/units in a power plant, payment of E&C charges will be processed on pro-rata basis.

Note 3: No deviation will be permitted from the duration of Guarantee/Warranty and/or Comprehensive Annual Maintenance Contract period specified in SCC.

G. Terms & Conditions to be complied under GST regime:

1. All invoices to contain BHEL-EDN (buyer) GSTIN number: 29AAACB4146P1ZB. However for CGST +SGST/UGST billing outside the state of Karnataka, invoice has to be generated with BHEL's Nodal Agency GSTIN number. Address of Nodal Agency along with GSTIN number will be provided by BHEL at the time of issuing dispatch clearance.

2. The Bidder shall mention Bidder's GSTIN number in all quotations and Invoices submitted.

3. The Bidder shall also mention HSN (Harmonized System of Nomenclature) / SAC (Services Accounting Code) mandatorily in all quotations and invoices submitted.

4. Invoice submitted should be in the format as specified under GST Laws viz., all details as mentioned in Invoice Rules like GST registration number(GSTIN), invoice number with date of issue, quantity, rate, value, taxes with nomenclature – CGST, SGST, UGST,IGST mentioned separately, HSN Code / SAC Code etc. Invoice should be submitted in original for buyer plus duplicate for credit availment.

5. Payment of GST to Vendor will be made only if it is matching with data uploaded by the Vendor in GST portal.

6. For invoices paid on Reverse charge basis – "Tax payable on reverse charge basis" to be mentioned on the invoice.

7. In case GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount will be recoverable from vendor along with interest levied/ leviable on BHEL.

8. In case vendor delays declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law will be recoverable from vendor/contractor along with interest levied/ leviable on BHEL.

9. Vendor should intimate BHEL immediately on the same date of invoicing without any delay.

10. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the supplies, within the calendar month notified by BHEL.

11. Bidders to note that Rules & Regulations pertaining to E-way bill system are to be strictly adhered to, as and when notified by Govt. authorities.

12. As per Notification 88/2020-Central Tax dated 10th November 2020 (applicable w.e.f. 01 January 2021), the turnover for applicability of E-invoicing provisions has been reduced from 500 crores to 100 crores. In other words, registered person [other than a SEZ unit and those referred in Rule 54(2), 54(3), 54(4) and 54(4A) of the CGST Rules], whose aggregate turnover in any preceding financial year from 2017-18 onwards exceeds 100 crores, is required to comply with the requirement of IRN and QR code in respect of supply of goods or services or both to a registered person or for exports.

H. <u>Performance bank guarantee (PBG):</u>

Performance bank guarantee (PBG) will be applicable as called in the tender documents. Unless otherwise specified in the SCC, the PBG against performance of the contract shall be valid for a period of 24 months from the date of dispatch of goods + claim period of 03 months, for a value equal to 10 % of the basic value of the purchase order which will include all components of the purchase order and will exclude only taxes, duties, freight, training charges, E&C and AMC charges (wherever applicable).

1. The BG issued in Indian Rupees by Banks in India is to be executed on Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG is submitted or is to be acted upon or the rate prevailing in the State where the BG was executed, whichever is higher. The Stamp Paper/e-stamp paper shall be purchased in the name of Vendor/Bank issuing the guarantee.
2. No deviation for the duration and value of PBG will be permitted.
3. PBG shall be from any of the BHEL consortium of bankers **(refer Annexure VI)**.
4. PBGs from nationalized banks are also acceptable.
5. PBG should be sent directly by the bank to the dealing executive mentioned in the purchase order located at the address mentioned in the purchase order.
6. PBG should be in the format specified **(refer Annexure VII)**. No deviation to this format will be allowed. However in case BHEL changes the PBG format, bidder shall honor the same.
7. Bank Guarantee should be enforceable in Bangalore.
8. In Case of Bank Guarantees submitted by Foreign Vendors-
   a. From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India) can be accepted subject to the condition that the Bank Guarantee should be enforceable in Bangalore.
   b. From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)

   b.1 Please note that Bank Guarantee issued by any of the Consortium Banks only will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter-Guarantee by Foreign Bank in favour of the Indian Bank's (BHEL's Consortium Bank) branch in India.

It shall be noted that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor.

b.2 In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at sl.no. b.1 is required to be followed.

b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time).

9. Expired PBGs will be returned only after expiry of the claim period.
10. PBG shall not be applicable for spares.

I. PURCHASE PREFERENCE FOR MSE(MICRO AND SMALL ENTERPRISES) VENDORS:

Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail the Purchase preference, the bidder must be the manufacturer of the offered product in case of bid for supply of goods. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product. Purchase preference to Micro and Small Enterprises clause in the bid, the same will get precedence over this clause.

1. If tendered quantity is Splitable: In tender, participating MSEs quoting price within price band of L1+15 percent shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price from someone other than a MSE and such MSE shall be allowed to supply at least 25% of total tendered value. In case of more than one such MSE, the supply shall be shared proportionately (to tendered quantity).

- 3% of the 25% will be earmarked for women owned MSEs.
- 25% of the 25% (i.e., 6.25% of the total enquired quantity) will be earmarked for SC/ST owned MSE firms provided conditions as mentioned in (1) & (2) are fulfilled.
- In case where no SC/ST category firms are meeting the conditions mentioned in (1) and (2) or have not participated in the tender, the 6.25% of earmarked quantity for SC/ST owned MSE firms will be distributed among the other eligible MSE vendors who have participated in the tender.

2. If tendered quantity is Non-Splitable: If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1+ 15% of margin of purchase preference /price band defined in relevant policy, such Seller shall be given opportunity to match L-1 price and contract will be awarded for 100% of total value.

J. INTEGRITY COMMITMENT IN THE TENDER PROCESS, AND EXECUTION OF CONTRACTS:

1. Commitment by BHEL: BHEL commits to take all measures necessary to prevent corruption in connection with the Tender process and execution of the Contract. BHEL will, during the tender process, treat all bidder / suppliers in a transparent and fair manner, and with equity.

2. Commitment by Bidder(s)/ Contractor(s):

   a. The Bidder(s)/ Contractor(s) commit(s) to take all measures to prevent corruption and will not directly or indirectly try to influence any decision or benefit which he is not legally entitled to.
   b. The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding or any actions to restrict competition.
   c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant Acts. The Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain or pass on to others, any information or document provided by BHEL as part of business relationship.

d. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to the relevant guidelines issued from time to time by Government of India/ BHEL.

If the Bidder(s) / Contractor(s), before award or during execution of the Contract commit(s) a transgression of the above or in any other manner such as to put his reliability or credibility in question, BHEL is entitled to disqualify the Bidder(s) / Contractor (s) from the tender process or terminate the contract and/ or take suitable action as deemed fit.

K. Integrity Pact (IP):

a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner.
Following independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl	IEM	Email
1.	Shri Otem Dai, IAS (Retd.)	iem1@bhel.in
2.	Shri Bishwamitra Pandey, IRAS (Retd.)	iem2@bhel.in
3.	Shri Mukesh Mittal, IRS (Retd.)	iem3@bhel.in

b) Please refer Section-8 of the IP for Role and Responsibilities of IEMs (Annexure I). In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEM/s shall be done through email only.

Note: No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are indicated in SCC document of tender.

Annexure I

Guidelines for Indian Agents

- **Definition of Indian Agent**: An Indian Agent of foreign prinicipal is an individual, a partnership, an association of persons, a private or pubile company, that carries our specific obligation(s) towards processing of BHEL tender or finalization or execution of BHEL's contract on behalf of the foreign supplier.

In case of yes, vendor to note the following and reply accordingly:

i. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.

ii. It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.

iii. The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.

iv. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.

v. Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.

vi. In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.

vii. The "Guidelines for Indian Agents of Foreign Suppliers" enclosed at annexure –'A' shall apply in all such cases.

viii. The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on 'total cost to BHEL'. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. In this regard, details may be checked as per Annexure-B (copy enclosed). It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on www.bhel.com.

The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.

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Vendor's Signature with Seal

Annexure-A

Guidelines for Indian Agents of Foreign Suppliers

1.0 There shall be compulsory registration of agents for all Global (Open) Tender and Limited Tender. An agent who is not registered with BHEL shall apply for registration in the registration form in line with SEARP.

1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/Original certificate of the Principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/ salary/ retainership being paid by the principal to the agent before the placement of order by BHEL.

1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e. Principal) before finalizing the order.

2.0 Disclosure of particulars of agents/ representatives in India, if any.

2.1 Tenderers of Foreign nationality shall furnish the following details in their offers:

2.1.1 The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agents/ representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent/ representative be a foreign Company, it shall be confirmed whether it is existing Company and details of the same shall be furnished.

2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.

2.1.3 Confirmation of the Tenderer that the commission/ remuneration, if any, payable to his agents/ representatives in India, may be paid by BHEL in Indian Rupees only.

2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:

2.2.1 The Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any, indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.

2.2.2 The amount of commission/ remuneration included in the price (s) quoted by the Tenderer for himself.

2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/ remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by BHEL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.

2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/ remuneration, if any payable to the agents/ representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.

2.4 Failure to furnish correct and detailed information as called for in paragraph 2.0 above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by BHEL. Besides this there would be a penalty of banning business dealings with BHEL or damage or payment of a named sum.

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ANNEXURE - II
LIST OF INTERNATIONAL GATEWAY AIRPORTS

For air based consignment, terms of delivery will be on FCA basis from following listed airports only. Vendors are requested to verify this list for use before submission of offer.

SCHEDULE NO	COUNTRY	CURRENCY CODE	AIRPORT
D01	UK	GBP	LONDON (HEATHROW)
D02	UK	GBP	NEW CASTLE
D03	UK	GBP	OXFORD. CHETLAM
D04	UK	GBP	BRISTOL. WELLINGBOROUGH
D05	UK	GBP	BIRMINGHAM
DO6	UK	GBP	EAST MIDLANDS
D07	UK	GBP	MANCHESTER
D08	UK	GBP	LEEDS
D09	UK	GBP	GLASGOW
D10	FRANCE	EURO	PARIS (ROISSY) & LYON
D11	SWEDEN	EURO	STOCKHOLM
D12	SWEDEN	EURO	GOTHENBERG & MALMO
D13	ITALY	EURO	ROMA, MILAN
D14	ITALY	EURO	TURIN, BOLOGNA, FLORENCE
D15	NETHERLANDS	EURO	AMSTERDAM, ROTTERDAM
D16	AUSTRIA	EURO	VIENNA, LINZ, GRAZ
D17	BELGIUM	EURO	ANTWERP, BRUSSELS
D18	DENMARK	DKK	COPENHAGEN
D19	JAPAN	JPY	TOKYO, OSAKA
D20	SINGAPORE	SGD	SINGAPORE
D21	CANADA	CAD	TORONTO
D22	CANADA	CAD	MONTREAL
D23	USA	USD	NEW YORK, BOSTON
D24	USA	USD	CHICAGO
D25	USA	USD	SAN FRANCISCO, LOS ANGELES
D26	USA	USD	ALANTA, HOUSTON
D27	GERMANY	EURO	MUNICH, KOLN, DUSSELDORF, HANNOVER, HAMBURG, STUTTGART, DAMSTADT, MANIHIEM, NURUMBERG
D28	GERMANY	EURO	FRANKFURT
D29	GERMANY	EURO	BERLIN
D30	SWITZERLAND	SFR	BASLE, ZURICH, GENEVA
D31	SPAIN	EURO	BARCELONA
D32	AUSTRALIA	AUD	SYDNEY
D33	AUSTRALIA	AUD	MELBOURNE
D34	AUSTRALIA	AUD	PERTH
D35	CZECH	EURO	PRAGUE
D36	HONG KONG	HKD	HONG KONG
D37	NEW ZELAND	NZD	AUCKLAND
D38	RUSSIA	USD	MOSCOW
D39	SOUTH KOREA	USD	KIMPO INTERNATIONAL, INCHEON
D40	FINLAND	EURO	HELSINKI
D41	ROMANIA	EURO	BUCHAREST
D42	NORWAY	EURO	OSLO
D43	IRELAND	EURO	DUBLIN
D44	ISRAEL	USD	TEL AVIV
D45	UAE	USD	DUBAI
D46	OMAN	USD	MUSCAT
D47	EGYPT	USD	CAIRO
D48	TAIWAN	USD	TAIPEI
D49	UKRAINE	USD	KIEV
D50	CHINA	USD	SHANGHAI, SHENZHEN
D51	PHILIPINES	USD	MANILA
D52	MALAYSIA	USD	KUALALUMPUR, PE NANG
D53	CYPRUS	USD	LARNACA
D54	SOUTH AFRICA	USD	JOHANNESBERG, DURBAN
D55	SLOVAKIA	EURO	BARTISLOVA
D56	SAUDI ARABIA	SAR	RIYADH
D57	TURKEY	EURO	ISTANBUL
D58	THAILAND	USD	BANGKOK
D59	BRAZIL	USD	SAO PAULO, RIO DE JANEIRO

ANNEXURE – III

DISCREPANCY IN WORDS & FIGURES – QUOTED IN PRICE BID

Following guidelines will be followed in case of discrepancy in words & figures-quoted in price bid:

(a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

(d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

ANNEXURE - IV

Electronic Funds Transfer (EFT) OR

Paylink Direct Credit Form

Please Fill up the form in **CAPITAL LETTERS** only.
TYPE OF REQUEST(Tick one): _____ CREATE _____ CHANGE

BHEL Vendor / Supplier Code:
Company Name :
Permanent Account Number(PAN):
Address

City: PINCODE STATE

Contact Person(s)
Telephone No:
Fax No:
e-mail id:

1 Bank Name:
2 Bank Address:

3 Bank Telephone No:
4 Bank Account No:
5 Account Type: Savings/Cash Credit
6 9 Digit Code Number of Bank and branch appearing on MICR cheque issued by Bank
7 Bank IFSC Code(applicable for NEFT)
8 Bank IFSC code(applicable for RTGS) (Indian Financial System Code)

A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.

B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transfering Bank responsible.

C This authority remains in full force until BHEL, EDN,Bangalore receives written notification requesting a change or cancellation.

D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:
Designation: Telephone No. with STD Code

Company Seal

Bank Certificate

We certify that_____has an Account No_____ with us and we confirm that the bank details given above are correct as per our records.

Date: (.....)
Place: Signature

Please return completed form **along with a blank cancelled cheque or photocopy** thereof to:
Bharath Heavy Electricals Ltd,
Attn:
Electronics Division, Mysore Road,
BANGALORE - 560 026
In case of any Querry, please call concerned purchase executive.

ANNEXURE - V
PRESENT PROCEDURE FOR SALE IN TRANSIT (HIGH SEA SALES)

In case of High Sea Sales, vendor should submit following documents:

1. **ORIGINAL HIGH SEA SALES AGREEMENT**
   - Sale agreement (on Rs. 200/- non-judicial stamp paper & notarised with 2 witnesses with identity) has to be signed between BHEL and the Party importing material. The date of the sale documents should be in between the date of House Air Way Bill / Bill of Lading and before landing of the goods in Indian origin.
   - Following shall be included in the High Sea Sales Agreement:
     "THE BUYER ALSO UNDERTAKE DISCHARGES, THE OBLIGATION AND FULFILLMENT OF CONDITIONS, IF ANY, ATTACHED TO THE IMPORTATION, ASSESSMENT AND CLEARANCE OF THE GOODS IN TERMS CUSTOMS TARIFF ACT 1975, THE CUSTOMS ACT 1962 & RULES & REGULATIONS MADE THERE UNDER AND OTHER RELEVANT ACTS, ORDERS, NOTIFICATIONS".

2. **ORIGINAL INVOICES: INDIGENOUS RUPEE INVOICE & FOREIGN CURRENCY INVOICE**
   - Prices should be C.I.F., designated airport/seaport basis.
   - I.E.C., C.S.T., K.S.T. Nos. to be mentioned.
   - Description of item (Nomenclature), Unit & Quantity in both the Foreign Currency & the Indigenous Invoice in Rupee shall be exactly as per Purchase Order Description of item, Quantity and Unit. The Indigenous Invoice value shall be exactly as per Purchase Order value.
   - Seller should give Foreign Currency Invoice from the original consignor. The Foreign Currency Invoice value should be at least 2% (two per cent) less than the Indigenous Rupee Invoice value in equivalent foreign currency.

4. **ORIGINAL HOUSE AIR WAY BILL/ BILL OF LADING**
   - The sale agents should duly endorse House Air Way Bill (HAWB) for air shipments or original Bill of Lading (O.B.L.) for sea shipments and Foreign Currency Invoice in favour of BHEL-EDN.

5. **ORIGINAL CARGO ARRIVAL NOTICE FROM FORWARDER.**

6. **ORIGINAL DELIVERY ORDER ISSUED IN NAME OF BHEL-EDN.**

7. **ORIGINAL PACKING LIST.**

8. **A LETTER TO THE COMMISSIONER OF CUSTOMS FOR EFFECTING ABOVE SALE.**

9. **A LETTER TO THE DEPUTY ASSESSOR (OCTROI) FOR EFFECTING ABOVE SALE IN FAVOUR OF BHEL.**

REMARKS: In case vendor needs any clarifications on the above, the same may be sought in writing.

ELECTRONICS DIVISION, BANGALORE

Annexure-VI

BHEL MEMBER BANKS (LIST OF CONSORTIUM BANKS)

Bank Guarantee (BG) shall be issued from the following banks only:

Sl. No.	Nationalised Banks	Sl. No.	Public Sector Banks
1	Allahabad Bank	18	IDBI
2	Andhra Bank		
3	Bank of Baroda	Sl. No.	**Foreign Banks**
4	Canara Bank	19	CITI Bank N.A
5	Corporation Bank	20	Deutsche Bank AG
6	Central Bank	21	The Hongkong and Shanghai Banking Corporation Ltd. (HSBC)
7	Indian Bank	22	Standard Chartered Bank
8	Indian Overseas Bank	23	J P Morgan
9	Oriental Bank of Commerce		
10	Punjab National Bank	**Sl. No.**	**Private Banks**
11	Punjab & Sindh Bank	24	Axis Bank
12	State Bank of India	25	The Federal Bank Limited
13	Syndicate Bank	26	HDFC Bank
14	UCO Bank	27	Kotak Mahindra Bank Ltd
15	Union Bank of India	28	ICICI Bank
16	United Bank of India	29	IndusInd Bank
17	Vijaya Bank	30	Yes Bank

Note:

- All BGs must be issued from BHEL consortium banks listed above.
- This list is subject to changes. Hence vendors are requested to check this list every time before issuing BGs.
- Bank Guarantees issued by Co-operative Banks/Financial Institutions cannot be accepted under any circumstance.

Annexure-VII

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____[1] through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) with its registered office at_____[2] hereinafter referred to as the ' Vendor / Contractor / Supplier ', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated .....[3] valued at Rs.....[4] (Rupees ----------)/FC.....(in words.....) for .....[5] (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to .....% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we, ..., (hereinafter referred to as the Bank), having registered/Head office at ..... and inter alia a branch at ..... being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount of Rs ---------- [6] (Rupees ----------) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the Vendor / Contractor / Supplier shall have no claim against us for making such payment.

We the .....bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/satisfactory completion of the performance guarantee period as per the terms of the Contract and that it shall continue to be enforceable till

all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We .....BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor / Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor / Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier 's liabilities.

This Guarantee shall remain in force upto and including..... [7] and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the .....[8]we shall be discharged from all liabilities under this guarantee thereafter.

We, ... BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed..... [6]
b) This Guarantee shall be valid up to .....[7]
c) Unless the Bank is served a written claim or demand on or before _____[8] all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

[1] *NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited*

[2] *NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.*

[3] *DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE*

[4] *CONTRACT VALUE*

[5] *PROJECT/SUPPLY DETAILS*

[6] *BG AMOUNT IN FIGURES AND WORDS*

[7] *VALIDITY DATE*

[8] *DATE OF EXPIRY OF CLAIM PERIOD*

Annexure-VIII

Certificate by Chartered Accountant on letterhead

This is to certify that M/s _____ (hereinafter referred to as 'enterprise') having PAN Number _____and UDYAM Registration Number _____, registered office at _____ _____ is falling under the category _____ (**Micro / Small / Medium**) under MSMED Act 2006. (Copy of UDYAM Registration Certificate to be enclosed).

The said classification of _____ (**Micro / Small / Medium**) is arrived at based on the Notifications / guidelines / clarifications issued under Micro, Small and Medium Enterprises Development Act, 2006 including the notification S.O.2119 (E) dated 26th June 2020.

The Investment of the enterprise in Plant and Machinery or Equipment as at 31st March 2020 as per Clause 4 of the Notification is _____ (Rupees in Lakhs).

The turnover of the Enterprise for the period ending 31st March 2020 as per Clause 5 of the Notification is _____ (Rupees in Lakhs).

Date:

(Signature) Name-
Membership number-

Seal of Chartered Accountant with UDIN reference

Annexure-1

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for _____

_____ (hereinafter referred to as "Contract"). The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint panel of Independent External Monitor(s) (IEMs), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commits himself to observe the following principles during participation in the tender process and during the contract execution.

ಎ. ಸರವಣ ಬಾಬು, ವ್ಯವಸ್ಥಾಪಕರು/ನಿ.ಆ.-ಎಂ.ಎಂ.-ಪಿ.ಆರ್.
ए. सरवण बाबु, प्रबंधक/सी.ई.-एम.एम.-पी.आर.
A. SARAVANA BABU, MANAGER/CE-MM-PR
BHEL-EDN, MYSURU ROAD, BENGALURU-560026

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process , terminate the contract, if already awarded, exclude from future business dealings and/ or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

4.1 If the Principal has disqualified the Bidder (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.

4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above , the Bidder(s)/ Cotractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be-entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee , whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.

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ए. सरवण बाबु, प्रबंधक/सी.ई.-एम.एम.-पी.आर.
A. SARAVANA BABU, MANAGER/CE-MM-PR
BHEL-EDN, MYSURU ROAD, BENGALURU-560026

Section 5 - Previous Transgression

5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 6 - Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)

6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.

6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.

6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 -Independent External Monitor(s)

8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.

8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.

8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.

ಎ. ಸರವಣ ಬಾಬು, ವ್ಯವಸ್ಥಾಪಕರು/ನಿ.ಉ.-ಎಂ.ಎಂ.-ಪಿ.ಆರ್.
ए. सरवण बाबु, प्रबंधक/सी.ई.-एम.एम.-पी.आर.
A. SARAVANA BABU, MANAGER/CE-MM-PR
BHEL-EDN, MYSURU ROAD, BENGALURU-560026

8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a Bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some Bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.

8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.

8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.

8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.

8.9 IEMs should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Prinicpal should be looked into by the CVO of the Principal.

8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code / Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.

8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.

8.13 The word `Monitor' would include both singular and plural.

Section 9 - Pact Duration

9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties till the final completion of contract for successful Bidder, and for all other Bidders 6 months after the Contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.

9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

ಎ. ಸರವಣ ಬಾಬು, ವ್ಯವಸ್ಥಾಪಕರು/ನಿ.ಆ.-ಎಂ.ಎಂ.-ಪಿ.ಆರ್.
ए. सरवण बाबु, प्रबंधक/सी.ई.-एम.एम.-पी.आर.
A. SARAVANA BABU, MANAGER/CE-MM-PR
BHEL-EDN, MYSURU ROAD, BENGALURU-560026

Section 10 - Other Provisions

10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.

10.2 Changes and supplements as well as termination notices need to be made in writing.

10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.

10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.

10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.

For & On behalf of the Principal
(Office Seal)

ಎ. ಸರವಣ ಬಾಬು, ವ್ಯವಸ್ಥಾಪಕರು/ನಿ ಆ.-ಎಂ.ಎಂ.-ಪಿ.ಆರ್.
ಎ. सरवण बाबु, प्रबंधक/सी.ई.-एम.एम.-पी.आर.
A. SARAVANA BABU, MANAGER/CE-MM-PR
BHEL-EDN, MYSURU ROAD, BENGALURU-560026

Place
Date

Witness:
(Name & Address) MAWISH.G
BHEL - EDN. Bangalore-26.

For & On behalf of the Bidder/ Contractor
(Office Seal)

Witness:
(Name & Address)

Annexure-X

Restrictions under Rule 144(xi) of General Financial Rules, 2017 amendment dt: 23.07.2020

I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder from a country which shares a land border with India" for the purpose of this Order means :-

a. An entity incorporated, established or registered in such a country; or

b. A subsidiary of an entity incorporated, established or registered in such a country; or

c. An entity substantially controlled through entities incorporated, established or registered in such a country; or

d. An entity whose *beneficial owner* is situated in such a country; or

e. An Indian (or other) agent of such an entity; or

f. A natural person who is a citizen of such a country; or

g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

IV. The *beneficial owner* for the purpose of (iii) above will be as under:

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation--

a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company;

b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

PUCHASE SPECIFICATION
FOR
LOCAL INSTRUMENTS ENCLOSURES AND LOCAL INSTRUMENT RACKS (LIE/LIR)

REVISION : 00

APPROVED

PUNIT PRATAP SINGH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	24-Aug-23

CONTENTS

GENERAL INSTRUCTIONS TO BIDDERS

REVISION : 00

APPROVED

PUNIT PRATAP SINGH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	24-Aug-23

SECTION- A

GENERAL INSTRUCTIONS TO BIDDERS:

1.0 All required documents against this Tender/Specification shall be submitted in English only.

2.0 Introduction: Bidders are required to offer Local Instrument Enclosure and Local Instrument Rack (LIE/LIR) for a Coal Fired Thermal Power Plant Applications.

3.0 In order to accept the Technical offers / proposals from Bidders for the project mentioned in this Specification (refer Section C), certain Pre-qualification criteria are required to be met by Bidder.

4.0 Pre-qualification requirements are clearly mentioned in Section-B of this Specification. Bidder to read the same carefully and submit the details required for BHEL's acceptance.

5.0 Submit duly-filled Supplier Registration Form (SRF), which shall be downloaded by Bidder from our website "www.bhel.com.This is required for registration of new vendors at BHEL EDN against item Local Instrument Enclosure (LIE) & Local Instrument Rack (LIR). Those Vendors who are already approved by BHEL EDN against item Local instrument Enclosure (LIE) & Local instrument Rack (LIR) are not required to submit the Supplier Registration Form (SRF).

6.0 BHEL May visit vendor's work for verification of facilities offered and BHEL decision on suitability of manufacturing facility is final and binding.

7.0 In case Bidder does not include the details or meet the requirements of Pre-qualification requirements, their offer will be summarily rejected and Bidder's Technical offers will not be evaluated.

Evaluation methodology:

Evaluation methodology as below
BHEL shall initially open Bidder's PQR documents as per Section-B of this specification for review & acceptance.
If the Bidders who are meeting PQR requirements as per Section-B of this specification, Technical Offers of those bidders only will be considered for evaluation.
If the Bidders who are meeting technical requirements as per Section C of this specification, Those Bidders will be taken up with End user/Customer for approval.

If the Bidders who are approved by End user/Customer, Commercial bids of those bidders will be considered for further evaluation by BHEL.

8.0 Bidders are required to submit offers as detailed below :

aa. Documents pertaining to Pre-Qualification requirement (Section B of this Specification) shall be in a Separate cover /Soft Folder with reference no. "CE/416/LIE-LIR/PQR / Section B" marked on it.

bb. Technical offers/proposals for the Project, whose requirements are mentioned in Sections C will be submitted in a separate cover/Soft Folder with RFQ Reference & Reference marked on it.

Note 1: -Whenever required during evaluation of PQR and Technical offers/bids, vendor is required to be present at BHEL Electronic Division, Bangalore, for discussions. Further in the event of order, during approval of the vendor documents by End users/Customers, if needed vendor shall accompany BHEL representative for discussions.

Note 2: - Changes in Technical Specifications will be discussed with the bidders who Qualified PQR for this tender.

Note 3: - BHEL shall submit vendor credentials to customer and await customer's decision for a maximum of one month from the date of PQ bid opening. If approval is not received within above period, BHEL shall treat the offer as "NOT Meeting PQ" criteria and offer shall be rejected.

		A4-10	**SECTION – B**	**REF. : CE / 416 / LIE/LIR / PQR** **REV. NO. : 00** **PAGE : 01 0F 02**

PRE-QUALIFICATIONS REQUIREMENTS

APPROVED

PUNIT PRATAP SINGH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	**416**	**24-Aug-23**

SECTION- B

Pre-Qualification Requirements (PQR) of Bidders for Local Instrument Rack (LIR), as a part of Offer:

1.0 Submit Reference List of Projects, Unpriced Purchase Order Copies, wherein LIE, LIR has been supplied.

2.0 The bidder should have executed/ completed work of Design and supply of complete LIE LIR package at least 2 units of 500MW or above rating Thermal power plant. Bidder should have executed Complete LIE/LIR Package to accommodate minimum of 60 Pressure transmitters / switches. Unpriced PO Copy and Customer approved data sheet or Dispatch documents or inspection report etc shall be provided.

3.0 Bidders shall have experienced welders for welding of materials specified in the Technical specification. Welder's certificate shall be provided for verification.

4.0 Bidders shall have a designated drawing office with AUTOCAD/other drafting software, Submission of drawings shall be in pdf format. Bidders to give compliance to the same.

5.0 Bidders shall have designated machine shop including sheet metal fabrication upto 4mm thick and cutting up to 10 mm thick plates, should have Painting facility for both epoxy based tank process painting and powder coating facility or if outsourced details to be provided.

6.0 Bidder shall have facility for performing hydro test on all individual lines (Hydro test pressure shall be 530Kg/Cm2). Bidders to give compliance to the same.

7.0 Vendor shall have requisite space for physical inspection, loading facility etc for offering minimum of about 80 LIRs at the same time for inspection. Bidders to give compliance to the same.

Important Note: In case Bidder does not submit details mentioned in above Section (B) offers will be summarily rejected and Bidder's Technical offers/proposals will not be evaluated. Please read carefully the GENERAL INSTRUCTIONS in Section A of this specifications.

SECTION – C

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

TECHNICAL SPECIFICATION
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

PUNIT PRATAP SINGH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	24/08/23

CONTENTS

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

SCOPE OF SUPPLY
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

PUNIT PRATAP SINGH

PREPARED BY	ISSUED	DATE
RAJESH L	416	24/08/23

Scope of supply

The Scope of supply is as per Technical requirements attached with this specification. Vendor shall quote for each line item of the Table A, B The unit rate shall be valid until the completion of the contracts. For this purpose, vendors shall maintain MS Excel file indicating total Bill of materials and Hardware for Loose schemes.

TABLE: A

S.NO	HUP Ref CE/416/ UDAN /HUP	Material Code	Description	Quantity for Unit#1	Quantity for Unit#2	Unit
1		PR0830000020	LIE TYPEA	22	22	NO
2		PR0830000038	LIE TYPE B	34	34	NO
3		PR0830000046	LIE TYPE C	8	8	NO
4		PR0830000291	LIR TYPE D	2	2	NO
5		PR0830000054	LIR TYPE A	19	19	NO
6		PR0830000062	LIR TYPE B	13	13	NO
7		PR0830000070	LIR TYPE C	14	13	NO
8	2	PR0830000089	Hook up PT/PS 9000 Steam and Water	43	43	NO
9	4	PR0830000097	Hook up DPT/FT/LT 9000 Steam and Water	17	17	NO
10	6	PR0830000100	Hook up PT/PS 6000 Steam and Water	14	14	NO
11	8	PR0830000119	HOOK UP DPT/FT/LT STEAM AND WATER A106 6K	25	25	NO
12	10	PR0830000127	Hook up PT/PS 3000 water	94	82	NO
13	12	PR0830000135	Hook up DPT/DPS 3000 water	113	104	NO
14	14	PR0320000206	Hook up PT/PS 3000 bottom entry	39	39	NO
15	16	PR0900001829	HOOK UP PT/PS 3000 DM WATER SS316 PIPES	80	76	NO
16	18	PR0830000143	Hook up PT/PS Clean Air service	60	56	NO
17	20	PR0830000194	Hook up DPT/FT/DPS Flue gas	73	70	NO
18	22	PR0830000003	Hook up for Air Purging	37	37	NO
19	22	PR0830000259	Hook up for Continuous Purging	182	182	NO
20	22	PR0830000267	Hook up for Intermittent Purging	37	37	NO
21		PR0450000290	Temp. Transmitter Junction Box - Type A	10	10	NO
22		PR0450000303	Temp. Transmitter Junction Box - Type B	6	6	NO
23		PR0450000311	Temp. Transmitter Junction Box - Type C	83	77	NO
24		PR0900007443	Hardware for Loose Schemes as per Table-B	1	0	ST

Note:

1. **Colour Exterior –RAL7032/RAL7035**
2. **Interior: Brilliant white Glossy finish two coats/RAL7035 with fire resistant paint. Final colour will be decided during detailed engineering.**
3. **IP-65 Type test report (Should not be older than 5 years) for LIE and JB of LIR to be submitted for approval during document submission.**
4. **IBR Certification shall be provided for pipes and fittings, Valves, Tubes for Page Numbers 2, 4, 6,8,10,12,14,16 of Ref: CE/416/UDANGUDI/HUP – Hook Up scheme.**

TABLE B **Hardware for Loose Schemes**

SL. NO.	ITEM DESCRIPTION	QTY
1	TWO VALVE MANIFOLD WITH VENT PLUG PORT SIZE:1/2"NPTF/BODY:SS316L PR.TESTING:3000PSI	290 No's
2	FIVE VALVE MANIFOLD WITH VENT PLUG PORT SIZE:1/2" NPTF/MATL.SS316L PR.TESTING:3000 PSI	106 No's

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

TECHNICAL REQUIREMENT
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

PUNIT PRATAP SINGH

PREPARED BY	ISSUED	DATE
RAJESH L	416	24/08/23

TECHNICAL REQUIREMENTS FOR TRANSMITTER ENCLOSURES AND TRANSMITTER RACKS:

I. TRANSMITTER ENCLOSURES:

1. The Transmitter enclosures (Closed type) are provided for mounting Transmitters etc. and located in Boiler area. This shall be constructed of 3 mm thick CRCA material. These shall confirm to IP 65 protection class.

2. The Transmitter Enclosures shall be of following sizes (in millimeters).

   Type A - 1450(W) x 1000(D) x 2200(H) (For 5 to 6 Transmitters)
   Type B - 1100 (W) x 1000(D) x 2200(H) (Between 3 to 4 Transmitters)
   Type C - 800(W) x 1000(D) x 2200(H) (For 1 to 2 Transmitters)

3. These shall be reinforced as required to ensure true surfaces and to provide adequate Support for instruments and other equipment mounted therein. Double interlocking doors shall be provided and shall be arranged for maximum possible access to the module interior. Center posts or any member which would reduce access shall not be provided.

4. The doors shall be the three-point locking type constructed of not less than 3 mm steel sheet. Doors shall have concealed quick removal type pinned hinges and locking handles. Enclosure door locks shall accept the same / common key all over the plant. Neoprene material Gaskets shall be used between all mating sections to achieve dust proof enclosure rating for the modules and waterproof and dust tight rating on the Terminal / Junction boxes. All enclosures shall have access doors on Front and Rear sides.

5. Internal wirings between the Transmitters and Terminal / Junction box shall run through flexible dust tight conduits.

6. Anti Vibration Pads of minimum 15 mm thickness shall be provided for supporting each enclosure.

7. Construction of same shall be typically as per enclosed drawing CE/416/LIE/LIR/OGA1.

8. Service Power and Lighting

Each enclosure shall be provided with one receptacle, one light fixture & LED lamps with wire guard and one lighting switch and suitable 2P MCBs ,Six point 6/16A,240V AC Universal type power sockets with switch. Lighting switches may be doors actuated, mounted door. Light switches and receptacles shall be installed inside the enclosure on the wall near the latch side of the enclosure door. Light fixtures shall be installed on the ceilings of the enclosures. Power supplies for miscellaneous devices shall be provided with fuses located within the Enclosure JB. Fuses shall be mounted in fuse blocks. Fuse ratings will be given on electrical schematic diagrams. Power supply shall be 240 V AC.

9. Equipment Installation

a. Enclosures shall be provided to mount field instrument, equipment and accessories. Vendor shall prepare enclosures and piping drawings indicating the layout for each enclosure.

Special attention shall be given in the piping layout to avoid air traps in liquid filled piping, or water pockets in piping intended to be dry.

b. Drawings shall indicate the arrangement of all Piping, Valves and Fittings within the enclosures.

10. **Impulse Piping /Tubing**

a. Transmitter enclosures shall be complete with impulse tubing piping, valves from enclosure bulkhead connection to all instruments and necessary drain / blow down connections. The type, sizes, material and pressure class of pipes/tubes, fittings, valves etc. shall be suitable for the intended applications as per the Schemes / Tagging list of Instrument, provided by BHEL.

b. Bulkhead (Thickness shall be not less than 6mm) connection shall be used when instrument piping/ tubing enters the enclosure through Bulkhead plate. Typically through Bulk heads, Impulse pipe entry shall be through Top side of the Enclosure for Steam and Liquid services and for Air / flue gas services, impulse pipe entry shall be from Bottom side.

c. All Instrument Blow down lines, except those measuring vacuum shall be connected to a two-inch header, which is extended through one end of the enclosure and turned downward at other end.

d. Instrument piping and tubing shall be hydrostatically tested at one and one-half times the Design pressure (As per Instrument schedule) for that instruments except for vacuum measurement the test pressure will be 8 Kg / Cm2.

11. For Purging :

a. Pneumatic tubing shall be installed for all pneumatic devices, such as Air filter Regulator, Purge rotameters, Isolation valves, distribution air-header etc. Pneumatic tubing shall be installed in a neat workmanlike manner in protected locations with suitable supports. All Pipes / Tubes, which enter or leave the enclosure, shall be terminated on bulkhead fittings in the bulkhead plate. Pneumatic tubing material shall be ½" OD SS316 tubing Flareless SS- Tube fittings shall be used for tubing connections.

b. Instrument tubing schematic, connection and interconnections diagrams shall be furnished.

12. Wiring Within Enclosures and Grounding

Vendor shall furnish general arrangement and wiring diagrams for each transmitter Enclosures for approval.

13. **Enclosure Electrical Junction Box**

a. IP 65 junction box for the termination of all internal wiring shall be provided for each transmitter enclosure.

b. Junction boxes for enclosures shall be fabricated externally on one end of each enclosure assembly to accept field wiring through the top or bottom of the junction box. The

Junction box shall be 150 millimeters minimum depth. A hinged door shall give access to the interior of the junction box. Junction boxes shall be provided with LED Lamp lighting. Same key shall be used to lock both Junction box & enclosure.

II. OPEN TYPE TRANSMITTER RACKS:

1. Transmitter racks is provided for mounting transmitters and other accessories, in buildings and closed areas like the power house building / turbine hall.

2. The Transmitter Racks shall be of following sizes (in millimeters).

   Type D- 1600(W) x 650(D) x 2200(H) (For 7 to 8 Transmitters)
   Type A- 1400(W) x 650(D) x 2200(H) (For 5 to 6 Transmitters)
   Type B- 1100(W) x 650(D) x 2200(H) (Between 3 to 4 Transmitters)
   Type C- 800(W) x 650(D) x 1600(H) (For 1 to 2 transmitters)

3. Racks shall be constructed on structural members of adequate strength and rigidity to ensure proper support to the mounted instruments and equipment. Racks shall be of welded construction. Each rack shall be provided with a canopy to protect the instrument from dripping water or falling objects.

4. All Valves & Manifolds shall be securely mounted and the structural design shall be such that no item shall interfere with maintenance and removal of instrument, equipment and their accessories.

5. Construction of same shall be typically as per enclosed drawing CE/416/LIE/LIR/OGA1.

6. Service Power and Lighting

a. Each rack shall be provided with one receptacle, one light fixture with wire guard and one lighting switch,LED Lamp. Light fixtures shall be installed on the canopy of the rack.

b. Power supplies for miscellaneous devices shall be provided with fuses located within the rack JB. Fuses shall be mounted in fuse blocks. Fuse ratings will be given on electrical schematic diagrams. Power supply shall be 240 V AC.

7. Equipment Installation

Vendor shall prepare rack fabrication and piping drawings indicating the layout of each Rack. Transmitter/Instruments shall be installed using custom fabricated supports which are attached to the vertical members provided for this purpose. Drawings shall indicate the arrangement of all equipment, piping, valves and fittings within the rack and shall be subject to approval.

8. Impulse Piping / Tubing

a. Transmitter racks shall be complete with impulse tubing piping, valves from enclosure bulkhead connection to all instruments and necessary drain / blow down connections. The

type, sizes, material and pressure class of pipes/tubes, fittings, valves etc. shall be suitable for the intended applications as per the Schemes / Tagging list of Instrument, provided by BHEL.

b. Bulkhead (Thickness shall be not less than 6mm) connection shall be used when instrument piping/ tubing enters the enclosure through Bulkhead plate. Typically through Bulk heads, Impulse pipe entry shall be through top side of the Enclosure for Steam and Liquid services.

c. All Instrument Blow down lines, except those measuring vacuum shall be connected to a two-inch drain pipe header, which is extended through one end of the enclosure and turned downward for directing the blow down into drain.

d. Instrument piping and tubing shall be hydrostatically tested at one and one-half times the Design pressure (As per instrument schedule) for that instruments except for vacuum measurement the test pressure will be 8 Kg / Cm2.

9. Wiring of the Racks

a. A fully enclosed IP 65 type junction box shall be provided in each rack for housing the terminal blocks, power supply fuses and other electrical accessories, as required.

b. All electrical connections between instrument and the Terminals in Junction box shall be made. In addition all utility wiring for lighting and service power shall be installed.

c. Vendor shall furnish general arrangement and wiring diagrams for each transmitter rack for approval.

d. Junction boxes for the racks shall be mounted on one end of each assembly & should be inside the Rack to accept field wiring through the bottom of the junction box. The junction box shall be Minimum depth 200 mm. A removable bolted door shall give access to the interior of the junction box. All junction boxes shall accept same key. JB to be of FRP with 4mm thick and IP 65 protection class. Door handle shall be of SS. Self locking type with common key. Door gasket shall be of synthetic rubber. M6 earthing stud shall be provided. TB shall be in multiple of 12 nos.

III. General Requirement applicable to Transmitter Enclosures & Racks :

1. Surface preparation And Painting

a. All sheet metal / exterior steel surfaces shall rust free and scale free and all other residue during fabrication operation such as Oil, grease and salts etc. shall be removed by one or more solvent cleaning methods. Epoxy primer surface shall be applied to all exterior and interior surfaces. Epoxy paint shall be applied to all surfaces and the paint thickness shall be 100 to150 microns. The finish colours for exterior and interior surfaces shall conform to the shades mentioned in scope of supply.

1. Grounding

a. Enclosures and Racks shall be provided with a continuous tinned copper ground bus of minimum 50 mm X 6 mm cross section, extended along the entire length. The ground bus shall have two (2) bolts drilling with GI bolts and nuts at each end.

2. Name plate / Label.

a. Service details and Tag no. shall be engraved on a nameplate or label for each of the Transmitter. These Nameplates or Labels shall be of white non-hygroscopic (Polyamide sheet) material with engraved black lettering on white background. This shall be fixed on to the Impulse Pipe closer to the Transmitter inside the Enclosure / Rack.

3. Wiring Details

a. Interconnecting wiring shall be provided between all electrical devices mounted in the panels and between the devices and terminal blocks if the devices are to be connected to equipment outside the panels by cabling. All interior wiring shall be installed neatly and carefully and shall be terminated at suitable terminal blocks in the Junction box. Sufficient clearance shall be provided for all control and instrumentation leads.

b. Each wire shall be identified at both ends with wire designations as per approved wiring diagram. Interlocking type ferrules shall be used for identification.

c. All wire termination shall be made with insulated sleeve and cage clamp type terminals.

d. All signal wiring shall be done with 2 pair, 0.75 sq. mm annealed tinned copper, pair twisted overall & shielded (Individual & overall), voltage grade 650 V , FRLS PVC sheathed cable and 4 pair, 0.5 sq. mm for PS/DPS. For power supply application, 2.5 sq mm, 1100V cable shall be used.

e. Wires shall be dressed and run in trays or troughs with clamp-on type covers. Wiring may be neatly bunched in-groups by non-metallic cleats or bands. Shield wires shall be terminated on separate terminal blocks.

f. Internal wiring shall follow distinct color coding to segregate different voltage levels viz. 24V DC & 230V AC

g. Junction Box of enclosures will be provided with removable, gasketted cable gland for cable entrance.

4. Fuse Blocks

a. Fuse blocks shall be modular type with bakelite frame and reinforced retaining clips.

5. Terminal Blocks

a. Terminal blocks shall be DIN rail mounted and shall have Cage clamp type connection which shall be maintained for all panels uniformly.

b. The rated cross section of the terminal blocks shall be suitable for connecting 0.5-mm^2/2.5 mm^2. Conductor of suitable voltage grade as specified.

c. Terminal blocks shall be mounted vertically with adequate spacing between rows for routing the cable troughs and to allow adequate free workspace for termination and removal of wires.
d. Terminal blocks shall be provided with white marking strips/self adhesive marker cards.

e. At least 30 percent spare unused terminals shall be provided on each terminal blocks for circuit modifications and for termination of all conductors in a multi conductor control cables.

f. Terminal blocks for termination of electrical power supply shall be type WAGO / PHOENIX make of suitable size with marking strips.

g. The last terminal in a rail-mounted assembly shall be closed with an end plate and end bracket.

IV. Documents to be Submitted by Vendor for Approval :

1. OGA for Transmitter Enclosure and Racks.

2. Layout of Components in each of Transmitter Enclosure and Rack.

3. Electrical diagrams for each Transmitter Enclosure and Rack.

4. Component datasheets

5. Quality plan including Welding Procedure specification and Welder Procedure qualification Record.

6. The quality plan shall include Visual inspection, GA BOM/Layout features verification, Dimensions, Paint shade, thickness measurement, Alignment of sections, component ratings, Wiring, IR, HV, review of TC for instruments / Devices, Accessibility of TBs / Devices, Illumination, Tubing and Degree of protection (Review of type test certificate)

V. Specific requirements

1. Where grouping is not provided for instruments, same shall be indicated during detailed engineering.
2. SS tubing between valve manifold and transmitter for each service shall be done as per Transmitter Model Nos with mounting details will be provided by BHEL EDN.In Case If Transmitter Model Nos with mounting details are not received before dispatch, Vendor has to supply tube and tube connectors and Erect the transmitters and valve manifold during commissioning time as per BHEL EDN Instruction.
3. Packing should be Wooden packing is must for all the LIR/TTE consignment. Delicate items to be bubble wrapped with sufficient care.

TECHNICAL REQUIREMENTS FOR TEMPERATURE TRANSMITTER JUNCTION BOX:

1. The Junction Box is provided for mounting Pipe Mounted Temperature Transmitters. This shall be constructed of 3.0 mm thick steel sheet material. These shall confirm to IP 55 protection class.

2. The Junction Box shall be of following sizes (in millimeters).

   Type A – 800(W) x 500(D) x 900(H) (Shall have three rows of 2" pipe & 150 terminals)
   Type B - 800(W) x 500(D) x 600(H) (Shall have two rows of 2" pipe & 60 terminals)
   Type C - 800(W) x 500(D) x 400(H) (Shall have one rows of 2" pipe & 40 terminals)

3. These shall be reinforced as required to ensure true surfaces and to provide adequate support for instruments and other equipment mounted therein. Doors shall be provided and shall be arranged for maximum possible access to the module interior. Center posts or any member which would reduce access shall not be provided.

4. The doors shall be the three-point locking type constructed of not less than 3.0 mm steel sheet. Doors shall have concealed quick removal type pinned hinges and locking handles. Junction Box door locks shall accept the same / common key all over the plant. Gaskets shall be used between all mating sections to achieve dust proof enclosure rating. All Junction Box shall have access doors on Front side.

5. All the junction boxes shall be suitable for mounting on walls, columns, structures etc. The brackets, nuts, bolts, screws, gland and lugs required for erection are in supplier's scope.

6. Vendor shall furnish general arrangement diagrams for each type of transmitter Junction Box for approval.

7. Surface preparation And Painting

   a. All sheet metal / exterior steel surfaces shall rust free and scale free and all other residue during fabrication operation such as Oil, grease and salts etc. shall be removed by one or more solvent cleaning methods. Epoxy primer surface shall be applied to all exterior and interior surfaces. Epoxy paint shall be applied to all surfaces and the paint thickness shall be 100 to150 microns. The finish colours for exterior and interior surfaces shall conform to the shades mentioned in scope of supply.

8. **Terminal Blocks**

   a. Terminal blocks shall be DIN rail mounted and shall have Cage clamp type connection which shall be maintained for all panels uniformly.

   b. The rated cross section of the terminal blocks shall be suitable for connecting 0.5-mm²/2.5 mm². Conductor of suitable voltage grade as specified.

c. Terminal blocks shall be mounted vertically with adequate spacing between rows for routing the cable troughs and to allow adequate free workspace for termination and removal of wires.

d. Terminal blocks shall be provided with white marking strips/self adhesive marker cards.

e. Terminal blocks for termination of electrical power supply shall be type WAGO / PHOENIX make of suitable size with marking strips.

f. The last terminal in a rail-mounted assembly shall be closed with an end plate and end bracket.

9. <u>Documents to be Submitted by Vendor for Approval :</u>

a. OGA for Junction Box.

b. Layout of Transmitter in each Type of Junction Box.

c. Quality plan. This will be approved by BHEL / (END USER)

d. The quality plan shall include Visual inspection, GA BOM/Layout features verification, Dimensions, Paint shade, thickness measurement, IR, HV, Accessibility of TBs / Devices, Degree of protection (Review of type test certificate)

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

INSTRUMENT SCHEDULE

REVISIONS :

APPROVED

PUNIT PRATAP SINGH

PREPARED BY	ISSUED	DATE
RAJESH L	416	24/08/23

KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
90HJF51CT001	HEATER A OUTLET TEMPERATURE	TT							1					FOPH-TTJB-01	
90HJF51CT002	HEATER A OUTLET TEMPERATURE	TT							1					FOPH-TTJB-01	
90HJF51CT003	HEATER A OUTLET TEMPERATURE	TT							1					FOPH-TTJB-01	
90HJF52CT001	HEATER B OUTLET TEMPERATURE	TT							1					FOPH-TTJB-02	
90HJF52CT002	HEATER B OUTLET TEMPERATURE	TT							1					FOPH-TTJB-02	
90HJF52CT003	HEATER B OUTLET TEMPERATURE	TT							1					FOPH-TTJB-02	
90HJF53CT001	HEATER C OUTLET TEMPERATURE	TT							1					FOPH-TTJB-03	
90HJF53CT002	HEATER C OUTLET TEMPERATURE	TT							1					FOPH-TTJB-03	
90HJF53CT003	HEATER C OUTLET TEMPERATURE	TT							1					FOPH-TTJB-03	
90HJF70CT001	COOLER OUTLET HFO TEMPERATURE	TT							1					FOPH-TTJB-04	
90HJF70CT002	COOLER OUTLET HFO TEMPERATURE	TT							1					FOPH-TTJB-04	
90HJF27CT001	DRAIN OIL TANK TEMPERATURE (PUMP HOUSE)	TT							1					FOPI-JB-10	
90HJF40CT001	TEMPERATURE AT PUMP HOUSE INLET	TT							1					FOPI-JB-12	
90HJF50CT001	TEMPERATURE AT HFO HEATER INLET	TT							1					FOPI-JB-12	
90HJF60CT001	HFO HEATER OUTLET (COMMON LINE) OUTLET TEMPERATURE	TT							1					FOPI-JB-12	
90HJF60CT002	HFO HEATER OUTLET (COMMON LINE) OUTLET TEMPERATURE	TT							1					FOPI-JB-12	
90HJT20CT001	HEATING STEAM TEMPERATURE	TT							1					FOPI-JB-12	
HHL40CP101	SADC PRESSURE SWITCH-COAL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-16	
HHL40CP102	SADC PRESSURE SWITCH-COAL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-16	
HHL40CP111	SADC PRESSURE SWITCH-OIL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-16	
HHL40CP121	SADC PRESSURE SWITCH-AUX AIR ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-16	
HHL40CP122	SADC PRESSURE SWITCH-AUX AIR ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-16	
HHL40CP141	SADC PRESSURE SWITCH-CFS ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-16	
HHL40CP103	SADC PRESSURE SWITCH-COAL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-17	
HHL40CP104	SADC PRESSURE SWITCH-COAL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-17	
HHL40CP112	SADC PRESSURE SWITCH-OIL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-17	
HHL40CP123	SADC PRESSURE SWITCH-AUX AIR ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-17	
HHL40CP142	SADC PRESSURE SWITCH-CFS ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-17	
HHL40CP143	SADC PRESSURE SWITCH-CFS ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-17	
HHL40CP105	SADC PRESSURE SWITCH-COAL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-18	
HHL40CP106	SADC PRESSURE SWITCH-COAL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-18	
HHL40CP113	SADC PRESSURE SWITCH-OIL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-18	
HHL40CP124	SADC PRESSURE SWITCH-AUX AIR ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-18	
HHL40CP144	SADC PRESSURE SWITCH-CFS ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-18	
HHL40CP145	SADC PRESSURE SWITCH-CFS ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-18	
HHL40CP107	SADC PRESSURE SWITCH-COAL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-19	
HHL40CP114	SADC PRESSURE SWITCH-OIL ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-19	
HHL40CP125	SADC PRESSURE SWITCH-AUX AIR ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-19	
HHL40CP126	SADC PRESSURE SWITCH-AUX AIR ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-19	
HHL40CP146	SADC PRESSURE SWITCH-CFS ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-19	
HHL40CP127	SADC PRESSURE SWITCH-LSOFA ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-20	
HHL40CP128	SADC PRESSURE SWITCH-LSOFA ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-20	
HHL40CP129	SADC PRESSURE SWITCH-LSOFA ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-20	
HHL40CP130	SADC PRESSURE SWITCH-HSOFA ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-21	
HHL40CP131	SADC PRESSURE SWITCH-HSOFA ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-21	
HHL40CP132	SADC PRESSURE SWITCH-HSOFA ELEV.	PS	SEC AIR	0.2	1	Kg/Cm2			2					FSSS- LIE-21	
LBA11CP011	MAIN STEAM LINE PRESSURE -LEFT	PT	STEAM	278	278	Kg/Cm2	596	596	2	2				FSSS-LIE-14	
LBA11CP012	MAIN STEAM LINE PRESSURE -LEFT	PT	STEAM	278	278	Kg/Cm2	596	596	2	2				FSSS-LIE-14	
LBA11CP013	MAIN STEAM LINE PRESSURE -LEFT	PT	STEAM	278	278	Kg/Cm2	596	596	2	2				FSSS-LIE-14	
LBA12CP011	MAIN STEAM LINE PRESSURE -RIGHT	PT	STEAM	278	278	Kg/Cm2	596	596	2	2				FSSS-LIE-15	
LBA12CP012	MAIN STEAM LINE PRESSURE -RIGHT	PT	STEAM	278	278	Kg/Cm2	596	596	2	2				FSSS-LIE-15	
LBA12CP013	MAIN STEAM LINE PRESSURE -RIGHT	PT	STEAM	278	278	Kg/Cm2	596	596	2	2				FSSS-LIE-15	
10LCB01CT001	CEP-A THRUST BEARING TH.PAD TEMPERATURE	TT							2					HYD-CEP-A-001	
10LCB01CT002	CEP-A THRUST BEARING TH.PAD TEMPERATURE	TT							2					HYD-CEP-A-001	
10LCB01CT003	CEP-A THRUST BEARING JOURNAL PAD TEMP	TT							2					HYD-CEP-A-001	
10LCB01CT004	CEP-A THRUST BEARING OIL TEMPERATURE	TT							2					HYD-CEP-A-001	
10LCB01CT010	CEP-A MOTOR BEARING METAL TEMP, DE	TT							2					HYD-CEP-A-001	
10LCB01CT011	CEP-A MOTOR BEARING METAL TEMP, NDE	TT							2					HYD-CEP-A-001	
10LCB02CT001	CEP-B THRUST BEARING TH.PAD TEMPERATURE	TT							2					HYD-CEP-B-001	

NOTE:FOR SHCEME NO 16 AND 18 -WHERE EVER DESIGN PRESSURE >=40KG/CM2-TWO DRAIN VALVES SHALL BE PROVIDED PER LINE.

KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
10LCB02CT002	CEP-B THRUST BEARING TH.PAD TEMPERATURE	TT							2					HYD-CEP-B-001	
10LCB02CT003	CEP-B THRUST BEARING JOURNAL PAD TEMP	TT							2					HYD-CEP-B-001	
10LCB02CT004	CEP-B THRUST BEARING OIL TEMPERATURE	TT							2					HYD-CEP-B-001	
10LCB02CT010	CEP-B MOTOR BEARING METAL TEMP, DE	TT							2					HYD-CEP-B-001	
10LCB02CT011	CEP-B MOTOR BEARING METAL TEMP, NDE	TT							2					HYD-CEP-B-001	
10LCB03CT001	CEP-C THRUST BEARING TH.PAD TEMPERATURE	TT							2					HYD-CEP-C-001	
10LCB03CT002	CEP-C THRUST BEARING TH.PAD TEMPERATURE	TT							2					HYD-CEP-C-001	
10LCB03CT003	CEP-C THRUST BEARING JOURNAL PAD TEMP	TT							2					HYD-CEP-C-001	
10LCB03CT004	CEP-C THRUST BEARING OIL TEMPERATURE	TT							2					HYD-CEP-C-001	
10LCB03CT010	CEP-C MOTOR BEARING METAL TEMP, DE	TT							2					HYD-CEP-C-001	
10LCB03CT011	CEP-C MOTOR BEARING METAL TEMP, NDE	TT							2					HYD-CEP-C-001	
10LACV30CT110	BRG METAL TEMP BP THRUST BRG	TT							2					HYD-MDBFP-001	
10LACV30CT111	BRG METAL TEMP BP THRUST BRG	TT							2					HYD-MDBFP-001	
10LAV30 CT001	BRG METAL TEMP BP THRUST BRG	TT							2					HYD-MDBFP-001	
10LAV30 CT002	BRG METAL TEMP BP THRUST BRG	TT							2					HYD-MDBFP-001	
10LAV30 CT103	BRG METAL TEMP BP JOURNAL BRG -- NDE	TT							2					HYD-MDBFP-001	
10LAV30 CT104	BRG METAL TEMP BP JOURNAL BRG --DE	TT							2					HYD-MDBFP-001	
10LAV30 CT111	BRG METAL TEMP BFP THRUST BRG	TT							2					HYD-MDBFP-001	
10LAV30 CT112	BRG METAL TEMP BFP THRUST BRG	TT							2					HYD-MDBFP-001	
10LAV30 CT113	BRG METAL TEMP BFP JOURNAL BRG -- DE	TT							2					HYD-MDBFP-001	
10LAV30 CT114	BRG METAL TEMP BFP JOURNAL BRG -- NDE	TT							2					HYD-MDBFP-001	
10LAB30CT020	BFP SUCT.FEED WATER TEMP.	TT							2					HYD-MDBFP-002	
10LAB30CT023	BFP DISCH.FEED WATER TEMP.	TT							2					HYD-MDBFP-002	
10LAC30CT026	BFP BARREL TEMP., TOP	TT							2					HYD-MDBFP-002	
10LAC30CT027	BFP BARREL TEMP., BOTTOM	TT							2					HYD-MDBFP-002	
10PGB30CT101	BP MECH SEAL COOLER-NDE S.W INLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT102	BP MECH SEAL COOLER-NDE S.W OUTLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT103	BP MECH SEAL COOLER-DE S.W INLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT104	BP MECH SEAL COOLER-DE S.W OUTLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT105	BP MECH SEAL COOLER-NDE C.W OUTLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT106	BP MECH SEAL COOLER-DE C.W OUTLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT107	BFP MEC SEAL COOLER-DE S.W INLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT108	BFP MEC SEAL COOLER-DE S.W OUTLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT109	BFP MEC SEAL COOLER-NDE S.W INLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT110	BFP MEC SEAL COOLER-NDE S.W OUTLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT111	BFP MEC SEAL COOLER-NDE C.W OUTLET TEMP	TT							2					HYD-MDBFP-003	
10PGB30CT112	BFP MEC SEAL COOLER-DE C.W OUTLET TEMP	TT							2					HYD-MDBFP-003	
10LAV30 CT115	OIL DRAIN TEMP BFP JOURNAL BRG--DE	TT							2					HYD-MDBFP-004	
10LAV30 CT116	OIL DRAIN TEMP BFP JOUR BRG-NDE&TH BRG	TT							2					HYD-MDBFP-004	
10LAV30 CT105	OIL DRAIN TEMP BP JOUR BRG-NDE&TH BRG	TT							2					HYD-MDBFP-004	
10LAV30 CT106	OIL DRAIN TEMP BP JOURNAL BRG--DE	TT							2					HYD-MDBFP-004	
10LAV32 CT125	MTR BRG. DRAIN OIL TEMP. BP END	TT							2					HYD-MDBFP-004	
10LAV32 CT126	MTR BRG. DRAIN OIL TEMP. HC END	TT							2					HYD-MDBFP-004	
10LAV10 CT001	BRG METAL TEMP BP THRUST BRG (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT002	BRG METAL TEMP BP THRUST BRG (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT103	BRG METAL TEMP BP JOURNAL BRG -- NDE (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT104	BRG METAL TEMP BP JOURNAL BRG --DE (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT111	BRG METAL TEMP BFP THRUST BRG (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT112	BRG METAL TEMP BFP THRUST BRG (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT113	BRG METAL TEMP BFP JOURNAL BRG -- DE (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT114	BRG METAL TEMP BFP JOURNAL BRG -- DE (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT115	BRG METAL TEMP BFP JOURNAL BRG -- DE (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT116	BRG METAL TEMP BFP JOURNAL BRG -- NDE (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT117	BRG METAL TEMP BFP JOURNAL BRG -- NDE (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAV10 CT118	BRG METAL TEMP BFP JOURNAL BRG -- NDE (TDBFP-A)	TT							2					HYD-TDBFP-A-001	
10LAB10CT020	BFP SUCT.FEED WATER TEMP. **(TDBFP-A)**	TT							2					HYD-TDBFP-A-002	
10LAB10CT023	BFP DISCH.FEED WATER TEMP.**(TDBFP-A)**	TT							2					HYD-TDBFP-A-002	
10LAC10CT026	BFP BARREL TEMP., TOP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-002	
10LAC10CT027	BFP BARREL TEMP., BOTTOM **(TDBFP-A**)	TT							2					HYD-TDBFP-A-002	

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KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
10PGB10CT101	BP MECH SEAL COOLER-NDE S.W INLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT102	BP MECH SEAL COOLER-NDE S.W OUTLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT103	BP MECH SEAL COOLER-DE S.W INLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT104	BP MECH SEAL COOLER-DE S.W OUTLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT105	BP MECH SEAL COOLER-NDE C.W OUTLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT106	BP MECH SEAL COOLER-DE C.W OUTLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT107	BFP MEC SEAL COOLER-DE S.W INLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT108	BFP MEC SEAL COOLER-DE S.W OUTLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT109	BFP MEC SEAL COOLER-NDE S.W INLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT110	BFP MEC SEAL COOLER-NDE S.W OUTLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT111	BFP MEC SEAL COOLER-NDE C.W OUTLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10PGB10CT112	BFP MEC SEAL COOLER-DE C.W OUTLET TEMP **(TDBFP-A)**	TT							2					HYD-TDBFP-A-003	
10LAC10CT105	OIL DRAIL TEMP BP JOUR BRG-NDE&TH BRG **(TDBFP-A)**	TT							2					HYD-TDBFP-A-004	
10LAC10CT106	OIL DRAIL TEMP BP JOURNAL BRG--DE **(TDBFP-A)**	TT							2					HYD-TDBFP-A-004	
10LAC10CT118	OIL DRAIL TEMP BFP JOURNAL BRG--DE **(TDBFP-A)**	TT							2					HYD-TDBFP-A-004	
10LAC10CT119	OIL DRAIL TEMP BFP JOUR BRG-NDE&TH BRG **(TDBFP-A)**	TT							2					HYD-TDBFP-A-004	
10LAV20 CT001	BRG METAL TEMP BP THRUST BRG (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT002	BRG METAL TEMP BP THRUST BRG (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT103	BRG METAL TEMP BP JOURNAL BRG -- NDE (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT104	BRG METAL TEMP BP JOURNAL BRG --DE (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT111	BRG METAL TEMP BFP THRUST BRG (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT112	BRG METAL TEMP BFP THRUST BRG (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT113	BRG METAL TEMP BFP JOURNAL BRG -- DE (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT114	BRG METAL TEMP BFP JOURNAL BRG -- DE (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT115	BRG METAL TEMP BFP JOURNAL BRG -- DE (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT116	BRG METAL TEMP BFP JOURNAL BRG -- NDE (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT117	BRG METAL TEMP BFP JOURNAL BRG -- NDE (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAV20 CT118	BRG METAL TEMP BFP JOURNAL BRG -- NDE (TDBFP-B)	TT							2					HYD-TDBFP-B-001	
10LAB20CT020	BFP SUCT.FEED WATER TEMP. **(TDBFP-B)**	TT							2					HYD-TDBFP-B-002	
10LAB20CT023	BFP DISCH.FEED WATER TEMP.**(TDBFP-B)**	TT							2					HYD-TDBFP-B-002	
10LAC20CT026	BFP BARREL TEMP., TOP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-002	
10LAC20CT027	BFP BARREL TEMP., BOTTOM **(TDBFP-B**)	TT							2					HYD-TDBFP-B-002	
10PGB20CT101	BP MECH SEAL COOLER-NDE S.W INLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT102	BP MECH SEAL COOLER-NDE S.W OUTLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT103	BP MECH SEAL COOLER-DE S.W INLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT104	BP MECH SEAL COOLER-DE S.W OUTLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT105	BP MECH SEAL COOLER-NDE C.W OUTLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT106	BP MECH SEAL COOLER-DE C.W OUTLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT107	BFP MEC SEAL COOLER-DE S.W INLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT108	BFP MEC SEAL COOLER-DE S.W OUTLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT109	BFP MEC SEAL COOLER-NDE S.W INLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT110	BFP MEC SEAL COOLER-NDE S.W OUTLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT111	BFP MEC SEAL COOLER-NDE C.W OUTLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10PGB20CT112	BFP MEC SEAL COOLER-DE C.W OUTLET TEMP **(TDBFP-B)**	TT							2					HYD-TDBFP-B-003	
10LAC20CT105	OIL DRAIL TEMP BP JOUR BRG-NDE&TH BRG **(TDBFP-B)**	TT							2					HYD-TDBFP-B-004	
10LAC20CT106	OIL DRAIL TEMP BP JOURNAL BRG--DE **(TDBFP-B)**	TT							2					HYD-TDBFP-B-004	
10LAC20CT118	OIL DRAIL TEMP BFP JOURNAL BRG--DE **(TDBFP-B)**	TT							2					HYD-TDBFP-B-004	
10LAC20CT119	OIL DRAIL TEMP BFP JOUR BRG-NDE&TH BRG **(TDBFP-B)**	TT							2					HYD-TDBFP-B-004	
MAW60CT001	BFPDT-A AUXILIARY STEAM TO GLAND STEAM TEMPERATURE	TT							2					HYD-TTE-001	
MTA01CT004A	BFPDT-A TURBINE EXHAUST HOOD TEMPERATURE	TT							2					HYD-TTE-001	
MTA01CT005A	BFPDT-A TURBINE EXHAUST HOOD TEMPERATURE	TT							2					HYD-TTE-001	
XAA51CT054	BFPDT-A TURBINE 100% CASING TEMPERATURE	TT							2					HYD-TTE-001	
XAA51CT054A	BFPDT-A TURBINE 50% CASING TEMPERATURE	TT							2					HYD-TTE-001	
XAL04CT001A	BFPDT-A TURBINE CASING DRAIN TEMPERATURE	TT							2					HYD-TTE-001	
XAL04CT002A	BFPDT-A TURBINE CASING DRAIN TEMPERATURE	TT							2					HYD-TTE-001	
XAL04CT003A	BFPDT-A TURBINE CASING CROSS DRAIN TEMPERATURE	TT							2					HYD-TTE-001	
XAD11CT002D	BFPDT-A TURBINE RJB TEMPERATURE	TT							2					HYD-TTE-002	
XAD12CT002A	BFPDT-A TURBINE THRUST BEARING TEMPERATURE	TT							2					HYD-TTE-002	
XAD12CT002B	BFPDT-A TURBINE THRUST BEARING TEMPERATURE	TT							2					HYD-TTE-002	

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XAD12CT002C	BFPDT-A TURBINE FJB TEMPERATURE	TT							2					HYD-TTE-002	
XKD11CT002F	BFPDT-A GEAR BOX BEARING TEMPERATURE	TT							2					HYD-TTE-002	
XKD12CT002J	BFPDT-A GEAR BOX BEARING TEMPERATURE	TT							2					HYD-TTE-002	
XKD13CT002F	BFPDT-A GEAR BOX THRUST BEARING TEMPERATURE	TT							2					HYD-TTE-002	
XKD13CT002G	BFPDT-A GEAR BOX THRUST BEARING TEMPERATURE	TT							2					HYD-TTE-002	
XKD13CT002H	BFPDT-A GEAR BOX BEARING TEMPERATURE	TT							2					HYD-TTE-002	
XKD14CT002I	BFPDT-A GEAR BOX BEARING TEMPERATURE	TT							2					HYD-TTE-002	
MAW61CT001	BFPDT-B AUXILIARY STEAM TO GLAND STEAM TEMPERATURE	TT							2					HYD-TTE-003	
MTA02CT004A	BFPDT-B TURBINE EXHAUST HOOD TEMPERATURE	TT							2					HYD-TTE-003	
MTA02CT005A	BFPDT-B TURBINE EXHAUST HOOD TEMPERATURE	TT							2					HYD-TTE-003	
XAA52CT054	BFPDT-B TURBINE 100% CASING TEMPERATURE	TT							2					HYD-TTE-003	
XAA52CT054A	BFPDT-B TURBINE 50% CASING TEMPERATURE	TT							2					HYD-TTE-003	
XAL05CT001A	BFPDT-B TURBINE CASING DRAIN TEMPERATURE	TT							2					HYD-TTE-003	
XAL05CT002A	BFPDT-B TURBINE CASING DRAIN TEMPERATURE	TT							2					HYD-TTE-003	
XAL05CT003A	BFPDT-B TURBINE CASING CROSS DRAIN TEMPERATURE	TT							2					HYD-TTE-003	
XAD21CT002D	BFPDT-B TURBINE RJB TEMPERATURE	TT							2					HYD-TTE-004	
XAD22CT002A	BFPDT-B TURBINE THRUST BEARING TEMPERATURE	TT							2					HYD-TTE-004	
XAD22CT002B	BFPDT-B TURBINE THRUST BEARING TEMPERATURE	TT							2					HYD-TTE-004	
XAD22CT002C	BFPDT-B TURBINE FJB TEMPERATURE	TT							2					HYD-TTE-004	
XKD21CT002F	BFPDT-B GEAR BOX BEARING TEMPERATURE	TT							2					HYD-TTE-004	
XKD22CT002J	BFPDT-B GEAR BOX BEARING TEMPERATURE	TT							2					HYD-TTE-004	
XKD23CT002F	BFPDT-B GEAR BOX THRUST BEARING TEMPERATURE	TT							2					HYD-TTE-004	
XKD23CT002G	BFPDT-B GEAR BOX THRUST BEARING TEMPERATURE	TT							2					HYD-TTE-004	
XKD23CT002H	BFPDT-B GEAR BOX BEARING TEMPERATURE	TT							2					HYD-TTE-004	
XKD24CT002I	BFPDT-B GEAR BOX BEARING TEMPERATURE	TT							2					HYD-TTE-004	
10LBA10CT005A	MS U/STR T HPBP 1	TT							2					LBA10GU001	
10LBA10CT006A	MS U/STR T HPBP 1	TT							2					LBA10GU001	
10LBB10CT005A	MS U/STR HPBP2	TT							2					LBA10GU001	
10LBB10CT006A	MS U/STR HPBP2	TT							2					LBA10GU001	
10LBB21CT001A	IPS B/P-V 1 U/STR T	TT							2					LBB00GU001	
10LBB21CT002A	IPS B/P-V 1 U/STR T	TT							2					LBB00GU001	
10LBB22CT001A	IPS B/P-V 2 U/STR T	TT							2					LBB00GU001	
10LBB22CT002A	IPS B/P-V 2 U/STR T	TT							2					LBB00GU001	
10LBA11CT007A	MS ESV 1 U/STR T	TT							2					LBB00GU002	
10LBA12CT007A	MS ESV 2 U/STR T	TT							2					LBB00GU002	
10LBB11CT007A	INTCPT ESV 1 U/STR T	TT							2					LBB00GU002	
10LBB12CT007A	INTCPT ESV 2 U/STR T	TT							2					LBB00GU002	
10LBC10CT001A	CRH NRF U/STR T	TT							2					LBC00GU001	
10LBG30CT001A	SUP-V U/STR SS T	TT							2					LBC00GU001	
10LBG30CT002A	SUP-V U/STR SS T	TT							2					LBC00GU001	
HFC01CP001	MILL A BOWL DP	DPT	COAL + AIR	750/288	929/332	mmWC	287/66	331/90	2	20	Yes	2	Yes	LIE-01	
HFE71CF001	MIXED AIR BEFORE MILL:A FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-01	
HFE71CF002	MIXED AIR BEFORE MILL:A FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-01	
HFE71CF003	MIXED AIR BEFORE MILL:A FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-01	
HFE71CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-A	PT	HOT PY AIR	750	929	mmWC	287	331	2	18		1		LIE-01	
HFW21CP001	SEAL AIR TO UNDER BOWL DIF PRESS MILL-A	DPT	SEAL AIR	1063/750	1235/929	mmWC	--	50/ 331	2	20		2		LIE-01	
HFC02CP001	MILL B BOWL DP	DPT	COAL + AIR	750/288	929/332	mmWC	287/66	331/90	2	20	Yes	2	Yes	LIE-02	
HFE72CF001	MIXED AIR BEFORE MILL:B FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-02	
HFE72CF002	MIXED AIR BEFORE MILL:B FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-02	
HFE72CF003	MIXED AIR BEFORE MILL:B FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-02	
HFE72CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-B	PT	HOT PY AIR	750	929	mmWC	287	331	2	18		1		LIE-02	
HFW22CP001	SEAL AIR TO UNDER BOWL DIF PRESS MILL-B	DPT	SEAL AIR	1063/750	1235/929	mmWC	--	50/ 331	2	20		2		LIE-02	
HFC03CP001	MILL C BOWL DP	DPT	COAL + AIR	750/288	929/332	mmWC	287/66	331/90	2	20	Yes	2	Yes	LIE-03	
HFE73CF001	MIXED AIR BEFORE MILL:C FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-03	
HFE73CF002	MIXED AIR BEFORE MILL:C FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-03	
HFE73CF003	MIXED AIR BEFORE MILL:C FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-03	
HFE73CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-C	PT	HOT PY AIR	750	929	mmWC	287	331	2	18		1		LIE-03	
HFW23CP001	SEAL AIR TO UNDER BOWL DIF PRESS MILL-C	DPT	SEAL AIR	1063/750	1235/929	mmWC	--	50/ 331	2	20		2		LIE-03	
HFC04CP001	MILL D BOWL DP	DPT	COAL + AIR	750/288	929/332	mmWC	287/66	331/90	2	20	Yes	2	Yes	LIE-04	

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KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
HFE74CF001	MIXED AIR BEFORE MILL:D FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-04	
HFE74CF002	MIXED AIR BEFORE MILL:D FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-04	
HFE74CF003	MIXED AIR BEFORE MILL:D FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-04	
HFE74CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-D	PT	HOT PY AIR	750	929	mmWC	287	331	2	18		1		LIE-04	
HFW24CP001	SEAL AIR TO UNDER BOWL DIF PRESS MILL-D	DPT	SEAL AIR	1063/750	1235/929	mmWC	--	50/ 331	2	20		2		LIE-04	
HFC05CP001	MILL E BOWL DP	DPT	COAL + AIR	750/288	929/332	mmWC	287/66	331/90	2	20	Yes	2	Yes	LIE-05	
HFE75CF001	MIXED AIR BEFORE MILL:E FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-05	
HFE75CF002	MIXED AIR BEFORE MILL:E FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-05	
HFE75CF003	MIXED AIR BEFORE MILL:E FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-05	
HFE75CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-E	PT	HOT PY AIR	750	929	mmWC	287	331	2	18		1		LIE-05	
HFW25CP001	SEAL AIR TO UNDER BOWL DIF PRESS MILL-E	DPT	SEAL AIR	1063/750	1235/929	mmWC	--	50/ 331	2	20		2		LIE-05	
HFC06CP001	MILL F BOWL DP	DPT	COAL + AIR	750/288	929/332	mmWC	287/66	331/90	2	20	Yes	2	Yes	LIE-06	
HFE76CF001	MIXED AIR BEFORE MILL:F FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-06	
HFE76CF002	MIXED AIR BEFORE MILL:F FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-06	
HFE76CF003	MIXED AIR BEFORE MILL:F FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-06	
HFE76CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-F	PT	HOT PY AIR	750	929	mmWC	287	331	2	18		1		LIE-06	
HFW26CP001	SEAL AIR TO UNDER BOWL DIF PRESS MILL-F	DPT	SEAL AIR	1063/750	1235/929	mmWC	--	50/ 331	2	20		2		LIE-06	
HFC07CP001	MILL G BOWL DP	DPT	COAL + AIR	750/288	929/332	mmWC	287/66	331/90	2	20	Yes	2	Yes	LIE-07	
HFE77CF001	MIXED AIR BEFORE MILL:G FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-07	
HFE77CF002	MIXED AIR BEFORE MILL:G FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-07	
HFE77CF003	MIXED AIR BEFORE MILL:G FLOW	FT	HOT PY AIR	750	929	mmWC	287	331	2	20		2		LIE-07	
HFE77CP001	MIXED PA PRESS BEFORE VENTURI FOR MILL-G	PT	HOT PY AIR	750	929	mmWC	287	331	2	18		1		LIE-07	
HFW27CP001	SEAL AIR TO UNDER BOWL DIF PRESS MILL-G	DPT	SEAL AIR	1063/750	1235/929	mmWC	--	50/ 331	2	20		2		LIE-07	
HBK10CP001	FURNACE PRESS(WIDE RANGE)-L	PT	FLUE GAS	-3	-4	mmWC	1126	1200	2	18	Yes	1	Yes	LIE-08	
HBK10CP003	FURNACE PRESS - L	PT	FLUE GAS	-3	-4	mmWC	1126	1200	2	18		1		LIE-08	
HBK10CP004	FURNACE PRESS - L	PT	FLUE GAS	-3	-4	mmWC	1126	1200	2	18		1		LIE-08	
HBK10CP005	FURNACE TO HOT PA HDR DIF PRESS-L	DPT	FLUE GAS / PY. AIR	-3/ 931	-4/ 954	mmWC	1126/ 331	1200/331	2	20		2		LIE-08	
HHL20CP001	WIND BOX PRESS - L	PT	SEC AIR	102	102	mmWC	336	336	2	18		1		LIE-08	
HBK15CP001	FURNACE PRESS(WIDE RANGE)-R	PT	FLUE GAS	-3	-4	mmWC	1126	1200	2	18	Yes	1	Yes	LIE-09	
HBK15CP004	FURNACE PRESS-R	PT	FLUE GAS	-3	-4	mmWC	1126	1200	2	18		1		LIE-09	
HBK15CP005	FURNACE TO HOT PA HEADER DIFF. PRESSURE-R	DPT	FLUE GAS / PY. AIR	-3/ 931	-4/ 954	mmWC	1126/ 331	1200/331	2	20		2		LIE-09	
HBK15CP006	FURNACE TO HOT PA HEADER DIFF. PRESSURE-R	DPT	FLUE GAS / PY. AIR	-3/ 931	-4/ 954	mmWC	1126/ 331	1200/331	2	20		2		LIE-09	
HHL25CP001	WIND BOX PRESS - R	PT	SEC AIR	102	102	mmWC	336	336	2	18		1		LIE-09	
HHQ10CP001	DP ACROSS SCANNER AIR FILTER	DPT	SCA. AIR	333	490	mmWC	35	44	2	20				LIE-10	
HHQ20CP001	SCANNER AIR FAN OUTLET PRESS	PT	SCA. AIR	533	690	mmWC	35	44	2	18				LIE-10	
HHQ20CP002	SCANNER AIR/FURNACE DIFF PRESS	DPT	SCA. AIR / FLUE GAS	533/ -3	690/ -4	mmWC	33/ 1126	45/ 1200	2	20	Yes	2	Yes	LIE-10	
HBK20CP001	PANELLETTE SH O/L PRESS-L	PT	FLUE GAS	-3	-4	mmWC	1126	1200	2	18	Yes	1	Yes	LIE-11	
HBK30CP001	SH PLATEN O/L PRESS-L	PT	FLUE GAS	-4	-8	mmWC	1033	1100	2	18		1		LIE-11	
HBK30CQ001	O2 ANALYSER AT SH PLATEN OUTLET - LEFT	AT	FLUE GAS						2					LIE-11	
HBK30CQ002	O2 ANALYSER AT SH PLATEN OUTLET - LEFT	AT	FLUE GAS						2					LIE-11	
HBK40CP001	FINISH RH O/L PRESS-L	PT	FLUE GAS	-6	-14	mmWC	932	1050	2	18		1		LIE-11	
HBK25CP001	PANELLETTE SH O/L PRESS-R	PT	FLUE GAS	-3	-4	mmWC	1126	1200	2	18	Yes	1	Yes	LIE-12	
HBK35CP001	SH PLATEN O/L PRESS-R	PT	FLUE GAS	-4	-8	mmWC	1033	1100	2	18		1		LIE-12	
HBK35CQ001	O2 ANALYSER AT SH PLATEN OUTLET - RIGHT	AT	FLUE GAS						2					LIE-12	
HBK45CP001	FINISH RH O/L PRESS-R	PT	FLUE GAS	-6	-14	mmWC	932	1050	2	18		1		LIE-12	
HBK50CP001	FINISH SH O/L PRESS-L	PT	FLUE GAS	-18	-37	mmWC	757	850	2	18	Yes	1	Yes	LIE-13	
HBK60CP001	LTRH OUTLET (ECONOMISER INLET) PRESSURE - LEFT	PT	FLUE GAS	-55	-81	mmWC	487	600	2	18		1		LIE-13	
HBK55CP001	FINISH SH O/L PRESS-R	PT	FLUE GAS	-18	-37	mmWC	757	850	2	18	Yes	1	Yes	LIE-14	
HBK65CP001	LTRH OUTLET (ECONOMISER INLET) PRESSURE - RIGHT	PT	FLUE GAS	-55	-81	mmWC	487	600	2	18		1		LIE-14	
HHL10CF001	HOT SEC. AIR FLOW - LEFT	FT	SEC AIR	162	233	mmWC	336	336	2	20	Yes	2	Yes	LIE-15	
HHL10CF002	HOT SEC. AIR FLOW - LEFT	FT	SEC AIR	162	233	mmWC	336	336	2	20		2		LIE-15	
HHL10CF003	HOT SEC. AIR FLOW - LEFT	FT	SEC AIR	162	233	mmWC	336	336	2	20		2		LIE-15	
HHL15CF001	HOT SEC. AIR FLOW - RIGHT	FT	SEC AIR	162	233	mmWC	336	336	2	20	Yes	2	Yes	LIE-16	
HHL15CF002	HOT SEC. AIR FLOW - RIGHT	FT	SEC AIR	162	233	mmWC	336	336	2	20		2		LIE-16	
HHL15CF003	HOT SEC. AIR FLOW - RIGHT	FT	SEC AIR	162	233	mmWC	336	336	2	20		2		LIE-16	
HFE30CP002	AH-A PY.AIR SIDE DIFF PRESS	DPT	PY. AIR	953 / 931	1191 / 1143	mmWC	40 / 331	49 / 331	2	20	Yes	2	Yes	LIE-17	
HLA20CP002	AH-A SEC AIR SIDE DIFF PRESS	DPT	SEC AIR	317 / 215	458 / 310	mmWC	35 / 336	44/ 336	2	20		2		LIE-17	
HNA10CP002	AH-A FLUE GAS SIDE DIFF PRESS	DPT	FLUE GAS	-123 / -236	-180/ -346	mmWC	366 / 127	400 / 140	2	20		2		LIE-17	

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HFE35CP002	AH-B PY.AIR SIDE DIFF PRESS	DPT	PY. AIR	953 / 931	1191 / 1143	mmWC	40 / 331	49 / 331	2	20	Yes	2	Yes	LIE-18	
HLA25CP002	AH-B SEC AIR SIDE DIFF PRESS	DPT	SEC AIR	317 / 215	458 / 310	mmWC	35 / 336	44/ 336	2	20		2		LIE-18	
HNA20CP002	AH-B FLUE GAS SIDE DIFF PRESS	DPT	FLUE GAS	-123 / -236	-180/ -346	mmWC	366 / 127	400 / 140	2	20		2		LIE-18	
HFE30CP001	AH-A PY. AIR INLET PRESS	PT	PY. AIR	953	1191	mmWC	40	49	2	18				LIE-19	
HLA20CP001	AH-A SEC. AIR INLET PRESS	PT	SEC AIR	317	458	mmWC	35	44	2	18	Yes	1	Yes	LIE-19	
HNA30CP001	AH-A FG OUTLET PRESS	PT	FLUE GAS	-236	-346	mmWC	127	140	2	18		1		LIE-19	
HFE35CP001	AH-B PY. AIR INLET PRESS	PT	PY. AIR	953	1191	mmWC	40	49	2	18				LIE-20	
HLA25CP001	AH-B SEC. AIR INLET PRESS	PT	SEC AIR	317	458	mmWC	35	44	2	18		1		LIE-20	
HNA35CP001	AH-B FG OUTLET PRESS	PT	FLUE GAS	-236	-346	mmWC	127	140	2	18	Yes	1	Yes	LIE-20	
HFE40CP001	AH-A PY. AIR OUTLET PRESS	PT	PY. AIR	931	1143	mmWC	331	331	2	18	YES	1	YES	LIE-21	
HLA30CP001	AH-A SEC. AIR OUTLET PRESS	PT	SEC AIR	215	310	mmWC	336	336	2	18		1		LIE-21	
HNA10CP001	ECONOMISER OUTLET PRESS-L	PT	FLUE GAS	-123	-180	mmWC	366	400	2	18		1		LIE-21	
HFE45CP001	AH-B PY. AIR OUTLET PRESS	PT	PY. AIR	931	1143	mmWC	331	331	2	18	YES	1	YES	LIE-22	
HLA35CP001	AH-B SEC. AIR OUTLET PRESS	PT	SEC AIR	215	310	mmWC	336	336	2	18		1		LIE-22	
HNA20CP001	ECONOMISER OUTLET PRESS-R	PT	FLUE GAS	-123	-180	mmWC	366	400	2	18		1		LIE-22	
HNA60CP002	ID FAN-A DP SUCTION CHAMBER & UPSTREAM OF IMPELLER IN HOUSING	DPT	FLUE GAS	-359/ 85	-534/ 134	mmWC	127	140	2	20		2		LIE-23	
HNA70CT001	ID FAN-A OUTLET TEMP	TT	FLUE GAS						2					LIE-23	
HNC10CP001	ID FAN-A SUCTION CHAMBER PRESS	PT	FLUE GAS	-359	-534	mmWC	127	140	2	18	Yes	1	Yes	LIE-23	
HNC10CP003	ID FAN-A O/L PRESS ST DIFFUSER	PT	FLUE GAS	85	134	mmWC	127	140	2	18		1		LIE-23	
HNC10CT029A	ID FAN-A SUCTION CHAMBER TEMP	TT	FLUE GAS						2					LIE-23	
HNA65CP002	ID FAN-B DP SUCTION CHAMBER & UPSTREAM OF IMPELLER IN HOUSING	DPT	FLUE GAS	-359/ 85	-534/ 134	mmWC	127	140	2	20		2		LIE-24	
HNA75CT001	ID FAN-B OUTLET TEMP	TT	FLUE GAS						2					LIE-24	
HNC15CP001	ID FAN-B SUCTION CHAMBER PRESS	PT	FLUE GAS	-359	-534	mmWC	127	140	2	18	Yes	1	Yes	LIE-24	
HNC15CP003	ID FAN-B O/L PRESS ST DIFFUSER	PT	FLUE GAS	85	134	mmWC	127	140	2	18		1		LIE-24	
HNC15CT029A	ID FAN-B SUCTION CHAMBER TEMP	TT	FLUE GAS						2					LIE-24	
HFE10CP001	PA FAN-A SUCTION PRESS	PT	PY. AIR	-28	-48	mmWC	32	41	2	18				LIE-25	
HFE10CP002	PA FAN-A DP BET SUCTION CHAMBER & IMPELLER IN HOUSING	DPT	PY. AIR	-28/ 962	-48/ 1213	mmWC	32	41	2	20				LIE-25	
HFE10CP003	PA FAN-A O/L PRESS AT DIFFUSER	PT	PY. AIR	962	1213	mmWC	40	49	2	18	YES	1	YES	LIE-25	
HFE10CT027A	PA FAN-A SUCTION TEMPERATURE	TT	PY. AIR						2					LIE-25	
HFE20CT001	PA FAN-A OUTLET TEMPERATURE	TT	PY. AIR						2					LIE-25	
HFE15CP001	PA FAN-B SUCTION PRESS	PT	PY. AIR	-28	-48	mmWC	32	41	2	18	YES	1	YES	LIE-26	
HFE15CP002	PA FAN-B DP BET SUCTION CHAMBER & IMPELLER IN HOUSING	DPT	PY. AIR	-28/ 962	-48/ 1213	mmWC	32	41	2	20		2		LIE-26	
HFE15CP003	PA FAN-B O/L PRESS AT DIFFUSER	PT	PY. AIR	962	1213	mmWC	40	49	2	18		1		LIE-26	
HFE15CT027A	PA FAN-B SUCTION TEMPERATURE	TT	PY. AIR						2					LIE-26	
HFE25CT001	PA FAN-B OUTLET TEMPERATURE	TT	PY. AIR						2					LIE-26	
HLA10CT001	FD FAN-A OUTLET TEMP	TT	SEC AIR						2					LIE-27	
HLB10CP001	FD FAN-A SUC PRESS	PT	SEC AIR	-13	-26	mmWC	32	41	2	18	Yes	1	Yes	LIE-27	
HLB10CP002	FD FAN-A DP ACRS PLANE P1 & P3	DPT	SEC AIR	-13/ 333	-26 / 490	mmWC	32	41	2	20		2		LIE-27	
HLB10CP003	FD FAN A&B O/L PRESS AT DIFFUSER	PT	SEC AIR	333	490	mmWC	35	44	2	18		1		LIE-27	
HLB10CT024A	FD FAN-A&B SUCTION TEMPERATURE	TT	SEC AIR						2					LIE-27	

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HLA15CT001	FD FAN-B OUTLET TEMP	TT	SEC AIR	333	490	mmWC	35	44	2	18	Yes	1	Yes	LIE-28	
HLB15CP001	FD FAN-B SUC PRESS	PT	SEC AIR	-13	-26	mmWC	32	41	2	18		1		LIE-28	
HLB15CP002	FD FAN-B DP ACRS PLANE P1 & P3	DPT	SEC AIR	-13/ 333	-26 / 490	mmWC	32	41	2	20		2		LIE-28	
HLB15CP003	FD FAN A&B O/L PRESS AT DIFFUSER	PT	SEC AIR	333	490	mmWC	35	44	2	18		1		LIE-28	
HLB15CT024A	FD FAN-A&B SUCTION TEMPERATURE	TT	SEC AIR	333	490	mmWC	35	44	2	18		1		LIE-28	
HJM01CP001	ATOMINSING STEAM HEADER PRESS	PT	ATM STEAM	7	7	Kg/Cm2	290	290	2	10				LIE-29	
HJM01CP002	ATOMINSING STEAM HEADER PRESS	PT	ATM STEAM	7	7	Kg/Cm2	290	290	2	10				LIE-29	
HJM01CP003	ATOMINSING STEAM HEADER PRESS	PT	ATM STEAM	7	7	Kg/Cm2	290	290	2	10				LIE-29	
HJM01CT001	ATOMINSING STEAM HEADER TEMP	TT	ATM STEAM						2					LIE-29	
HAG25CP001	STM PRESS. ACROSS BOILER WTR CIRC PMP	DPT	WATER	170.9	350.1	Kg/Cm2	347	348	2	8				LIE-30	
HAG25CP002	STM PRESS. ACROSS BOILER WTR CIRC PMP	DPT	WATER	170.9	350.1	Kg/Cm2	347	348	2	8				LIE-30	
HAG25CP003	STM PRESS. ACROSS BOILER WTR CIRC PMP	DPT	WATER	170.9	350.1	Kg/Cm2	347	348	2	8				LIE-30	
HAG15CP002	DP ACROSS STARTUP SYSTEM MIXING SPHERE	DPT	WATER	331	349.8	Kg/Cm2	308	348	2	8				LIE-31	
HAC10CF001	ECONOMISER I/L BOILER FEED WATER FLOW	FT	WATER	331	349.1	Kg/Cm2	308	348	2	8				LIE-32	
HAC10CF002	ECONOMISER I/L BOILER FEED WATER FLOW	FT	WATER	331	349.1	Kg/Cm2	308	348	2	8				LIE-32	
HAC10CF003	ECONOMISER I/L BOILER FEED WATER FLOW	FT	WATER	331	349.1	Kg/Cm2	308	348	2	8				LIE-32	
HAC10CP001	FW PRESS AT ECO. I/L	PT	WATER	331	349.1	Kg/Cm2	308	348	2	6				LIE-32	
HAC10CT004	ECO INLET HEADER DRAIN TEMP-L	TE	METAL	331	349.1	Kg/Cm2	308	348	2	6				LIE-32	
HAC27CT001	BCP COOLING WATER RETURN LINE TEMP	PRT-100	WATER	331	349.1	Kg/Cm2	308	348	2	6				LIE-32	
LBG70CP001	PRESSURE OF AUX STEAM TO SCAPH	PT	STEAM	16	20	Kg/Cm2	290	350	2	10				LIE-33	
LBG70CT201	TEMPERATURE OF AUX STEAM TO SCAPH	TT	Steam	331	349.1	Kg/Cm2	308	348	2	6				LIE-33	
LCL30CF001	CONDENSATE PUMP -A OUTLET FLOW	FT	Water	3	10	Kg/Cm2	110	177	2	12				LIE-34	
LCL30CF002	CONDENSATE PUMP -A OUTLET FLOW	FT	Water	3	10	Kg/Cm2	110	177	2	12				LIE-34	
LCL30CF003	CONDENSATE PUMP -B OUTLET FLOW	FT	Water	3	10	Kg/Cm2	110	177	2	12				LIE-35	
LCL30CF004	CONDENSATE PUMP -B OUTLET FLOW	FT	Water	3	10	Kg/Cm2	110	177	2	12				LIE-35	
LCL30CQ001	ANALYZER IN CONDENSATE PUMP DISCHARGE	AE	Water						2					LIE-35	
LBG80CP002	AUX ATEAM FOR MILL INERTING (MILLS : A,B&C)	PT	STEAM	16	20	Kg/Cm2	290	350	2	10				LIE-37	
LBG80CT202	TEMPERATURE OF AUX STEAM TO MILL INERTING (MILLS : A,B&C); (MILLS : A,B&C)	TT	Steam	16	20	Kg/Cm2	290	350	2	10				LIE-37	
HAD81CL001	WATER SEPARATOR STORAGE TANK 'A' LVL	LT	WATER	303.3	322.4	Kg/Cm2	447	469	2	4				LIE-41	
HAD81CL002	WATER SEPARATOR STORAGE TANK 'A' LVL	LT	WATER	303.3	322.4	Kg/Cm2	447	469	2	4				LIE-41	
HAD81CL003	WATER SEPARATOR STORAGE TANK 'A' LVL	LT	WATER	303.3	322.4	Kg/Cm2	447	469	2	4				LIE-41	
HAD81CP001	SEPARATOR-A STRG TANK PRESS	PT	STEAM	303.3	322.4	Kg/Cm2	447	469	2	2				LIE-41	
HAD82CL001	WATER SEPARATOR STORAGE TANK 'B' LVL	LT	WATER	303.3	322.4	Kg/Cm2	447	469	2	4				LIE-42	
HAD82CL002	WATER SEPARATOR STORAGE TANK 'B' LVL	LT	WATER	303.3	322.4	Kg/Cm2	447	469	2	4				LIE-42	
HAD82CL003	WATER SEPARATOR STORAGE TANK 'B' LVL	LT	WATER	303.3	322.4	Kg/Cm2	447	469	2	4				LIE-42	
HAD82CP001	SEPARATOR-B STRG TANK PRESS	PT	STEAM	303.3	322.4	Kg/Cm2	447	469	2	2				LIE-42	
HAH01CP001	SEPARATOR 'A' O/L PRESS.	PT	STEAM	302.0	320.1	Kg/Cm2	447	469	2	2				LIE-43	
HAH01CP002	SEPARATOR 'A' O/L PRESS.	PT	STEAM	302.0	320.1	Kg/Cm2	447	469	2	2				LIE-43	
HAH02CP001	SEPARATOR 'B' O/L PRESS.	PT	STEAM	302.0	320.1	Kg/Cm2	447	469	2	2				LIE-43	
HAH02CP002	SEPARATOR 'B' O/L PRESS.	PT	STEAM	302.0	320.1	Kg/Cm2	447	469	2	2				LIE-43	
HAH03CP001	SEPARATOR 'C' O/L PRESS.	PT	STEAM	302.0	320.1	Kg/Cm2	447	469	2	2				LIE-44	
HAH03CP002	SEPARATOR 'C' O/L PRESS.	PT	STEAM	302.0	320.1	Kg/Cm2	447	469	2	2				LIE-44	
HAH04CP001	SEPARATOR 'D' O/L PRESS.	PT	STEAM	302.0	320.1	Kg/Cm2	447	469	2	2				LIE-44	
HAH04CP002	SEPARATOR 'D' O/L PRESS.	PT	STEAM	302.0	320.1	Kg/Cm2	447	469	2	2				LIE-44	
HAG11CL001	SEPARATOR 'A' DOWNCOMER LEVEL	LT	WATER	303.5	322.4	Kg/Cm2	447	469	2	4				LIE-45	
HAG12CL001	SEPERATOR 'B' DOWNCOMER LEVEL	LT	WATER	303.5	322.4	Kg/Cm2	447	469	2	4				LIE-45	
HAG15CP001	WATER STORAGE DOWNCOMER PRESSURE	PT	WATER	305	323.8	Kg/Cm2	346	374	2	6				LIE-45	
LCL20CL001	FLASH TANK DRAIN TANK LEVEL	LT	Water	1.1	10	Kg/Cm2	110	177	2	12				LIE-46	
LCL20CL002	FLASH TANK DRAIN TANK LEVEL	LT	Water	1.1	10	Kg/Cm2	110	177	2	12				LIE-46	
LCL20CL003	FLASH TANK DRAIN TANK LEVEL	LT	Water	1.1	10	Kg/Cm2	110	177	2	12				LIE-46	
LAE71CF001	SH DSH-1A SPRAY WTR FLOW	FT	WATER	291.76	297.75	Kg/Cm2	308	308	2	8				LIE-47	
LAE71CF002	SH DSH-1A SPRAY WTR FLOW	FT	WATER	291.76	297.75	Kg/Cm2	308	308	2	8				LIE-47	
LAE71CF003	SH DSH-1A SPRAY WTR FLOW	FT	WATER	291.76	297.75	Kg/Cm2	308	308	2	8				LIE-47	
LAE71CT201	SH DSH-1A SPRAY WATER TEMP	TT	WATER						2					LIE-47	
LAE90CP001	SH DSH-2 SPRAY WATER PRESS-AFTER COMMON BLOCK VALVE	PT	WATER	319.19	325.03	Kg/Cm2	308	308	2	6				LIE-47	

NOTE:FOR SHCEME NO 16 AND 18 -WHERE EVER DESIGN PRESSURE >=40KG/CM2-TWO DRAIN VALVES SHALL BE PROVIDED PER LINE.

KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
LAE72CF001	SH DSH-1B SPRAY WTR FLOW	FT	WATER	291.76	297.75	Kg/Cm2	308	308	2	8				LIE-48	
LAE72CF002	SH DSH-1B SPRAY WTR FLOW	FT	WATER	291.76	297.75	Kg/Cm2	308	308	2	8				LIE-48	
LAE72CF003	SH DSH-1B SPRAY WTR FLOW	FT	WATER	291.76	297.75	Kg/Cm2	308	308	2	8				LIE-48	
LAE72CT201	SH DSH-1B SPRAY WATER TEMP	TT	WATER	291.76	297.75	Kg/Cm2	308	308	2	8				LIE-48	
LAE91CF001	SH DeSH-2A SPRAY WTR FLOW	FT	WATER	285.55	295.19	Kg/Cm2	308	308	2	8				LIE-49	
LAE91CF002	SH DeSH-2A SPRAY WTR FLOW	FT	WATER	285.55	295.19	Kg/Cm2	308	308	2	8				LIE-49	
LAE91CF003	SH DeSH-2A SPRAY WTR FLOW	FT	WATER	285.55	295.19	Kg/Cm2	308	308	2	8				LIE-49	
LAE91CT201	SH DSH-2A SPRAY WTR TEMP	TT	WATER						2					LIE-49	
LAE92CF001	SH DeSH-2B SPRAY WTR FLOW	FT	WATER	285.55	295.19	Kg/Cm2	308	308	2	8				LIE-50	
LAE92CF002	SH DeSH-2B SPRAY WTR FLOW	FT	WATER	285.55	295.19	Kg/Cm2	308	308	2	8				LIE-50	
LAE92CF003	SH DeSH-2B SPRAY WTR FLOW	FT	WATER	285.55	295.19	Kg/Cm2	308	308	2	8				LIE-50	
LAE92CT201	SH DSH-2B SPRAY WTR TEMP	TT	WATER	285.55	295.19	Kg/Cm2	308	308	2	8				LIE-50	
LBG80CP001	AUX ATEAM FOR MILL INERTING (MILLS : D,E,F&G)	PT	STEAM	16	20	Kg/Cm2	290	350	2	10				LIE-51	
LBG80CT201	TEMPERATURE OF AUX STEAM TO MILL INERTING (MILLS : D,E,F&G)- (MILLS : D,E,F&G)	TT	STEAM	16	20	Kg/Cm2	290	350	2	10				LIE-51	
LAE20CP001	STM PRESS. OF RH SPRAY WTR	PT	WATER	127	139	Kg/Cm2	189	189	2	6				LIE-53	
LAE21CF001	RH/DSH-A SPRAY WATER FLOW	FT	WATER	59.24	70.85	Kg/Cm2	189	189	2	12				LIE-53	
LAE21CF002	RH/DSH-A SPRAY WATER FLOW	FT	WATER	59.24	70.85	Kg/Cm2	189	189	2	12				LIE-53	
LAE21CF003	RH/DSH-A SPRAY WATER FLOW	FT	WATER	59.24	70.85	Kg/Cm2	189	189	2	12				LIE-53	
LAE21CT001	RH/DSH-A SPRAY WATER TEMP	PRT-100	WATER	59.24	70.85	Kg/Cm2	189	189	2	12				LIE-53	
LAE21CT201	RH/DSH-A SPRAY WATER TEMP	TT	WATER	59.24	70.85	Kg/Cm2	189	189	2	12				LIE-53	
LAE22CF001	RH/DSH-B SPRAY WATER FLOW	FT	WATER	59.24	70.85	Kg/Cm2	189	189	2	12				LIE-54	
LAE22CF002	RH/DSH-B SPRAY WATER FLOW	FT	WATER	59.24	70.85	Kg/Cm2	189	189	2	12				LIE-54	
LAE22CF003	RH/DSH-B SPRAY WATER FLOW	FT	WATER	59.24	70.85	Kg/Cm2	189	189	2	12				LIE-54	
LAE22CT001	RH/DSH-B SPRAY WATER TEMP	PRT-100	WATER						2					LIE-54	
LAE22CT201	RH/DSH-B SPRAY WATER TEMP	TT	WATER						2					LIE-54	
LBA10CP011	MS HDR PRESS.	PT	STEAM	279	296.1	Kg/Cm2	593	596	2	2				LIR-01	
LBA10CP012	MS HDR PRESS.	PT	STEAM	279	296.1	Kg/Cm2	593	596	2	2				LIR-01	
LBA10CP013	MS HDR PRESS.	PT	STEAM	279	296.1	Kg/Cm2	593	596	2	2				LIR-01	
LBA10CP014	MS HDR PRESS.	PT	STEAM	279	296.1	Kg/Cm2	593	596	2	2				LIR-01	
LBA10CP015	MS HDR PRESS.	PT	STEAM	279	296.1	Kg/Cm2	593	596	2	2				LIR-01	
LBA10CP016	MS HDR PRESS.	PT	STEAM	279	296.1	Kg/Cm2	593	596	2	2				LIR-01	
LBA20CP011	HRH EQUALISING LINE PRESS	PT	STEAM	57.46	67.3	Kg/Cm2	593	596	2	2				LIR-02	
MAA50CP011	1ST STAGE TURBINE PRESS.	PT	STEAM	247	269.6	Kg/Cm2	565	573	2	2				LIR-02	
MAA50CP012	1ST STAGE TURBINE PRESS.	PT	STEAM	247	269.6	Kg/Cm2	565	573	2	2				LIR-02	
MAA50CP013	1ST STAGE TURBINE PRESS.	PT	STEAM	247	269.6	Kg/Cm2	565	573	2	2				LIR-02	
LBB01CP011	HRH STM PRESS AT RH O/L - LEFT	PT	STEAM	57.46	67.3	Kg/Cm2	593	596	2	2				LIR-03	
LBC01CP011	CRH STM PRESS AT RH I/L-LEFT	PT	STEAM	62.12	71	Kg/Cm2	359	370	2	10				LIR-03	
LBB02CP011	HRH STM PRESS. AT RH O/L - RIGHT	PT	STEAM	57.46	67.3	Kg/Cm2	593	596	2	2				LIR-04	
LBC02CP011	CRH STM PRESS AT RH I/L-RIGHT	PT	STEAM	62.12	71	Kg/Cm2	359	370	2	10				LIR-04	
LBS30CP011	EXT STM PRESS AT LPH-3 I/L	PT	STEAM	1.39	3.5	Kg/Cm2	125.9	130	2	10				LIR-05	
LBS30CT011	EXT STM TEMP AT LPH-3 I/L	PRT-100	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LBS40CP011	EXT STM PRESS AT LPH-4 I/L	PT	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	
LBS40CT011	EXT STM TEMP AT LPH-4 I/L	PRT-100	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCA70CT012	LPH-3 COND I/L TEMP	PRT-100	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCA80CT010	LPH-3 COND O/L TEMP	PRT-100	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCA80CT011	LPH-4 COND I/L TEMP	PRT-100	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCA90CT011	LPH-5 COND I/L TEMP	PRT-100	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC31CL011	LPH-3 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC31CL012	LPH-3 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC32CL011	LPH-3 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC41CL011	LPH-4 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC41CL012	LPH-4 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC42CL011	LPH-4 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC51CL011	LPH-5 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC51CL012	LPH-5 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LCC52CL011	LPH-5 LEVEL	LT-GWR	STEAM	3.18	3.5	Kg/Cm2	201.3	210	2	10				LIR-05	Signal grouped in the JB of LIR-05.
LBS50CP011	EXT STM PRESS AT LPH-5 I/L	PT	STEAM	5.82	7	Kg/Cm2	263.9	270	2	10				LIR-06	

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KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
LBS50CT011	EXT STM TEMP AT LPH-5 I/L	PRT-100	STEAM						2					LIR-06	
LAD31CL011	HPH-8 LEVEL	LT	COND	62.14	74	Kg/Cm2	359	394	2	12				LIR-07	
LAD31CL012	HPH-8 LEVEL	LT	COND	62.14	74	Kg/Cm2	359	394	2	12				LIR-07	
LAD32CL011	HPH-8 LEVEL	LT	COND	62.14	74	Kg/Cm2	359	394	2	12				LIR-07	
LAD51CL011	HPH-9 LEVEL	LT	COND	93.96	103	Kg/Cm2	418.9	442	2	4				LIR-07	
LAD51CL012	HPH-9 LEVEL	LT	COND	93.96	103	Kg/Cm2	418.9	442	2	4				LIR-07	
LAD52CL011	HPH-9 LEVEL	LT	COND	93.96	103	Kg/Cm2	418.9	442	2	4				LIR-07	
LAB61CT011	FW TEMP AT HPH-7 I/L	PRT-100	FW						2					LIR-08	
LAD11CL011	HPH-7 LEVEL	LT	COND	26.95	30	Kg/Cm2	314.8	344	2	12				LIR-08	
LAD11CL012	HPH-7 LEVEL	LT	COND	26.95	30	Kg/Cm2	314.8	344	2	12				LIR-08	
LAD12CL011	HPH-7 LEVEL	LT	COND	26.95	30	Kg/Cm2	314.8	344	2	12				LIR-08	
LBQ71CP011	EXT STM PRESS AT HPH-7 DESH I/L	PT	STEAM	27.41	32	Kg/Cm2	473.5	475	2	2				LIR-08	
LCH10CF011	HPH-7 DRN FLOW TO DEA	FT	COND	26.95	32	Kg/Cm2	200.6	210	2	12				LIR-09	
LCH10CF012	HPH-7 DRN FLOW TO DEA	FT	COND	26.95	32	Kg/Cm2	200.6	210	2	12				LIR-09	
LCH15CT011A	HPH-7 DRN TEMP	TT							2					LIR-09	
LCH15TT011A	HPH-7 DRN TEMP	TT	COND	26.95	32	Kg/Cm2	200.6	210	2	12				LIR-09	
XAV10CP004	BFPDT-A LUBE OIL PUMP DISCHARGE HDR PRESSURE	PT	OIL	10.6	12	Kg/Cm2	60	70	2	14				LIR-101	
XAV10CP005	BFPDT-A LUBE OIL PUMP DISCHARGE HDR PRESSURE	PT	OIL	10.6	12	Kg/Cm2	60	70	2	14				LIR-101	
XAV20CT101	BFPDT-A LUBE OIL AFTER COOLER TEMPERATURE	TT							2					LIR-101	
XAV20CT102	BFPDT-A LUBE OIL AFTER COOLER TEMPERATURE	TT							2					LIR-101	
XAV30CP001	BFPDT-A DIFF. PRESSURE ACROSS LUBE OIL FILTER HIGH	DPT	OIL	9.5	12	Kg/Cm2	47	70	2	12				LIR-101	
XAV45CP003	BFPDT-A DIFF. PRESSURE ACROSS E.O.P FILTER HIGH	DPT	OIL	9.5	12	Kg/Cm2	47	70	2	12				LIR-101	
XAV50CP001	BFPDT-A LUBE OIL HEADER PRESSURE	PT	OIL	2.5	6	Kg/Cm2	47	70	2	14				LIR-102	
XAV50CP002	BFPDT-A LUBE OIL HEADER PRESSURE	PT	OIL	2.5	6	Kg/Cm2	47	70	2	14				LIR-102	
XAV50CP003	BFPDT-A LUBE OIL HEADER PRESSURE	PT	OIL	2.5	6	Kg/Cm2	47	70	2	14				LIR-102	
XAV80CP001	BFPDT-A JACKING OIL HEADER PRESSURE	PT	OIL	85	110	Kg/Cm2	47	70	2	6				LIR-102	
XAV80CP002	BFPDT-A JACKING OIL HEADER PRESSURE	PT	OIL	85	110	Kg/Cm2	47	70	2	6				LIR-102	
XAV43CP001	BFPDT-A CONTROL OIL HEADER PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-103	
XAX43CP002	BFPDT-A CONTROL OIL HEADER PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-103	
XAX43CP003	BFPDT-A CONTROL OIL HEADER PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-103	
XAX43CP011	BFPDT-A SECONDARY OIL PRESSURE	PT	OIL	4.5	12	Kg/Cm2	62.5	70	2	14				LIR-103	
XAX43CP012	BFPDT-A SECONDARY OIL PRESSURE	PT	OIL	4.5	12	Kg/Cm2	62.5	70	2	14				LIR-103	
XAX43CP007	BFPDT-A START UP OIL PRESSURE	PT	OIL	6	12	Kg/Cm2	62.5	70	2	14				LIR-104	
XAX43CP008	BFPDT-A START UP OIL PRESSURE	PT	OIL	6	12	Kg/Cm2	62.5	70	2	14				LIR-104	
XAX43CP009	BFPDT-A TRIP OIL PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-104	
XAX43CP010	BFPDT-A TRIP OIL PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-104	
XAX43CP028	DIFF. PRESSURE ACROSS GOV OIL FILTER	DPT	OIL	8	12	Kg/Cm2	62.5	70	2	12				LIR-104	
LBS53CP002	BFPDT-A LIVE STEAM PRESSURE	PT	STEAM	11.07	17	Kg/Cm2	368.8	405	2	10				LIR-105	
LBS53CP003	BFPDT-A LIVE STEAM PRESSURE	PT	STEAM	11.07	17	Kg/Cm2	368.8	405	2	10				LIR-105	
LBS53CP004	BFPDT-A LIVE STEAM PRESSURE	PT	STEAM	11.07	17	Kg/Cm2	368.8	405	2	10				LIR-105	
LBS62CP001	BFPDT-A CRH STEAM PRESSURE	PT	STEAM	17	20	Kg/Cm2	330	350	2	10				LIR-105	
LBS62CP002	BFPDT-A CRH STEAM PRESSURE	PT	STEAM	17	20	Kg/Cm2	330	350	2	10				LIR-105	
MTA01CP001	BFPDT-A WHEEL CHAMBER PRESSURE	PT	STEAM	7.4	10	Kg/Cm2	337.1	405	2	10				LIR-105	
LBS55CP001	BFPDT-A TURBINE EXHAUST PRESSURE	PT	STEAM	-0.9	-0.86	Kg/Cm2	44.9	51.3	2	14				LIR-106	
LBS55CP002	BFPDT-A TURBINE EXHAUST PRESSURE	PT	STEAM	-0.9	-0.86	Kg/Cm2	44.9	51.3	2	14				LIR-106	
LBS55CP003	BFPDT-A TURBINE EXHAUST PRESSURE	PT	STEAM	-0.9	-0.86	Kg/Cm2	44.9	51.3	2	14				LIR-106	
LBS55CT001A	BFPDT-A TURBINE EXHAUST TEMPERATURE	TT							2					LIR-106	
LBS55CT002A	BFPDT-A TURBINE EXHAUST TEMPERATURE	TT							2					LIR-106	
LBS55CT003A	BFPDT-A TURBINE EXHAUST TEMPERATURE	TT							2					LIR-106	

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KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
MAW60CP001	BFPDT-A DIFFERENTIAL PRESSURE ACROSS GLAND STEAM INLET STRAINER	DPT	STEAM	15	20	Kg/Cm2	290	310	2	12				LIR-106	
MAW60CP002	BFPDT-A AUXILIARY STEAM TO GLAND STEAM PRESSURE	PT	STEAM	15	20	Kg/Cm2	290	310	2	10				LIR-106	
MAW70CP003	BFPDT-A GLAND STEAM HEADER PRESSURE	PT	STEAM	0.1	0.1	Kg/Cm2	295	398	2	14				LIR-106	
MAW70CP004	BFPDT-A GLAND STEAM HEADER PRESSURE	PT	STEAM	0.1	0.1	Kg/Cm2	295	398	2	14				LIR-106	
XAV11CP004	BFPDT-B LUBE OIL PUMP DISCHARGE HDR PRESSURE	PT	OIL	10.6	12	Kg/Cm2	60	70	2	14				LIR-107	
XAV11CP005	BFPDT-B LUBE OIL PUMP DISCHARGE HDR PRESSURE	PT	OIL	10.6	12	Kg/Cm2	60	70	2	14				LIR-107	
XAV21CT101	BFPDT-B LUBE OIL AFTER COOLER TEMPERATURE	TT							2					LIR-107	
XAV21CT102	BFPDT-B LUBE OIL AFTER COOLER TEMPERATURE	TT							2					LIR-107	
XAV31CP001	BFPDT-B DIFF. PRESSURE ACROSS LUBE OIL FILTER HIGH	DPT	OIL	9.5	12	Kg/Cm2	47	70	2	12				LIR-107	
XAV46CP003	BFPDT-B DIFF. PRESSURE ACROSS E.O.P FILTER HIGH	DPT	OIL	9.5	12	Kg/Cm2	47	70	2	12				LIR-107	
XAV51CP001	BFPDT-B LUBE OIL HEADER PRESSURE	PT	OIL	2.5	6	Kg/Cm2	47	70	2	14				LIR-108	
XAV51CP002	BFPDT-B LUBE OIL HEADER PRESSURE	PT	OIL	2.5	6	Kg/Cm2	47	70	2	14				LIR-108	
XAV51CP003	BFPDT-B LUBE OIL HEADER PRESSURE	PT	OIL	2.5	6	Kg/Cm2	47	70	2	14				LIR-108	
XAV81CP001	BFPDT-B JACKING OIL HEADER PRESSURE	PT	OIL	85	110	Kg/Cm2	47	70	2	6				LIR-108	
XAV81CP002	BFPDT-B JACKING OIL HEADER PRESSURE	PT	OIL	85	110	Kg/Cm2	47	70	2	6				LIR-108	
XAV44CP001	BFPDT-B CONTROL OIL HEADER PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-109	
XAX44CP002	BFPDT-B CONTROL OIL HEADER PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-109	
XAX44CP003	BFPDT-B CONTROL OIL HEADER PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-109	
XAX44CP011	BFPDT-B SECONDARY OIL PRESSURE	PT	OIL	4.5	12	Kg/Cm2	62.5	70	2	14				LIR-109	
XAX44CP012	BFPDT-B SECONDARY OIL PRESSURE	PT	OIL	4.5	12	Kg/Cm2	62.5	70	2	14				LIR-109	
LBS60CF011	EXT STM FLOW TO DEA	FT	STEAM	12.61	15	Kg/Cm2	366.8	375	2	12				LIR-11	
LBS60CF012	EXT STM FLOW TO DEA	FT	STEAM	12.61	15	Kg/Cm2	366.8	375	2	12				LIR-11	
LBS60CP011	EXT STM PRESS AT DEA I/L	PT	STEAM	12.61	15	Kg/Cm2	366.8	375	2	10				LIR-11	
LBS60CP012	EXT STM PRESS AT DEA I/L	PT	STEAM	12.61	15	Kg/Cm2	366.8	375	2	10				LIR-11	
LBS60CT011A	DEAERATOR I/L TEMP	TT	STEAM	12.61	15	Kg/Cm2	366.8	375	2	10				LIR-11	
LBS60CT012A	DEAERATOR I/L TEMP	TT	STEAM	12.61	15	Kg/Cm2	366.8	375	2	10				LIR-11	
XAX44CP007	BFPDT-B START UP OIL PRESSURE	PT	OIL	6	12	Kg/Cm2	62.5	70	2	14				LIR-110	
XAX44CP008	BFPDT-B START UP OIL PRESSURE	PT	OIL	6	12	Kg/Cm2	62.5	70	2	14				LIR-110	
XAX44CP009	BFPDT-B TRIP OIL PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-110	
XAX44CP010	BFPDT-B TRIP OIL PRESSURE	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-110	
XAX44CP028	DIFF. PRESSURE ACROSS GOV OIL FILTER	PT	OIL	8	12	Kg/Cm2	62.5	70	2	14				LIR-110	
LBS54CP002	BFPDT-B LIVE STEAM PRESSURE	PT	STEAM	11.07	17	Kg/Cm2	368.8	405	2	10				LIR-111	
LBS54CP003	BFPDT-B LIVE STEAM PRESSURE	PT	STEAM	11.07	17	Kg/Cm2	368.8	405	2	10				LIR-111	
LBS54CP004	BFPDT-B LIVE STEAM PRESSURE	PT	STEAM	11.07	17	Kg/Cm2	368.8	405	2	10				LIR-111	
LBS72CP001	BFPDT-B CRH STEAM PRESSURE	PT	STEAM	17	20	Kg/Cm2	330	350	2	10				LIR-111	
LBS72CP002	BFPDT-B CRH STEAM PRESSURE	PT	STEAM	17	20	Kg/Cm2	330	350	2	10				LIR-111	
MTA02CP001	BFPDT-B WHEEL CHAMBER PRESSURE	PT	STEAM	7.4	10	Kg/Cm2	337.1	405	2	10				LIR-111	
LBS56CP001	BFPDT-B TURBINE EXHAUST PRESSURE	PT	STEAM	-0.9	-0.86	Kg/Cm2	44.9	51.3	2	14				LIR-112	
LBS56CP002	BFPDT-B TURBINE EXHAUST PRESSURE	PT	STEAM	-0.9	-0.86	Kg/Cm2	44.9	51.3	2	14				LIR-112	
LBS56CP003	BFPDT-B TURBINE EXHAUST PRESSURE	PT	STEAM	-0.9	-0.86	Kg/Cm2	44.9	51.3	2	14				LIR-112	
LBS56CT001A	BFPDT-B TURBINE EXHAUST TEMPERATURE	TT							2					LIR-112	
LBS56CT002A	BFPDT-B TURBINE EXHAUST TEMPERATURE	TT							2					LIR-112	
LBS56CT003A	BFPDT-B TURBINE EXHAUST TEMPERATURE	TT							2					LIR-112	
MAW61CP001	BFPDT-B DIFFERENTIAL PRESSURE ACROSS GLAND STEAM INLET STRAINER	DPT	STEAM	15	20	Kg/Cm2	290	310	2	12				LIR-112	
MAW61CP002	BFPDT-B AUXILIARY STEAM TO GLAND STEAM PRESSURE	PT	STEAM	15	20	Kg/Cm2	290	310	2	10				LIR-112	
MAW71CP003	BFPDT-B GLAND STEAM HEADER PRESSURE	PT	STEAM	0.1	0.1	Kg/Cm2	295	398	2	14				LIR-112	
MAW71CP004	BFPDT-B GLAND STEAM HEADER PRESSURE	PT	STEAM	0.1	0.1	Kg/Cm2	295	398	2	14				LIR-112	
LAB30CF011	MDBFP-C SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-12	
LAB30CF012	MDBFP-C SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-12	
LAB30CF013	MDBFP-C SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-12	
LAB30CP011	MDBFP-C BP SUC PRESS	PT	FEED WATER	12.61	20	Kg/Cm2	188.8	200	2	10				LIR-12	
LAB30CT011	MDBFP-C BP SUC TEMP	PRT-100	FW	12.61	20	Kg/Cm2	188.8	200	2	10				LIR-12	
LAB30CT012	MDBFP-C BP DISCH TEMP	PRT-100	FW	12.61	20	Kg/Cm2	188.8	200	2	10				LIR-12	
LAB10CF011	TDBFP-A SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-13	
LAB10CF012	TDBFP-A SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-13	
LAB10CF013	TDBFP-A SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-13	
LAB10CP011	TDBFP-A BP SUC PRESS	PT	FEED WATER	12.61	20	Kg/Cm2	188.8	200	2	10				LIR-13	
LAB10CT011	TDBFP-A BP SUC TEMP	PRT-100	FW	25	40	Kg/Cm2	188.8	200	2	12				LIR-13	
LAB10CT012	TDBFP-A BP DISCH TEMP	PRT-100	FW	25	40	Kg/Cm2	188.8	200	2	12				LIR-13	

NOTE:FOR SHCEME NO 16 AND 18 -WHERE EVER DESIGN PRESSURE >=40KG/CM2-TWO DRAIN VALVES SHALL BE PROVIDED PER LINE.

KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
LAB20CF011	TDBFP-B SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-14	
LAB20CF012	TDBFP-B SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-14	
LAB20CF013	TDBFP-B SUCTION FLOW	FT	FEED WATER	25	40	Kg/Cm2	188.8	200	2	12				LIR-14	
LAB20CP011	TDBFP-B BP SUC PRESS	PT	FEED WATER	12.61	20	Kg/Cm2	188.8	200	2	10				LIR-14	
LAB20CT011	TDBFP-B BP SUC TEMP	PRT-100	FW	12.61	20	Kg/Cm2	188.8	200	2	10				LIR-14	
LAB20CT013	TDBFP-B BP DISCH TEMP	PRT-100	FW	12.61	20	Kg/Cm2	188.8	200	2	10				LIR-14	
LAB80CF011	FW FLOW TO ECO	FT	FEED WATER	339.12	375	Kg/Cm2	307.8	320	2	8				LIR-15	
LAB80CF012	FW FLOW TO ECO	FT	FEED WATER	339.12	375	Kg/Cm2	307.8	320	2	8				LIR-15	
LAB80CF013	FW FLOW TO ECO	FT	FEED WATER	339.12	375	Kg/Cm2	307.8	320	2	8				LIR-15	
LAB91CT001	FEEDWATER LINE DRAIN TEMP	TE	METAL	339.12	375	Kg/Cm2	307.8	320	2	8				LIR-15	
LCA01CF011	CEP-A DISCH FLOW	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-16	Extra TBs shalll be provided
LCA01CF012	CEP-A DISCH FLOW	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-16	Extra TBs shalll be provided
LCA02CF011	CEP-B DISCH FLOW	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-16	Extra TBs shalll be provided
LCA02CF012	CEP-B DISCH FLOW	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-16	Extra TBs shalll be provided
LCA03CF011	CEP-C DISCH FLOW	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-16	Extra TBs shalll be provided
LCA03CF012	CEP-C DISCH FLOW	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-16	Extra TBs shalll be provided
LCA20CF011	COND FLOW AFT GSC	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-17	
LCA20CF012	COND FLOW AFT GSC	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-17	
LCA20CF013	COND FLOW AFT GSC	FT	COND	30.62	45	Kg/Cm2	41.9	60	2	12				LIR-17	
LCA20CP011	COND DISCH HDR PRESS	PT	COND	30.62	45	Kg/Cm2	41.9	60	2	10				LIR-17	
LCA20CP012	COND DISCH HDR PRESS	PT	COND	30.62	45	Kg/Cm2	41.9	60	2	10				LIR-17	
LCA20CT011	COND TEMP AT GSC I/L	PRT-100	COND	30.62	45	Kg/Cm2	41.9	60	2	10				LIR-17	
LCA20CT012A	COND TEMP AT GSC O/L	TT	COND	30.62	45	Kg/Cm2	41.9	60	2	10				LIR-17	
LAA01CL011	DEAERATOR LVL.	LT	COND	11.84	14.5	Kg/Cm2	186.5	210	2	12				LIR-18	
LAA01CL012	DEAERATOR LVL.	LT	COND	11.84	14.5	Kg/Cm2	186.5	210	2	12				LIR-18	
LAA01CP011	DEAERATOR PRESS	PT	STEAM	11.84	15	Kg/Cm2	186.5	415	2	10				LIR-18	
LAA01CP012	DEAERATOR PRESS	PT	STEAM	11.84	15	Kg/Cm2	186.5	415	2	10				LIR-18	
LAA01CP013	DEAERATOR PRESS	PT	STEAM	33.57	73.1	Kg/Cm2	344	360	2	10				LIR-18	
LAA01CT011	DEAERATOR TEMP	PRT-100	COND	11.84	14.5	Kg/Cm2	186.5	210	2	12				LIR-18	
LAA01CT012	DEAERATOR TEMP	PRT-100	COND	11.84	14.5	Kg/Cm2	186.5	210	2	12				LIR-18	
LAA01CT011	DEAERATOR TEMP	PRT-100	COND	11.84	14.5	Kg/Cm2	186.5	210	2	12				LIR-18	
LAA01CT012	DEAERATOR TEMP	PRT-100	COND	11.84	14.5	Kg/Cm2	186.5	210	2	12				LIR-18	
LAA02CL013	DEAERATOR LVL.	LT	COND	11.84	14.5	Kg/Cm2	186.5	210	2	12				LIR-18	
LCA90CF011	COND FLOW TO DEA	FT	COND	30.62	45	Kg/Cm2	154.1	160	2	12				LIR-19	
LCA90CF012	COND FLOW TO DEA	FT	COND	30.62	45	Kg/Cm2	154.1	160	2	12				LIR-19	
LCA90CT012A	COND TEMP TO DEA	TT	COND	30.62	45	Kg/Cm2	154.1	160	2	12				LIR-19	
LBG10CF011	MS STM FLOW TO APRDS	FT	STEAM	270	296.1	Kg/Cm2	593	596	2	4				LIR-20	
LBG10CF012	MS STM FLOW TO APRDS	FT	STEAM	270	296.1	Kg/Cm2	593	596	2	4				LIR-20	
LBG10CP011	MS STM PRESS TO APRDS	PT	STEAM	270	296.1	Kg/Cm2	593	596	2	2				LIR-20	
LBG10CP012	MS STM PRESS TO APRDS	PT	STEAM	270	296.1	Kg/Cm2	593	596	2	2				LIR-20	
LBG10CT011A	MS STM TEMP TO APRDS	TT	STEAM	270	296.1	Kg/Cm2	593	596	2	2				LIR-20	
LBG10CT012A	MS STM TEMP TO APRDS	TT	STEAM	270	296.1	Kg/Cm2	593	596	2	2				LIR-20	
LBG20CF011	CRH STM FLOW TO APRDS	FT	STEAM	64.84	71	Kg/Cm2	365.7	370	2	12				LIR-21	
LBG20CF012	CRH STM FLOW TO APRDS	FT	STEAM	64.84	71	Kg/Cm2	365.7	370	2	12				LIR-21	
LBG20CP011	CRH STM PRESS TO APRDS	PT	STEAM	64.84	71	Kg/Cm2	365.7	370	2	10				LIR-21	
LBG20CP012	CRH STM PRESS TO APRDS	PT	STEAM	64.84	71	Kg/Cm2	365.7	370	2	10				LIR-21	
LBG20CT011A	CRH STM TEMP TO APRDS	TT	STEAM	64.84	71	Kg/Cm2	365.7	370	2	10				LIR-21	
LBG20CT012A	CRH STM TEMP TO APRDS	TT	STEAM	64.84	71	Kg/Cm2	365.7	370	2	10				LIR-21	
LBG30CP011	AUX STM STN HDR PRESS	PT	STEAM	16	20	Kg/Cm2	290	350	2	10				LIR-22	
LBG30CP012	AUX STM STN HDR PRESS	PT	STEAM	16	20	Kg/Cm2	290	350	2	10				LIR-22	
LBG30CP013	AUX STM STN HDR PRESS	PT	STEAM	16	20	Kg/Cm2	290	350	2	10				LIR-22	
90LCR10CF012	CST TANK-1 I/L FLOW	FT	DM WTR	4.5	10	Kg/Cm2	40	50	1	12				LIR-26	
90LCR11CF012	CST TANK-2 I/L FLOW	FT	DM WTR	4.5	10	Kg/Cm2	40	50	1	12				LIR-26	
LBS53CF011	EXT STM FLOW TO BFPT-A	FT	STEAM	12.56	20	Kg/Cm2	366.8	375	2	12				LIR-28	
LBS54CF011	EXT STM FLOW TO BFPT-B	FT	STEAM	12.56	20	Kg/Cm2	366.8	375	2	12				LIR-28	
LBS62CP001	CRH/AUX STM HDR PRESS AFT CV	PT	STEAM	20	20	Kg/Cm2	375	375	2	10				LIR-28	
LBS62CP002	CRH/AUX STM HDR PRESS AFT CV	PT	STEAM	20	20	Kg/Cm2	375	375	2	10				LIR-28	
PGC01CP013	TG-DMCW PMP-A SUCTION STRAINER DIFF PRESS	DPT	DMCW	2.6	10	Kg/Cm2	47	60	2	12				LIR-44	
PGC11CP011	DMCW DP ACROSS PHE-A(TG)	DPT	DMCW	6.8	10	Kg/Cm2	47	60	2	12				LIR-44	
PGC11CT011	DMCW TEMP AT PHE-A O/L(TG)	PRT-100	DMCW	6.8	10	Kg/Cm2	47	60	2	12				LIR-44	
PGC10CF011	TG DMCW PUMP DISCH FLOW	FT	DMCW	7	10	Kg/Cm2	47	60	2	12				LIR-45	

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KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
PGC10CT011	DMCW TG PMPS DISCH TEMP	PRT-100	DMCW	7	10	Kg/Cm2	47	60	2	16				LIR-45	Signal to LIR JB
PGC40CF011	SG DMCW FLOW	FT	DMCW	8.2	12	Kg/Cm2	45	60	2	12				LIR-45	
PGC31CP013	SG-DMCW PMP-A SUCTION STRAINER DIFF PRESS	DPT	DMCW	2.6	12	Kg/Cm2	45	60	2	12				LIR-46	
PGC40CT011	DMCW SG PMPS DISCH TEMP	PRT-100	DMCW	8.3	12	Kg/Cm2	45	60	2	16				LIR-46	Signal to LIR JB
PGC50CT011	DMCW TEMP AT SG PHE O/L	PRT-100	DMCW	8.3	12	Kg/Cm2	45	60	2	16				LIR-46	Signal to LIR JB
PGC32CP013	SG-DMCW PMP-B SUCTION STRAINER DIFF PRESS	DPT	DMCW	2.6	12	Kg/Cm2	45	60	2	12				LIR-47	
PGC02CP013	TG-DMCW PMP-B SUCTION STRAINER DIFF PRESS	DPT	DMCW	2.6	10	Kg/Cm2	47	60	2	12				LIR-48	
PGC12CP011	DMCW DP ACROSS PHE-B(TG)	DPT	DMCW	6.8	10	Kg/Cm2	47	60	2	12				LIR-48	
PGC12CT011	DMCW TEMP AT PHE-B O/L(TG)	PRT-100	DMCW	6	10	Kg/Cm2	38	60	2	12				LIR-48	
PGC13CP011	DMCW DP ACROSS PHE-C(TG)	DPT	DMCW	6.8	10	Kg/Cm2	47	60	2	12				LIR-48	
PGC13CT011	DMCW TEMP AT PHE-C O/L(TG)	PRT-100	DMCW	6	10	Kg/Cm2	38	60	2	12				LIR-48	
PGC20CF011	DMCW FLOW TO TURB. CLRS(HWR AUX)	FT	DMCW	6	10	Kg/Cm2	38	60	2	12				LIR-48	
PGC20CF012	DMCW FLOW TO BFP/CEP PUMP CLRS(HYD AUX)	FT	DMCW	6	10	Kg/Cm2	38	60	2	12				LIR-48	
PGC20CF013	DMCW FLOW TO CMN STN AUXILIARIES	FT	DMCW	6	10	Kg/Cm2	38	60	2	12				LIR-48	
PGC41CP011	DP ACROSS PHE-A(SG)	DPT	DMCW	8.2	12	Kg/Cm2	45	60	2	12				LIR-49	
PGC42CP011	DP ACROSS PHE-B(SG)	DPT	DMCW	8.2	12	Kg/Cm2	45	60	2	12				LIR-49	
PGB01CL011	DMCW TANK LEVEL	LT	DMCW	Atmospheric	Atmospheric	Kg/Cm2	38	60	2	12				LIR-50	
PGB01CL012	DMCW TANK LEVEL	LT	DMCW	Atmospheric	Atmospheric	Kg/Cm2	38	60	2	12				LIR-50	
LAB62CT011	FW TEMP AFT HPH-8 I/L	PRT-100	FW	93.96	110	Kg/Cm2	418.9	420	2	2				LIR-57	
LAB63CT011	FW TEMP AFT HPH-9 I/L	PRT-100	FW	93.96	110	Kg/Cm2	418.9	420	2	2				LIR-57	
LBQ81CP011	EXT STM PRESS AT HPH-8 I/L	PT	STEAM	62.14	71	Kg/Cm2	359	370	2	10				LIR-57	
LBQ91CP011	EXT STM PRESS AT HPH-9 I/L	PT	STEAM	93.96	110	Kg/Cm2	418.9	420	2	2				LIR-57	
LCA33CP011	GLAND SEAL WATER HDR PR.	PT	COND	3.5	3.5	Kg/Cm2	60	60	2	10				LIR-58	
LCA33CP012	GLAND SEAL WATER HDR PR.	PT	COND	3.5	3.5	Kg/Cm2	60	60	2	10				LIR-58	
LBF10CF011	HPBP-1 STM FLOW	FT	STEAM	279	296.1	Kg/Cm2	596	596	2	4				LIR-71	
LBF10CF012	HPBP-1 STM FLOW	FT	STEAM	279	296.1	Kg/Cm2	596	596	2	4				LIR-71	
LBF20CF011	HPBP-2 STM FLOW	FT	STEAM	279	296.1	Kg/Cm2	596	596	2	4				LIR-71	
LBF20CF012	HPBP-2 STM FLOW	FT	STEAM	279	296.1	Kg/Cm2	596	596	2	4				LIR-71	
PGC03CP013	TG-DMCW PMP-C SUCTION STRAINER DIFF PRESS	DPT	DMCW	2.6	10	Kg/Cm2	47	60	2	12				LIR-72	
10MAA11CT021A	MS ESV 1 100% CSG T	TT							2					MAA00GU001	
10MAA11CT021A	MS ESV 1 100% CSG T	TT							2					MAA00GU001	
10MAA11CT022A	MS ESV 1 50% CSG T	TT							2					MAA00GU001	
10MAA12CT021A	MS C-V 1 100% CSG T	TT							2					MAA00GU001	
10MAA12CT022A	MS C-V 1 50% CSG T	TT							2					MAA00GU001	
10MAB11CT021A	INTCPT ESV1 100% CSG T	TT							2					MAA00GU001	
10MAA21CT021A	MS ESV 2 100% CSG T	TT							2					MAA00GU002	
10MAB21CT021A	INTCPT ESV2 100% CSG T	TT							2					MAA00GU002	
10MAB50CT041A	IPT CSG FR LHT 50% T	TT							2					MAA00GU002	
10MAB50CT042A	IPT CSG FR RHB 50% T	TT							2					MAA00GU002	
10MAA50CT011A	HPT BLD FR INR CSG 100% T	TT							2					MAA50GU001	
10MAA50CT012A	HPT BLD FR INR CSG 100% T	TT							2					MAA50GU001	
10MAA50CT013A	HPT BLD FR INR CSG 100% T	TT							2					MAA50GU001	
10MAA50CT015A	RR INR CSG BLD STM 100% T	TT							2					MAA50GU002	
10MAA50CT016A	RR INR CSG BLD STM 100% T	TT							2					MAA50GU002	
10MAA50CT017A	RR INR CSG BLD STM 100% T	TT							2					MAA50GU002	
10MAA50CT021A	HPT EXH STMT	TT							2					MAA50GU002	
10MAA50CT022A	HPT EXH STMT	TT							2					MAA50GU002	
10MAA50CT023A	HPT EXH STMT	TT							2					MAA50GU002	
10MAA50CT031A	HPT OUTR CSG 100%T	TT							2					MAA50GU003	
10MAA50CT032A	HPT OUTR CSG 50%T	TT							2					MAA50GU003	
10MAA50CT051A	CSG T HP CSG CTR TOP 50%	TT							2					MAA50GU003	
10MAA50CT052A	CSG T HP CSG CTR BTM 50%	TT							2					MAA50GU003	
10MAB50CT011A	IPT BLD FR INR CSG 100% T	TT							2					MAB50GU001	
10MAB50CT012A	IPT BLD FR INR CSG 100% T	TT							2					MAB50GU001	
10MAB50CT013A	IPT BLD FR INR CSG 100% T	TT							2					MAB50GU001	
10MAB50CT021A	IPT EXH STMT	TT							2					MAB50GU002	
10MAB50CT022A	IPT EXH STMT	TT							2					MAB50GU002	
10MAB50CT023A	IPT EXH STMT	TT							2					MAB50GU002	
10MAC10CT011A	LPT 1 FNL STG U/STR STMT	TT							2					MAC10GU001	
10MAC10CT012A	LPT 1 FNL STG U/STR STMT	TT							2					MAC10GU001	

NOTE:FOR SHCEME NO 16 AND 18 -WHERE EVER DESIGN PRESSURE >=40KG/CM2-TWO DRAIN VALVES SHALL BE PROVIDED PER LINE.

KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
10MAC10CT071A	LPT 1 TOP EXH STMT	TT							2					MAC10GU001	
10MAC10CT072A	LPT 1 TOP EXH STMT	TT							2					MAC10GU001	
10MAC10CT073A	LPT 1 TOP EXH STMT	TT							2					MAC10GU001	
10MAC20CT011A	LPT 2 FNL STG U/STR STMT	TT							2					MAC20GU001	
10MAC20CT012A	LPT 2 FNL STG U/STR STMT	TT							2					MAC20GU001	
10MAD11CT011A	ST RAD BRG 1 TS LHT T	TT							2					MAD11GU001	
10MAD11CT011B	ST RAD BRG 1 TS LHT T	TT							2					MAD11GU001	
10MAD11CT011C	ST RAD BRG 1 TS LHT T	TT							2					MAD11GU001	
10MAD11CT012A	ST RAD BRG 1 TS RHT T	TT							2					MAD11GU001	
10MAD11CT012B	ST RAD BRG 1 TS RHT T	TT							2					MAD11GU001	
10MAD11CT012C	ST RAD BRG 1 TS RHT T	TT							2					MAD11GU001	
10MAD11CT013A	ST RAD BRG 1 TS LHB T	TT							2					MAD11GU002	
10MAD11CT013B	ST RAD BRG 1 TS LHB T	TT							2					MAD11GU002	
10MAD11CT013C	ST RAD BRG 1 TS LHB T	TT							2					MAD11GU002	
10MAD11CT014A	ST RAD BRG 1 TS RHB T	TT							2					MAD11GU002	
10MAD11CT014B	ST RAD BRG 1 TS RHB T	TT							2					MAD11GU002	
10MAD11CT014C	ST RAD BRG 1 TS RHB T	TT							2					MAD11GU002	
10MAD12CT011A	ST RAD BRG 2 TS LHT T	TT							2					MAD12GU001	
10MAD12CT011B	ST RAD BRG 2 TS LHT T	TT							2					MAD12GU001	
10MAD12CT011C	ST RAD BRG 2 TS LHT T	TT							2					MAD12GU001	
10MAD12CT012A	ST RAD BRG 2 TS RHT T	TT							2					MAD12GU001	
10MAD12CT012B	ST RAD BRG 2 TS RHT T	TT							2					MAD12GU001	
10MAD12CT012C	ST RAD BRG 2 TS RHT T	TT							2					MAD12GU001	
10MAD12CT013A	ST RAD BRG 2 TS LHB T	TT							2					MAD12GU001	
10MAD12CT013B	ST RAD BRG 2 TS LHB T	TT							2					MAD12GU001	
10MAD12CT013C	ST RAD BRG 2 TS LHB T	TT							2					MAD12GU001	
10MAD12CT014A	ST RAD BRG 2 TS RHB T	TT							2					MAD12GU001	
10MAD12CT014B	ST RAD BRG 2 TS RHB T	TT							2					MAD12GU001	
10MAD12CT014C	ST RAD BRG 2 TS RHB T	TT							2					MAD12GU001	
10MAD12CT031A	ST AX BRG 2 TS LH T	TT							2					MAD12GU002	
10MAD12CT031B	ST AX BRG 2 TS LH T	TT							2					MAD12GU002	
10MAD12CT031C	ST AX BRG 2 TS LH T	TT							2					MAD12GU002	
10MAD12CT032A	ST AX BRG 2 TS RH T	TT							2					MAD12GU002	
10MAD12CT032B	ST AX BRG 2 TS RH T	TT							2					MAD12GU002	
10MAD12CT032C	ST AX BRG 2 TS RH T	TT							2					MAD12GU002	
10MAD12CT033A	ST AX BRG 2 GS LH T	TT							2					MAD12GU002	
10MAD12CT033B	ST AX BRG 2 GS LH T	TT							2					MAD12GU002	
10MAD12CT033C	ST AX BRG 2 GS LH T	TT							2					MAD12GU002	
10MAD12CT034A	ST AX BRG 2 GS RH T	TT							2					MAD12GU002	
10MAD12CT034B	ST AX BRG 2 GS RH T	TT							2					MAD12GU002	
10MAD12CT034C	ST AX BRG 2 GS RH T	TT							2					MAD12GU002	
10MAD13CT013A	ST RAD BRG 3 TS LHB T	TT							2					MAD13GU001	
10MAD13CT013B	ST RAD BRG 3 TS LHB T	TT							2					MAD13GU001	
10MAD13CT013C	ST RAD BRG 3 TS LHB T	TT							2					MAD13GU001	
10MAD13CT017A	ST RAD BRG 3 GS LHB T	TT							2					MAD13GU001	
10MAD13CT017B	ST RAD BRG 3 GS LHB T	TT							2					MAD13GU001	
10MAD13CT017C	ST RAD BRG 3 GS LHB T	TT							2					MAD13GU001	
10MAD14CT013A	ST RAD BRG 4 TS LHB T	TT							2					MAD14GU001	
10MAD14CT013B	ST RAD BRG 4 TS LHB T	TT							2					MAD14GU001	
10MAD14CT013C	ST RAD BRG 4 TS LHB T	TT							2					MAD14GU001	
10MAD14CT017A	ST RAD BRG 4 GS LHB T	TT							2					MAD14GU001	
10MAD14CT017B	ST RAD BRG 4 GS LHB T	TT							2					MAD14GU001	
10MAD14CT017C	ST RAD BRG 4 GS LHB T	TT							2					MAD14GU001	
10MAD15CT013A	ST RAD BRG 5 TS LHB T	TT							2					MAD15GG001	
10MAD15CT013B	ST RAD BRG 5 TS LHB T	TT							2					MAD15GG001	
10MAD15CT013C	ST RAD BRG 5 TS LHB T	TT							2					MAD15GG001	
10MAD15CT017A	ST RAD BRG 5 GS LHB T	TT							2					MAD15GG001	
10MAD15CT017B	ST RAD BRG 5 GS LHB T	TT							2					MAD15GG001	
10MAD15CT017C	ST RAD BRG 5 GS LHB T	TT							2					MAD15GG001	

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KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
10MAC20CT071A	LPT 2 TOP EXH STMT	TT							2					MAD15GU001	
10MAC20CT072A	LPT 2 TOP EXH STMT	TT							2					MAD15GU001	
10MAC20CT073A	LPT 2 TOP EXH STMT	TT							2					MAD15GU001	
10MAM20CT001A	ST INFL U-RING SUC T	TT							2					MAM20GU001	
10MAM20CT002A	ST INFL U-RING SUC T	TT							2					MAM20GU001	
10MAN52CT001A	CONDENSER 1 WALL TEMP	TT							2					MAN52GU001	
10MAN52CT002A	CONDENSER 1 WALL TEMP	TT							2					MAN52GU001	
10MAN55CT001A	CONDENSER 2 WALL TEMP	TT							2					MAN55GU001	
10MAN55CT002A	CONDENSER 2 WALL TEMP	TT							2					MAN55GU001	
10MAV10CT001A	MAIN O-TNK T	TT							2					MAV00GF001	
10MAV42CT001A	LO T C-V D/STR T	TT							2					MAV00GF001	
10MAV42CT002A	LO T C-V D/STR T	TT							2					MAV00GF001	
10MAW20CT001A	SS MFLD FR T	TT							2					MAW00GU001	
10MAW20CT003A	SS MFLD RR T	TT							2					MAW00GU001	
10MAW60CT001A	L/O STM MFLD T	TT							2					MAW00GU001	
10MKA71CT011A	TEMP.COLD GAS AFT H2 CLRS A&B	TT							2					MKA11GC011A	
10MKA71CT012A	TEMP.COLD GAS AFT H2 CLRS A&B	TT							2					MKA11GC011A	
10MKA71CT013A	TEMP.COLD GAS AFT H2 CLRS A&B	TT							2					MKA11GC011A	
10MKA71CT031A	TEMP.COLD GAS AFT H2 CLRS C&D	TT							2					MKA11GC011A	
10MKA71CT032A	TEMP.COLD GAS AFT H2 CLRS C&D	TT							2					MKA11GC011A	
10MKA71CT033A	TEMP.COLD GAS AFT H2 CLRS C&D	TT							2					MKA11GC011A	
10MKA70CT019A	TEMP.COLD GAS (LEFT) EE	TT							2					MKA11GC011B	
10MKA70CT039A	TEMP.COLD GAS (RIGHT) EE	TT							2					MKA11GC011B	
10MKA72CT011A	TEMP.HOT GAS BEF H2 CLRS	TT							2					MKA11GC011B	
10MKA72CT012A	TEMP.HOT GAS BEF H2 CLRS	TT							2					MKA11GC011B	
10MKA72CT013A	TEMP.HOT GAS BEF H2 CLRS	TT							2					MKA11GC011B	
10MKA72CT014A	TEMP.HOT GAS BEF H2 CLRS	TT							2					MKA11GC011B	
10MKA27CT001A	TEMP. PW O/L MANIFOLD	TT							2					MKA11GC021H	
10MKA27CT002A	TEMP. PW O/L MANIFOLD	TT							2					MKA11GC021H	
10MKA27CT001A	TEMP. PW O/L MANIFOLD	TT							2					MKA11GC021H	
10MKA27CT002A	TEMP. PW O/L MANIFOLD	TT							2					MKA11GC021H	
10MKA27CT003A	TEMP. PW O/L MANIFOLD	TT							2					MKA11GC021H	
10MKD21CT013A	EXCITER BEARING METAL TEMP	TT							2					MKC01GB001A	
10MKD21CT013B	EXCITER BEARING METAL TEMP	TT							2					MKC01GB001A	
10MKD21CT013C	EXCITER BEARING METAL TEMP	TT							2					MKC01GB001A	
10MKD21CT014A	EXCITER BEARING METAL TEMP	TT							2					MKC01GB001A	
10MKD21CT014B	EXCITER BEARING METAL TEMP	TT							2					MKC01GB001A	
10MKD21CT014C	EXCITER BEARING METAL TEMP	TT							2					MKC01GB001A	
10MKC61CT001A	TEMP. COLD AIR MAIN EXCITER	TT							2					MKC01GC001B	
10MKC61CT002A	TEMP. COLD AIR MAIN EXCITER	TT							2					MKC01GC001B	
10MKC66CT001A	TEMP. HOT AIR RECT.WHEEL	TT							2					MKC01GC001B	
10MKC65CT001A	TEMP. HOT AIR MAIN EXCITER	TT							2					MKC01GC001C	
10MKC65CT002A	TEMP. HOT AIR MAIN EXCITER	TT							2					MKC01GC001C	
10MKC65CT003A	TEMP. HOT AIR MAIN EXCITER	TT							2					MKC01GC001C	
10MKD11CT013A	TEMP.BEARING METAL (TE)	TT							2					MKD11GC001	
10MKD11CT013B	TEMP.BEARING METAL (TE)	TT							2					MKD11GC001	
10MKD11CT013C	TEMP.BEARING METAL (TE)	TT							2					MKD11GC001	
10MKD11CT017A	TEMP.BEARING METAL (TE)	TT							2					MKD11GC001	
10MKD11CT017B	TEMP.BEARING METAL (TE)	TT							2					MKD11GC001	
10MKD11CT017C	TEMP.BEARING METAL (TE)	TT							2					MKD11GC001	
10MKD12CT013A	TEMP.BEARING METAL (EE)	TT							2					MKD12GC001	
10MKD12CT013B	TEMP.BEARING METAL (EE)	TT							2					MKD12GC001	
10MKD12CT013C	TEMP.BEARING METAL (EE)	TT							2					MKD12GC001	
10MKD12CT017A	TEMP.BEARING METAL (EE)	TT							2					MKD12GC001	
10MKD12CT017B	TEMP.BEARING METAL (EE)	TT							2					MKD12GC001	
10MKD12CT017C	TEMP.BEARING METAL (EE)	TT							2					MKD12GC001	
10PGB01CT002A	CW INLET TEMP TO AIR COOLER	TT							2					MKY01GC003	
10PGB01CT015A	CW OUTLET TEMP FROM AIR COOLER	TT							2					MKY01GC003	
10PGB01CT016A	CW OUTLET TEMP FROM AIR COOLER	TT							2					MKY01GC003	
10PGB21CT001A	TEMP AT O/L PW CLR-1	TT							2					MKY01GC003	
10PGB22CT001A	TEMP AT O/L PW CLR-2	TT							2					MKY01GC003	

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10PGB23CT001A	TEMP AT INLET PW COOLER	TT							2					MKY01GC003	
10PGB30CT001A	TEMP- INLET OF H2 CLRS	TT							2					MKY01GC003	
10PGB30CT002A	TEMP- INLET OFH2 CLRS	TT							2					MKY01GC003	
10PGB32CT001A	WATER TEMP AFT H2 CLR A	TT							2					MKY01GC006	
10PGB32CT002A	WATER TEMP AFT H2 CLR B	TT							2					MKY01GC006	
10PGB32CT003A	WATER TEMP AFT H2 CLR C	TT							2					MKY01GC006	
10PGB32CT004A	WATER TEMP AFT H2 CLR D	TT							2					MKY01GC006	
10PGB33CT001A	WATER TEMP AFT H2 CLR	TT							2					MKY01GC006	
QHX10CT201	COOLING WATER SUPPLY HEADER TEMPERATURE	TT							2					PEM-TTE-001	
QHX11CT201	COOLING WATER RETURN HEADER TEMPERATURE	TT							2					PEM-TTE-001	
QHX16CT201	COOLING WATER TEMPERATURE AT SAMPLE COOLERS INLET	TT							2					PEM-TTE-001	
QHX16CT202	COOLING WATER TEMPERATURE AT SAMPLE COOLERS OUTLET	TT							2					PEM-TTE-001	
HBK10CP002	FURNACE TO WINDBOX DIFF. PRESS. - LEFT	DPT	FLUE GAS / SEC AIR	-3/ 102	-4/ 102	mmWC	1126/ 336	1200/ 336	2	20	Yes	2	Yes	SADC-LIE-01	
HBK15CP002	FURNACE TO WINDBOX DIFF. PRESS. - RIGHT	DPT	FLUE GAS / SEC AIR	-3/ 102	-4/ 102	mmWC	1126/ 336	1200/ 336	2	20		2		SADC-LIE-01	
HBK15CP003	FURNACE TO WINDBOX DIFF. PRESS. - RIGHT	DPT	FLUE GAS / SEC AIR	-3/ 102	-4/ 102	mmWC	1126/ 336	1200/ 336	2	20		2		SADC-LIE-01	
HHL41CF001	FLOW AT L-SOFA CORNER-1	FT	SEC AIR	162	233	mmWC	336	336	2	20	Yes	2	Yes	SADC-LIE-02	
HHL44CF001	FLOW AT L-SOFA CORNER-4	FT	SEC AIR	162	233	mmWC	336	336	2	20		2		SADC-LIE-02	
HHL42CF001	FLOW AT L-SOFA CORNER-2	FT	SEC AIR	162	233	mmWC	336	336	2	20	Yes	2	Yes	SADC-LIE-03	
HHL43CF001	FLOW AT L-SOFA CORNER-3	FT	SEC AIR	162	233	mmWC	336	336	2	20		2		SADC-LIE-03	
HHL42CF002	FLOW AT H-SOFA LEFT WALL	FT	SEC AIR	162	233	mmWC	336	336	2	20	Yes	2	Yes	SADC-LIE-04	
HHL43CF002	FLOW AT H-SOFA REAR WALL	FT	SEC AIR	162	233	mmWC	336	336	2	20		2		SADC-LIE-04	
HHL41CF002	FLOW AT H-SOFA FRONT WALL	FT	SEC AIR	162	233	mmWC	336	336	2	20	Yes	2	Yes	SADC-LIE-05	
HHL44CF002	FLOW AT H-SOFA RIGHT WALL	FT	SEC AIR	162	233	mmWC	336	336	2	20		2		SADC-LIE-05	
HCB02CF001	SB RETRACT STEAM FLOW - RIGHT	FT	STEAM	40	50	Kg/Cm2	348	395	2	12				SB- LIE-02	
HCB03CP001	SB START-UP STEAM SUPPLY LINE PRESSURE	PT	STEAM	40	50	Kg/Cm2	348	395	2	10				SB- LIE-02	
HCB04CF001	WALL BLOWER STEAM FLOW - RIGHT & REAR	FT	STEAM	40	50	Kg/Cm2	348	395	2	12				SB- LIE-02	
HCB05CF001	SB RETRACT STEAM FLOW - LEFT	FT	STEAM	40	50	Kg/Cm2	348	395	2	12				SB- LIE-02	
HCB06CF001	WALL BLOWER STEAM FLOW - LEFT & FRONT	FT	STEAM	40	50	Kg/Cm2	348	395	2	12				SB- LIE-02	
10HCB01CT001	SB STEAM TEMPERATURE	TT							2					SBC-TT JB DU01	
10HCB10CT201	LR BLOWER DRAIN TEMPERATURE-LEFT	TT							2					SBC-TT JB DU01	
10HCB10CT202	LR BLOWER DRAIN TEMPERATURE-LEFT	TT							2					SBC-TT JB DU01	
10HCB30CT201	LR BLOWER DRAIN TEMPERATURE-RIGHT	TT							2					SBC-TT JB DU01	
10HCB30CT202	LR BLOWER DRAIN TEMPERATURE-RIGHT	TT							2					SBC-TT JB DU01	
10HCB20CT201	WALL BLOWER DRAIN TEMPERATURE - LEFT & FRONT	TT							2					SBC-TT JB DU02	
10HCB20CT202	WALL BLOWER DRAIN TEMPERATURE - LEFT & FRONT	TT							2					SBC-TT JB DU02	
10HCB40CT201	WALL BLOWER DRAIN TEMPERATURE - RIGHT & REAR	TT							2					SBC-TT JB DU02	
10HCB40CT202	WALL BLOWER DRAIN TEMPERATURE - RIGHT & REAR	TT							2					SBC-TT JB DU02	
10HCB03CT201	AH-A SB DRAIN TEMPERATURE	TT							2					SBC-TT JB DU03	
10HCB03CT202	AH-A SB DRAIN TEMPERATURE	TT							2					SBC-TT JB DU03	
10HCB03CT203	AH-B SB DRAIN TEMPERATURE	TT							2					SBC-TT JB DU03	
10HCB03CT204	AH-B SB DRAIN TEMPERATURE	TT							2					SBC-TT JB DU03	
HCB00CP001	SB STEAM PRESSURE BEFORE SBPRV	PT	STEAM	290.8	309.5	Kg/Cm2	495	517	2	2				SB-LIE-01	
HCB01CF001	SB STEAM SUPPLY FLOW	FT	STEAM	40	50	Kg/Cm2	348	395	2	12				SB-LIE-01	
HCB01CP001	SB STEAM PRESSURE AFTER SBPRV	PT	STEAM	40	50	Kg/Cm2	348	395	2	10				SB-LIE-01	
HCB01CP002	SB STEAM PRESSURE AFTER SBPRV	PT	STEAM	40	50	Kg/Cm2	348	395	2	10				SB-LIE-01	
90GCB39CP101	PSF Air Blower Common PS	PS	Air	0.6	0.8	Kg/Cm2	25-40	45	1	16				STAND ALONE	
90GCB65CP101	UF Air Blower Outlet PS	PS	Air	0.6	0.8	Kg/Cm2	25-40	45	1	16				STAND ALONE	
90GCF01CT001	SWRO Cart.Filter Common Line TIT	TT							1					STAND ALONE	
90GCF04CT001	SWRO Stream-A Inlet Line TIT	TT							1					STAND ALONE	
90GCF08CT001	SWRO Stream-B Inlet Line TIT	TT							1					STAND ALONE	
90GCF16CT001	BWRO HP Pump Common Line TIT	TT							1					STAND ALONE	
90GCF27CP101	Discharge Of Degasser Air Blower DGB-3&4 PS	PS	Air	0.01	1	Kg/Cm2	25-40	45	1	10				STAND ALONE	
90GCF32CP101	Discharge Of Degasser Air Blower DGB-1&2 PS	PS	Air	0.01	1	Kg/Cm2	25-40	45	1	10				STAND ALONE	
90GCF59CP101	DM MB Air Blower Common Outlet PS	PS	Air	0.5	0.7	Kg/Cm2	25-40	45	1	16				STAND ALONE	
90GCN21CT001	UF CIP Tank TIT	TT							1					STAND ALONE	
90GCN36CT501	BWRO CIP Tank TIT	TT							1					STAND ALONE	
90GCP35CT001	TIT at Common Outlet Of Remin. Filter	TT							1					STAND ALONE	
90GCP41CP001	PIT at Co2 Dosing Line To Remin. Filter	PT	CO2 GAS	3.5	3.5	Kg/Cm2	25-40	45	1	16				STAND ALONE	
90GCP41CP002	PIT at Co2 Dosing Line To Remin. Filter	PT	CO2 GAS	3.5	3.5	Kg/Cm2	25-40	45	1	16				STAND ALONE	

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90GCS03CP101	Sludge Pit Air Blower Outlet PS	PS	Air	0.5	0.7	Kg/Cm2	25-40	45	1	16				STAND ALONE	
90GHD22CP011	AHP & CHP MUP PMP DISCH HDR PRESS	PT	DESALINATED WATER	6.5	10	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD22CP012	AHP & CHP MUP PMP DISCH HDR PRESS	PT	DESALINATED WATER	6.5	10	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD25CP011	POTABLE WTR PMP DISCH HDR PRESS	PT	DESALINATED WATER	7.5	10	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD25CP012	POTABLE WTR PMP DISCH HDR PRESS	PT	DESALINATED WATER	7.5	10	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD28CP011	SERVICE WTR PMP DISCH HDR PRESS	PT	DESALINATED WATER	6.5	10	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD28CP012	SERVICE WTR PMP DISCH HDR PRESS	PT	DESALINATED WATER	6.5	10	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD31CP011	HVAC MAKE UP WTR PMP DISCH HDR PRESS	PT	DESALINATED WATER	6.5	10	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD31CP012	HVAC MAKE UP WTR PMP DISCH HDR PRESS	PT	DESALINATED WATER	6.5	10	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD34CP011	APH/ESP WASH PMP DISCH HDR PRESS	PT	DESALINATED WATER	9	12	Kg/Cm2	30	50	1	16				STAND ALONE	
90GHD34CP012	APH/ESP WASH PMP DISCH HDR PRESS	PT	DESALINATED WATER	9	12	Kg/Cm2	30	50	1	16				STAND ALONE	
90HJP94CP001	SUMP PUMP DISCHARGE PRESSURE (COMMON LINE)	PT	Water	5	5	Kg/Cm2	37.8	37.8	1	16				STAND ALONE	
90LCR20CP011	BLR FILL PUMP -A DISCH PRESS	PT	DM WTR	18	25	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR21CP011	BLR FILL PUMP -B DISCH PRESS	PT	DM WTR	18	25	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR22CP011	BLR FILL PUMP -C DISCH PRESS	PT	DM WTR	18	25	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR23CP011	BLR FILL PUMP -D DISCH PRESS	PT	DM WTR	18	25	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR24CP011	HTWL M/U PUMP-B DISCH PRESS	PT	DM WTR	8	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR25CP011	HTWL M/U PUMP-C DISCH PRESS	PT	DM WTR	8	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR26CP011	HTWL M/U PUMP-D DISCH PRESS	PT	DM WTR	8	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR27CP011	HTWL M/U PUMP-A DISCH PRESS	PT	DM WTR	8	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR30CP011	BLR FILL PUMPs DISCH HDR PRESS	PT	DM WTR	18	25	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR40CP011	HTWL M/U PUMPs DISCH HDR PRESS	PT	DM WTR	8	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR61CP011	DM M/U PUMP-A DISCH PRESS	PT	DM WTR	4.5	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR62CP011	DM M/U PUMP-B DISCH PRESS	PT	DM WTR	4.5	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR63CP011	DM M/U PUMP-C DISCH PRESS	PT	DM WTR	4.5	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90LCR70CP011	DM M/U PUMPs DISCH HDR PRESS	PT	DM WTR	4.5	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90QFA10 CP001	INSTRUMENT AIR PRESSURE AT TERMINAL POINT	PT	INST AIR	6	7	Kg/Cm2	40	50	1	16				STAND ALONE	
90QFB10 CP001	SERVICE AIR PRESSURE AT TERMINAL POINT	PT	SERV AIR	6	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90QHB 10CP001	FURNACE PRESSURE	PT	FLUE GAS	178	237	mmWC	1289	1300	1	18				STAND ALONE	
90QHB 10CP001-002	FURNACE PRESSURE	PT	FLUE GAS	178	237	mmWC	1289	1300	1	18				STAND ALONE	
90QHC10CP001	SB MAIN LINE PRESSURE	PT	STEAM	19	25	Kg/Cm2	212	355	1	10				STAND ALONE	
90QHH40CF001	FLOW BEFORE LOTV	FT	HSD	15.9	15.9	Kg/Cm2	at	at	1	12				STAND ALONE	
90QHH50CP001	ATOMISING AIR HEADER PRESSURE	PT	AIR	6	6	Kg/Cm2	at	at	1	10				STAND ALONE	
90QHH50CP002	ATOMISING AIR HEADER PRESSURE	PT	AIR	6	6	Kg/Cm2	at	at	1	10				STAND ALONE	
90QHL30CF001	AIR FLOW	FT	SEC AIR	389	517	mmWC	30	53	1	20				STAND ALONE	
90QHL30CF002	AIR FLOW	FT	SEC AIR	389	517	mmWC	30	53	1	20				STAND ALONE	
90QHL30CP001	FD FAN OUTLET PRESSURE	PT	SEC AIR	419	561	mmWC	30	53	1	18				STAND ALONE	
90QHL40CP001	DP ACROSS WINDBOX & FURNACE	DPT	SEC AIR/FLUE GAS	389/ 178	517/ 237	mmWC	30/ 1289	53/ 1300	1	20				STAND ALONE	
90QHN10CP001	BOILER BANK OUTLET PRESSURE	PT	FLUE GAS	65	84	mmWC	360	370	1	18				STAND ALONE	
90QHX10 CP001	COOLING WATER SYSTEM INLET PRESSURE	PT	WATER	6	10	Kg/Cm2	40	50	1	16				STAND ALONE	
90QLA01 CL001	FEED WATER STORAGE TANK LEVEL	LT	FEED WATER	1.23	7	Kg/Cm2	105	135	1	12				STAND ALONE	
90QLA01 CL002	FEED WATER STORAGE TANK LEVEL	LT	FEED WATER	1.23	7	Kg/Cm2	105	135	1	12				STAND ALONE	
90QLA01 CP001	FEED STORAGE TANK PR.	PT	FEED WATER	1.23	7	Kg/Cm2	105	135	1	10				STAND ALONE	
90QLA20 CF001	BFP DISCHARGE FLOW - COMMON	FT	FEED WATER	38	45	Kg/Cm2	105	140	1	12				STAND ALONE	
90QLA20 CP001	BFP DISCHARGE PRESSURE	PT	FEED WATER	38	45	Kg/Cm2	105	140	1	10				STAND ALONE	
90QLA20 CP002	BFP DISCHARGE PRESSURE BEFORE FCV.	PT	FEED WATER	38	45	Kg/Cm2	105	140	1	10				STAND ALONE	
90QLA20 CP003	BFP DISCHARGE PRESSURE AFT. FCV.	PT	FEED WATER	38	45	Kg/Cm2	105	140	1	10				STAND ALONE	
90QLA30 CP001	DM WATER PUMP DISCHARGE PRESSURE	PT	DM WTR	5	20	Kg/Cm2	40	50	1	16				STAND ALONE	
90QLB10CL001	DRUM LEVEL	LT	WATER/ STEAM	22.4	25	Kg/Cm2	220	253	1	12				STAND ALONE	
90QLB10CL002	DRUM LEVEL	LT	WATER/ STEAM	22.4	25	Kg/Cm2	220	253	1	12				STAND ALONE	
90QLB10CP001	DRUM PRESSURE	PT	WATER/ STEAM	22.4	25	Kg/Cm2	220	253	1	10				STAND ALONE	
90QLB30 CF001	MAIN STEAM FLOW	FT	STEAM	20	22	Kg/Cm2	220	290	1	12				STAND ALONE	
90QLB30 CP001	MAIN STEAM PRESSURE	PT	STEAM	20	22	Kg/Cm2	220	290	1	10				STAND ALONE	
90QLB30 CP002	STEAM TO DEAERATOR PRESSURE	PT	STEAM	2	22	Kg/Cm2	220	290	1	10				STAND ALONE	
HAC20CP001	ECO O/L- LINK PRESS	PT	WATER	325.0	343	Kg/Cm2	345	348	2	6				STAND ALONE	Wire to TTE-26
HAH71CP001	SH DSH-1 O/L PRESS-A	PT	STEAM	290.5	309.5	Kg/Cm2	489	507	2	2				STAND ALONE	Wire to TTE-26
HAH72CP001	SH DSH-1 O/L PRESS-B	PT	STEAM	290.5	309.5	Kg/Cm2	489	507	2	2				STAND ALONE	Wire to TTE-27
HAH91CP001	SH DSH-2 O/L PRESS-A	PT	STEAM	283.8	302.8	Kg/Cm2	525	536	2	2				STAND ALONE	Wire to TTE-31
HAH92CP001	SH DSH-2 O/L PRESS-B	PT	STEAM	283.8	302.8	Kg/Cm2	525	536	2	2				STAND ALONE	Wire to TTE-31

NOTE:FOR SHCEME NO 16 AND 18 -WHERE EVER DESIGN PRESSURE >=40KG/CM2-TWO DRAIN VALVES SHALL BE PROVIDED PER LINE.

KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
HAJ21CP001	RH/DeSH OUTLET PRESS-A	PT	STEAM	58.9	71	Kg/Cm2	529	540	2	2				STAND ALONE	Wire to TTE-29
HAJ22CP001	RH/DeSH OUTLET PRESS-B	PT	STEAM	58.9	71	Kg/Cm2	529	540	2	2				STAND ALONE	Wire to TTE-30
HFE50CP001	COLD PA HDR PRESS	PT	COLD PY. AIR	962	1213	mmWC	40	49	2	18	YES	1	YES	STAND ALONE	
HFE70CP001	HOT PA HDR PRESS	PT	HOT PY AIR	931	954	mmWC	331	331	2	18	YES	1	YES	STAND ALONE	
HFW01CP001	DYNAVANE FILTER DIFFERENTIAL PRESS	DPT	SEAL AIR	962	1213	mmWC	40	49	2	20	YES	2	YES	STAND ALONE	
HFW20CP001	SEAL AIR FAN DISCHARGE PRESS	PT	SEAL AIR	1063	1235	mmWC	--	50	2	18	YES	1	YES	STAND ALONE	
HJN10CP001	ATOMISING AIR HEADER PRESSURE	PT	ATOM. AIR	6	7.00	Kg/Cm2	30	30	2	16				STAND ALONE	Standalone PT wired to JB of LIE-29
LAB50CP016	FW PRESS AFT FCS	PT	FEED WATER	339.12	375	Kg/Cm2	195.2	200	2	6				STAND ALONE	
LAE70CP001	SH DSH-1 SPRAY WATER PRESS-AFTER COMMON BLOCK VALVE	PT	WATER	321.91	325.34	Kg/Cm2	308	308	2	6				STAND ALONE	
LAF20CP011	HC PRDS SPRAY UPTO NRV PRESS	PT	COND	30.1	45	Kg/Cm2	43	60	2	10				STAND ALONE	
LBC10CP011	CRH STM HDR PRESS AFT NRV	PT	STEAM	62.12	71	Kg/Cm2	359	370	2	10				STAND ALONE	
LCA83CP011	DUTY DRIP PMP HDR- O/L PRESS	PT	COND	24.71	45	Kg/Cm2	111.3	115	2	10				STAND ALONE	
LCL30CP001	PRESSURE AT CONDENSATE PUMP-A DISCHARGE LINE	PT	Water	3	10	Kg/Cm2	110	177	2	16				STAND ALONE	Standalone PT wired to JB of LIE-34
LCL30CP002	PRESSURE AT CONDENSATE PUMP-B DISCHARGE LINE	PT	Water	3	10	Kg/Cm2	110	177	2	16				STAND ALONE	Standalone PT to be wired to JB of LIE-35
LCL30CP003	PRESSURE AT CONDENSATE PUMP-A DISCHARGE LINE	PT	Water	3	10	Kg/Cm2	110	177	2	16				STAND ALONE	Standalone PT wired to JB of LIE-34
LCL30CP004	PRESSURE AT CONDENSATE PUMP-B DISCHARGE LINE	PT	Water	3	10	Kg/Cm2	110	177	2	16				STAND ALONE	Standalone PT to be wired to JB of LIE-35
LCR80CF011	HOTWELL MUP PMP DISCH HDR FLOW	FT	COND	7	10	Kg/Cm2	40	50	2	12				STAND ALONE	
PGC00CP011	TG DMCW PUMP SUC HDR PRESS	PT	DMCW	2.6	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-44
PGC00CP012	TG DMCW PUMP SUC HDR PRESS	PT	DMCW	2.6	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-44
PGC00CP013	TG DMCW PUMP SUC HDR PRESS	PT	DMCW	2.6	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-44
PGC01CP011	TG DMCW PUMP-A DISCH PRESS	PT	DMCW	7	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-44
PGC02CP011	TG DMCW PUMP-B DISCH PRESS	PT	DMCW	7	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-48
PGC03CP011	TG DMCW PUMP-C DISCH PRESS	PT	DMCW	7	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-72
PGC10CP011	TG DMCW PUMP DISCH HDR PRESS	PT	DMCW	7	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-45
PGC10CP012	TG DMCW PUMP DISCH HDR PRESS	PT	DMCW	7	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-45
PGC10CP013	TG DMCW PUMP DISCH HDR PRESS	PT	DMCW	7	10	Kg/Cm2	47	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-45
PGC30CP011	SG DMCW SUC HDR PRESS	PT	DMCW	2.6	12	Kg/Cm2	45	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-46
PGC30CP012	SG DMCW SUC HDR PRESS	PT	DMCW	2.6	12	Kg/Cm2	45	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-46
PGC30CP013	SG DMCW SUC HDR PRESS	PT	DMCW	2.6	12	Kg/Cm2	45	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-46
PGC31CP011	SG DMCW PUMP-A DISCH PRESS	PT	DMCW	8.3	12	Kg/Cm2	45	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-46
PGC32CP011	SG DMCW PUMP-B DISCH PRESS	PT	DMCW	8.3	12	Kg/Cm2	45	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-47
PGC40CP011	SG DMCW PUMP DISCH HDR PRESS	PT	DMCW	8.2	12	Kg/Cm2	45	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-45
PGC40CP012	SG DMCW PUMP DISCH HDR PRESS	PT	DMCW	8.2	12	Kg/Cm2	45	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-45
PGC40CP013	SG DMCW PUMP DISCH HDR PRESS	PT	DMCW	8.2	12	Kg/Cm2	45	60	2	16				STAND ALONE	Standaone PT wired to JB of LIR-45
PGL30CP011	DMCW PRESS AT MDBFP MTR & HC WO CLR I/L	PT	DMCW	5.2	10	Kg/Cm2	38	60	2	16				STAND ALONE	
QEB10CP011	SERVICE AIR PRESSURE AT ROW B	PT	SERV AIR	8.5	10	Kg/Cm2	40	50	2	16				STAND ALONE	
QFA10CP011	INSTRUMENT AIR HEADER PRESSURE	PT	Air	7.5	10	Kg/Cm2	50	50	2	16				STAND ALONE	
QFA10CP012	INSTRUMENT AIR HEADER PRESSURE	PT	Air	7.5	10	Kg/Cm2	50	50	2	16				STAND ALONE	
QFB10CP011	SERVICE AIR PRESSURE AT TERMINAL POINT	PT	Air	8	10	Kg/Cm2	40	50	2	16				STAND ALONE	
QFB10CP012	SERVICE AIR PRESSURE AT TERMINAL POINT	PT	Air	8	10	Kg/Cm2	40	50	2	16				STAND ALONE	
QFB10CP013	INSTRUMENT AIR PRESSURE AT ROW B	PT	INST AIR	7.5	8	Kg/Cm2	40	50	2	16				STAND ALONE	
QHX10CP011	COOLING WATER SUPPLY HEADER PRESSURE	PT	Water	6	12	Kg/Cm2	38	60	2	16				STAND ALONE	
QHX11CP011	COOLING WATER RETURN HEADER PRESSURE	PT	Water	6	12	Kg/Cm2	38	60	2	16				STAND ALONE	
QHX16CP011	PRESSURE AT SAMPLE COOLER INLET	PT	Water	6	12	Kg/Cm2	38	60	2	16				STAND ALONE	
QHX16CP012	PRESSURE AT SAMPLE COOLER OUTLET	PT	Water	6	12	Kg/Cm2	38	60	2	16				STAND ALONE	
QHX20CL011	ECW TANK LEVEL	LT	Water	6	12	Kg/Cm2	38	60	2	12				STAND ALONE	
QHX20CP011	ECW TANK-A FILL PUMP SUCTION PRESSURE	PT	Water	6	12	Kg/Cm2	38	60	2	16				STAND ALONE	
QHX20CP012	ECW TANK-B FILL PUMP SUCTION PRESSURE	PT	Water	6	12	Kg/Cm2	38	60	2	16				STAND ALONE	
QHX20CP013	ECW TANK-A FILL PUMP DISCHARGE PRESSURE	PT	Water	6	12	Kg/Cm2	38	60	2	16				STAND ALONE	
QHX20CP014	ECW TANK-B FILL PUMP DISCHARGE PRESSURE	PT	Water	6	12	Kg/Cm2	38	60	2	16				STAND ALONE	
SDA11CP001	PRESSURE AT APH WATER WASH LINE	PT	Water	7	12	Kg/Cm2	38	50	2	16				STAND ALONE	
SDA20CP001	PRESSURE AT APH HIGH PRESSURE WATER WASH BOOSTER PUMP DISCHARGE	PT	Water	20	25	Kg/Cm2	38	50	2	16				STAND ALONE	
SGA11CP001	PRESSURE AT APH FIRE FIGHTING LINE	PT	Water	7	12	Kg/Cm2	38	50	2	16				STAND ALONE	
SGA51CP001	FIRE WATER FOR MILL FIRE FIGHTING (MILLS: A,B&C)	PT	Water	7	12	Kg/Cm2	38	50	2	16				STAND ALONE	Standalone PT to be wired to JB of LIE-41
SGA51CP002	FIRE WATER FOR MILL FIRE FIGHTING (MILLS: D,E,F&G)	PT	Water	7	12	Kg/Cm2	38	50	2	16				STAND ALONE	Standalone PT to be wired to JB of LIE-42
HFE30CT001A	AH-A PY. AIR INLET TEMP	TT							2					TTE-01	
HFE30CT002A	AH-A PY. AIR INLET TEMPERATURE	TT							2					TTE-01	
HFE30CT003A	AH-A PY. AIR INLET TEMPERATURE	TT							2					TTE-01	
HLA20CT001A	AH-ASEC. AIR INLET TEMPERATURE	TT							2					TTE-01	

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KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
HLA20CT002A	AH-A SEC. AIR INLET TEMPERATURE	TT							2					TTE-01	
HLA20CT003A	AH-A SEC. AIR INLET TEMPERATURE	TT							2					TTE-01	
HLA20CT004A	AH-A SEC. AIR INLET TEMPERATURE	TT							2					TTE-01	
HNA30CT001A	AH-A FLUE GAS OUTLET TEMPERATURE	TT							2					TTE-03	
HNA30CT002A	AH-A FLUE GAS OUTLET TEMPERATURE	TT							2					TTE-03	
HNA30CT003A	AH-A FLUE GAS OUTLET TEMPERATURE	TT							2					TTE-03	
HNA30CT004A	AH-A FLUE GAS OUTLET TEMPERATURE	TT							2					TTE-03	
HNA35CT001A	AH-B FLUE GAS OUTLET TEMPERATURE	TT							2					TTE-04	
HNA35CT002A	AH-B FLUE GAS OUTLET TEMPERATURE	TT							2					TTE-04	
HNA35CT003A	AH-B FLUE GAS OUTLET TEMPERATURE	TT							2					TTE-04	
HNA35CT004A	AH-B FLUE GAS OUTLET TEMPERATURE	TT							2					TTE-04	
HFE35CT001A	AH-B PY. AIR INLET TEMPERATURE	TT							2					TTE-05	
HFE35CT002A	AH-B PY. AIR INLET TEMPERATURE	TT							2					TTE-05	
HFE35CT003A	AH-B PY. AIR INLET TEMPERATURE	TT							2					TTE-05	
HLA25CT001A	AH-B SEC.AIR INLET TEMPERATURE	TT							2					TTE-05	
HLA25CT002A	AH-B SEC. AIR INLET TEMPERATURE	TT							2					TTE-05	
HLA25CT003A	AH-B SEC. AIR INLET TEMPERATURE	TT							2					TTE-05	
HLA25CT004A	AH-B SEC. AIR INLET TEMPERATURE	TT							2					TTE-05	
HAC10CT201	FW TEMP AT ECO. I/L	TT							2					TTE-07	
HAC10CT202	FW TEMP AT ECO. I/L	TT							2					TTE-07	
HAC10CT203	FW TEMP AT ECO. I/L	TT							2					TTE-07	
HFC01CT015A	MILL A OUTLET TEMP	TT							2					TTE-08	
HFC01CT016A	MILL A OUTLET TEMP	TT							2					TTE-08	
HFE71CT001A	MIXED AIR BEFORE MILL:A TEMP	TT							2					TTE-08	
HFE71CT002A	MIXED AIR BEFORE MILL:A TEMP	TT							2					TTE-08	
HFE71CT003A	MIXED AIR BEFORE MILL:A TEMP	TT							2					TTE-08	
HFC02CT015A	MILL B OUTLET TEMP	TT							2					TTE-09	
HFC02CT016A	MILL B OUTLET TEMP	TT							2					TTE-09	
HFE72CT001A	MIXED AIR BEFORE MILL:B TEMP	TT							2					TTE-09	
HFE72CT002A	MIXED AIR BEFORE MILL:B TEMP	TT							2					TTE-09	
HFE72CT003A	MIXED AIR BEFORE MILL:B TEMP	TT							2					TTE-09	
HFC03CT015A	MILL C OUTLET TEMP	TT							2					TTE-10	
HFC03CT016A	MILL C OUTLET TEMP	TT							2					TTE-10	
HFE73CT001A	MIXED AIR BEFORE MILL:C TEMP	TT							2					TTE-10	
HFE73CT002A	MIXED AIR BEFORE MILL:C TEMP	TT							2					TTE-10	
HFE73CT003A	MIXED AIR BEFORE MILL:C TEMP	TT							2					TTE-10	
HFC04CT015A	MILL D OUTLET TEMP	TT							2					TTE-11	
HFC04CT016A	MILL D OUTLET TEMP	TT							2					TTE-11	
HFE74CT001A	MIXED AIR BEFORE MILL:D TEMP	TT							2					TTE-11	
HFE74CT002A	MIXED AIR BEFORE MILL:D TEMP	TT							2					TTE-11	
HFE74CT003A	MIXED AIR BEFORE MILL:D TEMP	TT							2					TTE-11	
HFC05CT015A	MILL E OUTLET TEMP	TT							2					TTE-12	
HFC05CT016A	MILL E OUTLET TEMP	TT							2					TTE-12	
HFE75CT001A	MIXED AIR BEFORE MILL:E TEMP	TT							2					TTE-12	
HFE75CT002A	MIXED AIR BEFORE MILL:E TEMP	TT							2					TTE-12	
HFE75CT003A	MIXED AIR BEFORE MILL:E TEMP	TT							2					TTE-12	
HFC06CT015A	MILL F OUTLET TEMP	TT							2					TTE-13	
HFC06CT016A	MILL F OUTLET TEMP	TT							2					TTE-13	
HFE76CT001A	MIXED AIR BEFORE MILL:F FLOW	TT							2					TTE-13	
HFE76CT002A	MIXED AIR BEFORE MILL:F FLOW	TT							2					TTE-13	
HFE76CT003A	MIXED AIR BEFORE MILL:F FLOW	TT							2					TTE-13	
HFC07CT015A	MILL G OUTLET TEMP	TT							2					TTE-14	
HFC07CT016A	MILL G OUTLET TEMP	TT							2					TTE-14	
HFE77CT001A	MIXED AIR BEFORE MILL:G TEMP	TT							2					TTE-14	
HFE77CT002A	MIXED AIR BEFORE MILL:G TEMP	TT							2					TTE-14	
HFE77CT003A	MIXED AIR BEFORE MILL:G TEMP	TT							2					TTE-14	
HHL10CT001A	HOT SEC. AIR TEMPERATURE - LEFT & RIGHT	TT							2					TTE-15	
HHL10CT002A	HOT SEC. AIR TEMPERATURE - LEFT & RIGHT	TT							2					TTE-15	
HHL10CT003A	HOT SEC. AIR TEMPERATURE - LEFT & RIGHT	TT							2					TTE-15	

NOTE:FOR SHCEME NO 16 AND 18 -WHERE EVER DESIGN PRESSURE >=40KG/CM2-TWO DRAIN VALVES SHALL BE PROVIDED PER LINE.

KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
HHL15CT001A	HOT SEC. AIR TEMPERATURE - LEFT & RIGHT	TT							2					TTE-16	
HHL15CT002A	HOT SEC. AIR TEMPERATURE - LEFT & RIGHT	TT							2					TTE-16	
HHL15CT003A	HOT SEC. AIR TEMPERATURE - LEFT & RIGHT	TT							2					TTE-16	
LBA01CT011A	MS TEMP AT SH O/L-LEFT	TT							2					TTE-17	
LBA01CT012A	MS TEMP AT SH O/L-LEFT	TT							2					TTE-17	
LBA01CT013A	MS TEMP AT SH O/L-LEFT	TT							2					TTE-17	
LBB01CT011A	HRH STM TEMP. AT RH O/L - LEFT	TT							2					TTE-17	
LBB01CT012A	HRH STM TEMP. AT RH O/L - LEFT	TT							2					TTE-17	
LBB01CT013A	HRH STM TEMP. AT RH O/L - LEFT	TT							2					TTE-17	
LBA02CT011A	MS TEMP AT SH O/L-RIGHT	TT							2					TTE-18	
LBA02CT012A	MS TEMP AT SH O/L-RIGHT	TT							2					TTE-18	
LBA02CT013A	MS TEMP AT SH O/L-RIGHT	TT							2					TTE-18	
LBB02CT011A	HRH STM TEMP. AT RH O/L - RIGHT	TT							2					TTE-18	
LBB02CT012A	HRH STM TEMP. AT RH O/L - RIGHT	TT							2					TTE-18	
LBB02CT013A	HRH STM TEMP. AT RH O/L - RIGHT	TT							2					TTE-18	
LBF11CT011A	HPBP-1 D/S TEMP	TT							2					TTE-19	
LBF11CT012A	HPBP-1 D/S TEMP	TT							2					TTE-19	
LBF11CT013A	HPBP-1 D/S TEMP	TT							2					TTE-19	
LBF21CT011A	HPBP-2 D/S TEMP	TT							2					TTE-19	
LBF21CT012A	HPBP-2 D/S TEMP	TT							2					TTE-19	
LBF21CT013A	HPBP-2 D/S TEMP	TT							2					TTE-19	
LBF10CT011A	MS TEMP BEF HPBP-1	TT							2					TTE-20	
LBF10CT012A	MS TEMP BEF HPBP-1	TT							2					TTE-20	
LBF20CT011A	MS TEMP BEF HPBP-2	TT							2					TTE-20	
LBF20CT012A	MS TEMP BEF HPBP-2	TT							2					TTE-20	
HAN11CT201	FLASH TANK DRAIN TANK TO DRAIN SUMP	TT							2					TTE-21	
HAN11CT202	FLASH TANK DRAIN TANK TO DRAIN SUMP	TT							2					TTE-21	
LCL20CT201	FLASH TANK DRAIN TANK TEMPERATURE	TT							2					TTE-21	
LBG73CT201	TEMPERATURE OF SCAPH-A DRAIN TO FLASH TANK	TT							2					TTE-22	
LBG74CT201	TEMPERATURE OF SCAPH-B DRAIN TO FLASH TANK	TT							2					TTE-22	
LBG77CT201	TEMPERATURE AT SCAPH DRAIN TO FLASH TANK	TT							2					TTE-22	
HAH71CT201	SH PANELLETE TO SH DeSH-1 INLET TEMP-A	TT							2					TTE-23	
HAH71CT202	SH PANELLETE TO SH DeSH-1 INLET TEMP-A	TT							2					TTE-23	
HAH71CT203	SH PANELLETE TO SH DeSH-1 INLET TEMP-A	TT							2					TTE-23	
HAH72CT201	SH PANELLETE TO SH DeSH-1 INLET TEMP-B	TT							2					TTE-24	
HAH72CT202	SH PANELLETE TO SH DeSH-1 INLET TEMP-B	TT							2					TTE-24	
HAH72CT203	SH PANELLETE TO SH DeSH-1 INLET TEMP-B	TT							2					TTE-24	
HAH91CT204	SH DSH-2 O/L TEMP-A	TT							2					TTE-25	
HAH91CT205	SH DSH-2 O/L TEMP-A	TT							2					TTE-25	
HAH91CT206	SH DSH-2 O/L TEMP-A	TT							2					TTE-25	
HAH71CT204	SH DSH-1 O/L TEMP-A	TT							2					TTE-26	
HAH71CT205	SH DSH-1 O/L TEMP-A	TT							2					TTE-26	
HAH71CT206	SH DSH-1 O/L TEMP-A	TT							2					TTE-26	
HAH92CT204	SH DSH-2 O/L TEMP-A	TT							2					TTE-26	
HAH92CT205	SH DSH-2 O/L TEMP-A	TT							2					TTE-26	
HAH92CT206	SH DSH-2 O/L TEMP-A	TT							2					TTE-26	
HAH72CT204	SH DSH-1 O/L TEMP-B	TT							2					TTE-27	
HAH72CT205	SH DSH-1 O/L TEMP-B	TT							2					TTE-27	
HAH72CT206	SH DSH-1 O/L TEMP-B	TT							2					TTE-27	
HAJ21CT201	RH/DeSH INLET TEMP-A	TT							2					TTE-29	
HAJ21CT202	RH/DeSH INLET TEMP-A	TT							2					TTE-29	
HAJ21CT203	RH/DeSH INLET TEMP-A	TT							2					TTE-29	
HAJ21CT204	RH/DeSH OUTLET TEMP-A	TT							2					TTE-29	
HAJ21CT205	RH/DeSH OUTLET TEMP-A	TT							2					TTE-29	
HAJ21CT206	RH/DeSH OUTLET TEMP-A	TT							2					TTE-29	
HAJ22CT201	RH/DeSH INLET TEMP-B	TT							2					TTE-30	
HAJ22CT202	RH/DeSH INLET TEMP-B	TT							2					TTE-30	
HAJ22CT203	RH/DeSH INLET TEMP-B	TT							2					TTE-30	
HAJ22CT204	RH/DeSH OUTLET TEMP-B	TT							2					TTE-30	

NOTE:FOR SHCEME NO 16 AND 18 -WHERE EVER DESIGN PRESSURE >=40KG/CM2-TWO DRAIN VALVES SHALL BE PROVIDED PER LINE.

KKS TAG NO	DESCRIPTION	SENSOR TYPE	MEDIUM	OPER PRESS	DESIGN PRESS	UNIT PRESS	OPER TEMP	DESIGN TEMP	TOTAL QTY	SCHEME NO	AIR PURG	CONT PURG	INT PURG	LIE/LIR/TTE No	EDN Remarks
HAJ22CT205	RH/DeSH OUTLET TEMP-B	TT							2					TTE-30	
HAJ22CT206	RH/DeSH OUTLET TEMP-B	TT							2					TTE-30	
HAH91CT201	SH PANELLETE TO SH DeSH-2 INLET TEMP-A	TT							2					TTE-31	
HAH91CT202	SH PANELLETE TO SH DeSH-2 INLET TEMP-A	TT							2					TTE-31	
HAH91CT203	SH PANELLETE TO SH DeSH-2 INLET TEMP-A	TT							2					TTE-31	
HAH92CT201	SH PANELLETE TO SH DeSH-2 INLET TEMP-B	TT							2					TTE-32	
HAH92CT202	SH PANELLETE TO SH DeSH-2 INLET TEMP-B	TT							2					TTE-32	
HAH92CT203	SH PANELLETE TO SH DeSH-2 INLET TEMP-B	TT							2					TTE-32	
HAH01CT201	SEPARATOR 'A' O/L TEMP	TT							2					TTE-33	
HAH01CT202	SEPARATOR 'A' O/L TEMP.	TT							2					TTE-33	
HAH02CT201	SEPARATOR 'B' O/L TEMP.	TT							2					TTE-33	
HAH02CT202	SEPARATOR 'B' O/L TEMP.	TT							2					TTE-33	
HAH03CT201	SEPARATOR 'C' O/L TEMP	TT							2					TTE-34	
HAH03CT202	SEPARATOR 'C' O/L TEMP.	TT							2					TTE-34	
HAH04CT201	SEPARATOR 'D' O/L TEMP	TT							2					TTE-34	
HAH04CT202	SEPARATOR 'D' O/L TEMP.	TT							2					TTE-34	
LAB80CT011A	FW TEMP TO ECO	TT							2					TTE-35	
LAB80CT012A	FW TEMP TO ECO	TT							2					TTE-35	
LAB80CT013A	FW TEMP TO ECO	TT							2					TTE-35	
LBG30CT011A	AUX STM STN HDR TEMP	TT							2					TTE-36	
LBG30CT012A	AUX STM STN HDR TEMP	TT							2					TTE-36	
LBG30CT013A	AUX STM STN HDR TEMP	TT							2					TTE-36	
HLD01CT001	APH - A-Support/Guide Bearing Temp	TT		RANIPET APH					2					TTE-APH-001	
HLD01CT002	APH - A-Support/Guide Bearing Temp	TT		RANIPET APH					2					TTE-APH-001	
HLD01CT003	APH - A-Support/Guide Bearing Temp	TT		RANIPET APH					2					TTE-APH-001	
HLD01CT004	APH - A-Support/Guide Bearing Temp	TT		RANIPET APH					2					TTE-APH-001	
HLD02CT001	APH - B-Support/Guide Bearing Temp	TT		RANIPET APH					2					TTE-APH-001	
HLD02CT002	APH - B-Support/Guide Bearing Temp	TT		RANIPET APH					2					TTE-APH-001	
HLD02CT003	APH - B-Support/Guide Bearing Temp	TT		RANIPET APH					2					TTE-APH-001	
HLD02CT004	APH - B-Support/Guide Bearing Temp	TT		RANIPET APH					2					TTE-APH-001	
HLD01CF101	APH LOS common discharge Flow	FT	OIL	RANIPET APH	2.5	10	Kg/Cm2		2	12				STAND ALONE	
HLD01CF102	APH LOS common discharge Flow	FT	OIL	RANIPET APH	2.5	10	Kg/Cm2		2	12				STAND ALONE	
HLD02CF101	APH LOS common discharge Flow	FT	OIL	RANIPET APH	2.5	10	Kg/Cm2		2	12				STAND ALONE	
HLD02F102	APH LOS common discharge Flow	FT	OIL	RANIPET APH	2.5	10	Kg/Cm2		2	12				STAND ALONE	
HLD01CP001	APH - LOP Pump common suction Pressure	PT	OIL	RANIPET APH	5	10	Kg/Cm2		2	10				STAND ALONE	
HLD01CP002	APH - LOP Pump common suction Pressure	PT	OIL	RANIPET APH	5	10	Kg/Cm2		2	10				STAND ALONE	
HLD02CP001	APH - LOP Pump common suction Pressure	PT	OIL	RANIPET APH	5	10	Kg/Cm2		2	10				STAND ALONE	
HLD02CP002	APH - LOP Pump common suction Pressure	PT	OIL	RANIPET APH	5	10	Kg/Cm2		2	10				STAND ALONE	
HLD01CP003	APH LOP discharge Pressure	DPT	OIL	RANIPET APH	5	10	Kg/Cm2		2	12				STAND ALONE	
HLD01CP004	APH LOP discharge Pressure	DPT	OIL	RANIPET APH	5	10	Kg/Cm2		2	12				STAND ALONE	
HLD01CP005	APH LOP discharge Pressure	DPT	OIL	RANIPET APH	5	10	Kg/Cm2		2	12				STAND ALONE	
HLD01CP006	APH LOP discharge Pressure	DPT	OIL	RANIPET APH	5	10	Kg/Cm2		2	12				STAND ALONE	
HLD02CP003	APH LOP discharge Pressure	DPT	OIL	RANIPET APH	5	10	Kg/Cm2		2	12				STAND ALONE	
HLD02CP004	APH LOP discharge Pressure	DPT	OIL	RANIPET APH	5	10	Kg/Cm2		2	12				STAND ALONE	
HLD02CP005	APH LOP discharge Pressure	DPT	OIL	RANIPET APH	5	10	Kg/Cm2		2	12				STAND ALONE	
HLD02CP006	APH LOP discharge Pressure	DPT	OIL	RANIPET APH	5	10	Kg/Cm2		2	12				STAND ALONE	
HNC12CP001	ID Fan air pressure	PT	ATOM. AIR	RANIPET APH	500	1000	mmWC		2	18				STAND ALONE	
HNC22CP001	ID Fan air pressure	PT	ATOM. AIR	RANIPET APH	500	1000	mmWC		2	18				STAND ALONE	

NOTE:FOR SHCEME NO 16 AND 18 -WHERE EVER DESIGN PRESSURE >=40KG/CM2-TWO DRAIN VALVES SHALL BE PROVIDED PER LINE.

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

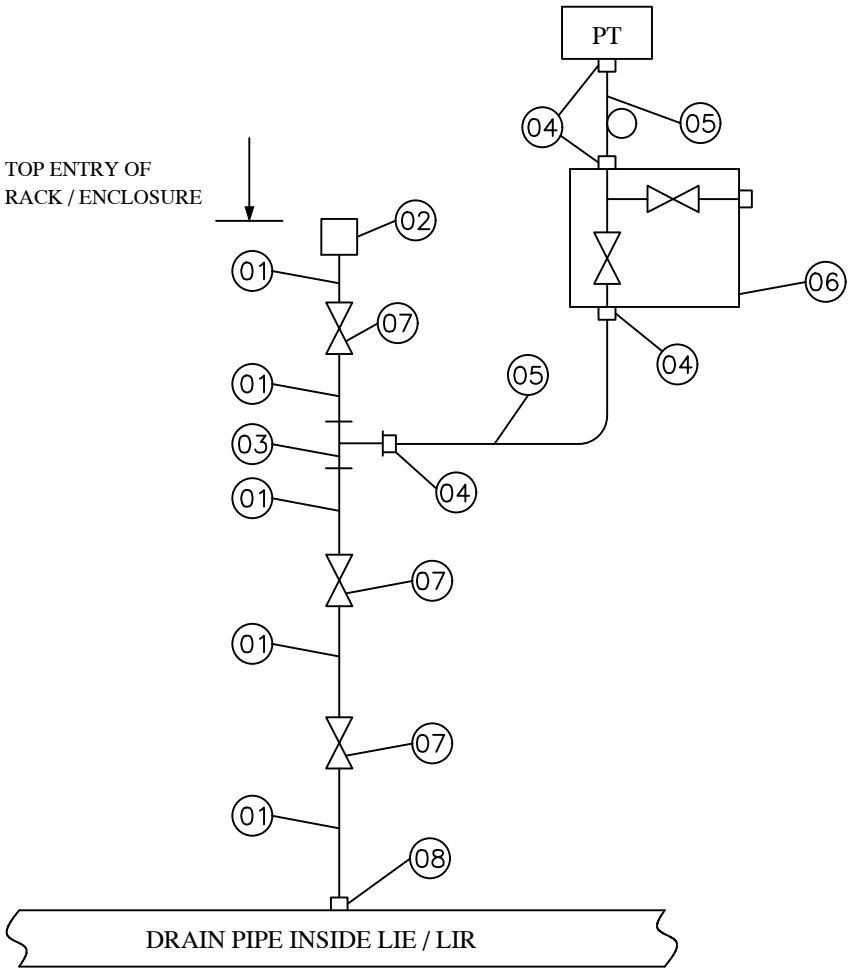
HOOK UP SCHEMES

REVISIONS :

APPROVED

PUNIT PRATAP SINGH

PREPARED BY	ISSUED	DATE
RAJESH L	416	24/08/23



NOTES:

1. " TRANSMITTER BELOW SOURCE "
2. FOR BILL OF MATERIAL REFER PAGE 03 OF 23
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr. C
4. ITEM NO. 05 SHALL BE FORMED INTO A SYPHON FOR SERVICES WITH MEDIUM AS STEAM.

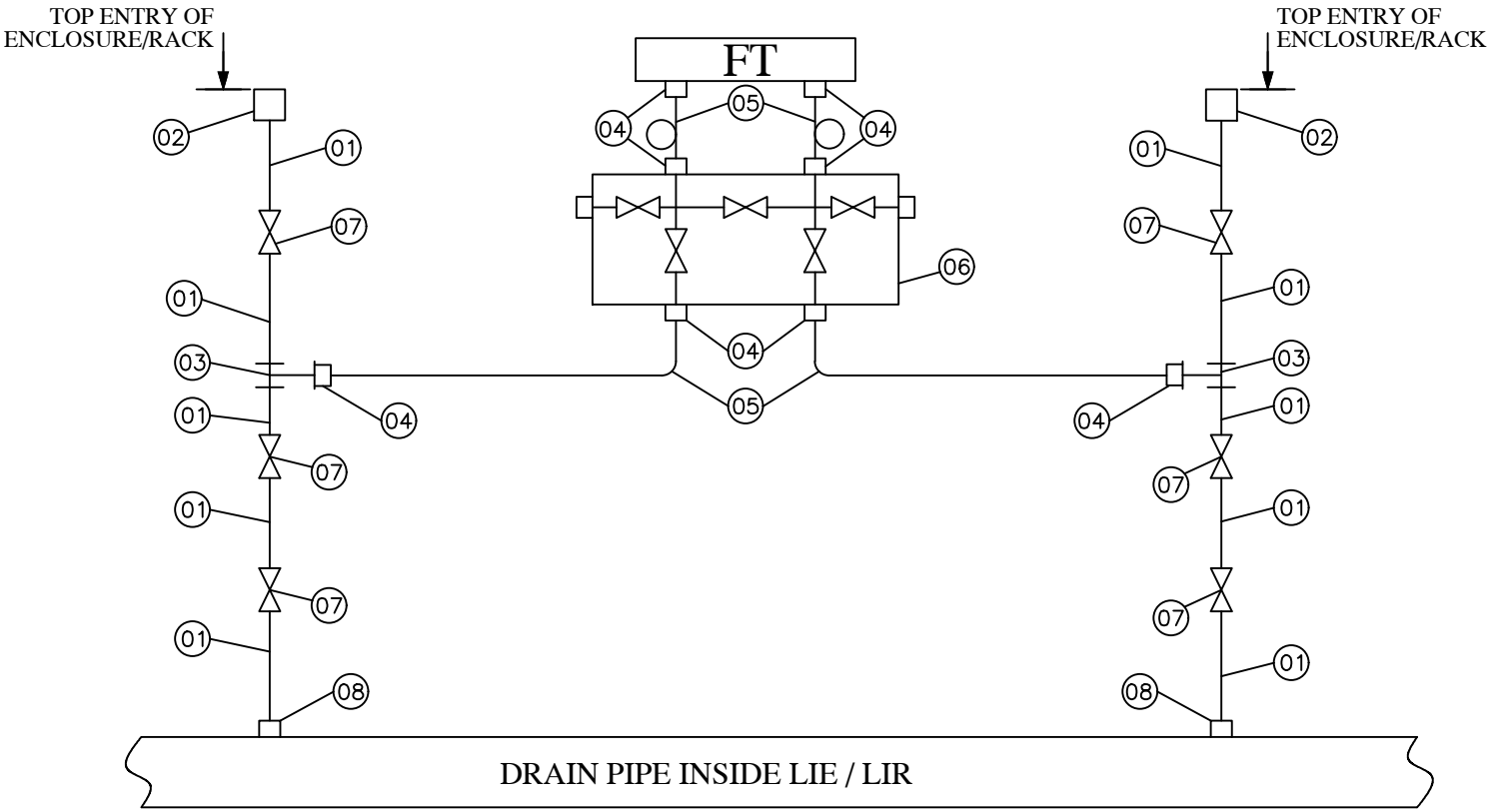
A4 – 11

CE/416/UDAN/HUP

REV. NO. 00

PAGE : 02 OF 23

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A335 P22 SIZE: 1/2" NB-SCH XXS	A/R
02	BULKHEAD COUPLING / AS PER ANSI B16.11 MATL: ASTM A182 F22 SIZE: 1/2" NB-SW / CL: 9000 LBS	01
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A182 F22 SIZE: 2 x 1/2" NB-SW X 1/2" NPTF / CL: 9000 LBS	01
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	04
05	SEAMLESS TUBE MATL: A213 TP316 SIZE: 1/2" OD x 2.1mm THK.	A/R
06	TWO VALVE MANIFOLD WITH VENT PLUG BODY: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 9000PSI	01
07	FORGED GLOBE VALVE BODY: ASTM A182 F22 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / 3000 SPL	03
08	HALF COUPLING / AS PER ANSI B16.11 MATL: ASTM A182 F22 SIZE: 1/2" NB-SW / CL: 9000 LBS	01



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 05 OF 23
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr. C
4. ITEM NO. 05 SHALL BE FORMED INTO A SYPHON FOR SERVICES WITH MEDIUM AS STEAM.

A4 – 11

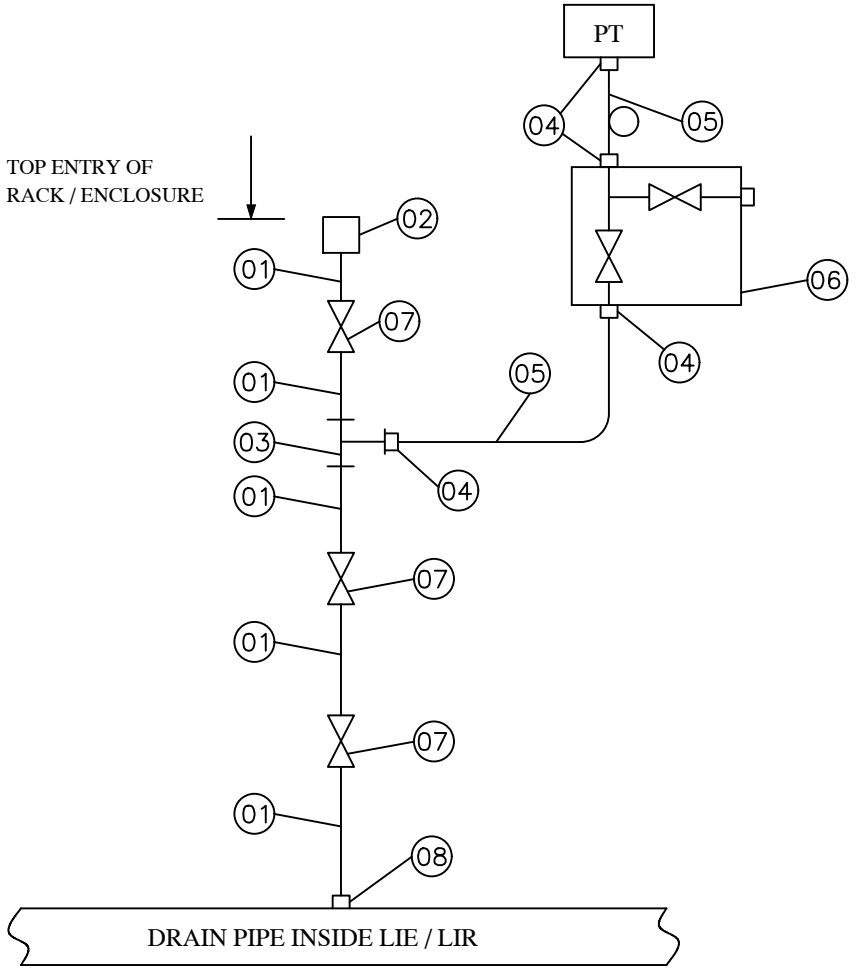
CE/416/UDAN/HUP

REV. NO. 00

PAGE : 04 OF 23

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A335 P22 SIZE: 1/2" NB-SCH XXS	A/R
02	BULKHEAD COUPLING / AS PER ANSI B16.11 MATL: ASTM A182 F22 SIZE: 1/2" NB-SW / CL: 9000 LBS	02
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A182 F91 SIZE: 2 x 1/2" NB-SW X 1/2" NPTF / CL: 9000 LBS	02
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	08
05	SEAMLESS TUBE MATL: A213 TP316 SIZE: 1/2" OD x 2.1 mm THK.	A/R
06	FIVE VALVE MANIFOLD WITH VENT PLUG BODY: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING : 9000PSI	01
07	FORGED GLOBE VALVE MATL BODY: ASTM A182 F22 / STEM MATL: A182 Gr.F6a SIZE : 1/2" NB-SW / 3000 SPL	06
08	HALF COUPLING / AS PER ANSI B16.11 MATL : ASTM A182 F22 SIZE: 1/2" NB-SW / CL 9000 LBS	02

A4 – 11



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 07 OF 23
3. DRAIN PIPE / 2" NB-SCH 80 - A106 Gr. C
4. ITEM NO. 05 SHALL BE FORMED INTO A SYPHON FOR SERVICES WITH MEDIUM AS STEAM.

CE/416/UDAN/HUP

REV. NO. 00

PAGE : 06 OF 23

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A106 Gr.C SIZE: 1/2" NB-SCH 160	A/R
02	BULKHEAD UNION/COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 6000 LBS	01
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 1/2" NB-SW X 1/2" NPTF	01
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	04
05	SEAMLESS TUBE MATL: A213 TP316 SIZE: 1/2" OD x 2.1 mm THK.	A/R
06	TWO VALVE MANIFOLD WITH VENT PLUG MATL: SS316 SIZE: 1/2" NPTF/ PR. TESTING: 6000 PSI	01
07	FORGED GLOBE VALVE BODY: ASTM A105 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL: 2500SPL	03
08	HALF COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 6000 LBS	01

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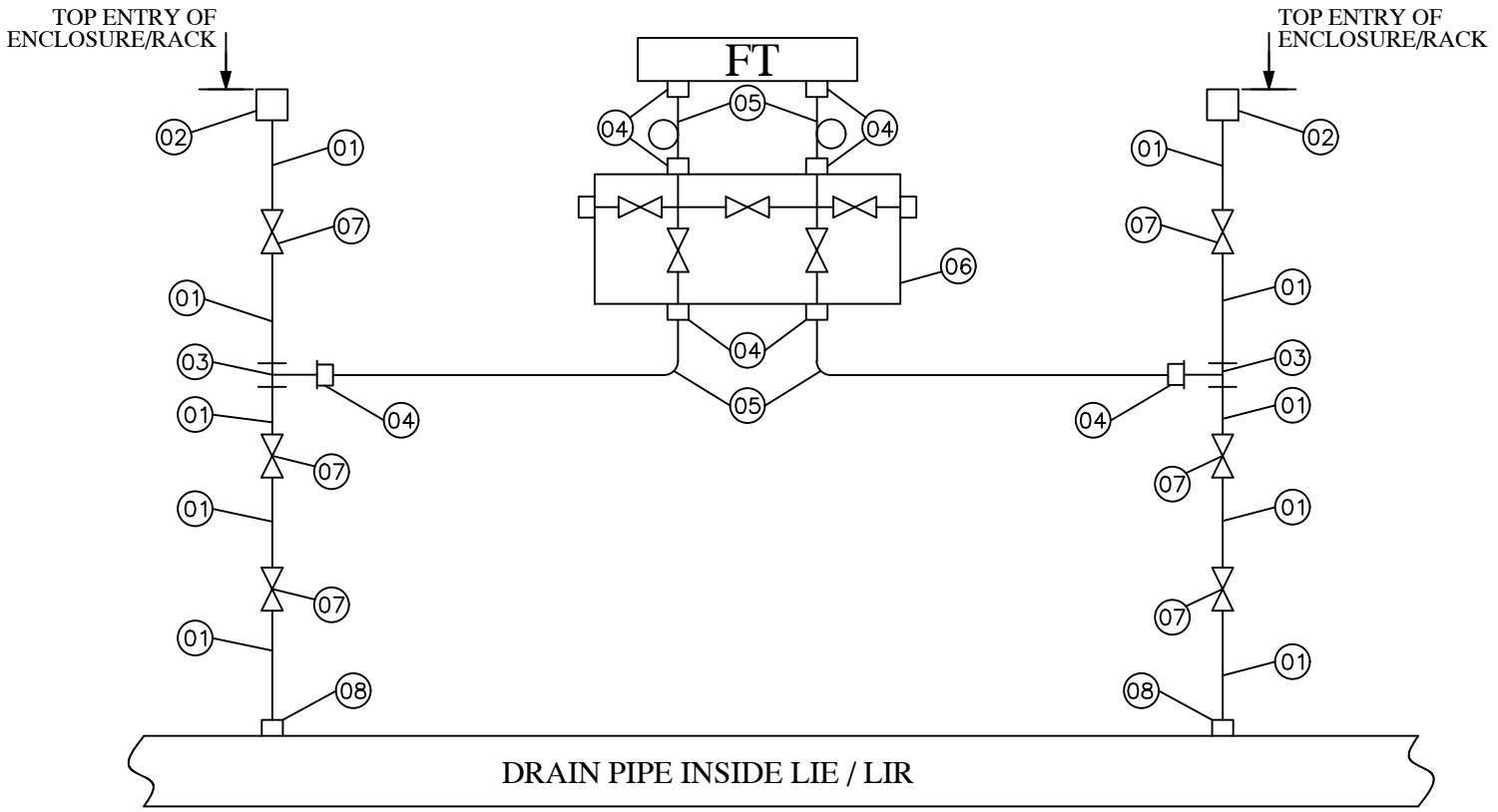


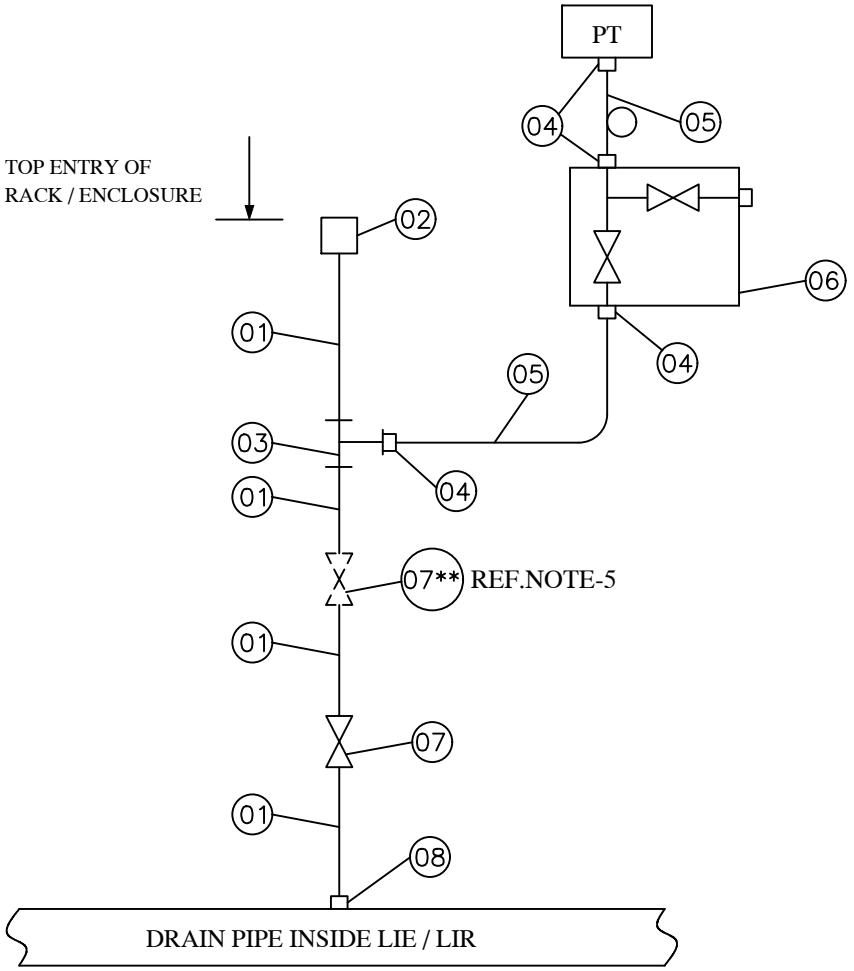
NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 09 OF 23
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr. C
4. ITEM NO. 05 SHALL BE FORMED INTO A SYPHON FOR SERVICES WITH MEDIUM AS STEAM.

CE/416/UDAN/HUP

REV. NO. 00

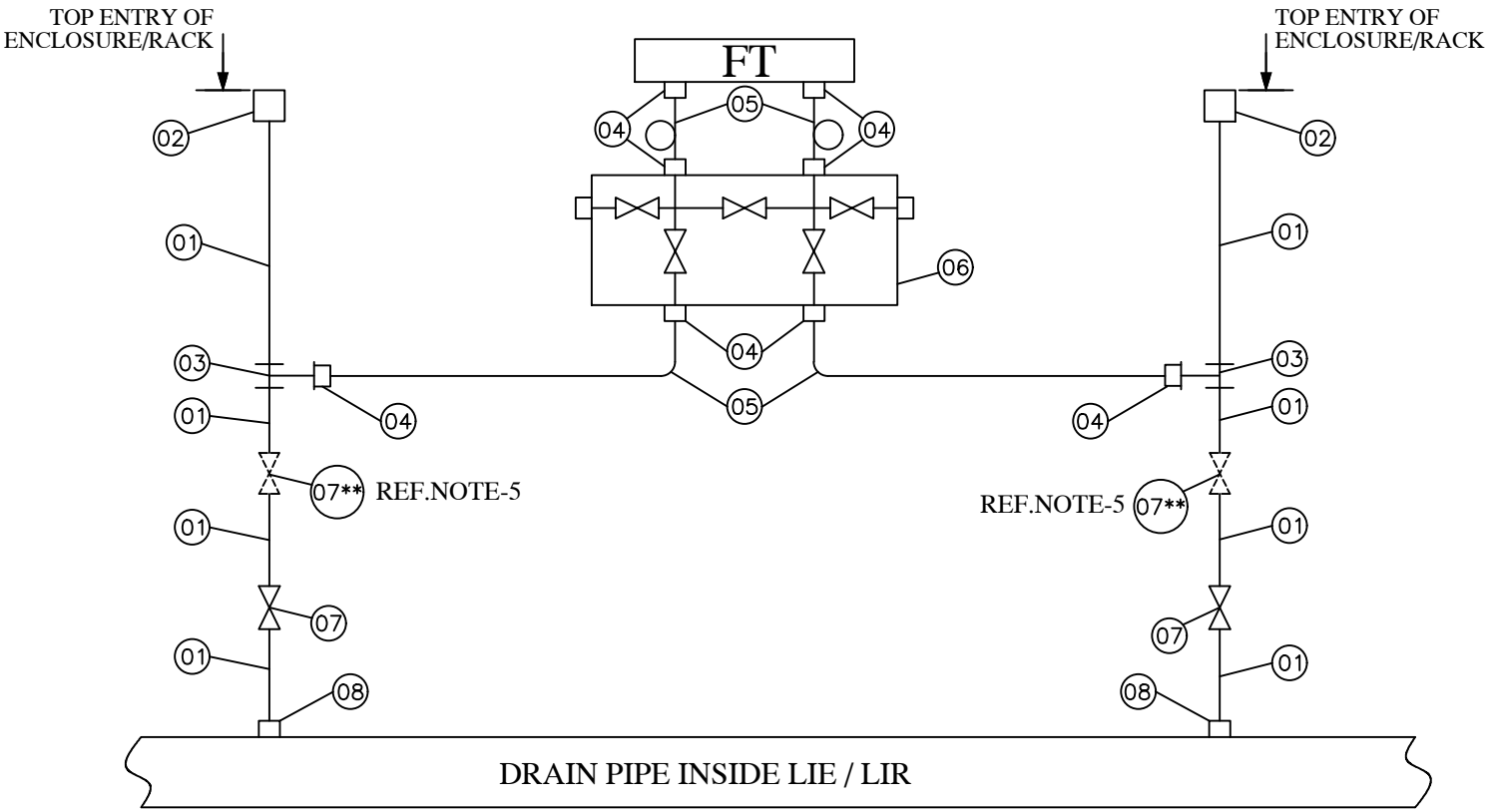
ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A106 Gr.C SIZE: 1/2" NB-SCH 160	A/R
02	BULK HEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW/ CL: 6000 LBS	02
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 1/2" NB-SW X 1/2 " NPTF / CL: 6000 LBS	02
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	08
05	SEAMLESS TUBE MATL: A213 TP316 SIZE: 1/2" OD x 2.1 mm THK.	A/R
06	FIVE VALVE MANIFOLD WITH VENT PLUG BODY: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 6000 PSI	01
07	FORGED GLOBE VALVE MATL: ASTM A105 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL: 2500SPL	06
08	HALF COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 6000 LBS	02



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 11 OF 23
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr. C
4. ITEM NO. 05 SHALL BE FORMED INTO A SYPHON FOR SERVICES WITH MEDIUM AS STEAM.
5. ITEM 07 QUANTITY SHALL BE 2 Nos. FOR TAGS. WITH DESIGN PRESSURE >= 40kg/Cm2

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A106 Gr. C SIZE: 1/2" NB-SCH 80	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 3000 LBS	01
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 1/2" NB-SW X 1/2" NPTF / CL: 3000 LBS	01
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM X TO SUIT 1/2" OD SS TUBE	04
05	SEAMLESS TUBE MATL: ASTM A213 TP316 SIZE: 1/2" OD X 2.1 mm THK.	A/R
06	TWO VALVE MANIFOLD WITH VENT PLUG MATL: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 3000 PSI	01
07**	FORGED GLOBE VALVE BODY: ASTM A105 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL: 800	A/R
08	HALF COUPLING / AS PER ANSI B 16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 3000 LBS	01



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 13 OF 23
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr. C
4. ITEM NO. 05 SHALL BE FORMED INTO A SYPHON FOR SERVICES WITH MEDIUM AS STEAM.
5. ITEM 07 QUANTITY SHALL BE 4 Nos. FOR TAGS. WITH DESIGN PRESSURE >= 40kg/Cm2

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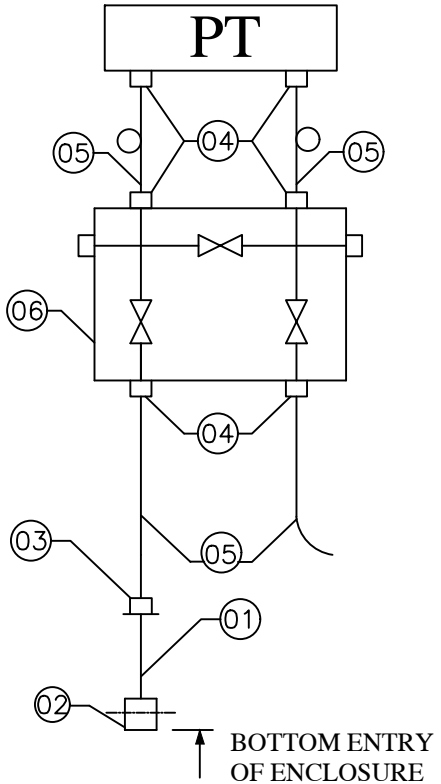
ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A106 Gr.C SIZE: 1/2" NB-SCH 80	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 3000 LBS	02
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 1/2" NB-SW X 1/2 " NPTF / CL: 3000 LBS	02
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	08
05	SEAMLESS TUBE MATL: A213 TP316 SIZE: 1/2" OD x 2.1 mm THK.	A/R
06	FIVE VALVE MANIFOLD WITH VENT PLUG BODY: SS316 / PORT SIZE: 1/2" NPTF / PR. TESTING: 3000 PSI	01
07**	FORGED GLOBE VALVE MATL: ASTM A105 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL: 800	A/R
08	HALF COUPLING / AS PER ANSI B 16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 3000 LBS	02

A4 – 11

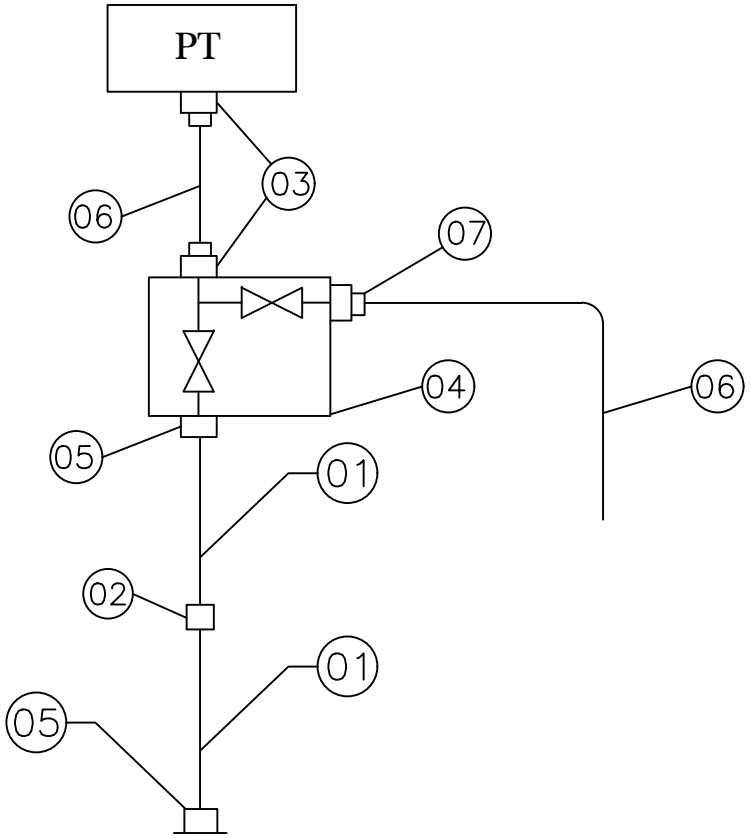


NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 15 OF 23
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr. C
4. ITEM NO. 05 SHALL BE FORMED INTO A SYPHON FOR SERVICES WITH MEDIUM AS STEAM.

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL.: ASTM A106 Gr.C SIZE: 1/2" NB-SCH 80	A/R
02	BULKHEAD COUPLING / AS PER ANSI B16.11 MATL.: ASTM A105 SIZE: 1/2" NB-SW / CL : 3000 LBS	01
03	TEE TUBE UNION MATL.: SS316 SIZE: 1/2" NB PIPE x TO SUIT 1/2" OD SS TUBE	01
04	TUBE FITTING/DFDC MATL.: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	06
05	SEAMLESS TUBE MATL.: A213 TP 316H SIZE: 1/2" OD x 2.1mm THK.	A/R
06	THREE VALVE MANIFOLD WITH DRAIN PLUG BODY: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING : 3000 PSI	01

REVISION NO	DATE	COPY RIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in anyway detrimental to the interest to the Company.		



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 17 OF 23

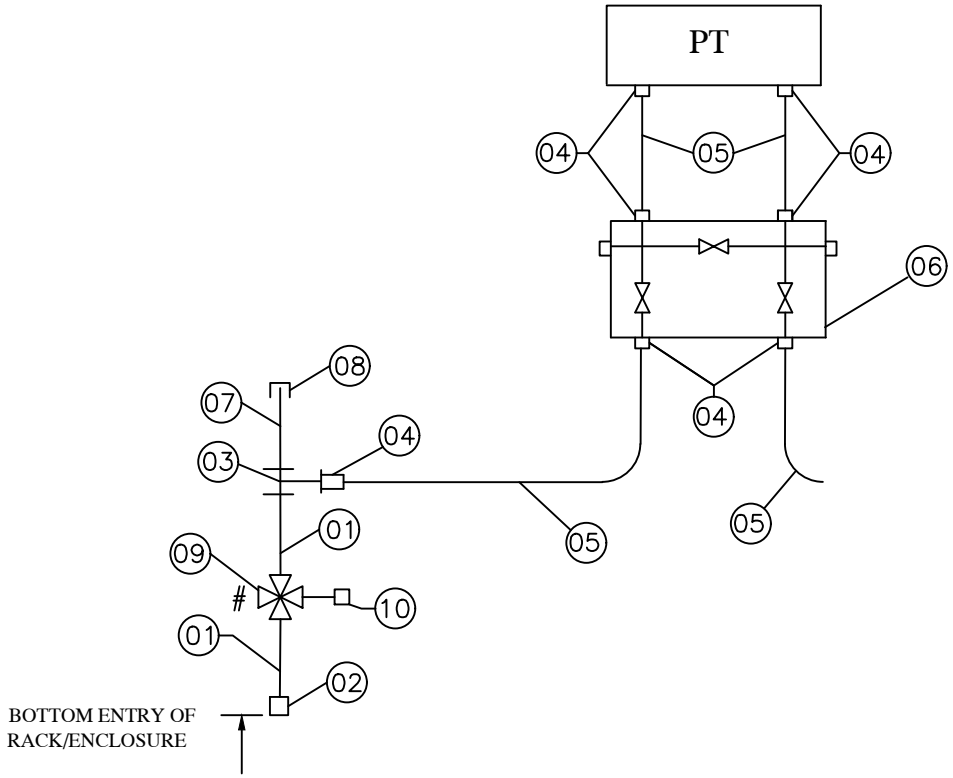
A4 – 11

CE/416/UDAN/HUP

REV. NO. 00

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
01	IMPULSE PIPE MATL : ASTM A312 TP316L SIZE : 1/2" NB-SCH 80	A/R
02	FORGED COUPLING / AS PER ANSI B16.11 MATL : ASTM A182 F316L SIZE : 1/2" NB-SW CL 3000	A/R
03	MALE CONNECTOR MATL: SS316L SIZE: 1/2" OD TUBE x 1/2"NPT(M)	02
04	TWO VALVE MANIFOLD WITH VENT PLUG PORT SIZE : 1/2" NPTF PR. TESTING : 3000PSI / MATL. : SS316L	01
05	TUBE UNION MATL: SS316L SIZE: 1/2 NPTM x SUIT OD OF 1/2" NB PIPE	02
06	TUBE MATL. : A213 TP316L SIZE : OD x 2.1 mmTHK.	A/R
07	MALE CONNECTOR MATL: SS316L SIZE: 1/4" OD TUBE x 1/2"NPT(M)	01

A4 – 11

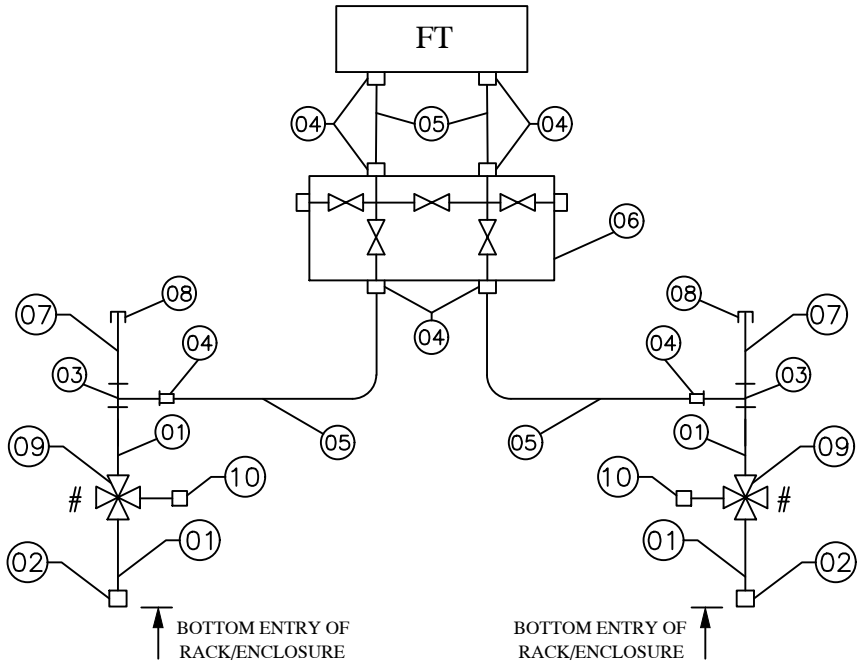


NOTE:

1. " TRANSMITTER ABOVE SOURCE"
2. FOR BILL OF MATERIAL, REFER PAGE 19 OF 23

#3. FOR INTERMITTENT PURGING REFER PAGE NO 22 OF 23

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL : ASTM A106 Gr. C SIZE: 3/4" NB-SCH 80	A/R
02	BULK HEAD COUPLING / AS PER B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW / CL 3000	01
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 3/4" NB-SW X 1/2" NPTF / CL 3000 LBS	01
04	MALE CONNECTOR MATL: SS316 SIZE : 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	07
05	SEAMLESS TUBE MATL: ASTM A213 TP 316 SIZE: 1/2" OD x 1.1mm THK	A/R
06	THREE VALVE MANIFOLD WITH VENT PLUG BODY : SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 1500PSI	01
07	NIPPLE MATL: ASTM A106 Gr. C SIZE: 3/4 " NB - SCH 80	01
08	CAP MATL: ASTM A105 SIZE: 3/4" NPTF	01
09	FOUR WAY VALVE MATL: ASTM A105 SIZE: (2 x 3/4" NB-SW) x (1 x 1/2" NPTF) / RATING CLASS 800	01
10	QUICK DISCONNECTING FITTING MATL: SS 304 SIZE:1/2" NPTM	01



NOTE:

1. " TRANSMITTER ABOVE SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 21 OF 23

#3. FOR INTERMITTENT PURGING REFER PAGE NO 22 OF 23

A4 – 11

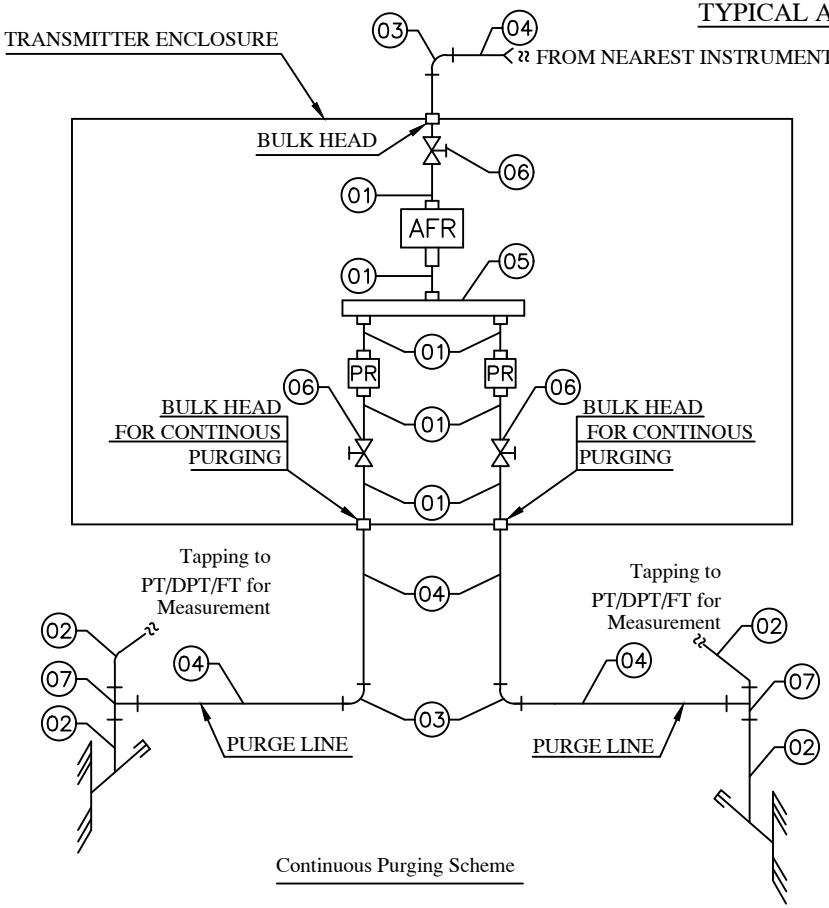
CE/416/UDAN/HUP

REV. NO. 00

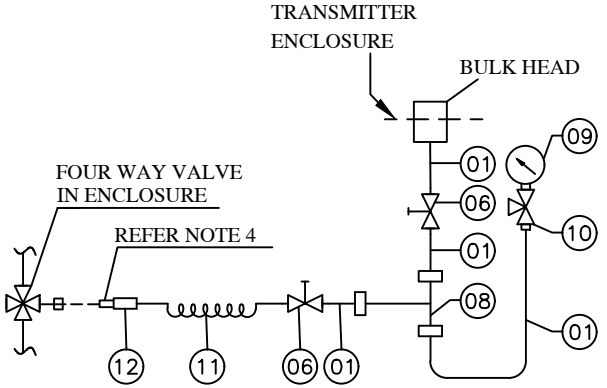
PAGE : 20 OF 23

ITEM NO	ITEM DESCRPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A106 Gr. C SIZE: 3/4" NB-SCH 80	A/R
02	BULKHEAD COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW/ CL: 3000	02
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 3/4" NB-SW x 1/2" NPTF / CL: 3000	02
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	08
05	SEAMLESS TUBE MATL: A213 TP316 SIZE: 1/2" OD x 1.1mm THK	A/R
06	FIVE VALVE MANIFOLD WITH VENT PLUG BODY: SS316 / PORT: 1/2" NPTF PORT SIZE: 1/2" NPTF PR.TESTING: 1500 PSI	01
07	NIPPLE MATL: ASTM A106 Gr. C SIZE: 3/4 " NB - SCH 80	02
08	CAP MATL: ASTM A105 SIZE: 3/4" NPTF	02
09	FOUR WAY VALVE MATL.: ASTM A105 / RATING CLASS 800 SIZE: (2 x 3/4" NB-SW) x (1 x 1/2" NPTF)	02
10	QUICK DISCONNECTING FITTING MATL.: SS 304 SIZE.:1/2" NPTM	02

TYPICAL AIR PURGING SCHEME



Continuous Purging Scheme



Intermittent Purging Scheme

NOTES:

01. ABBREVIATIONS

PT	-	PRESSURE TRANSMITTERS
DPT / FT	-	DIFF. PRESSURE/FLOW TRANSMITTERS
AFR	-	AIR FILTER REGULATOR
PR	-	PURGE ROTAMETER

02. ABOVE SCHEME IS TYPICAL. PURGE ROTAMETERS WILL BE ONE NO. FOR EACH OF PURGE LINE AS SHOWN.
03. AIR FILTER REGULATORS SHALL BE SET BETWEEN 0.4 TO 0.6 KG/CM2 APPROX.
04. THIS QUICK DISCONNECT FITTING IS CONNECTED TO FOUR WAY VALVE WHEREVER INTERMITTENT PURGING IS CALLED IN SCHEMES.
05. FOR BILL OF MATERIAL REFER PAGE 23 OF 23

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS TUBE MATL.: SS 316 SIZE: 1/2" OD TUBE X 1.1 mm THICK	A/R
02	SEAMLESS PIPE MATL.: ASTM A 106 Gr. C SIZE: 3/4" NB SCH 80	A/R
03	GALVANISED ELBOW MATL.: A 105 SIZE: 1/2" NPTF	03
04	GI PIPE MATL.: IS 1239 HEAVY GRADE SIZE: 1/2" NB	A/R
05	AIR HEADER MATL.: A 106 GR. C SIZE: 1" NB PIPE	01
06	BALL VALVE MATL.: A 105 SIZE: TO SUIT 1/2" OD SS TUBE	05
07	UNEQUAL TEE MATL.: A 105 SIZE: 2 X 3/4" NB-SW X 1/2" NPTF	02
08	EQUAL TEE BODY: SS316 PORT SIZE: TO SUIT 1/2" OD SS TUBE	01
09	PR. GAUGE CONNECTION:. 1/2" NPTM SIZE: 4" DIAL SIZE / RANGE : 0 - 10 Kg / Cm2	01
10	3 WAY GUAGE COCK MATL.: A105 SIZE: 1/2" NPTF x TO SUIT 1/2" SS TUBE	01
11	NYLON HOSE WITH SS BRAIDING TO SUIT 1/2" END CONNECTION PR TESTING 10 kg/cm2	01
12	QUICK DISCONNECTING FITTING MATL:. SS304 SIZE: MALE END CONN. TO SUIT 1/2" OD CONNECTION	01

REVISION NO | DATE

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

COMPONENT VENDOR LIST

REVISIONS :

APPROVED

PUNIT PRATAP SINGH

PREPARED BY	ISSUED	DATE
RAJESH L	416	24/08/23

VENDOR LIST

Sl No	Item Description	Approved Vendors
1	Socket Weld Fittings	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		PANAM ENGINEERS LTD,MUMBAI
		AURA INC,NEW DELHI
		SANKALP FORGE & ALLOYS,VASAI, MAHARASHTRA.
		SANJAY BONNY FORGE PVT. LTD., THANE.
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
2	Compression Fitting	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD, MUMBAI
		PANAM ENGINEERS LTD,MUMBAI
		AURA INC, NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD, CHENNAI
		SWAGELOCK,USA
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		METPRESS ENGINEERING WORKS,KOLKATA
		PARKER HANNIFIN INDIA PVT. LTD.,CHENGAL PATTU,TAMILANADU
3	Instrument Valves	BHARAT HEAVY ELECTRICALS LIMITED VALVES DIVISION, TIRUCHIRAPALLI, TAMILANADU.
		PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		AURA INC,NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		INSTRUMENTATION LIMITED,PALGHAT
4	Valve Manifolds	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		ASTEC VALVE & FITTINGS PVT. LTD,MUMBAI
		AURA INC,NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		ARCELLOR CONTROLS, AHMEDABAD.
		Parker HANNIFIN INDIA PVT. LTD,LEBANON (D407131-Super techical dealer for Parker)
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
5	Air Filter Regulator	PLACKA INSTRUMENTS INDIA PVT LTD CHENNAI
		PARKER ,HANNIFIN,LEBANON
		SHAVO NORGREN(INDIA)PVT LTD BANGALORE

VENDOR LIST

Sl No	Item Description	Approved Vendors
6	Impulse Pipes / Seamless Tube	BHARAT HEAVY ELECTRICALS LTD, TRICHY (Only for CS and AS Pipes)
		HEAVY MEATAL TUBES, AHMADABAD
		JINDHAL SAW LTD CHENNAI (Only for CS and AS Pipes)
		INDIAN SEAMLESS METAL TUBES LTD (Only for CS and AS Pipes)
		RATNAMANI METALS & TUBES LTD, AHMADABAD(only for SS Pipes &Tubes)
		TPS TECHNITUBE ROHREN WERKE GMBH, GERMANY all pipes
		SUMITOMO CORPORATION ,JAPAN (Only for CS and AS Pipes)
		SHUBHALAKSHMI METALS & TUBES LTD,MUMBAI (only for SS Pipes &Tubes)
		MAXIM TUBES COMPANY PVT LTD,AHMEDABAD(only for SS Pipes &Tubes)
7	Instrument cables	PARAMOUNT COMMUNICATIONS LTD,NEW DELHI.
		CORDS CABLE INDUSTRIES LTD, RAJASTHAN.
		DELTON CABLE LTD,NEW DELHI
		KEI INDUSTRIES LTD,BHIWADI
		POLYCAB WIRES PVT LTD, DAMAN.
		ADVANCE CABLE TECHNOLOGIES LTD,BANGALORE
		MANSFIELD COMPANY LTD, NOIDA.
		TEMPSENS INSTRUMENT PVT LTD, UDAIPUR.
		THERMO CABLES, HYDERABAD.
		GEMS CAB INDUSTRIES, BHIWADI.
		ELKAY TELELINKS,FARIDABAD
		KEC INTERNATIONAL LTD,MYSORE

Note: Bidders Can Propose additional sub component vendors for above items with filling supplier registration format (https://www.bhel.com/supplier-registration), However if same is not approved by customer/BHEL, vendors to provide sub component makes from the approved list without any price impact.

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

SCHEMATIC DRAWINGS
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

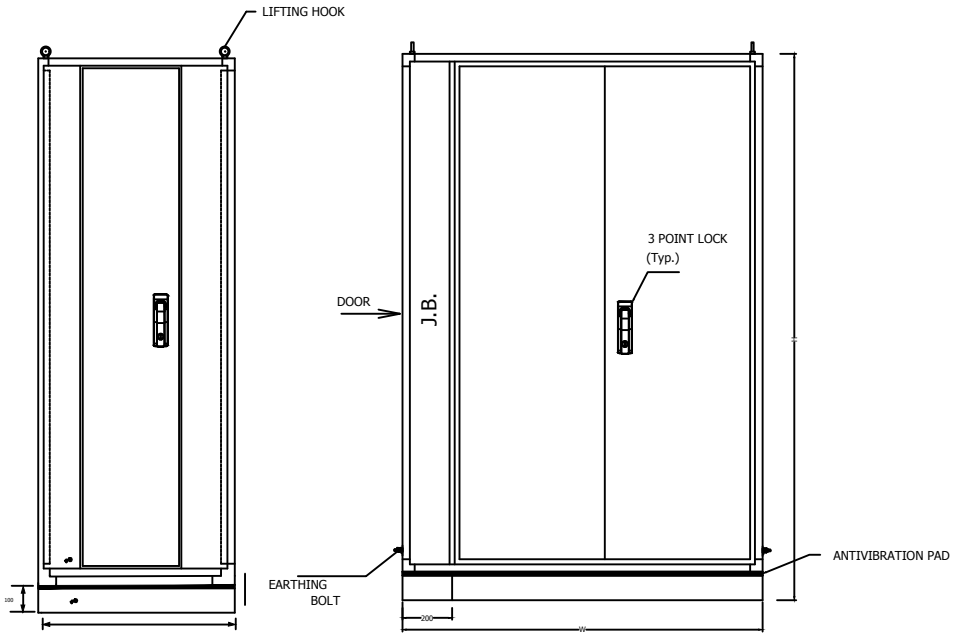
PUNIT PRATAP SINGH

PREPARED BY	ISSUED	DATE
RAJESH L	416	24/08/23

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. No. CE/416/LIE/LIR/OGA1



LH SIDE VIEW

FRONT VIEW

NOTES:–

1. ALL SHEETs ARE 3.0mm CRCA SHEET
2. ALL DOORS WILL BE FLUSH / CONCEALED TYPE
3. BASE FRAME SHALL BE MADE OF ISMC 100
4. BULK HEAD PLATE FOR TOP & BOTTOM SHALL BE PROVIDED
5. CABLE GLAND PLATE OF THICKNESS 3.0 mm. CRCA SHEET SHALL BE PROVIDED TOP AND BOTTOM OF J.B
6. ENCLOSURE SHALL BE OF IP–65 PROTECTION CLASS
7. TERMINAL SHALL BE PROVIDED IN SIDE THE J.B. AS PER TRANSMITTER GROUPING
8. DOORS SHALL BE THREE POINT LOCKING FOR FRONT AND REAR DOOR AND SIDE DOOR LEAF
9. GASKET SHALL BE PROVIDED BETWEEN BULK HEAD PLATE & ENCLOSURE
10. EARTH BUS BAR 25x6mm TINNED COPPER SHALL BE USED
11. 2 Nos. CFL 11W,230V AC WITH FIXTURE SHALL BE PROVIDED
12. DRAIN PIPE SLOPE WILL BE 1 : 25 APPROX.
13. POWER SOCKET SHALL BE PROVIDED IN J.B. OF ENCLOSURE

LIE TYPE	H	W	D
A	2200	1450	800
B	2200	1100	1000
C	2200	1000	1000

PROD / PROJ :
CUSTOMER:

REV.	DATE	ALTERED / CHECKED / APPROVED	REV.	DATE	ALTERED / CHECKED / APPROVED

	NAME	SIGN	DATE
DRAWN	HKS		15.04.2015
CHECKED	RKL		15.04.2015
APPROVED	AM		15.04.2015

DEPT. BPE | CODE 416

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIE

No. OF SHEETS: 04
SHEET No.: 02

WBS. No.

DRG. No. CE/416/LIE/LIR/OGA1

REV 00

REF. DRG. No.
SIGN. & DATE
INVENTORY No.

FORM No. A3–03

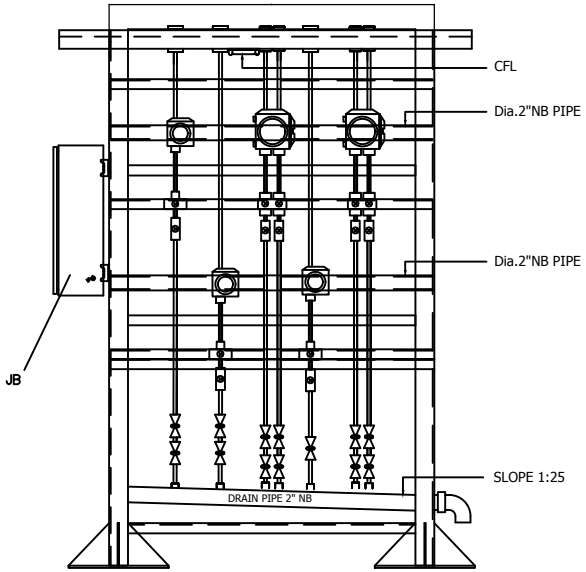
A3 SIZE

FIRST ANGLE PROJECTION

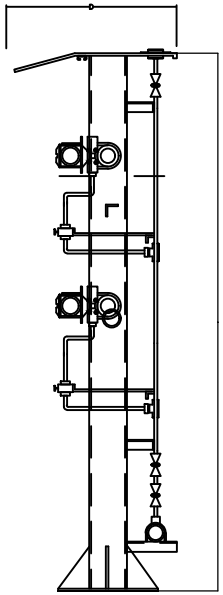
(ALL DIMENSIONS ARE IN mm)

DRG. No. CE/416/LIE/LIR/OGA1

TOP VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. JB TO BE LOCATED ON ONE SIDE OF THE LIR.
2. LIR's ARE WITH 2 LEGS.
3. SUPPORTING LEG SHALL BE MADE OF CHANNEL
4. BULK HEAD PLATE SHALL BE PROVIDED AT THE TOP
5. GASKET SHALL BE PROVIDED BETWEEN BULK HEAD PLATE & RACK
6. EARTH BUS BAR 25x6mm COPPER SHALL BE USED
7. 1 No CFL 11W,230V AC WITH FIXTURE SHALL BE PROVIDED
8. POWER SOCKET SHALL BE PROVIDED IN J.B. OF RACK
9. CANAPY ASSEMBLY WITH 3 MM THICK CRCA SHEET
10. TERMINALS SHALL BE PROVIDED IN SIDE THE JB AS PER GROUPING PROVIDED

LIR TYPE	H	W	D
A	2200	1400	650
B	2200	1100	650
C	1600	800	650
D	2200	1600	650

REF. DRG. No. FLREF

SIGN. & DATE

INVENTORY No.

REV.	DATE	ALTERED / CHECKED / APPROVED	REV.	DATE	ALTERED / CHECKED / APPROVED
–	–	– / – / –	–	–	– / – / –

	NAME	SIGN	DATE
DRAWN	HKS		15.04.2015
CHECKED	RKL		15.04.2015
APPROVED	AM		15.04.2015

DEPT. BPE | CODE 416

PROD / PROJ : –

CUSTOMER: –

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIR

No. OF SHEETS: 04

SHEET No.: 04

WBS. No. –

DRG. No. CE/416/LIE/LIR/OGA1

REV 00

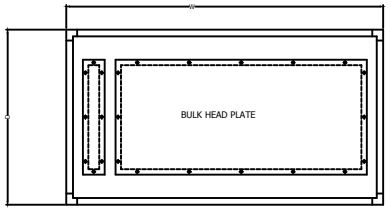
FORM No. A3–03

A3 SIZE

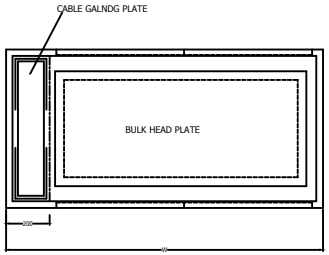
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

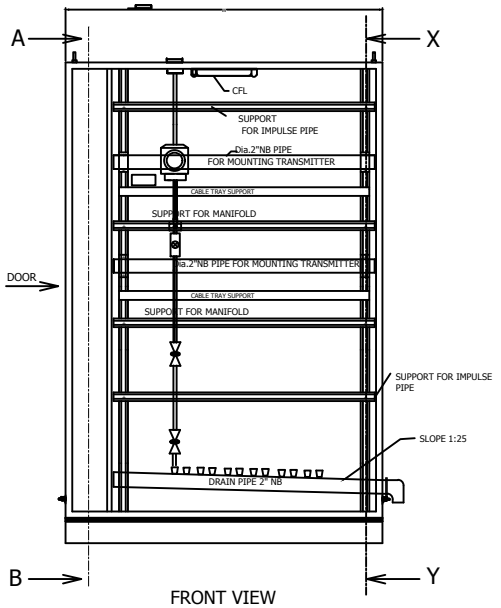
DRG. No. CE/416/LIE/LIR/OGA1



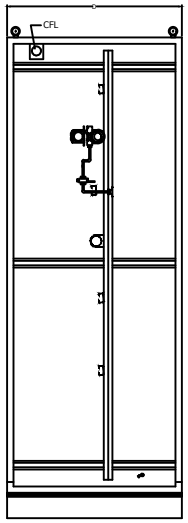
TOP VIEW



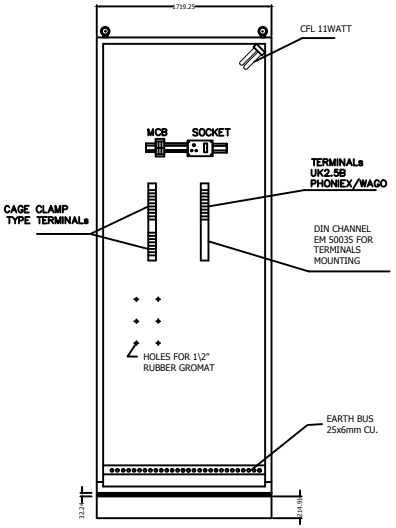
BOTTOM VIEW



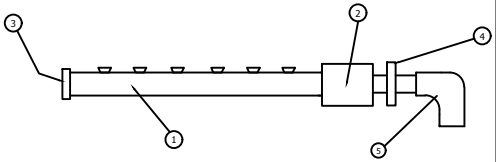
FRONT VIEW



SIDE VIEW FROM X-Y



SIDE VIEW FROM A-B



DRAIN PIPE

ITEM	DESCRIPTION	QTY.
1	2" NB ASTM A-106' SCH80/GR-C	A/R
2	2" NBSW X 1" NPT(F) COUPLING CS ASTM A105	1No.
3	2" S.W.CAP,CS ASTM A105	1No.
4	1" NPT (M) X1" BSP(M) HEX. COUPLING, CS ASTM105	1No.
5	1" BSP (F) ELBOW, CS ASTM A105	1No.

PROD / PROJ :

CUSTOMER:

REV.	DATE	ALTERED / CHECKED / APPROVED	REV.	DATE	ALTERED / CHECKED / APPROVED

	NAME	SIGN	DATE
DRAWN	HKS		15.04.2015
CHECKED	RKL		15.04.2015
APPROVED	AM		15.04.2015

DEPT. BPE | CODE 416

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIE

No. OF SHEETS: 04

SHEET No.: 03

WBS. No.

DRG. No. CE/416/LIE/LIR/OGA1

REV 00

REF. DRG. No.

SIGN. & DATE

INVENTORY No.

FORM No. A3–03

A3 SIZE

PROJECT: UDANGUDI 2 X 660MW STPP

CUSTOMER: M/s TANGEDCO

CONSULTANT: M/s TCE

TYPICAL QUALITY CHECK LIST

REVISIONS :

APPROVED

PUNIT PRATAP SINGH

PREPARED BY	ISSUED	DATE
RAJESH LINGUTLA	416	24/08/23

	MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. :17.05.2023 PAGE : 02 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY D*	AGENCY M	AGENCY C	AGENCY E	REMARKS
1	2	3	4	5	6	7	8	9	D*	**10			11
(A)	***MATERIAL***												
1	CRCA SHEET	A) MATERIAL	MAJOR	CHEMICAL COMPOSITION	SAMPLE	IS-513 APP.DRG	IS-513	M.T.C./Q.A.REP.		V	V	V	
		B) THICKNESS	MAJOR	MEASUREMENT	100%	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	
		C) HARDNESS	MAJOR	STRENGTH	SAMPLE	IS-513	IS-513	M.T.C./Q.A.REP.		V	V	V	
		D) SURFACE FINISH	MAJOR	VISUAL	100%	IS-513	IS-513	M.T.C./Q.A.REP.		P	V	V	
2	MS C- CHANNELS /	A) DIMENSION	MAJOR	VISUAL	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		P	V	V	
	MS ANGLE	B) SURFACE DEFECTS	MAJOR	VISUAL	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		V	V	V	
		C) STRAIGHTNESS	MAJOR	MESUERMENT	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		V	V	V	
3	GASKET	A) DIMENSION	MAJOR	MEASUREMENT	SAMPLE	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		P	V	V	
		B) HARDNESS/SHORE HARDNESS	MAJOR	MEASUREMENT	SAMPLE	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C.		V	V	V	
4	TERMINALS	A) TYPE, SIZE & MAKE	MAJOR	VISUAL	100%	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	

		LEGEND :	FOR END USER :
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.	DOC. NO.
		** M : MANUFACTURER/ SUBCONTRACTOR	
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER	
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION	
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY
			NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

	MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 17.05.2023 PAGE : 03 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	RECORD		M	C	E	REMARKS
1	2	3	4	5	6	7	8	9	D*		**10		11
5	PVC WIRE/ CABLE	A) TYPE, SIZE, MAKE	MAJOR	MEASUREMENT	SAMPLE	IS 694/APPD. APP.DRG	IS 694/APPD. APP.DRG	M.T.C./Q.A.REP.		P	V	V	
6	PAINT	A) SHADE	MAJOR	VISUAL	SAMPLE	APP. DRG	APP. DRG	M.T.C./Q.A.REP.		P	V	V	
		B) FINISH	MAJOR	VISUAL	SAMPLE	APP. DRG	APP. DRG	M.T.C./Q.A.REP.		P	V	V	
7	FLEXIBLE CONDUIT / M.S. CABLE TRAY	A) TYPE, SIZE & MAKE	MAJOR	VISUAL	SAMPLE	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	
(B)	***COMPONENTS ******												* TYPE / MODEL /RANGE OF COMPONENTS AS PER BOM OF LIE/ LIR .
1	VALVES, MANIFOLDS	MECHANICAL	MAJOR	A)CHEM. TEST	SAMPLE	SUPPLIER CAT./ APP.DRG	SUPPLIER CAT./ APP.DRG	M.T.C./Q.A.REP.		V	V	V	
				B)FUNCTIONAL	100%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C) DIMENSION	100%/SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				D)HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
2	FITTINGS	MECHANICAL	MAJOR	A)CHEM. TEST	SAMPLE	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%/SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C)HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
3.a	PIPES	MECHANICAL	MAJOR	A)CHEM. & PHY. TEST	SAMPLE	-DO-	-DO-	M.T.C./Q.A.REP. M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%/ SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	

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		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK				QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 17.05.2023 PAGE : 04 OF 06								
S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	RECORD		M	C	E	REMARKS	
1	2	3	4	5	6	7	8	9	D*		**10		11	
3.b	TUBES	MECHANICAL	MAJOR	A)CHEM. & PHY. TEST	SAMPLE	SUPPLIER CAT./ APP.DRG	SUPPLIER CAT./ APP.DRG	M.T.C./Q.A.REP.		V	V	V		
				B) DIMENSION	100%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V		
				C) HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V		
(C)	**INPROCESS**													
1	FABRICATED/CUBICLE AND COMPONENTS	A) DIMENSION	CRITICAL	MEASUREMENT	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		B) LIFTING FACILITY	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		C) CABLE ENTRY	CRITICAL	VISUAL	100%	APP.DRG	APP. APP.DRG	Q.A. REPORT		P	V	V		
		D) STRAIGHTNESS / WAVINESS	CRITICAL	VISUAL	100%					P	V	V		
		E) GASKET ARGMNT.	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		F) DEBURRING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		G) WELDING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		H) REMOVAL OF WELDING SLAGS	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		

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		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 17.05.2023 PAGE : 05 OF 06

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
										M	C	E	
1	2	3	4	5	6	7	8	9	D*	**10			11
2	PRETREATMENT	A) DEGREASING	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
	(7 TANK PROCESS)	B) DERUSTING	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
		C) PHOSPHATISING	CRITICAL	MEASUREMENT	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
		D) PASSIVATION	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
3	SURFACE PREPARA-	A) PRIMER(2 COATS)	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
	-TION & PAINTING	B) SURFACER	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		C) FINAL PAINTING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		D) THICKNESS	CRITICAL	MEASUREMENT	SAMPLE	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
4	ELECTRICAL & MECH.	A) CHECK ARRANGE / LAYOUT OF COMP. & MOUNTING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		B) WIRE CLAMPING & FERULING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		C) INTERCONNECTION B/W COMPONENT	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		D)LUG SIZE&CRIMPING	CRITICAL	VISUAL	100%	APPD. APP.DRG	F.S./APP.DRG	Q.A.REPORT		P	V	V	
		E) COMPONENT IDENTIFICATION	CRITICAL	VISUAL	100%	APPD. APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		F) WIRE SIZE	MAJOR	VISUAL	SAMPLE	IS-694 / APP.DRG	IS-694 / APP.DRG	M.T.C./QA REP.		P	V	V	
		G) NAME PLATES	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		H) PIPING	MAJOR	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	

		LEGEND :	FOR END USER :
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MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER	
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION	
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY

DOC. NO.

NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
	ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 17.05.2023 PAGE : 06 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY M	C	E	REMARKS
1	2	3	4	5	6	7	8	9	D*	**10			11
D)	***FINAL INSPECTION***												
1	A) VERIFICATION OF COMPONENTS /RATING/ ARRANGEMENTS/ LOCATION FOR EASY ACCESSABILITY AND MAINTENANCE .		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	B) COMPLETENESS OF WIRING ,TUBING/ PIPING		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	C) TERMINAL ARRANGEMENTS,SPARE TER--MINALS , EARTH BUS TIN PLATED COPPER)		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	D) PAINT SHADE,THICKNESS & ADHESION		CRITICAL	MEASUREMENT	SAMPLE	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	E) DOOR ALIGNMENT		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	F) GENERAL APPEARENCE (STRAIGHTNESS, FREE FROM SCRATCHES, BENDS, DENTS AND SHEET THICKNESS)		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	G) HYDROSTATIC TEST FOR ASSEMBLY. (1.5 TIMES RATED PRESSURE)		CRITICAL	MECHANICAL	100%	APP.DRG	APP.DRG/ NO LEAK/ PRESSURE DROP	Q.A. REPORT		P	W	W	PERFORMED BY VENDOR 100 % BHEL WITNESS ON 10%
	(PNEUMATIC TEST FOR PURGING LINES (NO LEAKAGED WITH SOAP SOLUTION)												
2	OVERALL FINISH		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
3	CONTINUITY TEST		MAJOR	FUNCTIONAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
4	IR TEST		MAJOR	MEASUREMENT	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
5	HV TEST		MAJOR	MEASUREMENT	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
6	FUNCTIONAL TEST		MAJOR	FUNCTIONAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
7	IP TEST TYPE TEST		MAJOR	VERIFICATION	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	

M. T.C. = MANUFACTURER'S / MATERIAL TEST CERTIFICATE
F.S. = FACTORY STANDARD
Q.A.REP.= QUALITY ASSURANCE REPORT
APP. APP.DRG = APPROVED DRAWING
SAM. = SAMPLE

NOTE :- CUSTOMER / INSPECTION AGENCY / END USER MAY DO INSPECTION ON SAMPLE BASIS

LEGEND :
* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.
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C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER
INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION
AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'

MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	REVIEWED BY	NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL
SIGNATURE			

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

PUCHASE SPECIFICATION
FOR
LOCAL INSTRUMENTS ENCLOSURES AND LOCAL INSTRUMENT RACKS (LIE/LIR)

REVISION : 00

APPROVED

DIPTENDU GHOSH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	9-Jun-23

CONTENTS

GENERAL INSTRUCTIONS TO BIDDERS

REVISION: 00

APPROVED

DIPTENDU GHOSH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	9-Jun-23

SECTION- A

GENERAL INSTRUCTIONS TO BIDDERS:

1.0 All required documents against this Tender/Specification shall be submitted in English only.

2.0 Introduction: Bidders are required to offer Local Instrument Enclosure and Local Instrument Rack (LIE/LIR) for a Coal Fired Thermal Power Plant Applications.

3.0 In order to accept the Technical offers / proposals from Bidders for the project mentioned in this Specification (refer Section C), certain Pre-qualification criteria are required to be met by Bidder.

4.0 Pre-qualification requirements are clearly mentioned in Section-B of this Specification. Bidder to read the same carefully and submit the details required for BHEL's acceptance.

5.0 Submit duly-filled Supplier Registration Form (SRF), which shall be downloaded by Bidder from our website "www.bhel.com.This is required for registration of new vendors at BHEL EDN against item Local Instrument Enclosure (LIE) & Local Instrument Rack (LIR). Those Vendors who are already approved by BHEL EDN against item Local instrument Enclosure (LIE) & Local instrument Rack (LIR) are not required to submit the Supplier Registration Form (SRF).

6.0 BHEL May visit vendor's work for verification of facilities offered and BHEL decision on suitability of manufacturing facility is final and binding.

7.0 In case Bidder does not include the details or meet the requirements of Pre-qualification requirements, their offer will be summarily rejected and Bidder's Technical offers will not be evaluated.

Evaluation methodology:

Evaluation methodology as below
BHEL shall initially open Bidder's PQR documents as per Section-B of this specification for review & acceptance.
If the Bidders who are meeting PQR requirements as per Section-B of this specification, Technical Offers of those bidders only will be considered for evaluation.
If the Bidders who are meeting technical requirements as per Section C of this specification, Those Bidders will be taken up with End user/Customer for approval.

If the Bidders who are approved by End user/Customer, Commercial bids of those bidders will be considered for further evaluation by BHEL.

8.0 Bidders are required to submit offers as detailed below :

aa. Documents pertaining to Pre-Qualification requirement (Section B of this Specification) shall be in a Separate cover /Soft Folder with reference no. "CE/416/LIE-LIR/PQR / Section B" marked on it.

bb. Technical offers/proposals for the Project, whose requirements are mentioned in Sections C will be submitted in a separate cover/Soft Folder with RFQ Reference & Reference marked on it.

Note 1: -Whenever required during evaluation of PQR and Technical offers/bids, vendor is required to be present at BHEL Electronic Division, Bangalore, for discussions. Further in the event of order, during approval of the vendor documents by End users/Customers, if needed vendor shall accompany BHEL representative for discussions.

Note 2: - Changes in Technical Specifications will be discussed with the bidders who Qualified PQR for this tender.

Note 3: - BHEL shall submit vendor credentials to customer and await customer's decision for a maximum of one month from the date of PQR bid opening. If approval is not received within above period, BHEL shall treat the offer as "NOT Meeting PQ" criteria and offer shall be rejected.

		A4-10	**SECTION – B**	**REF.: CE / 416 / LIE/LIR / PQR** **REV. NO.: 00** **PAGE: 01 0F 02**

PRE-QUALIFICATIONS REQUIREMENTS

APPROVED **DIPTENDU GHOSH**		
PREPARED **RAJESH LINGUTLA**	**ISSUED** **416**	**DATE** **9-Jun-23**

SECTION- B

Pre-Qualification Requirements (PQR) of Bidders for Local Instrument Rack (LIR), as a part of Offer:

1.0 Submit Reference List of Projects, Unpriced Purchase Order Copies, wherein LIE, LIR has been supplied.

2.0 The bidder should have executed/ completed work of Design and supply of complete LIE LIR package at least 2 units of 200MW or above rating Thermal power plant. Bidder should have executed Complete LIE/LIR Package to accommodate minimum of 60 Pressure transmitters / switches. Unpriced PO Copy and Customer approved data sheet or Dispatch documents or inspection report etc shall be provided.

3.0 Bidders shall have experienced welders for welding of materials specified in the Technical specification. Welder's certificate shall be provided for verification.

4.0 Bidders shall have a designated drawing office with AUTOCAD/other drafting software, Submission of drawings shall be in pdf format. Bidders to give compliance to the same.

5.0 Bidders shall have designated machine shop including sheet metal fabrication upto 4mm thick and cutting up to 10 mm thick plates, should have Painting facility for both epoxy based tank process painting and powder coating facility or if outsourced details to be provided.

6.0 Bidder shall have facility for performing hydro test on all individual lines (Hydro test pressure shall be 530Kg/Cm2). Bidders to give compliance to the same.

7.0 Vendor shall have requisite space for physical inspection, loading facility etc for offering minimum of about 80 LIRs at the same time for inspection. Bidders to give compliance to the same.

Important Note: In case Bidder does not submit details mentioned in above Section (B) offers will be summarily rejected and Bidder's Technical offers/proposals will not be evaluated. Please read carefully the GENERAL INSTRUCTIONS in Section A of this specifications.

SECTION – C

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

TECHNICAL SPECIFICATION
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	09/06/23

CONTENTS

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

SCOPE OF SUPPLY
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	09/06/23

Scope of supply

The Scope of supply is as per Technical requirements attached with this specification. Vendor shall quote for each line item of the Table A. The unit rate shall be valid until the completion of the contracts for addition/deletion of items quantity. For this purpose, vendors shall maintain MS Excel file indicating total Bill of materials.

TABLE: A

S.NO	HUP Ref CE/416/TUTUTICORIN FGD /HUP	Material Code	Description	Quantity for Two Units (No's)
1		PR0830000020	LIE TYPEA	5
2		PR0830000038	LIE TYPE B	4
3		PR0830000046	LIE TYPE C	20
4		PR0830000054	LIR TYPE A	2
5		PR0830000062	LIR TYPE B	2
6		PR0830000070	LIR TYPE C	5
7	2	PR0830000127	Hook up PT/PS 3000 water	28
8	4	PR0830000135	Hook up DPT/DPS 3000 water	12
9	6	PR0900001829	HOOK UP PT/PS 3000 DM WATER SS316 PIPES	7
10	8	PR0900001879	HOOK UP SCHEME DPT/ FT 3000 CLASS SS316	6
11	10	PR0830000143	Hook up PT/PS Clean Air service	56
12	12	PR0830000194	Hook up DPT/FT/DPS Flue gas	14
13	14	PR0830000003	Hook up for Air Purging	14
14	14	PR0830000259	Hook up for Continuous Purging	44
15	14	PR0830000267	Hook up for Intermittent Purging	14
16		PR0450000290	Temp. Transmitter Junction Box - Type A	24
17		PR0450000303	Temp. Transmitter Junction Box - Type B	8
18		PR0450000311	Temp. Transmitter Junction Box - Type C	20

Note:

1. **Colour Exterior –RAL7032/RAL7035**
2. **Interior: Brilliant white Glossy finish two coats/RAL7035 with fire resistant paint. Final colour will be decided during detailed engineering.**
3. **IP-65 Type test report specially to be conducted for LIE, TTE and JB of LIR to be submitted for approval during document submission.**

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

TECHNICAL REQUIREMENT
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	09/06/23

TECHNICAL REQUIREMENTS FOR TRANSMITTER ENCLOSURES AND TRANSMITTER RACKS:

I. TRANSMITTER ENCLOSURES:

1. The Transmitter enclosures (Closed type) are provided for mounting Transmitters etc. and located in Boiler area. This shall be constructed of 2 mm thick CRCA material. These shall confirm to IP 65 protection class.

2. The Transmitter Enclosures shall be of following sizes (in millimeters).

   Type A - 1450(W) x 1000(D) x 2200(H) (For 5 to 6 Transmitters)
   Type B - 1100 (W) x 1000(D) x 2200(H) (Between 3 to 4 Transmitters)
   Type C - 800(W) x 1000(D) x 2200(H) (For 1 to 2 Transmitters)

3. These shall be reinforced as required to ensure true surfaces and to provide adequate Support for instruments and other equipment mounted therein. Double interlocking doors shall be provided and shall be arranged for maximum possible access to the module interior. Center posts or any member which would reduce access shall not be provided.

4. The doors shall be the three-point locking type constructed of not less than 2 mm steel sheet. Doors shall have concealed quick removal type pinned hinges and locking handles. Enclosure door locks shall accept the same / common key all over the plant. Neoprene material Gaskets shall be used between all mating sections to achieve dust proof enclosure rating for the modules and waterproof and dust tight rating on the Terminal / Junction boxes. All enclosures shall have access doors on Front and Rear sides.

5. Internal wirings between the Transmitters and Terminal / Junction box shall run through flexible dust tight conduits.

6. Anti Vibration Pads of minimum 15 mm thickness shall be provided for supporting each enclosure.

7. Construction of same shall be typically as per enclosed drawing CE/416/LIE/LIR/OGA1.

8. Service Power and Lighting

Each enclosure shall be provided with one receptacle, one light fixture & LED lamps with wire guard and one lighting switch and suitable 2P MCBs ,Six point 6/16A,240V AC Universal type power sockets with switch. Lighting switches may be doors actuated, mounted door. Light switches and receptacles shall be installed inside the enclosure on the wall near the latch side of the enclosure door. Light fixtures shall be installed on the ceilings of the enclosures. Power supplies for miscellaneous devices shall be provided with fuses located within the Enclosure JB. Fuses shall be mounted in fuse blocks. Fuse ratings will be given on electrical schematic diagrams. Power supply shall be 240 V AC.

9. Equipment Installation

a. Enclosures shall be provided to mount field instrument, equipment and accessories. Vendor shall prepare enclosures and piping drawings indicating the layout for each enclosure.

Special attention shall be given in the piping layout to avoid air traps in liquid filled piping, or water pockets in piping intended to be dry.

b. Drawings shall indicate the arrangement of all Piping, Valves and Fittings within the enclosures.

10. **Impulse Piping /Tubing**

a. Transmitter enclosures shall be complete with impulse tubing piping, valves from enclosure bulkhead connection to all instruments and necessary drain / blow down connections. The type, sizes, material and pressure class of pipes/tubes, fittings, valves etc. shall be suitable for the intended applications as per the Schemes / Tagging list of Instrument, provided by BHEL.

b. Bulkhead (Thickness shall be not less than 6mm) connection shall be used when instrument piping/ tubing enters the enclosure through Bulkhead plate. Typically through Bulk heads, Impulse pipe entry shall be through Top side of the Enclosure for Steam and Liquid services and for Air / flue gas services, impulse pipe entry shall be from Bottom side.

c. All Instrument Blow down lines, except those measuring vacuum shall be connected to a two-inch header, which is extended through one end of the enclosure and turned downward at other end.

d. Instrument piping and tubing shall be hydrostatically tested at one and one-half times the Design pressure (As per Instrument schedule) for that instruments except for vacuum measurement the test pressure will be 8 Kg / Cm2.

11. For Purging :

a. Pneumatic tubing shall be installed for all pneumatic devices, such as Air filter Regulator, Purge rotameters, Isolation valves, distribution air-header etc. Pneumatic tubing shall be installed in a neat workmanlike manner in protected locations with suitable supports. All Pipes / Tubes, which enter or leave the enclosure, shall be terminated on bulkhead fittings in the bulkhead plate. Pneumatic tubing material shall be ½" OD SS316 tubing Flareless SS- Tube fittings shall be used for tubing connections.

b. Instrument tubing schematic, connection and interconnections diagrams shall be furnished.

12. Wiring Within Enclosures and Grounding

Vendor shall furnish general arrangement and wiring diagrams for each transmitter Enclosures for approval.

13. **Enclosure Electrical Junction Box**

a. IP 65 junction box for the termination of all internal wiring shall be provided for each transmitter enclosure.

b. Junction boxes for enclosures shall be fabricated externally on one end of each enclosure assembly to accept field wiring through the top or bottom of the junction box. The

Junction box shall be 150 millimeters minimum depth. A hinged door shall give access to the interior of the junction box. Junction boxes shall be provided with LED Lamp lighting. Same key shall be used to lock both Junction box & enclosure.

II. OPEN TYPE TRANSMITTER RACKS:

1. Transmitter racks is provided for mounting transmitters and other accessories, in buildings and closed areas like the power house building / turbine hall.

2. The Transmitter Racks shall be of following sizes (in millimeters).

   Type A- 1400(W) x 650(D) x 2200(H) (For 5 to 6 Transmitters)
   Type B- 1100(W) x 650(D) x 2200(H) (Between 3 to 4 Transmitters)
   Type C- 800(W) x 650(D) x 1600(H) (For 1 to 2 transmitters)

3. Racks shall be constructed on structural members of adequate strength and rigidity to ensure proper support to the mounted instruments and equipment. Racks shall be of welded construction. Each rack shall be provided with a canopy to protect the instrument from dripping water or falling objects.

4. All Valves & Manifolds shall be securely mounted and the structural design shall be such that no item shall interfere with maintenance and removal of instrument, equipment and their accessories.

5. Construction of same shall be typically as per enclosed drawing CE/416/LIE/LIR/OGA1.

6. Service Power and Lighting

a. Each rack shall be provided with one receptacle, one light fixture with wire guard and one lighting switch,LED Lamp. Light fixtures shall be installed on the canopy of the rack.

b. Power supplies for miscellaneous devices shall be provided with fuses located within the rack JB. Fuses shall be mounted in fuse blocks. Fuse ratings will be given on electrical schematic diagrams. Power supply shall be 240 V AC.

7. Equipment Installation

Vendor shall prepare rack fabrication and piping drawings indicating the layout of each Rack. Transmitter/Instruments shall be installed using custom fabricated supports which are attached to the vertical members provided for this purpose. Drawings shall indicate the arrangement of all equipment, piping, valves and fittings within the rack and shall be subject to approval.

8. Impulse Piping / Tubing

a. Transmitter racks shall be complete with impulse tubing piping, valves from enclosure bulkhead connection to all instruments and necessary drain / blow down connections. The type, sizes, material and pressure class of pipes/tubes, fittings, valves etc. shall be suitable

for the intended applications as per the Schemes / Tagging list of Instrument, provided by BHEL.

b. Bulkhead (Thickness shall be not less than 6mm) connection shall be used when instrument piping/ tubing enters the enclosure through Bulkhead plate. Typically through Bulk heads, Impulse pipe entry shall be through top side of the Enclosure for Steam and Liquid services.

c. All Instrument Blow down lines, except those measuring vacuum shall be connected to a two-inch drain pipe header, which is extended through one end of the enclosure and turned downward for directing the blow down into drain.

d. Instrument piping and tubing shall be hydrostatically tested at one and one-half times the Design pressure (As per instrument schedule) for that instruments except for vacuum measurement the test pressure will be 8 Kg / Cm2.

9. Wiring of the Racks

a. A fully enclosed IP 65 type junction box shall be provided in each rack for housing the terminal blocks, power supply fuses and other electrical accessories, as required.

b. All electrical connections between instrument and the Terminals in Junction box shall be made. In addition all utility wiring for lighting and service power shall be installed.

c. Vendor shall furnish general arrangement and wiring diagrams for each transmitter rack for approval.

d. Junction boxes for the racks shall be mounted on one end of each assembly & should be inside the Rack to accept field wiring through the bottom of the junction box. The junction box shall be Minimum depth 200 mm. A removable bolted door shall give access to the interior of the junction box. All junction boxes shall accept same key. JB to be of FRP with 4mm thick and IP 65 protection class. Door handle shall be of SS. Self-locking type with common key. Door gasket shall be of synthetic rubber. M6 earthing stud shall be provided. TB shall be in multiple of 12 nos.

III. General Requirement applicable to Transmitter Enclosures & Racks :

1. Surface preparation And Painting

a. All sheet metal / exterior steel surfaces shall rust free and scale free and all other residue during fabrication operation such as Oil, grease and salts etc. shall be removed by one or more solvent cleaning methods. Epoxy primer surface shall be applied to all exterior and interior surfaces. Epoxy paint shall be applied to all surfaces and the paint thickness shall be 100 to150 microns. The finish colours for exterior and interior surfaces shall conform to the shades mentioned in scope of supply.

1. Grounding

a. Enclosures and Racks shall be provided with a continuous tinned copper ground bus of minimum 50 mm X 6 mm cross section, extended along the entire length. The ground bus shall have two (2) bolts drilling with GI bolts and nuts at each end.

2. Name plate / Label.

a. Service details and Tag no. shall be engraved on a nameplate or label for each of the Transmitter. These Nameplates or Labels shall be of white non-hygroscopic (Polyamide sheet) material with engraved black lettering on white background. This shall be fixed on to the Impulse Pipe closer to the Transmitter inside the Enclosure / Rack.

3. Wiring Details

a. Interconnecting wiring shall be provided between all electrical devices mounted in the panels and between the devices and terminal blocks if the devices are to be connected to equipment outside the panels by cabling. All interior wiring shall be installed neatly and carefully and shall be terminated at suitable terminal blocks in the Junction box. Sufficient clearance shall be provided for all control and instrumentation leads.

b. Each wire shall be identified at both ends with wire designations as per approved wiring diagram. Interlocking type ferrules shall be used for identification.

c. All wire termination shall be made with insulated sleeve and cage clamp type terminals.

d. All signal wiring shall be done with 2 pair, 0.75 sq. mm annealed tinned copper, pair twisted overall & shielded (Individual & overall), voltage grade 650 V , FRLS PVC sheathed cable and 4 pair, 0.5 sq. mm for PS/DPS. For power supply application, 2.5 sq mm, 1100V cable shall be used.

e. Wires shall be dressed and run in trays or troughs with clamp-on type covers. Wiring may be neatly bunched in-groups by non-metallic cleats or bands. Shield wires shall be terminated on separate terminal blocks.

f. Internal wiring shall follow distinct color coding to segregate different voltage levels viz. 24V DC & 230V AC

g. Junction Box of enclosures will be provided with removable, gasketted cable gland for cable entrance.

4. Fuse Blocks

a. Fuse blocks shall be modular type with bakelite frame and reinforced retaining clips.

5. Terminal Blocks

a. Terminal blocks shall be DIN rail mounted and shall have Cage clamp type connection which shall be maintained for all panels uniformly.

b. The rated cross section of the terminal blocks shall be suitable for connecting 0.5-mm²/2.5 mm². Conductor of suitable voltage grade as specified.

c. Terminal blocks shall be mounted vertically with adequate spacing between rows for routing the cable troughs and to allow adequate free workspace for termination and removal of wires.
d. Terminal blocks shall be provided with white marking strips/self adhesive marker cards.

e. At least 30 percent spare unused terminals shall be provided on each terminal blocks for circuit modifications and for termination of all conductors in a multi conductor control cables.

f. Terminal blocks for termination of electrical power supply shall be type WAGO / PHOENIX make of suitable size with marking strips.

g. The last terminal in a rail-mounted assembly shall be closed with an end plate and end bracket.

IV. Documents to be Submitted by Vendor for Approval :

1. OGA for Transmitter Enclosure and Racks.

2. Layout of Components in each of Transmitter Enclosure and Rack.

3. Electrical diagrams for each Transmitter Enclosure and Rack.

4. Component datasheets

5. Quality plan including Welding Procedure specification and Welder Procedure qualification Record.

6. The quality plan shall include Visual inspection, GA BOM/Layout features verification, Dimensions, Paint shade, thickness measurement, Alignment of sections, component ratings, Wiring, IR, HV, review of TC for instruments / Devices, Accessibility of TBs / Devices, Illumination, Tubing and Degree of protection (Review of type test certificate)

V. Specific requirements

1. Where grouping is not provided for instruments, same shall be indicated during detailed engineering.
2. SS tubing between valve manifold and transmitter for each service shall be done as per Transmitter Model Nos with mounting details will be provided by BHEL EDN.In Case If Transmitter Model Nos with mounting details are not received before dispatch, Vendor has to supply tube and tube connectors and Erect the transmitters and valve manifold during commissioning time as per BHEL EDN Instruction.
3. Packing should be Wooden packing is must for all the LIE/LIR/TTE consignment. Delicate items to be bubble wrapped with sufficient care.

TECHNICAL REQUIREMENTS FOR TEMPERATURE TRANSMITTER JUNCTION BOX:

1. The Junction Box is provided for mounting Pipe Mounted Temperature Transmitters. This shall be constructed of 2.0 mm thick steel sheet material. These shall confirm to IP 65 protection class.

2. The Junction Box shall be of following sizes (in millimeters).

   Type A – 800(W) x 500(D) x 900(H) (Shall have three rows of 2" pipe & 150 terminals)
   Type B - 800(W) x 500(D) x 600(H) (Shall have two rows of 2" pipe & 60 terminals)
   Type C - 800(W) x 500(D) x 400(H) (Shall have one rows of 2" pipe & 40 terminals)

3. These shall be reinforced as required to ensure true surfaces and to provide adequate support for instruments and other equipment mounted therein. Doors shall be provided and shall be arranged for maximum possible access to the module interior. Center posts or any member which would reduce access shall not be provided.

4. The doors shall be the three-point locking type constructed of not less than 3.0 mm steel sheet. Doors shall have concealed quick removal type pinned hinges and locking handles. Junction Box door locks shall accept the same / common key all over the plant. Gaskets shall be used between all mating sections to achieve dust proof enclosure rating. All Junction Box shall have access doors on Front side.

5. All the junction boxes shall be suitable for mounting on walls, columns, structures etc. The brackets, nuts, bolts, screws, gland and lugs required for erection are in supplier's scope.

6. Vendor shall furnish general arrangement diagrams for each type of transmitter Junction Box for approval.

7. Surface preparation And Painting

   a. All sheet metal / exterior steel surfaces shall rust free and scale free and all other residue during fabrication operation such as Oil, grease and salts etc. shall be removed by one or more solvent cleaning methods. Epoxy primer surface shall be applied to all exterior and interior surfaces. Epoxy paint shall be applied to all surfaces and the paint thickness shall be 100 to150 microns. The finish colours for exterior and interior surfaces shall conform to the shades mentioned in scope of supply.

8. **Terminal Blocks**

   a. Terminal blocks shall be DIN rail mounted and shall have Cage clamp type connection which shall be maintained for all panels uniformly.

   b. The rated cross section of the terminal blocks shall be suitable for connecting 0.5-mm²/2.5 mm². Conductor of suitable voltage grade as specified.

c. Terminal blocks shall be mounted vertically with adequate spacing between rows for routing the cable troughs and to allow adequate free workspace for termination and removal of wires.

d. Terminal blocks shall be provided with white marking strips/self adhesive marker cards.

e. Terminal blocks for termination of electrical power supply shall be type WAGO / PHOENIX make of suitable size with marking strips.

f. The last terminal in a rail-mounted assembly shall be closed with an end plate and end bracket.

9. <u>Documents to be Submitted by Vendor for Approval :</u>

a. OGA for Junction Box.

b. Layout of Transmitter in each Type of Junction Box.

c. Quality plan. This will be approved by BHEL / (END USER)

d. The quality plan shall include Visual inspection, GA BOM/Layout features verification, Dimensions, Paint shade, thickness measurement, IR, HV, Accessibility of TBs / Devices, Degree of protection (Review of type test certificate)

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

INSTRUMENT SCHEDULE

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	09/06/23

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
10HTA01CP001	UNIT-1 BYP DMPR PRESS Tx-1	Unit #1	PT	FLUE GAS	0	662	mmWC	145	375	10	YES	1	01LIE-01	Bypass Damper PF
10HTA01CP002	UNIT-1 BYP DMPR PRESS Tx-2	Unit #1	PT	FLUE GAS	0	662	mmWC	145	375	10		1	01LIE-01	Bypass Damper PF
10HTA01CP003	UNIT-1 BYP DMPR PRESS Tx-3	Unit #1	PT	FLUE GAS	0	662	mmWC	145	375	10		1	01LIE-01	Bypass Damper PF
10HTA01CP051	UNIT-1 BYP DMPR DP Tx	Unit #1	DPT	FLUE GAS	0	662	mmWC	145	375	12		2	01LIE-01	Bypass Damper PF
10HTE02CP001	PROCESS WATER TO UNIT-1 MIST ELIMINATOR SYS PRESS Tx	Unit #1	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			01LIE-02	Absorber ME
10HTE02CP011	UNIT-1 STAGE 1 MIST ELIMINATOR DP Tx	Unit #1	DPT	FLUE GAS	51	662	mmWC	49.8	70	12	YES	2	01LIE-02	Absorber ME
10HTE02CP012	UNIT-1 STAGE 2 MIST ELIMINATOR DP Tx	Unit #1	DPT	FLUE GAS	51	662	mmWC	49.8	70	12		2	01LIE-02	Absorber ME
10HTE02CP013	UNIT-1 STAGE 3 MIST ELIMINATOR DP Tx	Unit #1	DPT	FLUE GAS	51	662	mmWC	49.8	70	12		2	01LIE-02	Absorber ME
10HTW01CP007	UNIT-1 BYP DMPR SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #1	PT	AIR	229		mmWC	40	--	10			01LIE-03	Bypass Damper
10HTW01CP008	UNIT-1 BYP DMPR SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #1	PT	AIR	229		mmWC	40	--	10			01LIE-03	Bypass Damper
10HTW01CP001	UNIT-1 BUF 1 I/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #1	PT	AIR	229		mmWC	40	--	10			01LIE-04	BUF A Inlet Gate
10HTW01CP002	UNIT-1 BUF 1 I/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #1	PT	AIR	229		mmWC	40	--	10			01LIE-04	BUF A Inlet Gate
10HTW01CP005	UNIT-1 BUF 2 I/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #1	PT	AIR	229		mmWC	40	--	10			01LIE-05	BUF B Inlet Gate
10HTW01CP006	UNIT-1 BUF 2 I/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #1	PT	AIR	229		mmWC	40	--	10			01LIE-05	BUF B Inlet Gate
10HTW01CP003	UNIT-1 BUF 1 O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #1	PT	AIR	381		mmWC	40	--	10			01LIE-06	BUF A Outlet Gate
10HTW01CP004	UNIT-1 BUF 1 O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #1	PT	AIR	381		mmWC	40	--	10			01LIE-06	BUF A Outlet Gate
10HTW01CP011	UNIT-1 BUF 2 O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #1	PT	AIR	381		mmWC	40	--	10			01LIE-07	BUF B Outlet Gate
10HTW01CP012	UNIT-1 BUF 2 O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #1	PT	AIR	381		mmWC	40	--	10			01LIE-07	BUF B Outlet Gate
10HTW01CP009	UNIT-1 ABSORBER O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #1	PT	AIR	179		mmWC	40	--	10			01LIE-08	Absorber Outlet Gate
10HTW01CP010	UNIT-1 ABSORBER O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #1	PT	AIR	179		mmWC	40	--	10			01LIE-08	Absorber Outlet Gate
10HTC10CP003	UNIT-1 BOOSTER FAN-A SUC PRESS Tx	Unit #1	PT	FLUE GAS		100	mmWC	--	--	10	YES	1	01LIE-09	BUF A
10HTC10CP004	UNIT-1 BOOSTER FAN-A DISCH PRESS Tx	Unit #1	PT	FLUE GAS		500	mmWC	--	--	10		1	01LIE-09	BUF A
10HTC10CP005	UNIT-1 BOOSTER FAN-A CLG SEALING FAN PRESS Tx 1	Unit #1	PT	ATMOSPHERIC AIR	0	500	mmWC	--	--	10			01LIE-09	BUF A
10HTC10CP006	UNIT-1 BOOSTER FAN-A CLG SEALING FAN PRESS Tx 2	Unit #1	PT	ATMOSPHERIC AIR	0	500	mmWC	--	--	10			01LIE-09	BUF A
10HTC10CP302	UNIT-1 BOOSTER FAN-A SUC TO IMPELLER DP Tx	Unit #1	DPT	FLUE GAS		300	mmWC	--	--	12		2	01LIE-09	BUF A
10HTC20CP003	UNIT-1 BOOSTER FAN-B SUC PRESS Tx	Unit #1	PT	FLUE GAS		100	mmWC	--	--	10	YES	1	01LIE-10	BUF B
10HTC20CP004	UNIT-1 BOOSTER FAN-B DISCH PRESS Tx	Unit #1	PT	FLUE GAS		500	mmWC	--	--	10		1	01LIE-10	BUF B
10HTC20CP005	UNIT-1 BOOSTER FAN-B CLG SEALING FAN PRESS Tx 1	Unit #1	PT	ATMOSPHERIC AIR	0	500	mmWC	--	--	10			01LIE-10	BUF B
10HTC20CP006	UNIT-1 BOOSTER FAN-B CLG SEALING FAN PRESS Tx 2	Unit #1	PT	ATMOSPHERIC AIR	0	500	mmWC	--	--	10			01LIE-10	BUF B
10HTC20CP302	UNIT-1 BOOSTER FAN-B SUC TO IMPELLER DP Tx	Unit #1	DPT	FLUE GAS		300	mmWC	--	--	12		2	01LIE-10	BUF B
10HTD02CP001	UNIT-1 EMER WATER TANK TO ABSORBER PRESS Tx	Unit #1	PT	PROCESS WATER	2.5	3	Kg/Cm2	27	50	2			01LIE-11	Absorber Area
10HTD02CP002	PROCESS WATER TO UNIT-1 ABSORBER PRESS Tx	Unit #1	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			01LIE-11	Absorber Area
10HTY08CF001	ME WASH & EMER QUENCH PUMPS TO UNIT-1 EMER WATER TANK FLOW Tx	Unit #1	FT	PROCESS WATER					50	4			01LIE-12	Emergency Water Tank
10HTY08CP001	ME WASH & EMER QUENCH PUMPS TO UNIT-1 EMER WATER TANK PRESS Tx	Unit #1	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			01LIE-12	Emergency Water Tank
10HTG02CF001	UNIT-1 PROCESS WTR to JAS I/L Flow TX	Unit #1	FT	PROCESS WATER	2	6	Kg/cm2		60	4			01LIE-13	NEAR UNIT-1 JAS
10HTG02CP001	PROCESS WATER TO UNIT-1 JAS PRESS TRANSMITTER	Unit #1	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			01LIE-13	NEAR UNIT-1 JAS
10HTA01CT001	UNIT-1 BUF 1 I/L TEMP Tx-1	Unit #1	TT										01TTE-01	BUF A Inlet
10HTA01CT002	UNIT-1 BUF 1 I/L TEMP Tx-2	Unit #1	TT										01TTE-01	BUF A Inlet
10HTA01CT003	UNIT-1 BUF 1 I/L TEMP Tx-3	Unit #1	TT										01TTE-01	BUF A Inlet
10HTA01CT010	UNIT-1 BUF 2 I/L TEMP Tx-1	Unit #1	TT										01TTE-02	BUF B Inlet
10HTA01CT011	UNIT-1 BUF 2 I/L TEMP Tx-2	Unit #1	TT										01TTE-02	BUF B Inlet
10HTA01CT012	UNIT-1 BUF 2 I/L TEMP Tx-3	Unit #1	TT										01TTE-02	BUF B Inlet
10HTA01CT004	UNIT-1 ABSORBER I/L TEMP Tx-1	Unit #1	TT										01TTE-03	Absorber Inlet
10HTA01CT005	UNIT-1 ABSORBER I/L TEMP Tx-2	Unit #1	TT										01TTE-03	Absorber Inlet
10HTA01CT006	UNIT-1 ABSORBER I/L TEMP Tx-3	Unit #1	TT										01TTE-03	Absorber Inlet
10HTA01CT007	UNIT-1 ABSORBER O/L TEMP Tx-1	Unit #1	TT										01TTE-04	Absorber Outlet
10HTA01CT008	UNIT-1 ABSORBER O/L TEMP Tx-2	Unit #1	TT										01TTE-04	Absorber Outlet
10HTA01CT009	UNIT-1 ABSORBER O/L TEMP Tx-3	Unit #1	TT										01TTE-04	Absorber Outlet
10HTC10CT001	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 1	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT002	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 2	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT003	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 3	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT004	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 4	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT005	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 5	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT006	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 6	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT007	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 7	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT008	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 8	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT009	UNIT-1 BOOSTER FAN-A BRG TEMP Tx 9	Unit #1	TT										01TTE-05	BUF-A
10HTC10CT010	UNIT-1 BOOSTER FAN-A BRG ROOM TEMP Tx	Unit #1	TT										01TTE-06	BUF-A

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
10HTC10CT011	UNIT-1 BOOSTER FAN-A HYD ROOM TEMP Tx	Unit #1	TT										01TTE-06	BUF-A
10HTC10CT012	UNIT-1 BOOSTER FAN-A SUC TEMP Tx	Unit #1	TT										01TTE-06	BUF-A
10HTC10CT015	UNIT-1 BOOSTER FAN-A MTR DE BRG TEMP Tx 1	Unit #1	TT										01TTE-07	BUF-A Motor
10HTC10CT016	UNIT-1 BOOSTER FAN-A MTR DE BRG TEMP Tx 2	Unit #1	TT										01TTE-07	BUF-A Motor
10HTC10CT017	UNIT-1 BOOSTER FAN-A MTR NDE BRG TEMP Tx 1	Unit #1	TT										01TTE-07	BUF-A Motor
10HTC10CT018	UNIT-1 BOOSTER FAN-A MTR NDE BRG TEMP Tx 2	Unit #1	TT										01TTE-07	BUF-A Motor
10HTC10CT019	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 1	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT020	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 2	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT021	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 3	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT022	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 4	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT023	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 5	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT024	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 6	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT025	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 7	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT026	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 8	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT027	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 9	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT028	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 10	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT029	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 11	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC10CT030	UNIT-1 BOOSTER FAN-A MTR WDG TEMP Tx 12	Unit #1	TT										01TTE-08	BUF-A Motor
10HTC20CT001	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 1	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT002	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 2	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT003	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 3	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT004	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 4	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT005	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 5	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT006	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 6	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT007	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 7	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT008	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 8	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT009	UNIT-1 BOOSTER FAN-B BRG TEMP Tx 9	Unit #1	TT										01TTE-09	BUF-B
10HTC20CT010	UNIT-1 BOOSTER FAN-B BRG ROOM TEMP Tx	Unit #1	TT										01TTE-10	BUF-B
10HTC20CT011	UNIT-1 BOOSTER FAN-B HYD ROOM TEMP Tx	Unit #1	TT										01TTE-10	BUF-B
10HTC20CT012	UNIT-1 BOOSTER FAN-B SUC TEMP Tx	Unit #1	TT										01TTE-10	BUF-B
10HTC20CT015	UNIT-1 BOOSTER FAN-B MTR DE BRG TEMP Tx 1	Unit #1	TT										01TTE-11	BUF-B Motor
10HTC20CT016	UNIT-1 BOOSTER FAN-B MTR DE BRG TEMP Tx 2	Unit #1	TT										01TTE-11	BUF-B Motor
10HTC20CT017	UNIT-1 BOOSTER FAN-B MTR NDE BRG TEMP Tx 1	Unit #1	TT										01TTE-11	BUF-B Motor
10HTC20CT018	UNIT-1 BOOSTER FAN-B MTR NDE BRG TEMP Tx 2	Unit #1	TT										01TTE-11	BUF-B Motor
10HTC20CT019	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 1	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT020	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 2	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT021	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 3	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT022	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 4	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT023	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 5	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT024	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 6	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT025	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 7	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT026	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 8	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT027	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 9	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT028	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 10	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT029	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 11	Unit #1	TT										01TTE-12	BUF-B Motor
10HTC20CT030	UNIT-1 BOOSTER FAN-B MTR WDG TEMP Tx 12	Unit #1	TT										01TTE-12	BUF-B Motor
20HTA01CP001	UNIT-2 BYP DMPR PRESS Tx-1	Unit #2	PT	FLUE GAS	0	662	mmWC	145	375	10	YES	1	02LIE-01	Bypass Damper PF
20HTA01CP002	UNIT-2 BYP DMPR PRESS Tx-2	Unit #2	PT	FLUE GAS	0	662	mmWC	145	375	10		1	02LIE-01	Bypass Damper PF
20HTA01CP003	UNIT-2 BYP DMPR PRESS Tx-3	Unit #2	PT	FLUE GAS	0	662	mmWC	145	375	10		1	02LIE-01	Bypass Damper PF
20HTA01CP051	UNIT-2 BYP DMPR DP Tx	Unit #2	DPT	FLUE GAS	0	662	mmWC	145	375	12		2	02LIE-01	Bypass Damper PF
20HTE02CP001	PROCESS WATER TO UNIT-2 MIST ELIMINATOR SYS PRESS Tx	Unit #2	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			02LIE-02	Absorber ME
20HTE02CP011	UNIT-2 STAGE 1 MIST ELIMINATOR DP Tx	Unit #2	DPT	FLUE GAS	229	662	mmWC	49.8	70	12	YES	2	02LIE-02	Absorber ME
20HTE02CP012	UNIT-2 STAGE 2 MIST ELIMINATOR DP Tx	Unit #2	DPT	FLUE GAS	229	662	mmWC	49.8	70	12		2	02LIE-02	Absorber ME
20HTE02CP013	UNIT-2 STAGE 3 MIST ELIMINATOR DP Tx	Unit #2	DPT	FLUE GAS	229	662	mmWC	49.8	70	12		2	02LIE-02	Absorber ME
20HTW01CP007	UNIT-2 BYP DMPR SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #2	PT	AIR	229		mmWC	40	--	10			02LIE-03	Bypass Damper
20HTW01CP008	UNIT-2 BYP DMPR SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #2	PT	AIR	229		mmWC	40	--	10			02LIE-03	Bypass Damper
20HTW01CP001	UNIT-2 BUF 1 I/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #2	PT	AIR	229		mmWC	40	--	10			02LIE-04	BUF A Inlet Gate
20HTW01CP002	UNIT-2 BUF 1 I/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #2	PT	AIR	229		mmWC	40	--	10			02LIE-04	BUF A Inlet Gate

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
20HTW01CP005	UNIT-2 BUF 2 I/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #2	PT	AIR	229		mmWC	40	--	10			02LIE-05	BUF B Inlet Gate
20HTW01CP006	UNIT-2 BUF 2 I/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #2	PT	AIR	229		mmWC	40	--	10			02LIE-05	BUF B Inlet Gate
20HTW01CP003	UNIT-2 BUF 1 O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #2	PT	AIR	381		mmWC	40	--	10			02LIE-06	BUF A Outlet Gate
20HTW01CP004	UNIT-2 BUF 1 O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #2	PT	AIR	381		mmWC	40	--	10			02LIE-06	BUF A Outlet Gate
20HTW01CP011	UNIT-2 BUF 2 O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #2	PT	AIR	381		mmWC	40	--	10			02LIE-07	BUF B Outlet Gate
20HTW01CP012	UNIT-2 BUF 2 O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #2	PT	AIR	381		mmWC	40	--	10			02LIE-07	BUF B Outlet Gate
20HTW01CP009	UNIT-2 ABSORBER O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-1	Unit #2	PT	AIR	179		mmWC	40	--	10			02LIE-08	Absorber Outlet Gate
20HTW01CP010	UNIT-2 ABSORBER O/L GATE SEAL AIR BLWRS DISCH LINE PRESS Tx-2	Unit #2	PT	AIR	179		mmWC	40	--	10			02LIE-08	Absorber Outlet Gate
20HTC10CP003	UNIT-2 BOOSTER FAN-A SUC PRESS Tx	Unit #2	PT	FLUE GAS		100	mmWC	--	--	10	YES	1	02LIE-09	BUF A
20HTC10CP004	UNIT-2 BOOSTER FAN-A DISCH PRESS Tx	Unit #2	PT	FLUE GAS		500	mmWC	--	--	10		1	02LIE-09	BUF A
20HTC10CP005	UNIT-2 BOOSTER FAN-A CLG SEALING FAN PRESS Tx 1	Unit #2	PT	ATMOSPHERIC AIR	0	500	mmWC	--	--	10			02LIE-09	BUF A
20HTC10CP006	UNIT-2 BOOSTER FAN-A CLG SEALING FAN PRESS Tx 2	Unit #2	PT	ATMOSPHERIC AIR	0	500	mmWC	--	--	10			02LIE-09	BUF A
20HTC10CP302	UNIT-2 BOOSTER FAN-A SUC TO IMPELLER DP Tx	Unit #2	DPT	FLUE GAS		300	mmWC	--	--	12		2	02LIE-09	BUF A
20HTC20CP003	UNIT-2 BOOSTER FAN-B SUC PRESS Tx	Unit #2	PT	FLUE GAS		100	mmWC	--	--	10	YES	1	02LIE-10	BUF B
20HTC20CP004	UNIT-2 BOOSTER FAN-B DISCH PRESS Tx	Unit #2	PT	FLUE GAS		500	mmWC	--	--	10		1	02LIE-10	BUF B
20HTC20CP005	UNIT-2 BOOSTER FAN-B CLG SEALING FAN PRESS Tx 1	Unit #2	PT	ATMOSPHERIC AIR	0	500	mmWC	--	--	10			02LIE-10	BUF B
20HTC20CP006	UNIT-2 BOOSTER FAN-B CLG SEALING FAN PRESS Tx 2	Unit #2	PT	ATMOSPHERIC AIR	0	500	mmWC	--	--	10			02LIE-10	BUF B
20HTC20CP302	UNIT-2 BOOSTER FAN-B SUC TO IMPELLER DP Tx	Unit #2	DPT	FLUE GAS		300	mmWC	--	--	12		2	02LIE-10	BUF B
20HTD02CP001	UNIT-2 EMER WATER TANK TO ABSORBER PRESS Tx	Unit #2	PT	PROCESS WATER	2.5	3	Kg/Cm2	27	50	2			02LIE-11	Absorber Area
20HTD02CP002	PROCESS WATER TO UNIT-2 ABSORBER PRESS Tx	Unit #2	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			02LIE-11	Absorber Area
20HTY08CF001	ME WASH & EMER QUENCH PUMPS TO UNIT-2 EMER WATER TANK FLOW Tx	Unit #2	FT	PROCESS WATER					50	4			02LIE-12	Emergency Water Tank
20HTY08CP001	ME WASH & EMER QUENCH PUMPS TO UNIT-2 EMER WATER TANK PRESS Tx	Unit #2	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			02LIE-12	Emergency Water Tank
20HTG02CF001	UNIT-2 PROCESS WTR to JAS I/L Flow TX	Unit #2	FT	PROCESS WATER	2	6	Kg/cm2		60	4			02LIE-13	NEAR UNIT-2 JAS
20HTG02CP001	PROCESS WATER TO UNIT-2 JAS PRESS TRANSMITTER	Unit #2	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			02LIE-13	NEAR UNIT-2 JAS
20HTA01CT001	UNIT-2 BUF 1 I/L TEMP Tx-1	Unit #2	TT										02TTE-01	BUF A Inlet
20HTA01CT002	UNIT-2 BUF 1 I/L TEMP Tx-2	Unit #2	TT										02TTE-01	BUF A Inlet
20HTA01CT003	UNIT-2 BUF 1 I/L TEMP Tx-3	Unit #2	TT										02TTE-01	BUF A Inlet
20HTA01CT010	UNIT-2 BUF 2 I/L TEMP Tx-1	Unit #2	TT										02TTE-02	BUF B Inlet
20HTA01CT011	UNIT-2 BUF 2 I/L TEMP Tx-2	Unit #2	TT										02TTE-02	BUF B Inlet
20HTA01CT012	UNIT-2 BUF 2 I/L TEMP Tx-3	Unit #2	TT										02TTE-02	BUF B Inlet
20HTA01CT004	UNIT-2 ABSORBER I/L TEMP Tx-1	Unit #2	TT										02TTE-03	Absorber Inlet
20HTA01CT005	UNIT-2 ABSORBER I/L TEMP Tx-2	Unit #2	TT										02TTE-03	Absorber Inlet
20HTA01CT006	UNIT-2 ABSORBER I/L TEMP Tx-3	Unit #2	TT										02TTE-03	Absorber Inlet
20HTA01CT007	UNIT-2 ABSORBER O/L TEMP Tx-1	Unit #2	TT										02TTE-04	Absorber Outlet
20HTA01CT008	UNIT-2 ABSORBER O/L TEMP Tx-2	Unit #2	TT										02TTE-04	Absorber Outlet
20HTA01CT009	UNIT-2 ABSORBER O/L TEMP Tx-3	Unit #2	TT										02TTE-04	Absorber Outlet
20HTC10CT001	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 1	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT002	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 2	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT003	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 3	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT004	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 4	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT005	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 5	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT006	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 6	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT007	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 7	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT008	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 8	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT009	UNIT-2 BOOSTER FAN-A BRG TEMP Tx 9	Unit #2	TT										02TTE-05	BUF-A
20HTC10CT010	UNIT-2 BOOSTER FAN-A BRG ROOM TEMP Tx	Unit #2	TT										02TTE-06	BUF-A
20HTC10CT011	UNIT-2 BOOSTER FAN-A HYD ROOM TEMP Tx	Unit #2	TT										02TTE-06	BUF-A
20HTC10CT012	UNIT-2 BOOSTER FAN-A SUC TEMP Tx	Unit #2	TT										02TTE-06	BUF-A
20HTC10CT015	UNIT-2 BOOSTER FAN-A MTR DE BRG TEMP Tx 1	Unit #2	TT										02TTE-07	BUF-A Motor
20HTC10CT016	UNIT-2 BOOSTER FAN-A MTR DE BRG TEMP Tx 2	Unit #2	TT										02TTE-07	BUF-A Motor
20HTC10CT017	UNIT-2 BOOSTER FAN-A MTR NDE BRG TEMP Tx 1	Unit #2	TT										02TTE-07	BUF-A Motor
20HTC10CT018	UNIT-2 BOOSTER FAN-A MTR NDE BRG TEMP Tx 2	Unit #2	TT										02TTE-07	BUF-A Motor
20HTC10CT019	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 1	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT020	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 2	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT021	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 3	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT022	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 4	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT023	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 5	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT024	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 6	Unit #2	TT										02TTE-08	BUF-A Motor

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
20HTC10CT025	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 7	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT026	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 8	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT027	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 9	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT028	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 10	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT029	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 11	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC10CT030	UNIT-2 BOOSTER FAN-A MTR WDG TEMP Tx 12	Unit #2	TT										02TTE-08	BUF-A Motor
20HTC20CT001	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 1	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT002	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 2	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT003	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 3	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT004	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 4	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT005	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 5	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT006	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 6	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT007	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 7	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT008	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 8	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT009	UNIT-2 BOOSTER FAN-B BRG TEMP Tx 9	Unit #2	TT										02TTE-09	BUF-B
20HTC20CT010	UNIT-2 BOOSTER FAN-B BRG ROOM TEMP Tx	Unit #2	TT										02TTE-10	BUF-B
20HTC20CT011	UNIT-2 BOOSTER FAN-B HYD ROOM TEMP Tx	Unit #2	TT										02TTE-10	BUF-B
20HTC20CT012	UNIT-2 BOOSTER FAN-B SUC TEMP Tx	Unit #2	TT										02TTE-10	BUF-B
20HTC20CT015	UNIT-2 BOOSTER FAN-B MTR DE BRG TEMP Tx 1	Unit #2	TT										02TTE-11	BUF-B Motor
20HTC20CT016	UNIT-2 BOOSTER FAN-B MTR DE BRG TEMP Tx 2	Unit #2	TT										02TTE-11	BUF-B Motor
20HTC20CT017	UNIT-2 BOOSTER FAN-B MTR NDE BRG TEMP Tx 1	Unit #2	TT										02TTE-11	BUF-B Motor
20HTC20CT018	UNIT-2 BOOSTER FAN-B MTR NDE BRG TEMP Tx 2	Unit #2	TT										02TTE-11	BUF-B Motor
20HTC20CT019	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 1	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT020	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 2	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT021	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 3	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT022	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 4	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT023	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 5	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT024	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 6	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT025	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 7	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT026	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 8	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT027	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 9	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT028	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 10	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT029	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 11	Unit #2	TT										02TTE-12	BUF-B Motor
20HTC20CT030	UNIT-2 BOOSTER FAN-B MTR WDG TEMP Tx 12	Unit #2	TT										02TTE-12	BUF-B Motor
99HTQ08CP001	PROCESS WATER PUMP COMM DISCH PRESS Tx-1	Common	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			99LIE-01	Process Water Tank
99HTQ08CP002	PROCESS WATER PUMP COMM DISCH PRESS Tx-2	Common	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			99LIE-01	Process Water Tank
99HTQ08CP003	ME WASH & EMER QUENCH PUMPS COMM DISCH PRESS Tx-1	Common	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			99LIE-01	Process Water Tank
99HTQ08CP004	ME WASH & EMER QUENCH PUMPS COMM DISCH PRESS Tx-2	Common	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			99LIE-01	Process Water Tank
99HTQ08CP005	ME WASH & EMER QUENCH PUMPS C,D COMM DISCH PRESS Tx-1	Common	PT	PROCESS WATER	50				50	2			99LIE-01	Process Water Tank
99HTQ08CP006	ME WASH & EMER QUENCH PUMPS C,D COMM DISCH PRESS Tx-1	Common	PT	PROCESS WATER	50	BAP Panipat	A	2		2			99LIE-01	Process Water Tank
10HTG02CF002	UNIT-1 AIR supply to JAS Flow Tx	Unit #1	FT	OXI AIR			Kg/cm2	100	300	4			LIE-151	NEAR UNIT-1 JAS
10HTG02CT001	UNIT-1 AIR supply to JAS TEMP Tx	Unit #1	TT	PROCESS WATER									LIE-151	NEAR UNIT-1 JAS
20HTG02CF002	UNIT-2 AIR supply to JAS Flow Tx	Unit #2	FT	OXI AIR			Kg/cm2	100	300	4			LIE-152	NEAR UNIT-2 JAS
20HTG02CT001	UNIT-1 AIR supply to JAS TEMP Tx	Unit #2	TT	PROCESS WATER									LIE-152	NEAR UNIT-2 JAS
99PGB01CP101	DMCW PMP-A O/L PRESS	Common	PT	ECW	8.6	10	Kg/cm2	38	60	6			LIR-001	NEAR DMCW DISCH HDR
99PGB02CP101	DMCW PMP-B O/L PRESS	Common	PT	ECW	8.6	10	Kg/cm2	38	60	6			LIR-001	NEAR DMCW DISCH HDR
99PGB03CP101	DMCW PMP-C O/L PRESS	Common	PT	ECW	8.6	10	Kg/cm2	38	60	6			LIR-001	NEAR DMCW DISCH HDR
99PGB05CP101	DMCW PMP's O/L HDR PRESS-1	Common	PT	ECW	8.6	10	Kg/cm2	38	60	6			LIR-001	NEAR DMCW DISCH HDR
99PGB05CP102	DMCW PMP's O/L HDR PRESS-2	Common	PT	ECW	8.6	10	Kg/cm2	38	60	6			LIR-001	NEAR DMCW DISCH HDR
99PGB00CP101	DMCW PMP's I/L HDR PRESS-1	Common	PT	ECW	1.0	10	Kg/cm2	38	60	6			LIR-002	NEAR DMCW I/L HDR
99PGB00CP102	DMCW PMP's I/L HDR PRESS-2	Common	PT	ECW	1.0	10	Kg/cm2	38	60	6			LIR-002	NEAR DMCW I/L HDR
99PGB05CT101	DMCW PMP's O/L HDR TEMP	Common	PRT-100	ECW	PEM								LIR-002-JB	NEAR DMCW I/L HDR
99LCP00CL101	DMCW O/H TNK LVL-1	Common	LT-DP type	ECW	ATM	10	Kg/cm2	38	60	8			LIR-003	NEAR DMCW O/H TANK
99LCP00CL102	DMCW O/H TNK LVL-2	Common	LT-DP type	ECW	ATM	10	Kg/cm2	38	60	8			LIR-003	NEAR DMCW O/H TANK
99PGB06CP011	DP ACROSS DMCW PHE-A	Common	DPT	ECW	8.2	10	Kg/cm2	38	60	8			LIR-004	NEAR DMCW PHE
99PGB07CP011	DP ACROSS DMCW PHE-B	Common	DPT	ECW	8.2	10	Kg/cm2	38	60	8			LIR-004	NEAR DMCW PHE
99PGB08CP011	DP ACROSS DMCW PHE-C	Common	DPT	ECW	8.2	10	Kg/cm2	38	60	8			LIR-004	NEAR DMCW PHE
99PGB11CF101	DMCW PHE's O/L HDR FLOW	Common	FT	ECW	7.3	10	Kg/cm2	38	60	8			LIR-004	NEAR DMCW PHE

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
99PGB05CQ101	DMCW PHE's AUX O/L pH	Common	pHT	ECW	PEM								LIR-004-JB	NEAR DMCW PHE
99PCB41CP101	ACW PMP-A O/L PRESS	Common	PT	ACW	3.0	7.5	Kg/cm2	36	60	2			LIR-005	NEAR ACW PMP's HDR
99PCB42CP101	ACW PMP-B O/L PRESS	Common	PT	ACW	3.0	7.5	Kg/cm2	36	60	2			LIR-005	NEAR ACW PMP's HDR
99PCB43CP101	ACW PMP-C O/L PRESS	Common	PT	ACW	3.0	7.5	Kg/cm2	36	60	2			LIR-005	NEAR ACW PMP's HDR
99PCB50CP101	ACW PMPs O/L HDR PRESS-1	Common	PT	ACW	3.0	7.5	Kg/cm2	36	60	2			LIR-005	NEAR ACW PMP's HDR
99PCB50CP102	ACW PMPs O/L HDR PRESS-2	Common	PT	ACW	3.0	7.5	Kg/cm2	36	60	2			LIR-005	NEAR ACW PMP's HDR
99PCB35CP101	ACW PMPS I/L HDR PRESS-1	Common	PT	ACW	0.7	7.5	Kg/cm2	36	60	2			LIR-006	NEAR ACW I/L HDR
99PCB35CP102	ACW PMPS I/L HDR PRESS-2	Common	PT	ACW	0.7	7.5	Kg/cm2	36	60	2			LIR-006	NEAR ACW I/L HDR
99PCB35CT101	ACW PUMPS I/L HDR TEMP	Common	PRT-100	ACW	PEM								LIR-006-JB	NEAR ACW I/L HDR
99PCB50CF101	ACW PHE HDR O/L FLOW	Common	FT	ACW	2.5	7.5	Kg/cm2	36	60	4			LIR-007	NEAR ACW PMP's HDR
99PCB55CP101	ACW PHE HDR O/L PRESS	Common	PT	ACW	1.7	7.5	Kg/cm2	36	60	2			LIR-007	NEAR ACW PMP's HDR
99LCP10CL101	COOLING TWR LVL-1	Common	LT-DP type	ACW	ATM	7.5	Kg/cm2	36	60	4			LIR-008	NEAR COOLING TWR
99LCP10CL102	COOLING TWR LVL-2	Common	LT-DP type	ACW	ATM	7.5	Kg/cm2	36	60	4			LIR-008	NEAR COOLING TWR
99PCB51CP101	DP ACROSS ACW PHE-A	Common	DPT	ACW	2.2	7.5	Kg/cm2	36	60	4			LIR-009	NEAR ACW PHE
99PCB52CP101	DP ACROSS ACW PHE-B	Common	DPT	ACW	2.2	7.5	Kg/cm2	36	60	4			LIR-009	NEAR ACW PHE
99PCB53CP101	DP ACROSS ACW PHE-C	Common	DPT	ACW	2.2	7.5	Kg/cm2	36	60	4			LIR-009	NEAR ACW PHE
10HTA01CP004	UNIT-1 BUF 1 O/L PRESS Tx	Unit #1	PT	FLUE GAS	194	662	mmWC	147.5	375	10	YES	1	Stand Alone	BUF A Outlet
10HTA01CP005	UNIT-1 ABSORBER O/L PRESS Tx	Unit #1	PT	FLUE GAS	51	662	mmWC	49.8	70	10	YES	1	Stand Alone	Absorber Outlet
10HTA01CP006	UNIT-1 BUF 2 O/L PRESS Tx	Unit #1	PT	FLUE GAS	194	662	mmWC	147.5	375	10	YES	1	Stand Alone	BUF B Outlet
10HTY01CP001	UNIT-1 INST AIR RECEIVER 1 PRESS Tx	Unit #1	PT	AIR	0.08	0.1	Kg/cm2	45	50	10			Stand Alone	PIPE MOUNTED
20HTA01CP004	UNIT-2 BUF 1 O/L PRESS Tx	Unit #2	PT	FLUE GAS	194	662	mmWC	147.5	375	10	YES	1	Stand Alone	BUF A Outlet
20HTA01CP005	UNIT-2 ABSORBER O/L PRESS Tx	Unit #2	PT	FLUE GAS	51	662	mmWC	49.8	70	10	YES	1	Stand Alone	Absorber Outlet
20HTA01CP006	UNIT-2 BUF 2 O/L PRESS Tx	Unit #2	PT	FLUE GAS	194	662	mmWC	147.5	375	10	YES	1	Stand Alone	BUF B Outlet
20HTY01CP001	UNIT-2 INST AIR RECEIVER 2 PRESS Tx	Unit #2	PT	AIR	0.08	0.1	Kg/cm2	45	50	10			Stand Alone	PIPE MOUNTED
99HTJ05CP001	AIR BLWR SILO-A DISCH PRESS Tx	Common	PT	AIR			Kg/cm2		60	10			Stand Alone	PIPE MOUNTED
99HTJ05CP002	DPT SILO-A ACROSS BAG FILTER	Common	DPT	AIR			Kg/cm2			12			Stand Alone	BAG FILTER
99HTJ05CP003	INST AIR TO SILO-A PRESS Tx	Common	PT	INST AIR			Kg/cm2		50	2			Stand Alone	PIPE MOUNTED
99HTJ05CP011	AIR BLWR SILO-B DISCH PRESS Tx	Common	PT	AIR			Kg/cm2		60	10			Stand Alone	PIPE MOUNTED
99HTJ05CP012	DPT SILO-B ACROSS BAG FILTER	Common	DPT	AIR			Kg/cm2			12			Stand Alone	BAG FILTER
99HTJ05CP013	INST AIR TO SILO-B PRESS Tx	Common	PT	INST AIR			Kg/cm2		50	2			Stand Alone	PIPE MOUNTED
99HTM04CP005	PROCESS WATER TO PRI HYDRO-CYCLONE SYS PRESS Tx	Common	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			Stand Alone	Pri. Hydrocyclone Water Tank
99HTM04CP105	PROCESS WATER TO SEC WASTE WATER HYDRO-CYCLONE SYS PRESS Tx	Common	PT	PROCESS WATER	8.1	10.1	Kg/Cm2	27	50	2			Stand Alone	Sec. Hydrocyclone Water Tank
10HTD01CT001	UNIT-1 RC PUMP-1 MTR WNDG TEMP TX-1	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD01CT002	UNIT-1 RC PUMP-1 MTR WNDG TEMP TX-2	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD01CT003	UNIT-1 RC PUMP-1 MTR WNDG TEMP TX-3	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD01CT004	UNIT-1 RC PUMP-1 MTR WNDG TEMP TX-4	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD01CT005	UNIT-1 RC PUMP-1 MTR WNDG TEMP TX-5	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD01CT006	UNIT-1 RC PUMP-1 MTR WNDG TEMP TX-6	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD10CT001	UNIT-1 RC PUMP-1 MTR BEARING TEMP TX-1 DE	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD10CT002	UNIT-1 RC PUMP-1 MTR BEARING TEMP TX-2 DE	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD10CT003	UNIT-1 RC PUMP-1 BEARING OIL SUMP TEMP TX	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD10CT004	UNIT-1 RC PUMP-1 MTR BEARING TEMP TX NDE	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD10CT005	UNIT-1 RC PUMP-1 MTR BEARING TEMP TX NDE	Unit #1	TT										TTE-151	NEAR UNIT-1 RC MTR-1
10HTD02CT001	UNIT-1 RC PUMP-2 MTR WNDG TEMP TX-1	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD02CT002	UNIT-1 RC PUMP-2 MTR WNDG TEMP TX-2	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD02CT003	UNIT-1 RC PUMP-2 MTR WNDG TEMP TX-3	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD02CT004	UNIT-1 RC PUMP-2 MTR WNDG TEMP TX-4	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD02CT005	UNIT-1 RC PUMP-2 MTR WNDG TEMP TX-5	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD02CT006	UNIT-1 RC PUMP-2 MTR WNDG TEMP TX-6	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD20CT001	UNIT-1 RC PUMP-2 MTR BEARING TEMP TX-1 DE	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD20CT002	UNIT-1 RC PUMP-2 MTR BEARING TEMP TX-2 DE	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD20CT003	UNIT-1 RC PUMP-2 BEARING OIL SUMP TEMP TX	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD20CT004	UNIT-1 RC PUMP-2 MTR BEARING TEMP TX NDE	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD20CT005	UNIT-1 RC PUMP-2 MTR BEARING TEMP TX NDE	Unit #1	TT										TTE-152	NEAR UNIT-1 RC MTR-2
10HTD03CT001	UNIT-1 RC PUMP-3 MTR WNDG TEMP TX-1	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD03CT002	UNIT-1 RC PUMP-3 MTR WNDG TEMP TX-2	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD03CT003	UNIT-1 RC PUMP-3 MTR WNDG TEMP TX-3	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD03CT004	UNIT-1 RC PUMP-3 MTR WNDG TEMP TX-4	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
10HTD03CT005	UNIT-1 RC PUMP-3 MTR WNDG TEMP TX-5	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD03CT006	UNIT-1 RC PUMP-3 MTR WNDG TEMP TX-6	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD30CT001	UNIT-1 RC PUMP-3 MTR BEARING TEMP TX-1 DE	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD30CT002	UNIT-1 RC PUMP-3 MTR BEARING TEMP TX-2 DE	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD30CT003	UNIT-1 RC PUMP-3 BEARING OIL SUMP TEMP TX	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD30CT004	UNIT-1 RC PUMP-3 MTR BEARING TEMP TX NDE	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD30CT005	UNIT-1 RC PUMP-3 MTR BEARING TEMP TX NDE	Unit #1	TT										TTE-153	NEAR UNIT-1 RC MTR-3
10HTD04CT001	UNIT-1 RC PUMP-4 MTR WNDG TEMP TX-1	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD04CT002	UNIT-1 RC PUMP-4 MTR WNDG TEMP TX-2	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD04CT003	UNIT-1 RC PUMP-4 MTR WNDG TEMP TX-3	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD04CT004	UNIT-1 RC PUMP-4 MTR WNDG TEMP TX-4	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD04CT005	UNIT-1 RC PUMP-4 MTR WNDG TEMP TX-5	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD04CT006	UNIT-1 RC PUMP-4 MTR WNDG TEMP TX-6	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD40CT001	UNIT-1 RC PUMP-4 MTR BEARING TEMP TX-1 DE	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD40CT002	UNIT-1 RC PUMP-4 MTR BEARING TEMP TX-2 DE	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD40CT003	UNIT-1 RC PUMP-4 BEARING OIL SUMP TEMP TX	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD40CT004	UNIT-1 RC PUMP-4 MTR BEARING TEMP TX NDE	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
10HTD40CT005	UNIT-1 RC PUMP-4 MTR BEARING TEMP TX NDE	Unit #1	TT										TTE-154	NEAR UNIT-1 RC MTR-4
20HTD01CT001	UNIT-2 RC PUMP-1 MTR WNDG TEMP TX-1	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD01CT002	UNIT-2 RC PUMP-1 MTR WNDG TEMP TX-2	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD01CT003	UNIT-2 RC PUMP-1 MTR WNDG TEMP TX-3	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD01CT004	UNIT-2 RC PUMP-1 MTR WNDG TEMP TX-4	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD01CT005	UNIT-2 RC PUMP-1 MTR WNDG TEMP TX-5	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD01CT006	UNIT-2 RC PUMP-1 MTR WNDG TEMP TX-6	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD10CT001	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX-1 DE	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD10CT002	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX-2 DE	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD10CT003	UNIT-2 RC PUMP-1 BEARING OIL SUMP TEMP TX	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD10CT004	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX NDE	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD10CT003	UNIT-2 RC PUMP-1 BEARING OIL SUMP TEMP TX	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD10CT004	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX NDE	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD10CT005	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX NDE	Unit #2	TT										TTE-155	NEAR UNIT-2 RC MTR-1
20HTD02CT001	UNIT-2 RC PUMP-2 MTR WNDG TEMP TX-1	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD02CT002	UNIT-2 RC PUMP-2 MTR WNDG TEMP TX-2	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD02CT003	UNIT-2 RC PUMP-2 MTR WNDG TEMP TX-3	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD02CT004	UNIT-2 RC PUMP-2 MTR WNDG TEMP TX-4	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD02CT005	UNIT-2 RC PUMP-2 MTR WNDG TEMP TX-5	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD02CT006	UNIT-2 RC PUMP-2 MTR WNDG TEMP TX-6	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD20CT001	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX-1 DE	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD20CT002	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX-2 DE	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD20CT003	UNIT-2 RC PUMP-2 BEARING OIL SUMP TEMP TX	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD20CT004	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX NDE	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD20CT005	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX NDE	Unit #2	TT										TTE-156	NEAR UNIT-2 RC MTR-2
20HTD03CT001	UNIT-2 RC PUMP-3 MTR WNDG TEMP TX-1	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD03CT002	UNIT-2 RC PUMP-3 MTR WNDG TEMP TX-2	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD03CT003	UNIT-2 RC PUMP-3 MTR WNDG TEMP TX-3	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD03CT004	UNIT-2 RC PUMP-3 MTR WNDG TEMP TX-4	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD03CT005	UNIT-2 RC PUMP-3 MTR WNDG TEMP TX-5	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD03CT006	UNIT-2 RC PUMP-3 MTR WNDG TEMP TX-6	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD30CT001	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-1 DE	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD30CT002	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-2 DE	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD30CT003	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-3 DE	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD30CT004	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-4 NDE	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD30CT005	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-5 NDE	Unit #2	TT										TTE-157	NEAR UNIT-2 RC MTR-3
20HTD04CT001	UNIT-2 RC PUMP-4 MTR WNDG TEMP TX-1	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD04CT002	UNIT-2 RC PUMP-4 MTR WNDG TEMP TX-2	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD04CT003	UNIT-2 RC PUMP-4 MTR WNDG TEMP TX-3	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD04CT004	UNIT-2 RC PUMP-4 MTR WNDG TEMP TX-4	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD04CT005	UNIT-2 RC PUMP-4 MTR WNDG TEMP TX-5	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD04CT006	UNIT-2 RC PUMP-4 MTR WNDG TEMP TX-6	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD40CT001	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-1 DE	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
20HTD40CT002	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-2 DE	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD40CT003	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-3 DE	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD40CT004	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-4 NDE	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD40CT005	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-5 NDE	Unit #2	TT										TTE-158	NEAR UNIT-2 RC MTR-4
20HTD10CT006	UNIT-2 RC PUMP-1 GEARBOX oil sump TEMP TX	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT007	UNIT-2 RC PUMP-1 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT008	UNIT-2 RC PUMP-1 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT009	UNIT-2 RC PUMP-1 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT010	UNIT-2 RC PUMP-1 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT011	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX-1 DE	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT012	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX-2 DE	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT013	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX-3 DE	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT014	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX-4 NDE	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT015	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX-5 NDE	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD10CT016	UNIT-2 RC PUMP-1 MTR BEARING TEMP TX-6 NDE	Unit #2	TT										TTE-159	NEAR UNIT-2 RC PMP-1
20HTD20CT006	UNIT-2 RC PUMP-2 GEARBOX oil sump TEMP TX	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT007	UNIT-2 RC PUMP-2 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT008	UNIT-2 RC PUMP-2 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT009	UNIT-2 RC PUMP-2 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT010	UNIT-2 RC PUMP-2 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT011	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX-1 DE	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT012	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX-2 DE	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT013	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX-3 DE	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT014	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX-4 NDE	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT015	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX-5 NDE	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD20CT016	UNIT-2 RC PUMP-2 MTR BEARING TEMP TX-6 NDE	Unit #2	TT										TTE-160	NEAR UNIT-2 RC PMP-2
20HTD30CT006	UNIT-2 RC PUMP-3 GEARBOX oil sump TEMP TX	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT007	UNIT-2 RC PUMP-3 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT008	UNIT-2 RC PUMP-3 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT009	UNIT-2 RC PUMP-3 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT010	UNIT-2 RC PUMP-3 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT011	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-1 DE	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT012	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-2 DE	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT013	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-3 DE	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT014	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-4 NDE	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT015	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-5 NDE	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD30CT016	UNIT-2 RC PUMP-3 MTR BEARING TEMP TX-6 NDE	Unit #2	TT										TTE-161	NEAR UNIT-2 RC PMP-3
20HTD40CT006	UNIT-2 RC PUMP-4 GEARBOX oil sump TEMP TX	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT007	UNIT-2 RC PUMP-4 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT008	UNIT-2 RC PUMP-4 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT009	UNIT-2 RC PUMP-4 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT010	UNIT-2 RC PUMP-4 GEARBOX BEARING TEMP TX	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT011	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-1 DE	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT012	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-2 DE	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT013	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-3 DE	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT014	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-4 NDE	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT015	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-5 NDE	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
20HTD40CT016	UNIT-2 RC PUMP-4 MTR BEARING TEMP TX-6 NDE	Unit #2	TT										TTE-162	NEAR UNIT-2 RC PMP-4
10HTG10CT001	UNIT-1 OXIDATION BLWR MTR-1 WDG TEMP TX-1	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT002	UNIT-1 OXIDATION BLWR MTR-1 WDG TEMP TX-2	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT003	UNIT-1 OXIDATION BLWR MTR-1 WDG TEMP TX-3	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT004	UNIT-1 OXIDATION BLWR MTR-1 WDG TEMP TX-4	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT005	UNIT-1 OXIDATION BLWR MTR-1 WDG TEMP TX-5	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT006	UNIT-1 OXIDATION BLWR MTR-1 WDG TEMP TX-6	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT007	UNIT-1 OXIDATION BLWR MTR-1 BRG TEMP DE TX-1	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT008	UNIT-1 OXIDATION BLWR MTR-1 BRG TEMP DE TX-2	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT009	UNIT-1 OXIDATION BLWR MTR-1 BRG TEMP DE TX-3	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT010	UNIT-1 OXIDATION BLWR MTR-1 BRG TEMP NDE TX-1	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
10HTG10CT011	UNIT-1 OXIDATION BLWR MTR-1 BRG TEMP NDE TX-2	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG10CT012	UNIT-1 OXIDATION BLWR MTR-1 BRG TEMP NDE TX-3	Unit #1	TT										TTE-163	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG20CT001	UNIT-1 OXIDATION BLWR MTR-2 WDG TEMP TX-1	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT002	UNIT-1 OXIDATION BLWR MTR-2 WDG TEMP TX-2	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT003	UNIT-1 OXIDATION BLWR MTR-2 WDG TEMP TX-3	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT004	UNIT-1 OXIDATION BLWR MTR-2 WDG TEMP TX-4	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT005	UNIT-1 OXIDATION BLWR MTR-2 WDG TEMP TX-5	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT006	UNIT-1 OXIDATION BLWR MTR-2 WDG TEMP TX-6	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT007	UNIT-1 OXIDATION BLWR MTR-2 BRG TEMP DE TX-1	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT008	UNIT-1 OXIDATION BLWR MTR-2 BRG TEMP DE TX-2	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT009	UNIT-1 OXIDATION BLWR MTR-2 BRG TEMP DE TX-3	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT010	UNIT-1 OXIDATION BLWR MTR-2 BRG TEMP NDE TX-1	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT011	UNIT-1 OXIDATION BLWR MTR-2 BRG TEMP NDE TX-2	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG20CT012	UNIT-1 OXIDATION BLWR MTR-2 BRG TEMP NDE TX-3	Unit #1	TT										TTE-164	NEAR UNIT-1 OXIDATION BLWR MTR-2
20HTG10CT001	UNIT-2 OXIDATION BLWR MTR-1 WDG TEMP TX-1	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT002	UNIT-2 OXIDATION BLWR MTR-1 WDG TEMP TX-2	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT003	UNIT-2 OXIDATION BLWR MTR-1 WDG TEMP TX-3	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT004	UNIT-2 OXIDATION BLWR MTR-1 WDG TEMP TX-4	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT005	UNIT-2 OXIDATION BLWR MTR-1 WDG TEMP TX-5	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT006	UNIT-2 OXIDATION BLWR MTR-1 WDG TEMP TX-6	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT007	UNIT-2 OXIDATION BLWR MTR-1 BRG TEMP DE TX-1	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT008	UNIT-2 OXIDATION BLWR MTR-1 BRG TEMP DE TX-2	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT009	UNIT-2 OXIDATION BLWR MTR-1 BRG TEMP DE TX-3	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT010	UNIT-2 OXIDATION BLWR MTR-1 BRG TEMP NDE TX-1	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT011	UNIT-2 OXIDATION BLWR MTR-1 BRG TEMP NDE TX-2	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG10CT012	UNIT-2 OXIDATION BLWR MTR-1 BRG TEMP NDE TX-3	Unit #2	TT										TTE-165	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG20CT001	UNIT-2 OXIDATION BLWR MTR-2 WDG TEMP TX-1	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT002	UNIT-2 OXIDATION BLWR MTR-2 WDG TEMP TX-2	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT003	UNIT-2 OXIDATION BLWR MTR-2 WDG TEMP TX-3	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT004	UNIT-2 OXIDATION BLWR MTR-2 WDG TEMP TX-4	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT005	UNIT-2 OXIDATION BLWR MTR-2 WDG TEMP TX-5	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT006	UNIT-2 OXIDATION BLWR MTR-2 WDG TEMP TX-6	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT007	UNIT-2 OXIDATION BLWR MTR-2 BRG TEMP DE TX-1	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT008	UNIT-2 OXIDATION BLWR MTR-2 BRG TEMP DE TX-2	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT009	UNIT-2 OXIDATION BLWR MTR-2 BRG TEMP DE TX-3	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT010	UNIT-2 OXIDATION BLWR MTR-2 BRG TEMP NDE TX-1	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT011	UNIT-2 OXIDATION BLWR MTR-2 BRG TEMP NDE TX-2	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG20CT012	UNIT-2 OXIDATION BLWR MTR-2 BRG TEMP NDE TX-3	Unit #2	TT										TTE-166	NEAR UNIT-2 OXIDATION BLWR MTR-2
99HTK10CT101	WET BALL MILL-A MOTOR WINDING TEMP TX-1	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT102	WET BALL MILL-A MOTOR WINDING TEMP TX-2	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT103	WET BALL MILL-A MOTOR WINDING TEMP TX-3	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT104	WET BALL MILL-A MOTOR WINDING TEMP TX-4	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT105	WET BALL MILL-A MOTOR WINDING TEMP TX-5	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT106	WET BALL MILL-A MOTOR WINDING TEMP TX-6	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT107	WET BALL MILL-A MOTOR BRG TEMP TX-1	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT108	WET BALL MILL-A MOTOR BRG TEMP TX-2	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT109	WET BALL MILL-A MOTOR BRG TEMP TX-3	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK10CT109A	WET BALL MILL-A MOTOR BRG TEMP TX-4	Common	TT-S										TTE-167	NEAR WBM-A MTR
99HTK20CT101	WET BALL MILL-B MOTOR WINDING TEMP TX-1	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT102	WET BALL MILL-B MOTOR WINDING TEMP TX-2	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT103	WET BALL MILL-B MOTOR WINDING TEMP TX-3	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT104	WET BALL MILL-B MOTOR WINDING TEMP TX-4	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT105	WET BALL MILL-B MOTOR WINDING TEMP TX-5	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT106	WET BALL MILL-B MOTOR WINDING TEMP TX-6	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT107	WET BALL MILL-B MOTOR BRG TEMP TX-1	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT108	WET BALL MILL-B MOTOR BRG TEMP TX-2	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT109	WET BALL MILL-B MOTOR BRG TEMP TX-3	Common	TT-S										TTE-168	NEAR WBM-B MTR
99HTK20CT109A	WET BALL MILL-B MOTOR BRG TEMP TX-4	Common	TT-S										TTE-168	NEAR WBM-B MTR

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
99HTK01CT001	WET BALL MILL-A WDG DE TEMP TX 1	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT002	WET BALL MILL-A WDG DE TEMP TX 2	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT003	WET BALL MILL-A WDG DE TEMP TX 3	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT004	WET BALL MILL-A WDG NDE TEMP TX 1	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT005	WET BALL MILL-A WDG NDE TEMP TX 2	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT006	WET BALL MILL-A WDG NDE TEMP TX 3	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT007	WET BALL MILL-A BRG DE TEMP TX 1	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT008	WET BALL MILL-A BRG DE TEMP TX 2	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT009	WET BALL MILL-A BRG NDE TEMP TX 1	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK01CT010	WET BALL MILL-A BRG NDE TEMP TX 2	Common	TT-S										TTE-171	NEAR WBM-A MTR
99HTK02CT001	WET BALL MILL-B WDG DE TEMP TX 1	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT002	WET BALL MILL-B WDG DE TEMP TX 2	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT003	WET BALL MILL-B WDG DE TEMP TX 3	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT004	WET BALL MILL-B WDG NDE TEMP TX 1	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT005	WET BALL MILL-B WDG NDE TEMP TX 2	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT006	WET BALL MILL-B WDG NDE TEMP TX 3	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT007	WET BALL MILL-B BRG DE TEMP TX 1	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT008	WET BALL MILL-B BRG DE TEMP TX 2	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT009	WET BALL MILL-B BRG NDE TEMP TX 1	Common	TT-S										TTE-172	NEAR WBM-B MTR
99HTK02CT010	WET BALL MILL-B BRG NDE TEMP TX 2	Common	TT-S										TTE-172	NEAR WBM-B MTR
10HTG01CT011	UNIT-1 OXIDATION BLWR-1 NDE TEMP TX-1	Unit #1	TT										TTE-173	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT012	UNIT-1 OXIDATION BLWR-1 NDE TEMP TX-2	Unit #1	TT										TTE-173	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT013	UNIT-1 OXIDATION BLWR-1 NDE TEMP TX-3	Unit #1	TT										TTE-173	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT014	UNIT-1 OXIDATION BLWR-1 NDE TEMP TX-4	Unit #1	TT										TTE-173	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT015	UNIT-1 OXIDATION BLWR-1 NDE TEMP TX-5	Unit #1	TT										TTE-173	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT016	UNIT-1 OXIDATION BLWR-1 DE TEMP TX-1	Unit #1	TT										TTE-173	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT017	UNIT-1 OXIDATION BLWR-1 DE TEMP TX-2	Unit #1	TT										TTE-173	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT018	UNIT-1 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-1	Unit #1	TT										TTE-174	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT019	UNIT-1 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-2	Unit #1	TT										TTE-174	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT020	UNIT-1 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-3	Unit #1	TT										TTE-174	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT021	UNIT-1 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-4	Unit #1	TT										TTE-174	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT022	UNIT-1 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-5	Unit #1	TT										TTE-174	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG01CT023	UNIT-1 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-6	Unit #1	TT										TTE-174	NEAR UNIT-1 OXIDATION BLWR MTR-1
10HTG02CT011	UNIT-1 OXIDATION BLWR-2 NDE TEMP TX-1	Unit #1	TT										TTE-175	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT012	UNIT-1 OXIDATION BLWR-2 NDE TEMP TX-2	Unit #1	TT										TTE-175	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT013	UNIT-1 OXIDATION BLWR-2 NDE TEMP TX-3	Unit #1	TT										TTE-175	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT014	UNIT-1 OXIDATION BLWR-2 NDE TEMP TX-4	Unit #1	TT										TTE-175	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT015	UNIT-1 OXIDATION BLWR-2 NDE TEMP TX-5	Unit #1	TT										TTE-175	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT016	UNIT-1 OXIDATION BLWR-2 DE TEMP TX-1	Unit #1	TT										TTE-175	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT017	UNIT-1 OXIDATION BLWR-2 DE TEMP TX-2	Unit #1	TT										TTE-175	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT018	UNIT-1 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-1	Unit #1	TT										TTE-176	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT019	UNIT-1 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-2	Unit #1	TT										TTE-176	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT020	UNIT-1 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-3	Unit #1	TT										TTE-176	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT021	UNIT-1 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-4	Unit #1	TT										TTE-176	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT022	UNIT-1 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-5	Unit #1	TT										TTE-176	NEAR UNIT-1 OXIDATION BLWR MTR-2
10HTG02CT023	UNIT-1 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-6	Unit #1	TT										TTE-176	NEAR UNIT-1 OXIDATION BLWR MTR-2
20HTG01CT011	UNIT-2 OXIDATION BLWR-1 NDE TEMP TX-1	Unit #2	TT										TTE-177	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT012	UNIT-2 OXIDATION BLWR-1 NDE TEMP TX-2	Unit #2	TT										TTE-177	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT013	UNIT-2 OXIDATION BLWR-1 NDE TEMP TX-3	Unit #2	TT										TTE-177	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT014	UNIT-2 OXIDATION BLWR-1 NDE TEMP TX-4	Unit #2	TT										TTE-177	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT015	UNIT-2 OXIDATION BLWR-1 NDE TEMP TX-5	Unit #2	TT										TTE-177	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT016	UNIT-2 OXIDATION BLWR-1 DE TEMP TX-1	Unit #2	TT										TTE-177	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT017	UNIT-2 OXIDATION BLWR-1 DE TEMP TX-2	Unit #2	TT										TTE-177	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT018	UNIT-2 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-1	Unit #2	TT										TTE-178	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT019	UNIT-2 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-2	Unit #2	TT										TTE-178	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT020	UNIT-2 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-3	Unit #2	TT										TTE-178	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT021	UNIT-2 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-4	Unit #2	TT										TTE-178	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG01CT022	UNIT-2 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-5	Unit #2	TT										TTE-178	NEAR UNIT-2 OXIDATION BLWR MTR-1

INSTRUMENT SCHEDULE

KKS Tag	Description	Unit Wise	Instrument Type	Medium	Operating Pressure	Design Pressure	Unit of Pressure	Operating Temp (°C)	Design Temp (°C)	Scheme No	Air Purg/Int Purging	Cont Purg	LIE/LIR/TTE No	Location of LIE/LIR/TTE
20HTG01CT023	UNIT-2 OXIDATION BLWR-1 GEAR BOX NDE TEMP TX-6	Unit #2	TT										TTE-178	NEAR UNIT-2 OXIDATION BLWR MTR-1
20HTG02CT011	UNIT-2 OXIDATION BLWR-2 NDE TEMP TX-1	Unit #2	TT										TTE-179	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT012	UNIT-2 OXIDATION BLWR-2 NDE TEMP TX-2	Unit #2	TT										TTE-179	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT013	UNIT-2 OXIDATION BLWR-2 NDE TEMP TX-3	Unit #2	TT										TTE-179	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT014	UNIT-2 OXIDATION BLWR-2 NDE TEMP TX-4	Unit #2	TT										TTE-179	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT015	UNIT-2 OXIDATION BLWR-2 NDE TEMP TX-5	Unit #2	TT										TTE-179	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT016	UNIT-2 OXIDATION BLWR-2 DE TEMP TX-1	Unit #2	TT										TTE-179	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT017	UNIT-2 OXIDATION BLWR-2 DE TEMP TX-2	Unit #2	TT										TTE-179	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT018	UNIT-2 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-1	Unit #2	TT										TTE-180	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT019	UNIT-2 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-2	Unit #2	TT										TTE-180	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT020	UNIT-2 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-3	Unit #2	TT										TTE-180	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT021	UNIT-2 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-4	Unit #2	TT										TTE-180	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT022	UNIT-2 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-5	Unit #2	TT										TTE-180	NEAR UNIT-2 OXIDATION BLWR MTR-2
20HTG02CT023	UNIT-2 OXIDATION BLWR-2 GEAR BOX NDE TEMP TX-6	Unit #2	TT										TTE-180	NEAR UNIT-2 OXIDATION BLWR MTR-2

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

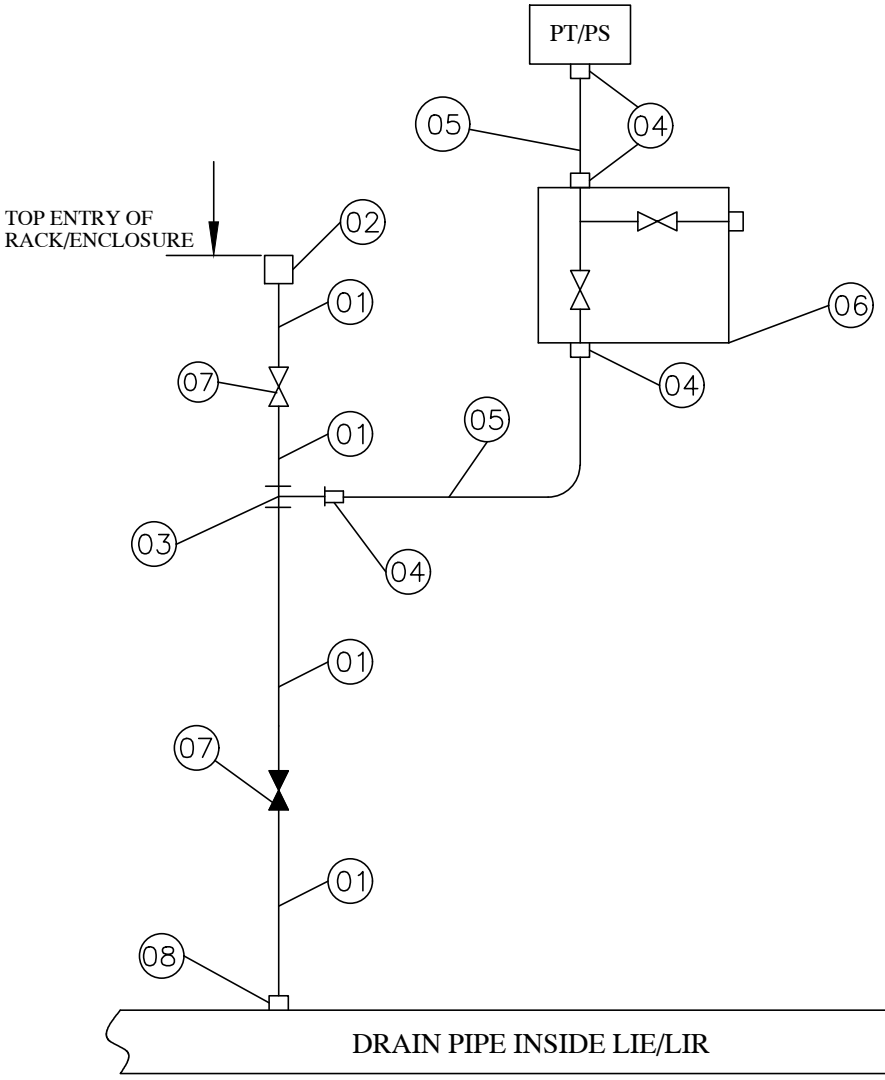
HOOK UP SCHEMES

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	09/06/23



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 03 OF 15
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr. C

A4 – 11

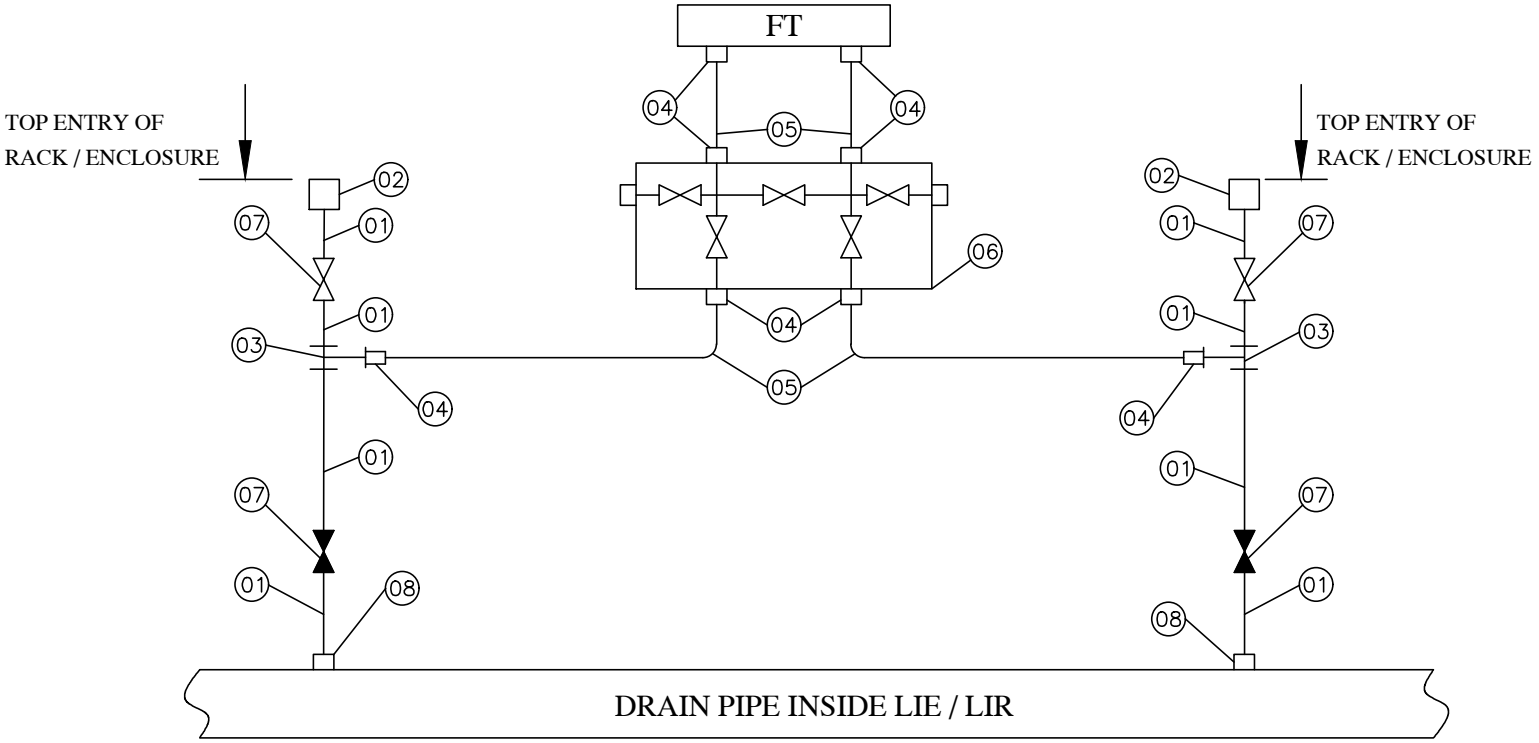
CE/416/TUTI/FGD/HUP

REV. NO. 00

PAGE 02 OF 15

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A106 Gr. C SIZE: 1/2" NB-SCH 80	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 3000 LBS	01
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 1/2" NB-SW X 1/2" NPTF / CL: 3000 LBS	01
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM X TO SUIT 1/2" OD SS TUBE	04
05	SEAMLESS TUBE MATL: ASTM A213 TP316 SIZE: 1/2" OD X 2.1 mm THK.	A/R
06	TWO VALVE MANIFOLD WITH VENT PLUG MATL: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 3000 PSI	01
07	FORGED GLOBE VALVE BODY: ASTM A105 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL: 800	02
08	HALF COUPLING / AS PER ANSI B 16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 3000 LBS	01

A4 – 11



NOTE:

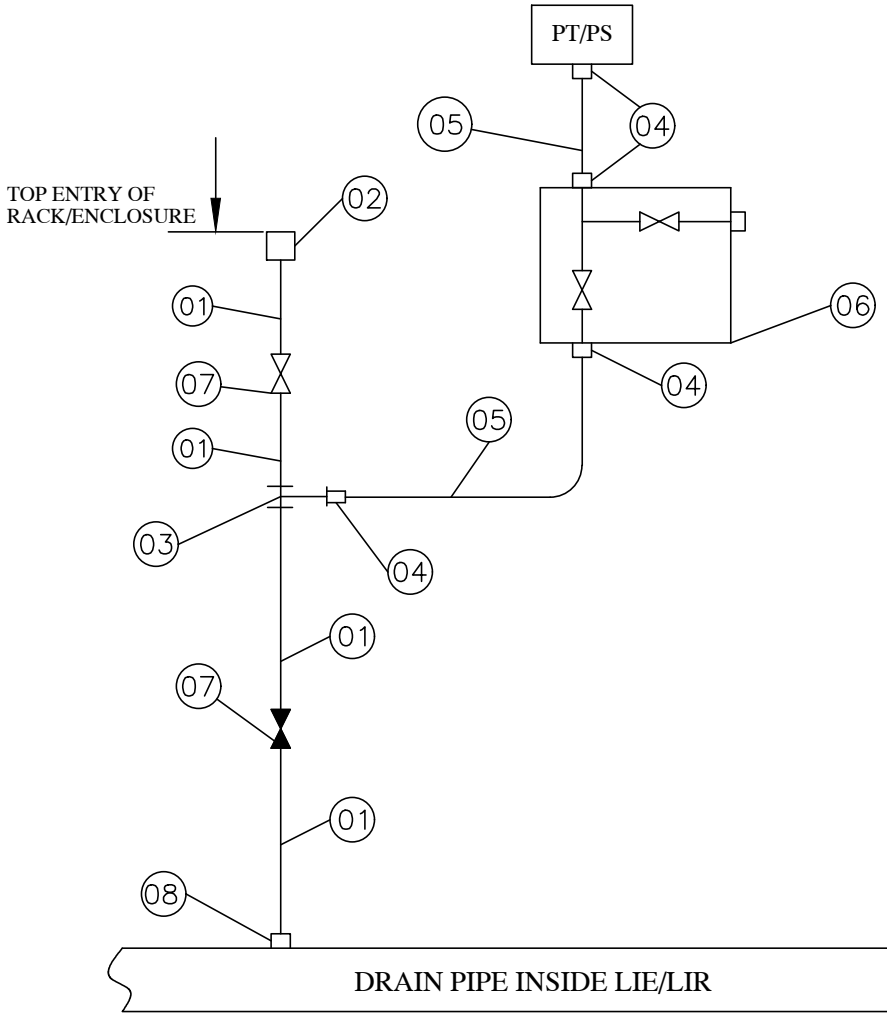
1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 05 OF 15
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr C

CE/416/TUTI/FGD/HUP

REV. NO. 00

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A106 Gr. C SIZE : 1/2" NB-SCH 80	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 3000 LBS	02
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 1/2" NB-SW X 1/2" NPTF / CL: 3000 LBS	02
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM X TO SUIT 1/2" OD SS TUBE	08
05	SEAMLESS TUBE MATL: ASTM A213 TP316 SIZE: 1/2" OD X 2.1mm THK.	A/R
06	FIVE VALVE MANIFOLD WITH VENT PLUG MATL: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 3000 PSI	01
07	FORGED GLOBE VALVE BODY: ASTM A105 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL: 800	04
08	HALF COUPLING /AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL: 3000 LBS	02

A4 – 11



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 07 OF 15
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr. C

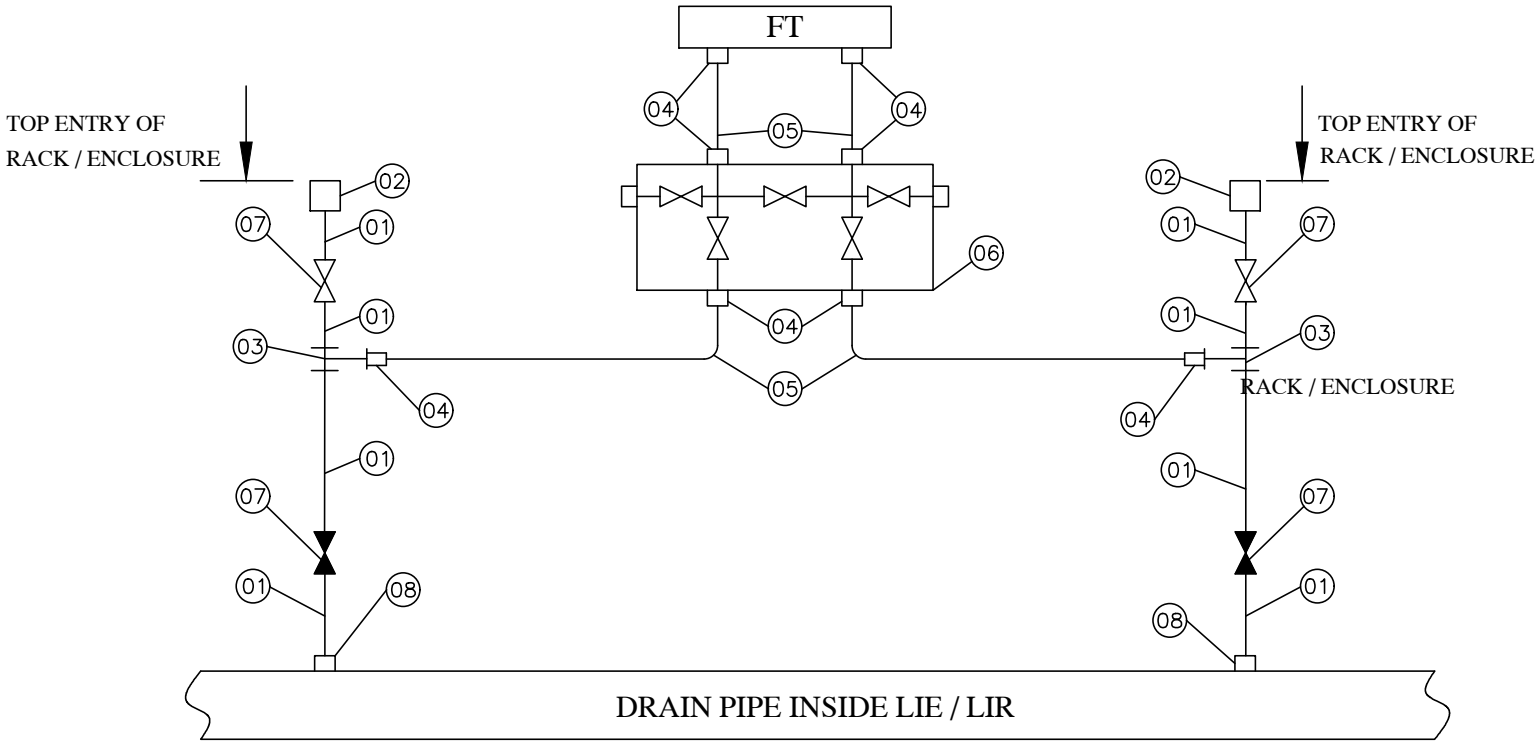
CE/416/TUTI/FGD/HUP

REV. NO. 00

PAGE 06 OF 15

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL : ASTM A312 TP316 SIZE: 1/2" NB-SCH 40	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL : ASTM A182 F316 SIZE: 1/2" NB-SW / CL: 3000 LBS	01
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL : ASTM A182 F316 SIZE: 2 x 1/2" NB-SW X 1/2" NPTF / CL: 3000 LBS	01
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM X TO SUIT 1/2" OD SS TUBE	04
05	SEAMLESS TUBE MATL: ASTM A213 TP316 SIZE: 1/2" OD X 2.1 mm THK.	A/R
06	TWO VALVE MANIFOLD WITH VENT PLUG MATL: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 3000 PSI	01
07	FORGED GLOBE VALVE BODY : ASTM A182 F316 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL: 800	02
08	HALF COUPLING / AS PER ANSI B 16.11 MATL : ASTM A182 F316 SIZE: 1/2" NB-SW / CL: 3000 LBS	01

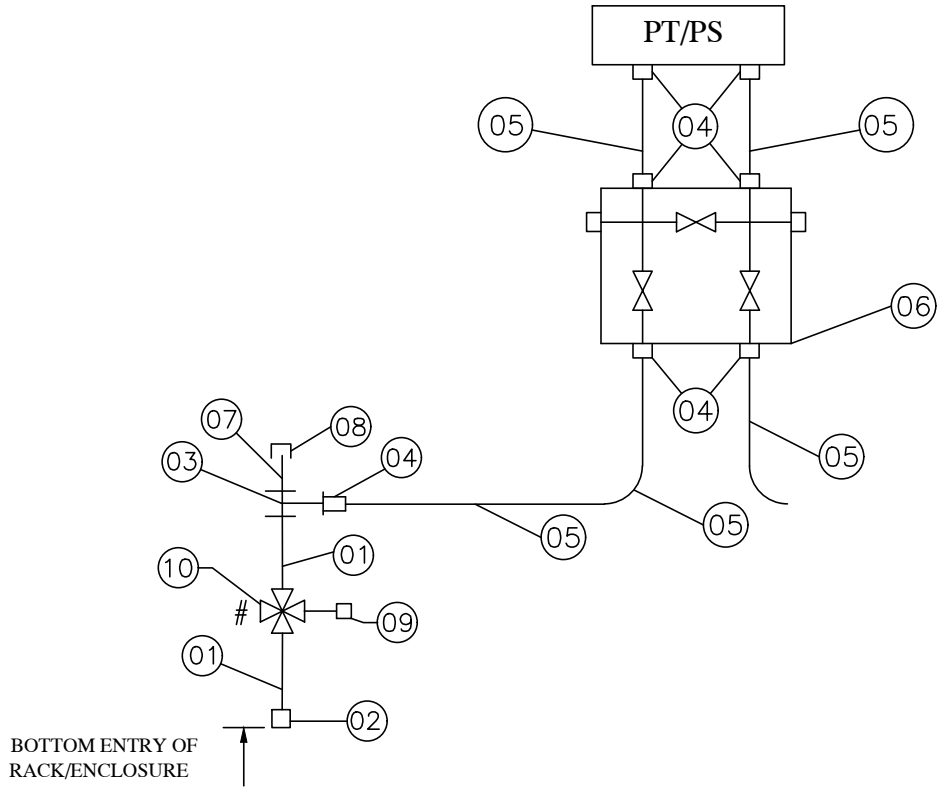
A4 – 11



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 09 OF 15
3. DRAIN PIPE / 2" NB SCH 80 - A106 Gr C

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL : ASTM A312 TP316 SIZE : 1/2" NB-SCH 40	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL : ASTM A182 F316 SIZE: 1/2" NB-SW / CL: 3000 LBS	02
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL : ASTM A182 F316 SIZE: 2 x 1/2" NB-SW X 1/2" NPTF / CL: 3000 LBS	02
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM X TO SUIT 1/2" OD SS TUBE	08
05	SEAMLESS TUBE MATL: ASTM A213 TP316 SIZE: 1/2" OD X 2.1mm THK.	A/R
06	FIVE VALVE MANIFOLD WITH VENT PLUG MATL: SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 3000 PSI	01
07	FORGED GLOBE VALVE BODY : ASTM A182 F316 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL: 800	04
08	HALF COUPLING /AS PER ANSI B16.11 MATL : ASTM A182 F316 SIZE: 1/2" NB-SW / CL: 3000 LBS	02



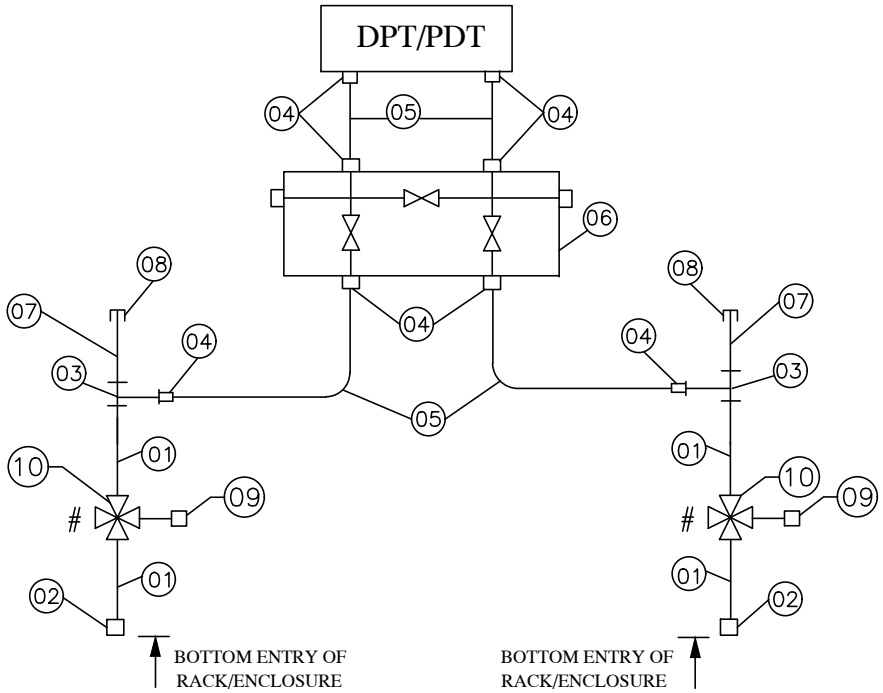
NOTE:

1. " TRANSMITTER ABOVE SOURCE"
2. FOR BILL OF MATERIAL, REFER PAGE 11 OF 15

#3. FOR INTERMITTENT PURGING REFER PAGE NO 14 OF 15

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL : ASTM A106 Gr. C SIZE: 3/4" NB-SCH 80	A/R
02	BULK HEAD COUPLING / AS PER B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW / CL 3000	01
03	FORGED UNEQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 3/4" NB-SW X 1/2" NPTF / CL 3000 LBS	01
04	MALE CONNECTOR MATL: SS316 SIZE : 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	07
05	SEAMLESS TUBE MATL: ASTM A213 TP 316 SIZE: 1/2" OD x 1.1mm THK	A/R
06	THREE VALVE MANIFOLD WITH VENT PLUG BODY : SS316 PORT SIZE: 1/2" NPTF / PR. TESTING: 1500PSI	01
07	NIPPLE MATL: ASTM A106 Gr. C SIZE: 3/4 " NB - SCH 80	01
08	CAP MATL: ASTM A105 SIZE: 3/4" NPTF	01
09	QUICK DISCONNECTING FITTING MATL: SS 304 SIZE:1/2" NPTM	01
10	FOUR WAY VALVE MATL: ASTM A105 SIZE: (2 x 3/4" NB-SW) x (1 x 1/2" NPTF) / RATING CLASS 800	01

A4 – 11



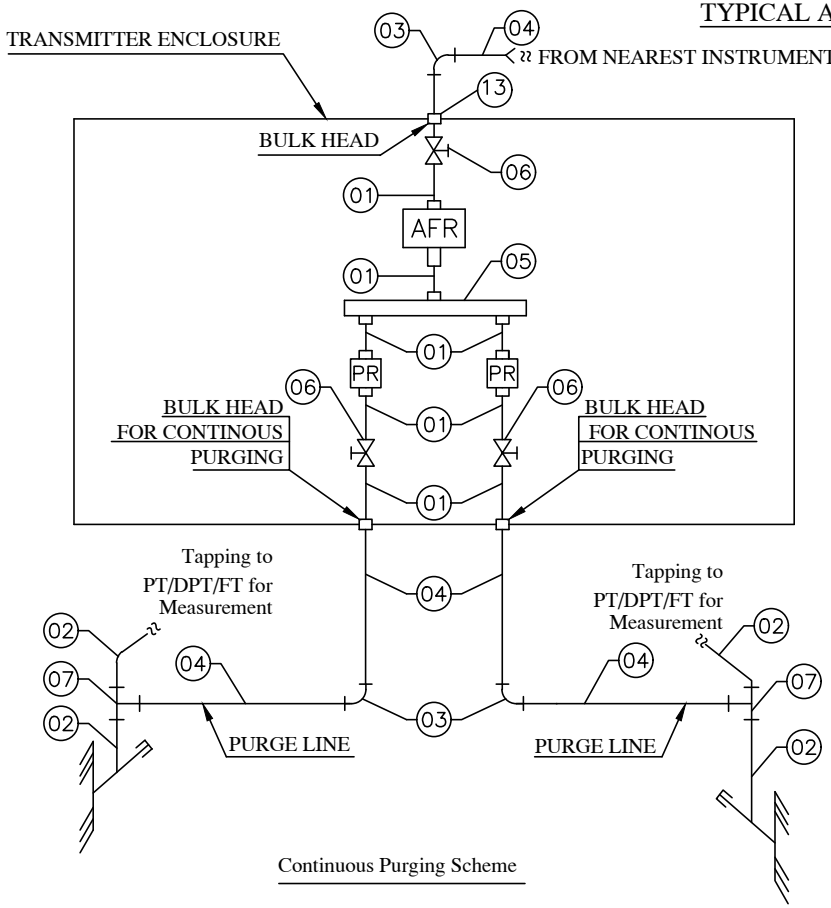
NOTE:

1. " TRANSMITTER ABOVE SOURCE"
2. FOR BILL OF MATERIAL, REFER PAGE 13 OF 15

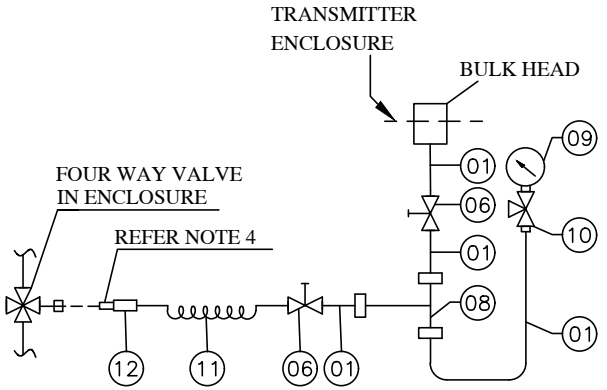
#3. FOR INTERMITTENT PURGING REFER PAGE NO 14 OF 15

ITEM NO	ITEM DESCRPTION	QNTY/INST. (Nos.)
01	SEAMLESS PIPE MATL: ASTM A106 Gr. C SIZE: 3/4" NB-SCH 80	A/R
02	BULKHEAD COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW/ CL: 3000	02
03	FORGED UNEQUAL / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 2 x 3/4" NB-SW x 1/2" NPTF / CL: 3000	02
04	MALE CONNECTOR MATL: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	08
05	SEAMLESS TUBE MATL: A213 TP316 SIZE: 1/2" OD x 1.1mm THK	A/R
06	THREE VALVE MANIFOLD WITH VENT PLUG BODY: SS 316 PORT: 1/2" NPTF / PR TESTING: 1500 PSI	01
07	NIPPLE MATL: A106 Gr. C SIZE: 3/4" NB-SCH 80	02
08	CAP MATL: ASTM A105 SIZE: 3/4" NPTF	02
09	QUICK DISCONNECTING FITTING MATL.: SS 304 SIZE.:1/2" NPTM	02
10	FOUR WAY VALVE MATL.: ASTM A105 / RATING CLASS 800 SIZE: (2 x 3/4" NB-SW) x (1 x 1/2" NPTF)	02

TYPICAL AIR PURGING SCHEME



Continuous Purging Scheme



Intermittent Purging Scheme

NOTES:

01. ABBREVIATIONS

PT	-	PRESSURE TRANSMITTERS
DPT / FT	-	DIFF. PRESSURE/FLOW TRANSMITTERS
AFR	-	AIR FILTER REGULATOR
PR	-	PURGE ROTAMETER

02. ABOVE SCHEME IS TYPICAL. PURGE ROTAMETERS WILL BE ONE NO. FOR EACH OF PURGE LINE AS SHOWN.
03. AIR FILTER REGULATORS SHALL BE SET BETWEEN 0.4 TO 0.6 KG/CM2 APPROX.
04. THIS QUICK DISCONNECT FITTING IS CONNECTED TO FOUR WAY VALVE WHEREVER INTERMITTENT PURGING IS CALLED IN SCHEMES.
05. FOR BILL OF MATERIAL REFER PAGE 15 OF 15

ITEM NO.	ITEM DESCRIPTION	QNTY/INST. (Nos.)
01	SEAMLESS TUBE MATL.: SS 316 SIZE: 1/2" OD TUBE X 1.1 mm THICK	A/R
02	SEAMLESS PIPE MATL.: ASTM A 106 Gr. B/C SIZE: 3/4" NB SCH 80	A/R
03	GALVANISED ELBOW MATL.: A 105 SIZE: 1/2" NPTF	03
04	GI PIPE MATL.: IS 1239 HEAVY GRADE SIZE: 1/2" NB	A/R
05	AIR HEADER MATL.: SS304 SIZE: 1" NB PIPE	01
06	BALL VALVE MATL.: A 105 SIZE: TO SUIT 1/2" OD SS TUBE	05
07	UNEQUAL TEE MATL.: A 105 SIZE: 2 X 3/4" NB-SW X 1/2" NPTF	02
08	EQUAL TEE BODY: SS316 PORT SIZE: TO SUIT 1/2" OD SS TUBE	01
09	PR. GAUGE CONNECTION:. 1/2" NPTM SIZE: 4" DIAL SIZE / RANGE : 0 - 10 Kg / Cm2	01
10	3 WAY GUAGE COCK MATL.: A105 SIZE: 1/2" NPTF x TO SUIT 1/2" SS TUBE	01
11	NYLON HOSE WITH SS BRAIDING TO SUIT 1/2" END CONNECTION PR TESTING 10 kg/cm2	01
12	QUICK DISCONNECTING FITTING MATL:. SS304 SIZE: MALE END CONN. TO SUIT 1/2" OD CONNECTION	01
13	BULK HEAD UNION MATL: MATL ASTM A105 SIZE:1/2"NPTF X 1/2"NPTF	01

REVISION NO | DATE

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

COMPONENT VENDOR LIST

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	09/06/23

VENDOR LIST

Sl No	Item Description	Approved Vendors
1	Socket Weld Fittings	PRECISION ENGG INDUSTRIES, MUMBAI
		V.K.INDUSTRIES,BANGALORE
		VIKAS INDUSTRIAL PRODUCTS,NOIDA
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		PMT ENGINEERS,AHMEDABAD
		FLOWTECH, KOLKATA.
		PANAM ENGINEERS LTD,MUMBAI
		AURA INC,NEW DELHI
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		PAUL INDUSTRIES,HOWRAH
		ARCELLOR CONTROLS ,AHMEDABAD
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		NAV DURGA FORGING AND FITTINGS PVT LTD, THANE, MAHARASTRA.
		PRIME ENGINEERS,MUMBAI
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
2	Compression Fittings	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD, MUMBAI
		METPRESS ENGINEERING WORKS, KOLKATA
		ASTEC VALVE & FITTINGS PVT. LTD., MUMBAI
		FLUID CONTROLS PVT. LTD,PUNE
		PANAM ENGINEERS LTD,MUMBAI
		AURA INC, NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD, CHENNAI
		PMT ENGINEERS,AHMEDABAD
		PRIME ENGINEERS,MUMBAI
		ARCELLOR CONTROLS ,AHMEDABAD
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
		SWAGELOCK,USA
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		FLOWTECH. KOLKATA.
		FLUID FIT ENGINEERING PVT LTD, PALGHAR, MAHARASHTRA.
		PARKER HANNIFIN INDIA PVT. LTD.,CHENGAL PATTU,TAMILANADU
3	Instrument Valves	BHARAT HEAVY ELECTRICALS LIMITED VALVES DIVISION, TIRUCHIRAPALLI, TAMILANADU.
		PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		PMT ENGINEERS,AHMEDABAD
		AURA INC,NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		FLUID CONTROLS PVT LTD,PUNE
		FLOWTECH, KOLKATA.
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		INSTRUMENTATION LIMITED,PALGHAT

VENDOR LIST

Sl No	Item Description	Approved Vendors
4	Valve Manifolds	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		ASTEC VALVE & FITTINGS PVT. LTD,MUMBAI
		FLOWTECH, KOLKATA.
		AURA INC,NEW DELHI
		PMT ENGINEERS,AHMEDABAD
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		MICRO PRECISION PRODUCTS PVT LTD, FARIDABAD, HARYANA.
		FLUID CONTROLS LIMITED ,PUNE
		ARCELLOR CONTROLS, AHMEDABAD.
		PRIME ENGINEERS,MUMBAI
		Parker HANNIFIN INDIA PVT. LTD,LEBANON (D407131-Super technical dealer for Parker)
		VIPAL ENTEPRISES PVT LTD, MUMBAI.
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
		SHREE MARUTI INSTRUMENTS PVT LTD, GUJARAT.
		FLUID FIT ENGINEERING PVT LTD, PALGHAR, MAHARASHTRA.
5	Air Filter Regulator	PLACKA INSTRUMENTS INDIA PVT LTD CHENNAI
		SHAVO NORGREN(INDIA)PVT LTD BANGALORE
6	Impulse Pipes / Seamless Tube	BHARAT HEAVY ELECTRICALS LTD, TIRUCHIRAPALLI, TAMILANADU.
		SUMITOMO CORPORATION, JAPAN.
		TPS TECHNITUBE ROHREN WERKE GMBH,DAUN,GERMANY
		INDIAN SEAMLESS METAL TUBES LTD, PUNE. (Only CS only)
		MAXIM TUBES COMPANY PVT LTD,AHMEDABAD
		SURAJ STAINLESS LIMITED,AHMEDABAD (Only SS only)
		MBM TUBES PVT LTD,CHATTRAL,GUJARAT (Only SS only)
		TUBACEX PRAKASH INDIA PVT LTD,UMBERGAON ,GUJARAT (Only SS only)
		SHUBHLAXMI METALS AND TUBES PVT. LTD, MUMBAI (Only SS only)
		JINDAL SAW LTD,CHENNAI (Only CS only)
		RATNAMANI METALS & TUBES LTD, AHMADABAD (Only SS only)
		MAHARATRA SEAMLESS TUBES (CS ONLY)
		HEAVY METAL AND TUBES LTD,AHMEDABAD/MUMBAI
7	Instrument cables	PARAMOUNT COMMUNICATIONS LTD,NEW DELHI.
		CORDS CABLE INDUSTRIES LTD, RAJASTHAN.
		DELTON CABLE LTD,NEW DELHI
		TORENTO CABLES
		KEI INDUSTRIES LTD,BHIWADI
		POLYCAB WIRES PVT LTD, DAMAN.
		SPECIAL CABLES
		TC COMMUNICATION PVT LTD.
		THERMO CABLES, HYDERABAD.
		ELKAY TELELINKS,FARIDABAD
		KEC INTERNATIONAL LTD,MYSORE

Note: Bidders Can Propose additional sub component vendors for above items with filling supplier registration format (https://www.bhel.com/supplier-registration), However if same is not approved by customer/BHEL, vendors to provide sub component makes from the approved list without any price impact.

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

SCHEMATIC DRAWINGS
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

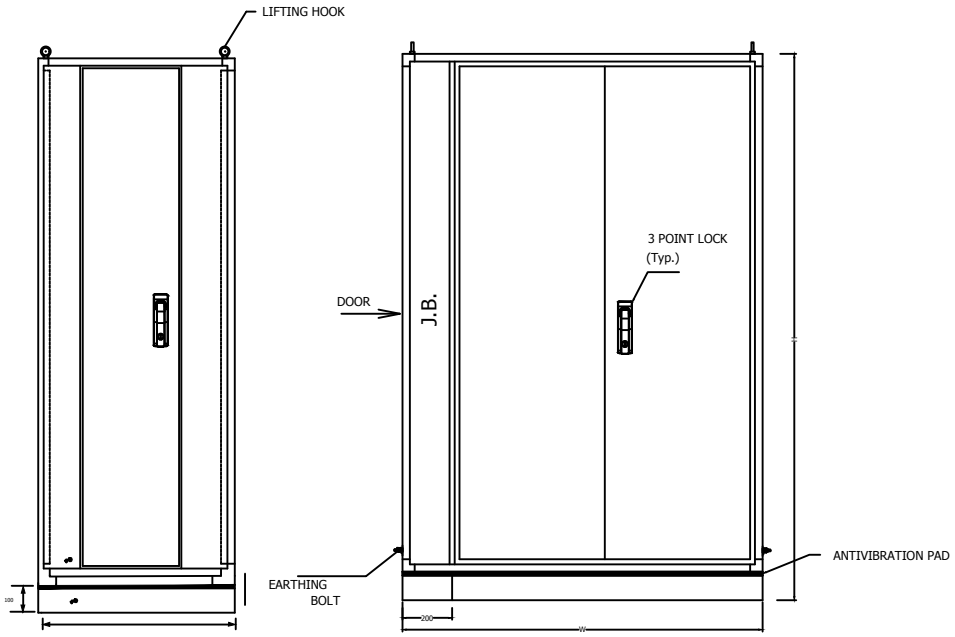
DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	09/06/23

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. No. CE/416/LIE/LIR/OGA1



LH SIDE VIEW

FRONT VIEW

NOTES:–

1. ALL SHEETs ARE 3.0mm CRCA SHEET
2. ALL DOORS WILL BE FLUSH / CONCEALED TYPE
3. BASE FRAME SHALL BE MADE OF ISMC 100
4. BULK HEAD PLATE FOR TOP & BOTTOM SHALL BE PROVIDED
5. CABLE GLAND PLATE OF THICKNESS 3.0 mm. CRCA SHEET SHALL BE PROVIDED TOP AND BOTTOM OF J.B
6. ENCLOSURE SHALL BE OF IP–65 PROTECTION CLASS
7. TERMINAL SHALL BE PROVIDED IN SIDE THE J.B. AS PER TRANSMITTER GROUPING
8. DOORS SHALL BE THREE POINT LOCKING FOR FRONT AND REAR DOOR AND SIDE DOOR LEAF
9. GASKET SHALL BE PROVIDED BETWEEN BULK HEAD PLATE & ENCLOSURE
10. EARTH BUS BAR 25x6mm TINNED COPPER SHALL BE USED
11. 2 Nos. CFL 11W,230V AC WITH FIXTURE SHALL BE PROVIDED
12. DRAIN PIPE SLOPE WILL BE 1 : 25 APPROX.
13. POWER SOCKET SHALL BE PROVIDED IN J.B. OF ENCLOSURE

LIE TYPE	H	W	D
A	2200	1450	800
B	2200	1100	1000
C	2200	1000	1000

PROD / PROJ :
CUSTOMER:

REV.	DATE	ALTERED / CHECKED / APPROVED	REV.	DATE	ALTERED / CHECKED / APPROVED

	NAME	SIGN	DATE
DRAWN	HKS		15.04.2015
CHECKED	RKL		15.04.2015
APPROVED	AM		15.04.2015

DEPT. BPE | CODE 416

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIE

No. OF SHEETS: 04
SHEET No.: 02

WBS. No.

DRG. No. CE/416/LIE/LIR/OGA1

REV 00

REF. DRG. No.
SIGN. & DATE
INVENTORY No.

FORM No. A3–03

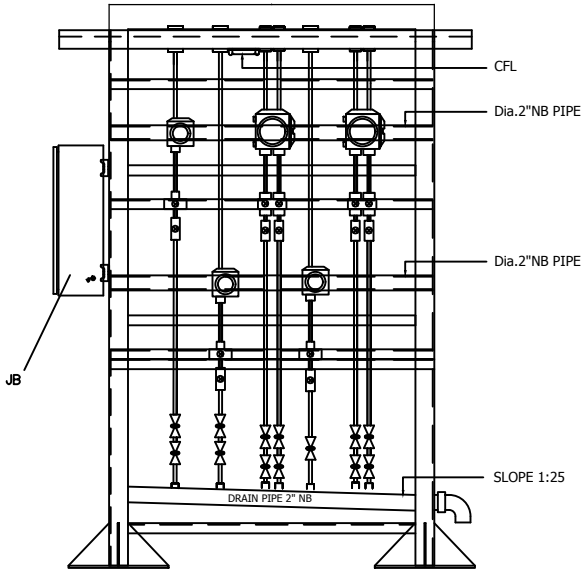
A3 SIZE

FIRST ANGLE PROJECTION

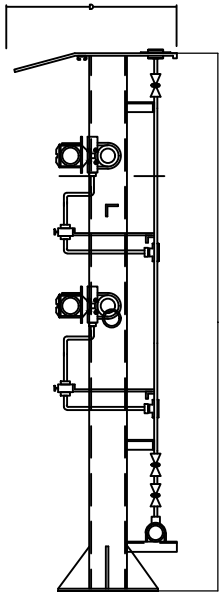
(ALL DIMENSIONS ARE IN mm)

DRG. No. CE/416/LIE/LIR/OGA1

TOP VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. JB TO BE LOCATED ON ONE SIDE OF THE LIR.
2. LIR's ARE WITH 2 LEGS.
3. SUPPORTING LEG SHALL BE MADE OF CHANNEL
4. BULK HEAD PLATE SHALL BE PROVIDED AT THE TOP
5. GASKET SHALL BE PROVIDED BETWEEN BULK HEAD PLATE & RACK
6. EARTH BUS BAR 25x6mm COPPER SHALL BE USED
7. 1 No CFL 11W,230V AC WITH FIXTURE SHALL BE PROVIDED
8. POWER SOCKET SHALL BE PROVIDED IN J.B. OF RACK
9. CANAPY ASSEMBLY WITH 3 MM THICK CRCA SHEET
10. TERMINALS SHALL BE PROVIDED IN SIDE THE JB AS PER GROUPING PROVIDED

LIR TYPE	H	W	D
A	2200	1400	650
B	2200	1100	650
C	1600	800	650

REF. DRG. No. FLREF

SIGN. & DATE

INVENTORY No.

REV.	DATE	ALTERED – / CHECKED – / APPROVED –	REV.	DATE	ALTERED – / CHECKED – / APPROVED –
–	–		–	–	

	NAME	SIGN	DATE
DRAWN	HKS		15.04.2015
CHECKED	RKL		15.04.2015
APPROVED	AM		15.04.2015

DEPT. BPE | CODE 416

PROD / PROJ : –

CUSTOMER: –

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIR

No. OF SHEETS 04

SHEET No. 04

WBS. No. –

DRG. No. CE/416/LIE/LIR/OGA1

REV 00

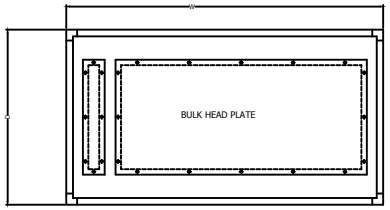
FORM No. A3–03

A3 SIZE

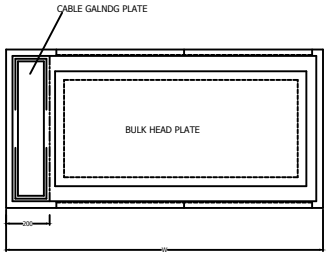
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

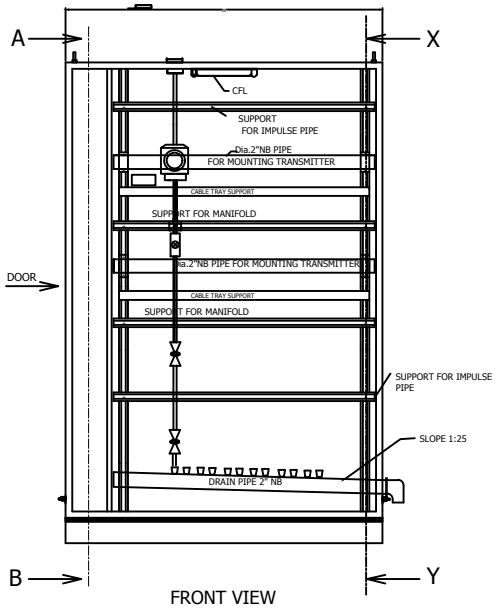
DRG. No. CE/416/LIE/LIR/OGA1



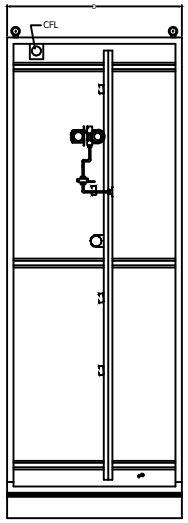
TOP VIEW



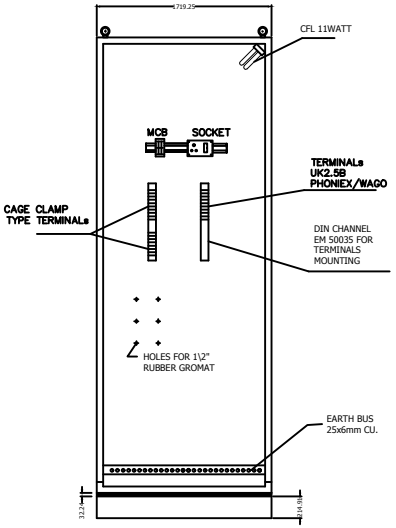
BOTTOM VIEW



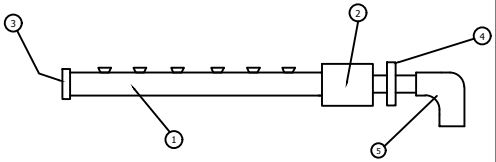
FRONT VIEW



SIDE VIEW FROM X-Y



SIDE VIEW FROM A-B



DRAIN PIPE

ITEM	DESCRIPTION	QTY.
1	2" NB ASTM A-106' SCH80/GR-C	A/R
2	2" NBSW X 1" NPT(F) COUPLING CS ASTM A105	1No.
3	2" S.W.CAP,CS ASTM A105	1No.
4	1" NPT (M) X1" BSP(M) HEX. COUPLING, CS ASTM105	1No.
5	1" BSP (F) ELBOW, CS ASTM A105	1No.

PROD / PROJ :

CUSTOMER:

REV.	DATE	ALTERED / CHECKED / APPROVED	REV.	DATE	ALTERED / CHECKED / APPROVED

	NAME	SIGN	DATE
DRAWN	HKS		15.04.2015
CHECKED	RKL		15.04.2015
APPROVED	AM		15.04.2015

DEPT. BPE | CODE 416

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIE

No. OF SHEETS: 04

SHEET No.: 03

WBS. No.

DRG. No. CE/416/LIE/LIR/OGA1

REV 00

REF. DRG. No.

SIGN. & DATE

INVENTORY No.

FORM No. A3–03

A3 SIZE

PROJECT: TUTICORIN FGD PACKAGE 2 X 500MW TPP

CUSTOMER: M/s NTPL

CONSULTANT: M/s DCPL

TYPICAL QUALITY CHECK LIST

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH LINGUTLA	416	09/06/23

	MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. :17.05.2023 PAGE : 02 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY D*	AGENCY M	AGENCY C	AGENCY E	REMARKS
1	2	3	4	5	6	7	8	9	D*	**10			11
(A)	***MATERIAL***												
1	CRCA SHEET	A) MATERIAL	MAJOR	CHEMICAL COMPOSITION	SAMPLE	IS-513 APP.DRG	IS-513	M.T.C./Q.A.REP.		V	V	V	
		B) THICKNESS	MAJOR	MEASUREMENT	100%	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	
		C) HARDNESS	MAJOR	STRENGTH	SAMPLE	IS-513	IS-513	M.T.C./Q.A.REP.		V	V	V	
		D) SURFACE FINISH	MAJOR	VISUAL	100%	IS-513	IS-513	M.T.C./Q.A.REP.		P	V	V	
2	MS C- CHANNELS /	A) DIMENSION	MAJOR	VISUAL	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		P	V	V	
	MS ANGLE	B) SURFACE DEFECTS	MAJOR	VISUAL	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		V	V	V	
		C) STRAIGHTNESS	MAJOR	MESUERMENT	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		V	V	V	
3	GASKET	A) DIMENSION	MAJOR	MEASUREMENT	SAMPLE	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		P	V	V	
		B) HARDNESS/SHORE HARDNESS	MAJOR	MEASUREMENT	SAMPLE	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C.		V	V	V	
4	TERMINALS	A) TYPE, SIZE & MAKE	MAJOR	VISUAL	100%	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	

		LEGEND :	FOR END USER :
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.	DOC. NO.
		** M : MANUFACTURER/ SUBCONTRACTOR	
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER	
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION	
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY
			NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

	MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 17.05.2023 PAGE : 03 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	RECORD		M	C	E	REMARKS
1	2	3	4	5	6	7	8	9	D*		**10		11
5	PVC WIRE/ CABLE	A) TYPE, SIZE, MAKE	MAJOR	MEASUREMENT	SAMPLE	IS 694/APPD. APP.DRG	IS 694/APPD. APP.DRG	M.T.C./Q.A.REP.		P	V	V	
6	PAINT	A) SHADE	MAJOR	VISUAL	SAMPLE	APP. DRG	APP. DRG	M.T.C./Q.A.REP.		P	V	V	
		B) FINISH	MAJOR	VISUAL	SAMPLE	APP. DRG	APP. DRG	M.T.C./Q.A.REP.		P	V	V	
7	FLEXIBLE CONDUIT / M.S. CABLE TRAY	A) TYPE, SIZE & MAKE	MAJOR	VISUAL	SAMPLE	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	
(B)	***COMPONENTS ******												* TYPE / MODEL /RANGE OF COMPONENTS AS PER BOM OF LIE/ LIR .
1	VALVES, MANIFOLDS	MECHANICAL	MAJOR	A)CHEM. TEST	SAMPLE	SUPPLIER CAT./ APP.DRG	SUPPLIER CAT./ APP.DRG	M.T.C./Q.A.REP.		V	V	V	
				B)FUNCTIONAL	100%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C) DIMENSION	100%/SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				D)HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
2	FITTINGS	MECHANICAL	MAJOR	A)CHEM. TEST	SAMPLE	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%/SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C)HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
3.a	PIPES	MECHANICAL	MAJOR	A)CHEM. & PHY. TEST	SAMPLE	-DO-	-DO-	M.T.C./Q.A.REP. M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%/ SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	

		LEGEND : * RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. ** M : MANUFACTURER/ SUBCONTRACTOR C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	FOR END USER : REVIEWED BY	DOC. NO. NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR		
SIGNATURE			

	MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN												
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK				QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 17.05.2023 PAGE : 04 OF 06								
S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	RECORD		M	C	E	REMARKS	
1	2	3	4	5	6	7	8	9	D*		**10		11	
3.b	TUBES	MECHANICAL	MAJOR	A)CHEM. & PHY. TEST	SAMPLE	SUPPLIER CAT./ APP.DRG	SUPPLIER CAT./ APP.DRG	M.T.C./Q.A.REP.		V	V	V		
				B) DIMENSION	100%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V		
				C) HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V		
(C)	**INPROCESS**													
1	FABRICATED/CUBICLE AND COMPONENTS	A) DIMENSION	CRITICAL	MEASUREMENT	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		B) LIFTING FACILITY	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		C) CABLE ENTRY	CRITICAL	VISUAL	100%	APP.DRG	APP. APP.DRG	Q.A. REPORT		P	V	V		
		D) STRAIGHTNESS / WAVINESS	CRITICAL	VISUAL	100%					P	V	V		
		E) GASKET ARGMNT.	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		F) DEBURRING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		G) WELDING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		H) REMOVAL OF WELDING SLAGS	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		

		LEGEND : * RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. ** M : MANUFACTURER/ SUBCONTRACTOR C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	FOR END USER : REVIEWED BY	DOC. NO. NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR		
SIGNATURE			

	MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN	
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 17.05.2023 PAGE : 05 OF 06

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
										M	C	E	
1	2	3	4	5	6	7	8	9	D*	**10			11
2	PRETREATMENT	A) DEGREASING	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
	(7 TANK PROCESS)	B) DERUSTING	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
		C) PHOSPHATISING	CRITICAL	MEASUREMENT	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
		D) PASSIVATION	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
3	SURFACE PREPARA-	A) PRIMER(2 COATS)	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
	-TION & PAINTING	B) SURFACER	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		C) FINAL PAINTING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		D) THICKNESS	CRITICAL	MEASUREMENT	SAMPLE	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
4	ELECTRICAL & MECH.	A) CHECK ARRANGE / LAYOUT OF COMP. & MOUNTING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		B) WIRE CLAMPING & FERULING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		C) INTERCONNECTION B/W COMPONENT	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		D)LUG SIZE&CRIMPING	CRITICAL	VISUAL	100%	APPD. APP.DRG	F.S./APP.DRG	Q.A.REPORT		P	V	V	
		E) COMPONENT IDENTIFICATION	CRITICAL	VISUAL	100%	APPD. APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		F) WIRE SIZE	MAJOR	VISUAL	SAMPLE	IS-694 / APP.DRG	IS-694 / APP.DRG	M.T.C./QA REP.		P	V	V	
		G) NAME PLATES	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		H) PIPING	MAJOR	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	

		LEGEND :	FOR END USER :
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.	
		** M : MANUFACTURER/ SUBCONTRACTOR	
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER	
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION	
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY

DOC. NO.

NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
	ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 17.05.2023 PAGE : 06 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY M	C	E	REMARKS
1	2	3	4	5	6	7	8	9	D*	**10			11
D)	***FINAL INSPECTION***												
1	A) VERIFICATION OF COMPONENTS /RATING/ ARRANGEMENTS/ LOCATION FOR EASY ACCESSABILITY AND MAINTENANCE .		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	B) COMPLETENESS OF WIRING ,TUBING/ PIPING		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	C) TERMINAL ARRANGEMENTS,SPARE TER--MINALS , EARTH BUS TIN PLATED COPPER)		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	D) PAINT SHADE,THICKNESS & ADHESION		CRITICAL	MEASUREMENT	SAMPLE	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	E) DOOR ALIGNMENT		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	F) GENERAL APPEARENCE (STRAIGHTNESS, FREE FROM SCRATCHES, BENDS, DENTS AND SHEET THICKNESS)		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	G) HYDROSTATIC TEST FOR ASSEMBLY. (1.5 TIMES RATED PRESSURE)		CRITICAL	MECHANICAL	100%	APP.DRG	APP.DRG/ NO LEAK/ PRESSURE DROP	Q.A. REPORT		P	W	W	PERFORMED BY VENDOR 100 % BHEL WITNESS ON 10%
	(PNEUMATIC TEST FOR PURGING LINES (NO LEAKAGED WITH SOAP SOLUTION)												
2	OVERALL FINISH		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
3	CONTINUITY TEST		MAJOR	FUNCTIONAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
4	IR TEST		MAJOR	MEASUREMENT	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
5	HV TEST		MAJOR	MEASUREMENT	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
6	FUNCTIONAL TEST		MAJOR	FUNCTIONAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
7	IP TEST TYPE TEST		MAJOR	VERIFICATION	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	

M. T.C. = MANUFACTURER'S / MATERIAL TEST CERTIFICATE
F.S. = FACTORY STANDARD
Q.A.REP.= QUALITY ASSURANCE REPORT
APP. APP.DRG = APPROVED DRAWING
SAM. = SAMPLE

NOTE :- CUSTOMER / INSPECTION AGENCY / END USER MAY DO INSPECTION ON SAMPLE BASIS

LEGEND :
* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.
** M : MANUFACTURER/ SUBCONTRACTOR
C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER
INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION
AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'

MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	REVIEWED BY	NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL
SIGNATURE			

		A4-10	REF.: CE / 416 /NKP FGD/LIE/LIR/ PS
			REV. NO.: 00
			PAGE: 01 0F 02

PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

PUCHASE SPECIFICATION
FOR
LOCAL INSTRUMENTS ENCLOSURES AND LOCAL INSTRUMENT RACKS (LIE/LIR)

REVISION : 00	APPROVED DIPTENDU GHOSH		
	PREPARED RAJESH LINGUTLA	ISSUED 416	DATE 21-Jul-23

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GENERAL INSTRUCTIONS TO BIDDERS

REVISION: 00

APPROVED

DIPTENDU GHOSH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	21-Jul-23

SECTION- A

GENERAL INSTRUCTIONS TO BIDDERS:

1.0 All required documents against this Tender/Specification shall be submitted in English only.

2.0 Introduction: Bidders are required to offer Local Instrument Enclosure and Local Instrument Rack (LIE/LIR) for a Coal Fired Thermal Power Plant Applications.

3.0 In order to accept the Technical offers / proposals from Bidders for the project mentioned in this Specification (refer Section C), certain Pre-qualification criteria are required to be met by Bidder.

4.0 Pre-qualification requirements are clearly mentioned in Section-B of this Specification. Bidder to read the same carefully and submit the details required for BHEL's acceptance.

5.0 Submit duly-filled Supplier Registration Form (SRF), which shall be downloaded by Bidder from our website "www.bhel.com.This is required for registration of new vendors at BHEL EDN against item Local Instrument Enclosure (LIE) & Local Instrument Rack (LIR). Those Vendors who are already approved by BHEL EDN against item Local instrument Enclosure (LIE) & Local instrument Rack (LIR) are not required to submit the Supplier Registration Form (SRF).

6.0 BHEL May visit vendor's work for verification of facilities offered and BHEL decision on suitability of manufacturing facility is final and binding.

7.0 In case Bidder does not include the details or meet the requirements of Pre-qualification requirements, their offer will be summarily rejected and Bidder's Technical offers will not be evaluated.

8.0 Submit duly-filled NTPC Sub Supplier Questionnaire attached as part of Technical specifications ref no: QS-01-QAI-P-04/F2 who are the not approved by NTPC against item Local instrument Enclosure (LIE) & Local instrument Rack (LIR). Bidder to comply the same.

Evaluation methodology:

Evaluation methodology as below
BHEL shall initially open Bidder's PQR documents as per Section-B of this specification for review & acceptance.
If the Bidders who are meeting PQR requirements as per Section-B of this specification, Technical Offers of those bidders only will be considered for evaluation.
If the Bidders who are meeting technical requirements as per Section C of this specification, Those Bidders will be taken up with End user/Customer for approval.
If the Bidders who are approved by End user/Customer, Commercial bids of those bidders will be considered for further evaluation by BHEL.

9.0 Bidders are required to submit offers as detailed below :

aa. Documents pertaining to Pre-Qualification requirement (Section B of this Specification) shall be in a Separate cover /Soft Folder with reference no. "CE/416/LIE-LIR/PQR / Section B" marked on it.

bb. Technical offers/proposals for the Project, whose requirements are mentioned in Sections C will be submitted in a separate cover/Soft Folder with RFQ Reference & Reference marked on it.

Note 1: -Whenever required during evaluation of PQR and Technical offers/bids, vendor is required to be present at BHEL Electronic Division, Bangalore, for discussions. Further in the event of order, during approval of the vendor documents by End users/Customers, if needed vendor shall accompany BHEL representative for discussions.
Note 2: - Changes in Technical Specifications will be discussed with the bidders who Qualified PQR for this tender.
Note 3: - BHEL shall submit vendor credentials to customer and await customer's decision for a maximum of one month from the date of PQR bid opening. If approval is not received within above period, BHEL shall treat the offer as "NOT Meeting PQ" criteria and offer shall be rejected.

		A4-10	**SECTION – B**	**REF.: CE / 416 / LIE/LIR / PQR** **REV. NO.: 00** **PAGE: 01 0F 02**

PRE-QUALIFICATIONS REQUIREMENTS

APPROVED **DIPTENDU GHOSH**		
PREPARED **RAJESH LINGUTLA**	**ISSUED** **416**	**DATE** **21-Jul-23**

SECTION- B

Pre-Qualification Requirements (PQR) of Bidders for Local Instrument Rack (LIR), as a part of Offer:

1.0 Submit Reference List of Projects, Unpriced Purchase Order Copies, wherein LIE, LIR has been supplied.

2.0 The bidder should have executed/ completed work of Design and supply of complete LIE LIR package at least 2 units of 200MW or above rating Thermal power plant. Bidder should have executed Complete LIE/LIR Package to accommodate minimum of 60 Pressure transmitters / switches. Unpriced PO Copy and Customer approved data sheet or Dispatch documents or inspection report etc shall be provided.

3.0 Bidders shall have experienced welders for welding of materials specified in the Technical specification. Welder's certificate shall be provided for verification.

4.0 Bidders shall have a designated drawing office with AUTOCAD/other drafting software, Submission of drawings shall be in pdf format. Bidders to give compliance to the same.

5.0 Bidders shall have designated machine shop including sheet metal fabrication upto 4mm thick and cutting up to 10 mm thick plates, should have Painting facility for both epoxy based tank process painting and powder coating facility or if outsourced details to be provided.

6.0 Bidder shall have facility for performing hydro test on all individual lines (Hydro test pressure shall be 530Kg/Cm2). Bidders to give compliance to the same.

7.0 Vendor shall have requisite space for physical inspection, loading facility etc for offering minimum of about 80 LIRs at the same time for inspection. Bidders to give compliance to the same.

Important Note: In case Bidder does not submit details mentioned in above Section (B) offers will be summarily rejected and Bidder's Technical offers/proposals will not be evaluated. Please read carefully the GENERAL INSTRUCTIONS in Section A of this specifications.

SECTION – C

PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

TECHNICAL SPECIFICATION
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	20/07/23

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PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

SCOPE OF SUPPLY
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	20/07/23

Scope of supply

The Scope of supply is as per Technical requirements attached with this specification. Vendor shall quote for each line item of the Table A & B. The unit rate shall be valid until the completion of the contracts. For this purpose, vendors shall maintain MS Excel file indicating total Bill of materials Table A & Table B.

TABLE: A –NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

S.NO.	HUP Ref CE/416/FGD COMB/HUP	MATERIAL CODE	ITEM DESCRIPTION	QUANTITY			UNIT
				UNIT #1	UNIT #2	UNIT #3	
1		PR0830000020	LIE TYPEA	5	3	3	NO
2		PR0830000038	LIE TYPE B	7	5	5	NO
3		PR0830000046	LIE TYPE C	8	7	7	NO
4		PR0830000054	LIR TYPE A	1	0	0	NO
5		PR0830000062	LIR TYPE B	3	0	0	NO
6		PR0830000070	LIR TYPE C	4	0	0	NO
7	2	PR0830000127	Hook up PT/PS 3000 water	44	4	4	NO
8	4	PR0830000135	Hook up DPT/DPS 3000 water	18	0	0	NO
9	6	PR0830000143	Hook up PT/PS Clean Air service	30	30	30	NO
10	8	PR0830000194	Hook up DPT/FT/DPS Flue gas	8	8	8	NO
11	10	PR0830000003	Hook up for Air Purging	11	11	11	NO
12	10	PR0830000259	Hook up for Continuous Purging	45	45	45	NO
13	10	PR0830000267	Hook up for Intermittent Purging	11	11	11	NO
14		PR0450000290	Temp. Transmitter Junction Box - Type A	21	18	18	NO
15		PR0450000303	Temp. Transmitter Junction Box - Type B	4	0	0	NO
16		PR0450000311	Temp. Transmitter Junction Box - Type C	17	14	14	NO
17		PR0830000275	Mandatory Spares for LIE/LIR	1	0	0	ST

Note:

1. **Colour:, INTERNAL- Glossy White Two coats /RAl 7035 with fire resistant Paint, EXTERNAL-RAL 7032/RAL 7035 (FINAL COLOUR WILL BE DECIDED DURING DETAILED ENGG)**
2. **IP55 Type test to be submitted for LIE and IP-65 for JB of LIR for approval. Report should not be older than March 2019.**

MANDATORY SPARE

TABLE: B –NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

SL. NO.	ITEM DESCRIPTION	Spare QTY
1	**VALVE MANIFOLD(10%)**	
1.1	TWO VALVE MANIFOLD WITH VENT PLUG PORT SIZE:1/2"NPTF/BODY:SS316 PR.TESTING:3000PSI	6
1.2	FIVE VALVE MANIFOLD WITH VENT PLUG PORT SIZE:1/2" NPTF/MATL.SS316 PR.TESTING:3000 PSI	5
1.3	THREE VALVE MANIFOLD WITH VENT PLUG PORT SIZE:1/2"NPTF MATL:SS316 PR.TESTING:3000PSI	9
2	**VALVE (10%)**	
2.1	FORGED GLOBE VALVE BODY:ASTM A105/STEM:ASTM A182 GR.F6A SIZE:1/2"NB-SW/CL:800	9
2.2	FOUR WAY VALVE SIZE :-2x3/4"NB SW x 2x1/2" NPTF MATL: A105, CL :800	14
2.3	ISOLATION VALVE MATL: A182 F316 SIZE: TO SUIT 1/2" OD SS TUBE	24
2.4	NEEDLE VALVE MATL: SS316 SIZE: TO SUIT 1/2" OD SS TUBE	31
3.1	**SS TUBE FITTINGS**	
3.1.1	TUBE FITTING TYPE:DFDC MATL:SS316 SIZE:1/2"NPTM X TO SUIT 1/2"OD SS TUBE	68
3.1.2	TEE-TUBE UNION MATL: SS316 SIZE : OD OF 1/2" NB PIPE X TO SUIT 1/2" OD SS TUBE	9
3.1.3	TEE-TUBE UNION MATL: SS316 SIZE : OD OF 3/4" NB PIPE X TO SUIT 1/2" OD SS TUBE	14
3.1.4	QUICK DISCCONNECTING FITTING SIZE: 1/2" NPTM X TO SUIT WITH FEMALE COUPLER MATL:SS-304	14
3.2	**OTHER FITTINGS**	
	FORGED EQUAL TEE (10%)	
3.2.1	FORGED EQUAL TEE / AS PER ANSI B16.11 SIZE:1/2" NB-SW / CL:3000 MATL:ASTM A105	9
3.2.2	FORGED EQUAL TEE AS PER ANSI B16.11 MATL:ASTM A105 SIZE:3/4"NB-SW CL:3000	14
3.2.3	NIPPLE SIZE:3/4"NB-SCH-80 MATL:ASTM A106 GR C CONN:ONE END PLAIN X OTHER END 3/4"NPTM, 200mm LONG	14
3.2.4	CAP SIZE:3/4"NPTF MATL:ASTM A105	14
4	**PURGE ROTAMETER PROCESS CONN:1/4"NPTF AS PER SPECIFICATION (5%)**	7
5	**AIR FILLTER REGULATOR PROCESS CONN:1/2"NPTF AS PER SPECIFICATION (20%)**	7

Unit rate of each item for Mandatory Spare to be provided in the offer.

PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

TECHNICAL REQUIREMENT
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	20/07/23

TECHNICAL REQUIREMENTS FOR TRANSMITTER ENCLOSURES AND TRANSMITTER RACKS:

I. TRANSMITTER ENCLOSURES:

1. The Transmitter enclosures (Closed type) are provided for mounting Transmitters etc. and located in Boiler area. This shall be constructed of **3.0** mm thick for C&I Package steel sheet material. These shall confirm to IP 55 protection class.

2. The Transmitter Enclosures shall be of following sizes (in millimeters).

   Type A – 1400(W) x 800(D) x 2200(H) (To Mount 5 or more transmitters)
   Type B - 1000(W) x 800(D) x 2200(H) (To Mount 3 to 4 transmitters)
   Type C - 700 (W) x 800(D) x 2200(H) (To Mount 1 to 2 transmitters)

3. These shall be reinforced as required to ensure true surfaces and to provide adequate Support for instruments and other equipment mounted therein. Double interlocking doors shall be provided and shall be arranged for maximum possible access to the module interior. Center posts or any member which would reduce access shall not be provided.

4. The doors shall be the three-point locking type constructed of not less than **3.0** mm steel sheet. Doors shall have concealed quick removal type pinned hinges and locking handles. Enclosure door locks shall accept the same / common key all over the plant. Gaskets shall be used between all mating sections to achieve dust proof enclosure rating for the modules and waterproof and dust tight rating on the Terminal / Junction boxes. All enclosures shall have access doors on Front and Rear sides.

5. Internal wirings between the Transmitters and Terminal / Junction box shall run through flexible dust tight conduits.

6. Anti Vibration Pads of minimum 15 mm thickness shall be provided for supporting each enclosure.

7. Construction of same shall be typically as per enclosed drawing **CE/416/LIE/LIR/OGA2.**

8. Service Power and Lighting

Each enclosure shall be provided with one receptacle, one light fixture with wire guard and one lighting switch and suitable MCBs. Lighting switches may be doors actuated, mounted door. Light switches and receptacles shall be installed inside the enclosure on the wall near the latch side of the enclosure door. Light fixtures shall be installed on the ceilings of the enclosures. Power supplies for miscellaneous devices shall be provided with fuses located within the Enclosure JB. Fuses shall be mounted in fuse blocks. Fuse ratings will be given on electrical schematic diagrams. Power supply shall be 240 V AC.

9. Equipment Installation

a. Enclosures shall be provided to mount field instrument, equipment and accessories. Vendor shall prepare enclosures and piping drawings indicating the layout for each enclosure. Special attention shall be given in the piping layout to avoid air traps in liquid filled piping, or water pockets in piping intended to be dry.

b. Drawings shall indicate the arrangement of all Piping, Valves and Fittings within the enclosures.

10. **Impulse Piping /Tubing**

a. Transmitter enclosures shall be complete with impulse tubing piping, valves from enclosure bulkhead connection to all instruments and necessary drain / blow down connections. The type, sizes, material and pressure class of pipes/tubes, fittings, valves etc. shall be suitable for the intended applications as per the Schemes / Tagging list of Instrument, provided by BHEL.

b. Bulkhead connection shall be used when instrument piping/ tubing enters the enclosure through Bulkhead plate. Typically through Bulk heads, Impulse pipe entry shall be through Top side of the Enclosure for Steam and Liquid services and for Air / flue gas services, impulse pipe entry shall be from Bottom side.

c. All Instrument Blow down lines, except those measuring vacuum shall be connected to a two-inch header, which is extended through one end of the enclosure and turned downward at other end.

d. Instrument piping and tubing shall be hydrostatically tested at one and one-half times the maximum Design pressure(As per instrument schedule Ref:**CE/416/FGD COMB1/INS**) for that instrument except for low pressure (below Design Pressure 5.34Kg/Cm2) and vacuum measurement the test pressure will be 8 Kg / Cm2.

11. For Purging :

a. Pneumatic tubing shall be installed for all pneumatic devices, such as Air filter Regulator, Purge rotameters, Isolation valves, distribution air-header etc. Pneumatic tubing shall be installed in a neat workmanlike manner in protected locations with suitable supports. All Pipes / Tubes, which enter or leave the enclosure, shall be terminated on bulkhead fittings in the bulkhead plate. Pneumatic tubing material shall be ½" OD SS316 tubing Flareless SS- Tube fittings shall be used for tubing connections.

b. Instrument tubing schematic, connection and interconnections diagrams shall be furnished.

12. Wiring Within Enclosures and Grounding

Vendor shall furnish general arrangement and wiring diagrams for each transmitter Enclosures for approval.

13. **Enclosure Electrical Junction Box**

a. IP 55 junction box for the termination of all internal wiring shall be provided for each transmitter enclosure.

b. Junction boxes for enclosures shall be located inside the Enclosure on one end of each enclosure assembly to accept field wiring through the bottom of the junction box. The Junction box shall be 800 x 200 x200 mm minimum dimension. A hinged door shall give on side access to the interior of the junction box. Same key shall be used to lock both Junction box. Tb shall be in multiple of 12 nos.

II. OPEN TYPE TRANSMITTER RACKS:

1. Transmitter racks is provided for mounting transmitters and other accessories, in buildings and closed areas like the power house building / turbine hall.

2. The Transmitter Racks shall be of following sizes (in millimeters).

   Type A- 1650(W) x 800(D) x 2200(H) (To mount 7 to 8 transmitters)
   Type B- 1330(W) x 800(D) x 2200(H) (To mount 5 to 6 transmitters)
   Type C- 1010(W) x 800(D) x 2200(H) (To Mount 1 to 4 transmitters)

3. Racks shall be constructed on structural members of adequate strength and rigidity to ensure proper support to the mounted instruments and equipment. Racks shall be of welded construction. Each rack shall be provided with a canopy thickness not less than **3mm** to protect the instrument from dripping water or falling objects.

4. All Valves & Manifolds shall be securely mounted and the structural design shall be such that no item shall interfere with maintenance and removal of instrument, equipment and their accessories.

5. Construction of same shall be typically as per enclosed drawing **CE/416/LIE/LIR/OGA2**

6. Service Power and Lighting

a. Each rack shall be provided with one receptacle, one light fixture with wire guard and one lighting switch. Light fixtures shall be installed on the canopy of the rack.

b. Power supplies for miscellaneous devices shall be provided with fuses located within the rack JB. Fuses shall be mounted in fuse blocks. Fuse ratings will be given on electrical schematic diagrams. Power supply shall be 240 V AC.

7. Equipment Installation

Vendor shall prepare rack fabrication and piping drawings indicating the layout of each Rack. Transmitter/Instruments shall be installed using custom fabricated supports which are attached to the vertical members provided for this purpose. Drawings shall indicate the arrangement of all equipment, piping, valves and fittings within the rack and shall be subject to approval.

8. Impulse Piping / Tubing

a. Transmitter racks shall be complete with impulse tubing piping, valves from enclosure bulkhead connection to all instruments and necessary drain / blow down connections. The type, sizes, material and pressure class of pipes/tubes, fittings, valves etc. shall be suitable for the intended applications as per the Schemes / Tagging list of Instrument, provided by BHEL.
b. Bulkhead connection shall be used when instrument piping/ tubing enters the enclosure through Bulkhead plate. Typically through Bulk heads, Impulse pipe entry shall be through top side of the Enclosure for Steam and Liquid services.

c. All Instrument Blow down lines, except those measuring vacuum shall be connected to a two-inch header, which is extended through one end of the enclosure and turned downward for directing the blow down into drain.

d. Instrument piping and tubing shall be hydrostatically tested at one and one-half times the maximum Design Pressure(As per Instrument schedule ref:**CE/416/ FGD COMB1/INS**) for that instrument except for low pressure(Design Pressure below 5.34Kg/Cm2) and vacuum measurement the test pressure will be 8 Kg / Cm2.

9. Wiring of the Racks

a. A fully enclosed IP 65 type junction box shall be provided in each rack for housing the terminal blocks, power supply fuses and other electrical accessories, as required.

b. All electrical connections between instrument and the Terminals in Junction box shall be made. In addition all utility wiring for lighting and service power shall be installed.

c. Vendor shall furnish general arrangement and wiring diagrams for each transmitter rack for approval.

d. Junction boxes for the racks shall be mounted on one end of each assembly & should be inside the Rack to accept field wiring through the bottom of the junction box. The junction box shall be 800 x 200 x 200 mm minimum size. A removable bolted door shall give access to the interior of the junction box. All junction boxes shall accept same key. JB to be of CRCA sheet with IP 55 protection class. Door handle shall be of SS. Self locking type with common key. Door gasket shall be of synthetic rubber. Tb shall be in multiple of 12 nos.

III. General Requirement applicable to Transmitter Enclosures & Racks :

1. Surface preparation And Painting

a. All sheet metal / exterior steel surfaces shall rust free and scale free and all other residue during fabrication operation such as Oil, grease and salts etc. shall be removed by one or more solvent cleaning methods. Epoxy primer surface shall be applied to all exterior and interior surfaces. Epoxy paint shall be applied to all surfaces and the paint thickness shall be 100 to150 microns. The finish colours for exterior and interior surfaces shall conform to the shades mentioned in scope of supply.

1. Grounding

a. Enclosures and Racks shall be provided with a continuous tinned copper ground bus of minimum 25 mm X 6 mm cross section, extended along the entire length. The ground bus shall have two (2) bolts drilling with GI bolts and nuts at each end.

2. Name plate / Label.

a. Service details and Tag no. shall be engraved on a nameplate or label for each of the Transmitter. These Nameplates or Labels shall be of white non-hygroscopic material with

engraved black lettering. This shall be fixed on to the Impulse Pipe closer to the Transimitter inside the Enclosure / Rack.

3. Wiring Details

a. Interconnecting wiring shall be provided between all electrical devices mounted in the panels and between the devices and terminal blocks if the devices are to be connected to equipment outside the panels by cabling. All interior wiring shall be installed neatly and carefully and shall be terminated at suitable terminal blocks in the Junction box. Sufficient clearance shall be provided for all control and instrumentation leads.

b. Each wire shall be identified at both ends with wire designations as per approved wiring diagram. Interlocking type ferrules shall be used for identification.

c. All wire termination shall be made with insulated sleeve and cage clamp type terminals.

d. All signal wiring shall be done with 2 pair, 0.5 sq. mm annealed tinned copper ,pair twisted overall & shielded , voltage grade 225 V , unarmored FRLS PVC sheathed cable and 4 pair, 0.5 sq. mm for PS/DPS. Power wiring shall be with 1.5 sq mm, 1100V.

e. Wires shall be dressed and run in trays or troughs with clamp-on type covers. Wiring may be neatly bunched in-groups by non-metallic cleats or bands. Shield wires shall be terminated on separate terminal blocks.

f. Internal wiring shall follow distinct color coding to segregate different voltage levels viz. 24V DC & 230V AC

g. Junction Box of enclosures will be provided with removable, gasketted cable gland for cable entrance.

4. Fuse Blocks

a. Fuse blocks shall be modular type with bakelite frame and reinforced retaining clips.

5. Terminal Blocks

a. Terminal blocks shall be DIN rail mounted and shall have Cage clamp type connection which shall be maintained for all panels uniformly.

b. The rated cross section of the terminal blocks shall be suitable for connecting 0.5-mm^2/2.5 mm^2. Conductor of suitable voltage grade as specified.

c. Terminal blocks shall be mounted vertically with adequate spacing between rows for routing the cable troughs and to allow adequate free workspace for termination and removal of wires.

d. Terminal blocks shall be provided with white marking strips/self adhesive marker cards.

e. For all instruments one set of spare terminals to be provided below the main terminals.

f. Terminal blocks for termination of electrical power supply shall be type WAGO / PHOENIX make of suitable size with marking strips.

g. The last terminal in a rail-mounted assembly shall be closed with an end plate and end bracket.

h. Terminal blocks shall be provided with multiples of 12 for each Enclosure/Rack.

IV. Documents to be Submitted by Vendor for Approval :

1. OGA for Transmitter Enclosure and Racks.
2. Layout of Components in each of Transmitter Enclosure and Rack.
3. Electrical diagrams for each Transmitter Enclosure and Rack.
4. Component datasheets
5. Quality plan including Welding Procedure specification and Welder Procedure Qualification Record. This will be approved by BHEL / (END USER)
6. The quality plan shall include Visual inspection, GA BOM/Layout features verification, Dimensions, Paint shade, thickness measurement, Alignment of sections, component ratings, Wiring, IR, HV, review of TC for instruments / Devices, Accessibility of TBs / Devices, Illumination, Tubing and Degree of protection (Review of type test certificate)

V. Specific requirements

1. Where grouping is not provided for instruments, same shall be indicated during detailed engineering.
2. **SS tubing between valve manifold and transmitter for each service shall be done as per Transmitter Model Nos with mounting details will be provided by BHEL EDN.In Case If Transmitter model Nos with mounting details are not received before dispatch, Vendor has to supply tube and tube connectors during commissioning time as per BHEL EDN Instruction.**
3. **Packing should be Wooden packing is must for all the LIE/LIR/TTE, Loose Hook schemes consignment. Delicate items to be bubble wrapped with sufficient care.**
4. Deviations (If Any) shall be discussed with only those bidders who quoted for this tender.

TECHNICAL REQUIREMENTS FOR TEMPERATURE TRANSMITTER ENCLOSURE/JUNCTION BOX:

1. The Junction Box is provided for mounting Pipe Mounted Temperature Transmitters. This shall be constructed of 1.6 mm thick steel sheet material. These shall confirm to IP 55 protection class.

2. The Junction Box/Enclosure shall be of following sizes (in millimeters).

   Type A – 800(W) x 500(D) x 1100(H) (Shall have Four rows of 2" pipe & 180 terminals)
   Type B - 800(W) x 500(D) x 900(H) (Shall have Three rows of 2" pipe & 150 terminals)
   Type C - 800(W) x 500(D) x 600(H) (Shall have Two rows of 2" pipe & 60 terminals)

3. These shall be reinforced as required to ensure true surfaces and to provide adequate support for instruments and other equipment mounted therein. Doors shall be provided and shall be arranged for maximum possible access to from front and back side of enclosures (as applicable) the module interior. Center posts or any member which would reduce access shall not be provided.

4. The doors shall be the three-point locking type constructed of not less than 1.6 mm steel sheet. Doors shall have concealed quick removal type pinned hinges and locking handles. Junction Box door locks shall accept the same / common key all over the plant. Gaskets shall be used between all mating sections to achieve dust proof enclosure rating. All Junction Box shall have access doors on Front side and back side.

5. All the junction boxes shall be suitable for mounting on walls, columns, structures, free standing type etc. The brackets, nuts, bolts, screws, gland and lugs required for erection are in supplier's scope.

6. Vendor shall furnish general arrangement diagrams for each type of transmitter Junction Box for approval.

7. Surface preparation And Painting

   a. All sheet metal / exterior steel surfaces shall rust free and scale free and all other residue during fabrication operation such as Oil, grease and salts etc. shall be removed by one or more solvent cleaning methods. Epoxy primer surface shall be applied to all exterior and interior surfaces. Epoxy paint shall be applied to all surfaces and the paint thickness shall be 100 to150 microns. The finish colours for exterior and interior surfaces shall conform to the shades mentioned in scope of supply.

8. Terminal Blocks

   a. Terminal blocks shall be DIN rail mounted and shall have Cage clamp type connection which shall be maintained for all panels uniformly.

b. The rated cross section of the terminal blocks shall be suitable for connecting 0.5-mm²/2.5 mm². Conductor of suitable voltage grade as specified.

c. Terminal blocks shall be mounted vertically with adequate spacing between rows for routing the cable troughs and to allow adequate free workspace for termination and removal of wires.

d. Terminal blocks shall be provided with white marking strips/self adhesive marker cards.

e. Terminal blocks for termination of electrical power supply shall be type WAGO / PHOENIX make of suitable size with marking strips.

f. The last terminal in a rail-mounted assembly shall be closed with an end plate and end bracket.

9. <u>Documents to be Submitted by Vendor for Approval :</u>

a. OGA for Junction Box.

b. Layout of Transmitter in each Type of Junction Box.

c. Quality plan. This will be approved by BHEL / (END USER)

d. The quality plan shall include Visual inspection, GA BOM/Layout features verification, Dimensions, Paint shade, thickness measurement, IR, HV, Accessibility of TBs / Devices, Degree of protection (Review of type test certificate)

PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

INSTRUMENT SCHEDULE

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	20/07/23

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
1	10HTC10CP003	Unit-1 Booster Fan A Suction Chamber Pressure Transmitter	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-1	
2	10HTC10CP004	Unit-1 Booster Fan A Pressure Transmitter at Diffuser	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6		1	LIE-1	
3	10HTC10CP005	Unit-1 Booster Fan A Seal Air Pressure Transmitter	PT	Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-1	LIE/LIR Without JB
4	10HTC20CP003	Unit-1 Booster Fan B Suction Chamber Pressure Transmitter	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6		1	LIE-1	
5	10HTC20CP004	Unit-1 Booster Fan B Pressure Transmitter at Diffuser	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6		1	LIE-1	
6	10HTC20CP005	Unit-1 Booster Fan B Seal Air Pressure Transmitter	PT	Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-1	LIE/LIR Without JB
7	10HTA01CP004	Unit-1 Booster Fan-A Outlet pressure transmitter 1	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-10	LIE/LIR Without JB
8	10HTA01CP051	Unit-1 FGD Bypass Damper-A Differential Pressure Transmitter	DPT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	8		2	LIE-10	
9	10HTC10CP302	Unit-1 Booster Fan A Differential Pressure Transmitter between suction & housing	DPT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	8		2	LIE-10	
10	10HTW01CP001	Unit-1 FGD Bypass Damper-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-10	LIE/LIR Without JB
11	10HTW01CP002	Unit-1 FGD Bypass Damper-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-10	LIE/LIR Without JB
12	10HTA01CP011	Unit-1 Untreated Flue gas pressure transmitter-1 (Absorber Inlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-11	LIE/LIR Without JB
13	10HTA01CP012	Unit-1 Untreated Flue gas pressure transmitter-2 (Absorber Inlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-11	LIE/LIR Without JB
14	10HTA02CP004	Unit-1 Booster Fan-B Outlet pressure transmitter 1	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-12	LIE/LIR Without JB
15	10HTA02CP051	Unit-1 FGD Bypass Damper-B Differential Pressure Transmitter	DPT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	8		2	LIE-12	
16	10HTC20CP302	Unit-1 Booster Fan B Differential Pressure Transmitter between suction & housing	DPT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	8		2	LIE-12	
17	10HTW02CP001	Unit-1 FGD Bypass Damper-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-12	LIE/LIR Without JB
18	10HTW02CP002	Unit-1 FGD Bypass Damper-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-12	LIE/LIR Without JB
19	10HTA01CP021	Unit-1 Treated Flue gas pressure transmitter (Absorber Outlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-13	LIE/LIR Without JB
20	30HTY01CP011	Unit-3 Emergency Quench Water Pressure (Emergency Quench Tank Inlet)	PT	Process Water	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	2			LIE-14	LIE/LIR Without JB
21	30HTY01CP012	Unit-3 Emergency Quench Water Pressure (Absorber Inlet)	PT	Process Water	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	2			LIE-14	LIE/LIR Without JB
22	10HTW01CP003	Unit-1 Booster Fan Inlet Gate-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-15	LIE/LIR Without JB
23	10HTW01CP004	Unit-1 Booster Fan Inlet Gate-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-15	LIE/LIR Without JB
24	10HTW01CP005	Unit-1 Booster Fan Outlet Gate-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-15	LIE/LIR Without JB
25	10HTW01CP006	Unit-1 Booster Fan Outlet Gate-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-15	LIE/LIR Without JB
26	20HTY01CP011	Unit-2 Emergency Quench Water Pressure (Emergency Quench Tank Inlet)	PT	Process Water	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	2			LIE-16	LIE/LIR Without JB
27	20HTY01CP012	Unit-2 Emergency Quench Water Pressure (Absorber Inlet)	PT	Process Water	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	2			LIE-16	LIE/LIR Without JB
28	10HTY01CP011	Unit-1 Emergency Quench Water Pressure (Emergency Quench Tank Inlet)	PT	Process Water	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	2			LIE-17	LIE/LIR Without JB
29	10HTY01CP012	Unit-1 Emergency Quench Water Pressure (Absorber Inlet)	PT	Process Water	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	2			LIE-17	LIE/LIR Without JB
30	10HTW02CP003	Unit-1 Booster Fan Inlet Gate-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-18	LIE/LIR Without JB
31	10HTW02CP004	Unit-1 Booster Fan Inlet Gate-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-18	LIE/LIR Without JB
32	10HTW02CP005	Unit-1 Booster Fan Outlet Gate-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-18	LIE/LIR Without JB
33	10HTW02CP006	Unit-1 Booster Fan Outlet Gate-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-18	LIE/LIR Without JB
34	00HTQ01CP041	ME & Emergency Quench Pump A Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-19	LIE/LIR Without JB
35	00HTQ01CP051	ME & Emergency Quench Pump B Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-19	LIE/LIR Without JB
36	00HTQ01CP061	ME & Emergency Quench Pump C Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-19	LIE/LIR Without JB
37	00HTQ02CP041	ME & Emergency Quench Pump D Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-19	LIE/LIR Without JB
38	00HTQ02CP051	ME & Emergency Quench Pump E Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-19	LIE/LIR Without JB
39	00HTQ02CP061	ME & Emergency Quench Pump F Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-19	LIE/LIR Without JB
40	20HTC10CP003	Unit-2 Booster Fan A Suction Chamber Pressure Transmitter	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-2	
41	20HTC10CP004	Unit-2 Booster Fan A Pressure Transmitter at Diffuser	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6		1	LIE-2	
42	20HTC10CP005	Unit-2 Booster Fan A Seal Air Pressure Transmitter	PT	Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-2	LIE/LIR Without JB
43	20HTC20CP003	Unit-2 Booster Fan B Suction Chamber Pressure Transmitter	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6		1	LIE-2	
44	20HTC20CP004	Unit-2 Booster Fan B Pressure Transmitter at Diffuser	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6		1	LIE-2	
45	20HTC20CP005	Unit-2 Booster Fan B Seal Air Pressure Transmitter	PT	Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-2	LIE/LIR Without JB
46	20HTA01CP004	Unit-2 Booster Fan-A Outlet pressure transmitter 1	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-20	LIE/LIR Without JB
47	20HTA01CP051	Unit-2 FGD Bypass Damper-A Differential Pressure Transmitter	DPT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	8		2	LIE-20	
48	20HTC10CP302	Unit-2 Booster Fan A Differential Pressure Transmitter between suction & housing	DPT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	8		2	LIE-20	
49	20HTW01CP001	Unit-2 FGD Bypass Damper-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-20	LIE/LIR Without JB

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
50	20HTW01CP002	Unit-2 FGD Bypass Damper-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-20	LIE/LIR Without JB
51	20HTA01CP011	Unit-2 Untreated Flue gas pressure transmitter-1 (Absorber Inlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-21	LIE/LIR Without JB
52	20HTA01CP012	Unit-2 Untreated Flue gas pressure transmitter-2 (Absorber Inlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-21	LIE/LIR Without JB
53	20HTA02CP004	Unit-2 Booster Fan-B Outlet pressure transmitter 1	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-22	LIE/LIR Without JB
54	20HTA02CP051	Unit-2 FGD Bypass Damper-B Differential Pressure Transmitter	DPT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	8		2	LIE-22	
55	20HTC20CP302	Unit-2 Booster Fan B Differential Pressure Transmitter between suction & housing	DPT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	8		2	LIE-22	
56	20HTW02CP001	Unit-2 FGD Bypass Damper-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-22	LIE/LIR Without JB
57	20HTW02CP002	Unit-2 FGD Bypass Damper-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-22	LIE/LIR Without JB
58	20HTA01CP021	Unit-2 Treated Flue gas pressure transmitter (Absorber Outlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-23	LIE/LIR Without JB
59	00HTQ01CP011	Process water Pump-A Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-24	LIE/LIR Without JB
60	00HTQ01CP021	Process water Pump-B Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-24	LIE/LIR Without JB
61	00HTQ01CP031	Process water Pump-C Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-24	LIE/LIR Without JB
62	00HTQ02CP011	Process water Pump-D Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-24	LIE/LIR Without JB
63	00HTQ02CP021	Process water Pump-E Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-24	LIE/LIR Without JB
64	00HTQ02CP031	Process water Pump-F Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-24	LIE/LIR Without JB
65	20HTW01CP003	Unit-2 Booster Fan Inlet Gate-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-25	LIE/LIR Without JB
66	20HTW01CP004	Unit-2 Booster Fan Inlet Gate-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-25	LIE/LIR Without JB
67	20HTW01CP005	Unit-2 Booster Fan Outlet Gate-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-25	LIE/LIR Without JB
68	20HTW01CP006	Unit-2 Booster Fan Outlet Gate-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-25	LIE/LIR Without JB
69	00HTQ01CP001	Process Water Booster Pump A Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-26	LIE/LIR Without JB
70	00HTQ01CP002	Process Water Booster Pump B Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-26	LIE/LIR Without JB
71	00HTQ01CP003	Process Water Booster Pump Common Discharge Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-26	LIE/LIR Without JB
182	10HTY01CP001	Instrument Air Receiver Pressure Transmitter	PT	Inst Air	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-27	LIE/LIR Without JB
183	20HTY01CP001	Instrument Air Receiver Pressure Transmitter	PT	Inst Air	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-27	LIE/LIR Without JB
184	30HTY01CP001	Instrument Air Receiver Pressure Transmitter	PT	Inst Air	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-27	LIE/LIR Without JB
72	20HTW02CP003	Unit-2 Booster Fan Inlet Gate-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-28	LIE/LIR Without JB
73	20HTW02CP004	Unit-2 Booster Fan Inlet Gate-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-28	LIE/LIR Without JB
74	20HTW02CP005	Unit-2 Booster Fan Outlet Gate-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-28	LIE/LIR Without JB
75	20HTW02CP006	Unit-2 Booster Fan Outlet Gate-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-28	LIE/LIR Without JB
76	30HTC10CP003	Unit-3 Booster Fan A Suction Chamber Pressure Transmitter	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-3	
77	30HTC10CP004	Unit-3 Booster Fan A Pressure Transmitter at Diffuser	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6		1	LIE-3	
78	30HTC10CP005	Unit-3 Booster Fan A Seal Air Pressure Transmitter	PT	Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-3	LIE/LIR Without JB
79	30HTC20CP003	Unit-3 Booster Fan B Suction Chamber Pressure Transmitter	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6		1	LIE-3	
80	30HTC20CP004	Unit-3 Booster Fan B Pressure Transmitter at Diffuser	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6		1	LIE-3	
81	30HTC20CP005	Unit-3 Booster Fan B Seal Air Pressure Transmitter	PT	Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-3	LIE/LIR Without JB
82	30HTA01CP004	Unit-3 Booster Fan-A Outlet pressure transmitter 1	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-30	LIE/LIR Without JB
83	30HTA01CP051	Unit-3 FGD Bypass Damper-A Differential Pressure Transmitter	DPT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	8		2	LIE-30	
84	30HTC10CP302	Unit-3 Booster Fan A Differential Pressure Transmitter between suction & housing	DPT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	8		2	LIE-30	
85	30HTW01CP001	Unit-3 FGD Bypass Damper-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-30	LIE/LIR Without JB
86	30HTW01CP002	Unit-3 FGD Bypass Damper-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-30	LIE/LIR Without JB
87	30HTA01CP011	Unit-3 Untreated Flue gas pressure transmitter-1 (Absorber Inlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-31	LIE/LIR Without JB
88	30HTA01CP012	Unit-3 Untreated Flue gas pressure transmitter-2 (Absorber Inlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-31	LIE/LIR Without JB
89	30HTA02CP004	Unit-3 Booster Fan-B Outlet pressure transmitter 1	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-32	LIE/LIR Without JB
90	30HTA02CP051	Unit-3 FGD Bypass Damper-B Differential Pressure Transmitter	DPT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	8		2	LIE-32	
91	30HTC20CP302	Unit-3 Booster Fan B Differential Pressure Transmitter between suction & housing	DPT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	8		2	LIE-32	
92	30HTW02CP001	Unit-3 FGD Bypass Damper-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-32	LIE/LIR Without JB
93	30HTW02CP002	Unit-3 FGD Bypass Damper-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-32	LIE/LIR Without JB
94	30HTA01CP021	Unit-3 Treated Flue gas pressure transmitter (Absorber Outlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-33	LIE/LIR Without JB
95	30HTW01CP003	Unit-3 Booster Fan Inlet Gate-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-35	LIE/LIR Without JB

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
96	30HTW01CP004	Unit-3 Booster Fan Inlet Gate-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-35	LIE/LIR Without JB
97	30HTW01CP005	Unit-3 Booster Fan Outlet Gate-A Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-35	LIE/LIR Without JB
98	30HTW01CP006	Unit-3 Booster Fan Outlet Gate-A Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-35	LIE/LIR Without JB
99	00HTM02CP003	Process water to VBF Pressure Transmitter	PT	Process Water	COMMON	BAP RANIPET IN EDN	Fieldbus based	2			LIE-37	LIE/LIR Without JB
100	30HTW02CP003	Unit-3 Booster Fan Inlet Gate-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6	Yes	1	LIE-38	LIE/LIR Without JB
101	30HTW02CP004	Unit-3 Booster Fan Inlet Gate-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-38	LIE/LIR Without JB
102	30HTW02CP005	Unit-3 Booster Fan Outlet Gate-B Seal Air Blower-A Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-38	LIE/LIR Without JB
103	30HTW02CP006	Unit-3 Booster Fan Outlet Gate-B Seal Air Blower-B Pressure Transmitter	PT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6		1	LIE-38	LIE/LIR Without JB
104	10HTA01CP001	Unit-1 ID Fan A Outlet pressure transmitter 1 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-4	
105	10HTA01CP002	Unit-1 ID Fan A Outlet pressure transmitter 2 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6		1	LIE-4	
106	10HTA01CP003	Unit-1 ID Fan A Outlet pressure transmitter 3 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6		1	LIE-4	
107	10HTG01CP002	Unit-1 Oxidation Blower common discharge Pressure Transmitter	PT	Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	6			LIE-48	LIE/LIR Without JB
108	20HTG01CP002	Unit-2 Oxidation Blower common discharge Pressure Transmitter	PT	Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	6			LIE-48	LIE/LIR Without JB
109	30HTG01CP002	Unit-3 Oxidation Blower common discharge Pressure Transmitter	PT	Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	6			LIE-48	LIE/LIR Without JB
110	10HTE01CP001	Unit-1 Process water line to Mist eliminator pressure transmitter	PT	Process Water	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	2			LIE-49	LIE/LIR Without JB
111	10HTA02CP001	Unit-1 ID Fan B Outlet pressure transmitter 1 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-5	
112	10HTA02CP002	Unit-1 ID Fan B Outlet pressure transmitter 2 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6		1	LIE-5	
113	10HTA02CP003	Unit-1 ID Fan B Outlet pressure transmitter 3 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Conventional	6		1	LIE-5	
114	20HTE01CP001	Unit-2 Process water line to Mist eliminator pressure transmitter	PT	Process Water	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	2			LIE-50	LIE/LIR Without JB
115	30HTE01CP001	Unit-3 Process water line to Mist eliminator pressure transmitter	PT	Process Water	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	2			LIE-51	LIE/LIR Without JB
116	10HTG01CP001	Unit-1 Process water to JAS Inlet pressure transmitter	PT	Process Water	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	2			LIE-52	LIE/LIR Without JB
117	20HTG01CP001	Unit-2 Process water to JAS Inlet pressure transmitter	PT	Process Water	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	2			LIE-53	LIE/LIR Without JB
118	30HTG01CP001	Unit-3 Process water to JAS Inlet pressure transmitter	PT	Process Water	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	2			LIE-54	LIE/LIR Without JB
119	10HTA01CP052	Unit-1 Differential Pressure Between Absorber Inlet and Outlet	DPT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	8	Yes	2	LIE-55	LIE/LIR Without JB
120	20HTA01CP052	Unit-2 Differential Pressure Between Absorber Inlet and Outlet	DPT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	8		2	LIE-56	LIE/LIR Without JB
121	30HTA01CP052	Unit-3 Differential Pressure Between Absorber Inlet and Outlet	DPT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	8	Yes	2	LIE-57	LIE/LIR Without JB
122	10HTE01CP011	Unit-1 Differential Pressure Between Mist Eleminator-1	DPT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	8	Yes	2	LIE-58	LIE/LIR Without JB
123	10HTE01CP012	Unit-1 Differential Pressure Between Mist Eleminator-2	DPT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	8		2	LIE-58	LIE/LIR Without JB
124	10HTE01CP013	Unit-1 Differential Pressure Between Mist Eleminator-3	DPT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based	8		2	LIE-58	LIE/LIR Without JB
125	20HTE01CP011	Unit-2 Differential Pressure Between Mist Eleminator-1	DPT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	8	Yes	2	LIE-59	LIE/LIR Without JB
126	20HTE01CP012	Unit-2 Differential Pressure Between Mist Eleminator-2	DPT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	8		2	LIE-59	LIE/LIR Without JB
127	20HTE01CP013	Unit-2 Differential Pressure Between Mist Eleminator-3	DPT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based	8		2	LIE-59	LIE/LIR Without JB
128	20HTA01CP001	Unit-2 ID Fan A Outlet pressure transmitter 1 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-6	
129	20HTA01CP002	Unit-2 ID Fan A Outlet pressure transmitter 2 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6		1	LIE-6	
130	20HTA01CP003	Unit-2 ID Fan A Outlet pressure transmitter 3 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6		1	LIE-6	
131	30HTE01CP011	Unit-3 Differential Pressure Between Mist Eleminator-1	DPT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	8	Yes	2	LIE-60	LIE/LIR Without JB
132	30HTE01CP012	Unit-3 Differential Pressure Between Mist Eleminator-2	DPT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	8		2	LIE-60	LIE/LIR Without JB
133	30HTE01CP013	Unit-3 Differential Pressure Between Mist Eleminator-3	DPT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based	8		2	LIE-60	LIE/LIR Without JB
134	20HTA02CP001	Unit-2 ID Fan B Outlet pressure transmitter 1 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-7	
135	20HTA02CP002	Unit-2 ID Fan B Outlet pressure transmitter 2 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6		1	LIE-7	
136	20HTA02CP003	Unit-2 ID Fan B Outlet pressure transmitter 3 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Conventional	6		1	LIE-7	
137	30HTA01CP001	Unit-3 ID Fan A Outlet pressure transmitter 1 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-8	
138	30HTA01CP002	Unit-3 ID Fan A Outlet pressure transmitter 2 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6		1	LIE-8	
139	30HTA01CP003	Unit-3 ID Fan A Outlet pressure transmitter 3 (Bypass Duct/BUF A Inlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6		1	LIE-8	
140	30HTA02CP001	Unit-3 ID Fan B Outlet pressure transmitter 1 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6	Yes	1	LIE-9	
141	30HTA02CP002	Unit-3 ID Fan B Outlet pressure transmitter 2 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6		1	LIE-9	
142	30HTA02CP003	Unit-3 ID Fan B Outlet pressure transmitter 3 (Bypass Duct/BUF B Inlet)	PT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Conventional	6		1	LIE-9	
143	00LCP00CL011	ECW O/H TANK FOR FGD LEVEL	LT(DP TYPE)	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-01	LIE/LIR Without JB
144	00LCP00CL012	ECW O/H TANK FOR FGD LEVEL	LT(DP TYPE)	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-01	LIE/LIR Without JB

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
145	00PGB00CP011	ECW PUMP FOR FGD AUX. SUC HDR PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-01	LIE/LIR Without JB
146	00PGB00CP012	ECW PUMP FOR FGD AUX. SUC HDR PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-01	LIE/LIR Without JB
147	00PGB00CP013	ECW PUMP FOR FGD AUX. SUC HDR PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-01	LIE/LIR Without JB
148	00PGB01CP011	ECW PUMP FOR FGD AUX.-A O/L PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-02	LIE/LIR Without JB
149	00PGB02CP011	ECW PUMP FOR FGD AUX.-B O/L PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-02	LIE/LIR Without JB
150	00PGB03CP011	ECW PUMP FOR FGD AUX.-C O/L PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-02	LIE/LIR Without JB
151	00PGB04CP011	ECW PUMP FOR FGD AUX.-D O/L PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-02	LIE/LIR Without JB
152	00PGB05CF011	ECW PUMP FOR FGD AUX. DISCH HDR FLOW	FT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-03	LIE/LIR Without JB
153	00PGB05CP011	ECW PUMP FOR FGD AUX. DISCH HDR PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-03	LIE/LIR Without JB
154	00PGB05CP012	ECW PUMP FOR FGD AUX. DISCH HDR PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-03	LIE/LIR Without JB
155	00PGB05CP013	ECW PUMP FOR FGD AUX. DISCH HDR PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-03	LIE/LIR Without JB
156	00PGB10CP011	DP ACROSS RETURN LINE CV ECW 14	DPT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-03	LIE/LIR Without JB
157	00PGB10CP012	DP ACROSS RETURN LINE CV ECW 14	DPT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-03	LIE/LIR Without JB
161	00PGB06CP011	DIFF PRESS ACROSS PHE FOR FGD AUX.-A	DPT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-04	LIE/LIR Without JB
162	00PGB07CP011	DIFF PRESS ACROSS PHE FOR FGD AUX.-B	DPT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-04	LIE/LIR Without JB
163	00PGB08CP011	DIFF PRESS ACROSS PHE FOR FGD AUX.-C	DPT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-04	LIE/LIR Without JB
164	00PGB09CP011	DIFF PRESS ACROSS PHE FOR FGD AUX.-D	DPT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-04	LIE/LIR Without JB
158	00PGB12CF511	PHE FOR FGD AUX. DISCH HDR FLOW	FT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-04	LIE/LIR Without JB
159	00PGB12CP011	PHE FOR FGD AUX. DISCH HDR PRESS	PT	ECW	COMMON	PEM EDN	Fieldbus based	2			LIR-04	LIE/LIR Without JB
160	00PGB90CF511	ECW O/L FLOW	FT	ECW	COMMON	PEM EDN	Fieldbus based	4			LIR-04	LIE/LIR Without JB
165	00PCB30CP011	ACW PUMPs I/L HDR PRESS	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-05	LIE/LIR Without JB
166	00PCB30CP012	ACW PUMPs I/L HDR PRESS	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-05	LIE/LIR Without JB
167	00PCB30CP013	ACW PUMPs I/L HDR PRESS	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-05	LIE/LIR Without JB
168	00PCB45CF011	M/U FROM SERVICE WTR PUMP TO COOLING TOWER	FT	ACW	COMMON	PEM EDN	Fieldbus based	4			LIR-05	LIE/LIR Without JB
169	00PCB46CL011	COOLING TOWER BASIN LEVEL	LT(DP TYPE)	ACW	COMMON	PEM EDN	Fieldbus based	4			LIR-05	LIE/LIR Without JB
170	00PCB31CP011	ACW PUMP A DISCH PR	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-06	LIE/LIR Without JB
171	00PCB32CP011	ACW PUMP B DISCH PR	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-06	LIE/LIR Without JB
172	00PCB33CP011	ACW PUMP C DISCH PR	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-06	LIE/LIR Without JB
173	00PCB34CP011	ACW PUMP D DISCH PR	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-06	LIE/LIR Without JB
174	00PCB36CP011	ACW PUMPs O/L HDR PRESS	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-07	LIE/LIR Without JB
175	00PCB36CP012	ACW PUMPs O/L HDR PRESS	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-07	LIE/LIR Without JB
176	00PCB36CP013	ACW PUMPs O/L HDR PRESS	PT	ACW	COMMON	PEM EDN	Fieldbus based	2			LIR-07	LIE/LIR Without JB
177	00PCB40CF011	SCS HEADER FLOW	FT	ACW	COMMON	PEM EDN	Fieldbus based	4			LIR-07	LIE/LIR Without JB
178	00PCB41CP011	DIFF PRESS ACROSS PHE FOR FGD AUX.-A	DPT	ACW	COMMON	PEM EDN	Fieldbus based	4			LIR-08	LIE/LIR Without JB
179	00PCB42CP011	DIFF PRESS ACROSS PHE FOR FGD AUX.-B	DPT	ACW	COMMON	PEM EDN	Fieldbus based	4			LIR-08	LIE/LIR Without JB
180	00PCB43CP101	DIFF PRESS ACROSS PHE FOR FGD AUX.-C	DPT	ACW	COMMON	PEM EDN	Fieldbus based	4			LIR-08	LIE/LIR Without JB
181	00PCB44CP011	DIFF PRESS ACROSS PHE FOR FGD AUX.-D	DPT	ACW	COMMON	PEM EDN	Fieldbus based	4			LIR-08	LIE/LIR Without JB
185	10HTC01CT012	Unit-1 Booster Fan-A Suction TT-1	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Conventional				TTE-1	
186	10HTC02CT012	Unit-1 Booster Fan-B Suction TT-1	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Conventional				TTE-1	
187	10HTC01CT021	Unit1 Booster FanA motor winding RTD based temperature Transmitter-1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
188	10HTC01CT022	Unit1 Booster FanA motor winding RTD based temperature Transmitter-2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
189	10HTC01CT023	Unit1 Booster FanA motor winding RTD based temperature Transmitter-3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
190	10HTC01CT024	Unit1 Booster FanA motor winding RTD based temperature Transmitter-4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
191	10HTC01CT025	Unit1 Booster FanA motor winding RTD based temperature Transmitter-5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
192	10HTC01CT026	Unit1 Booster FanA motor winding RTD based temperature Transmitter-6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
193	10HTC01CT027	Unit1 Booster FanA motor winding RTD based temperature Transmitter-7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
194	10HTC01CT028	Unit1 Booster FanA motor winding RTD based temperature Transmitter-8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
195	10HTC01CT029	Unit1 Booster FanA motor winding RTD based temperature Transmitter-9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	

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196	10HTC01CT030	Unit1 Booster FanA motor winding RTD based temperature Transmitter-10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
197	10HTC01CT031	Unit1 Booster FanA motor winding RTD based temperature Transmitter-11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
198	10HTC01CT032	Unit1 Booster FanA motor winding RTD based temperature Transmitter-12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-10	
199	30HTW01CT003	Unit-3 Booster Fan Inlet Gate-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-100	
200	30HTW01CT004	Unit-3 Booster Fan Inlet Gate-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-100	
201	30HTW01CT005	Unit-3 Booster Fan Outlet Gate-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-100	
202	30HTW01CT006	Unit-3 Booster Fan Outlet Gate-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-100	
203	30HTW02CT001	Unit-3 FGD Bypass Damper-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-101	
204	30HTW02CT002	Unit-3 FGD Bypass Damper-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-101	
205	30HTW02CT003	Unit-3 Booster Fan Inlet Gate-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-102	
206	30HTW02CT004	Unit-3 Booster Fan Inlet Gate-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-102	
207	30HTW02CT005	Unit-3 Booster Fan Outlet Gate-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-102	
208	30HTW02CT006	Unit-3 Booster Fan Outlet Gate-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-102	
209	00HTK01CT101	Ball Mill A Front Bearing Temperature Transmitter	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-103	
210	00HTK01CT102	Ball Mill A Front Bearing Temperature Transmitter	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-103	
211	00HTK01CT103	Ball Mill A Rear Bearing Temperature Transmitter	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-103	
212	00HTK01CT104	Ball Mill A Rear Bearing Temperature Transmitter	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-103	
213	00HTK02CT101	Ball Mill B Front Bearing Temperature Transmitter	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-103	
214	00HTK02CT102	Ball Mill B Front Bearing Temperature Transmitter	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-103	
215	00HTK02CT103	Ball Mill B Rear Bearing Temperature Transmitter	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-103	
216	00HTK02CT104	Ball Mill B Rear Bearing Temperature Transmitter	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-103	
217	10HTC01CT015	Unit1 Booster FanA motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-11	
218	10HTC01CT016	Unit1 Booster FanA motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-11	
219	10HTC01CT017	Unit1 Booster FanA motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-11	
220	10HTC01CT018	Unit1 Booster FanA motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-11	
221	10HTC01CT019	Unit1 Booster FanA motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-11	
222	10HTC01CT020	Unit1 Booster FanA motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-11	
223	10HTC01CT001	Unit-1 Booster Fan-A bearing RTD-1	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
224	10HTC01CT002	Unit-1 Booster Fan-A bearing RTD-2	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
225	10HTC01CT003	Unit-1 Booster Fan-A bearing RTD-3	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
226	10HTC01CT004	Unit-1 Booster Fan-A bearing RTD-4	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
227	10HTC01CT005	Unit-1 Booster Fan-A bearing RTD-5	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
228	10HTC01CT006	Unit-1 Booster Fan-A bearing RTD-6	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
229	10HTC01CT007	Unit-1 Booster Fan-A bearing RTD-7	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
230	10HTC01CT008	Unit-1 Booster Fan-A bearing RTD-8	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
231	10HTC01CT009	Unit-1 Booster Fan-A bearing RTD-9	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
232	10HTC01CT010	Unit-1 Booster Fan-A Bearing Room temp TT-1	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
233	10HTC01CT011	Unit-1 Booster Fan-A HYD Room temp TT-1	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-12	
234	10HTC02CT021	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
235	10HTC02CT022	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
236	10HTC02CT023	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
237	10HTC02CT024	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
238	10HTC02CT025	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
239	10HTC02CT026	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
240	10HTC02CT027	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
241	10HTC02CT028	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
242	10HTC02CT029	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
243	10HTC02CT030	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
244	10HTC02CT031	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	

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245	10HTC02CT032	Unit1 Booster Fan-B motor winding RTD based temperature Transmitter-12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-13	
246	10HTC02CT015	Unit1 Booster Fan-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-14	
247	10HTC02CT016	Unit1 Booster Fan-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-14	
248	10HTC02CT017	Unit1 Booster Fan-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-14	
249	10HTC02CT018	Unit1 Booster Fan-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-14	
250	10HTC02CT019	Unit1 Booster Fan-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-14	
251	10HTC02CT020	Unit1 Booster Fan-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-14	
252	10HTC02CT001	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
253	10HTC02CT002	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
254	10HTC02CT003	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
255	10HTC02CT004	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
256	10HTC02CT005	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
257	10HTC02CT006	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
258	10HTC02CT007	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
259	10HTC02CT008	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
260	10HTC02CT009	Unit-1 Booster Fan-B bearing RTD	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
261	10HTC02CT010	Unit-1 Booster Fan-B Bearing Room temp TT-1	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
262	10HTC02CT011	Unit-1 Booster Fan-B HYD Room temp TT-2	TT	FAN	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-15	
263	20HTA01CT001	Unit-2 ID Fan A Outlet (Bypass Duct-A)temperature transmitter 1	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-16	
264	20HTA01CT002	Unit-2 ID Fan A Outlet (Bypass Duct-A) temperature transmitter 2	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-16	
265	20HTA01CT003	Unit-2 ID Fan A Outlet (Bypass Duct-A) temperature transmitter 3	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-16	
266	20HTA01CT004	Unit-2 Booster Fan- A Outlet Temperature	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-17	
267	20HTA01CT011	Unit -2 Absorber Inlet temperature transmitter 1	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-18	
268	20HTA01CT012	Unit -2 Absorber Inlet temperature transmitter 2	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-18	
269	20HTA01CT013	Unit -2 Absorber Inlet temperature transmitter 3	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-18	
270	20HTA01CT021	Unit -2 Absorber Outlet temperature transmitter 1	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-19	
271	20HTA01CT022	Unit -2 Absorber Outlet temperature transmitter 2	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-19	
272	20HTA01CT023	Unit -2 Absorber Outlet temperature transmitter 3	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-19	
273	20HTC01CT012	Unit-2 Booster Fan-A Suction TT-1	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Conventional				TTE-2	
274	20HTC02CT012	Unit-2 Booster Fan-B Suction TT-1	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Conventional				TTE-2	
275	20HTA02CT001	Unit-2 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 1	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-20	
276	20HTA02CT002	Unit-2 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 2	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-20	
277	20HTA02CT003	Unit-2 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 3	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-20	
278	20HTA02CT004	Unit-2 Booster Fan- B Outlet Temperature	TT	Flue Gas	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-21	
279	20HTC01CT021	Unit2 Booster FanA motor winding RTD based temperature Transmitter-1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
280	20HTC01CT022	Unit2 Booster FanA motor winding RTD based temperature Transmitter-2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
281	20HTC01CT023	Unit2 Booster FanA motor winding RTD based temperature Transmitter-3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
282	20HTC01CT024	Unit2 Booster FanA motor winding RTD based temperature Transmitter-4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
283	20HTC01CT025	Unit2 Booster FanA motor winding RTD based temperature Transmitter-5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
284	20HTC01CT026	Unit2 Booster FanA motor winding RTD based temperature Transmitter-6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
285	20HTC01CT027	Unit2 Booster FanA motor winding RTD based temperature Transmitter-7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
286	20HTC01CT028	Unit2 Booster FanA motor winding RTD based temperature Transmitter-8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
287	20HTC01CT029	Unit2 Booster FanA motor winding RTD based temperature Transmitter-9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
288	20HTC01CT030	Unit2 Booster FanA motor winding RTD based temperature Transmitter-10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
289	20HTC01CT031	Unit2 Booster FanA motor winding RTD based temperature Transmitter-11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
290	20HTC01CT032	Unit2 Booster FanA motor winding RTD based temperature Transmitter-12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-22	
291	20HTC01CT015	Unit2 Booster FanA motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-23	
292	20HTC01CT016	Unit2 Booster FanA motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-23	
293	20HTC01CT017	Unit2 Booster FanA motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-23	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
294	20HTC01CT018	Unit2 Booster FanA motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-23	
295	20HTC01CT019	Unit2 Booster FanA motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-23	
296	20HTC01CT020	Unit2 Booster FanA motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-23	
297	20HTC01CT001	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
298	20HTC01CT002	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
299	20HTC01CT003	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
300	20HTC01CT004	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
301	20HTC01CT005	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
302	20HTC01CT006	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
303	20HTC01CT007	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
304	20HTC01CT008	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
305	20HTC01CT009	Unit2 Booster Fan-A bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
306	20HTC01CT010	Unit-2 Booster Fan-A Bearing Room temp TT-1	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
307	20HTC01CT011	Unit-2 Booster Fan-A HYD Room temp TT-2	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-24	
308	20HTC02CT021	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
309	20HTC02CT022	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
310	20HTC02CT023	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
311	20HTC02CT024	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
312	20HTC02CT025	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
313	20HTC02CT026	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
314	20HTC02CT027	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
315	20HTC02CT028	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
316	20HTC02CT029	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
317	20HTC02CT030	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
318	20HTC02CT031	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
319	20HTC02CT032	Unit2 Booster Fan-B motor winding RTD based temperature Transmitter-12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-25	
320	20HTC02CT015	Unit2 Booster Fan-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-26	
321	20HTC02CT016	Unit2 Booster Fan-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-26	
322	20HTC02CT017	Unit2 Booster Fan-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-26	
323	20HTC02CT018	Unit2 Booster Fan-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-26	
324	20HTC02CT019	Unit2 Booster Fan-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-26	
325	20HTC02CT020	Unit2 Booster Fan-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-26	
326	20HTC02CT001	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
327	20HTC02CT002	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
328	20HTC02CT003	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
329	20HTC02CT004	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
330	20HTC02CT005	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
331	20HTC02CT006	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
332	20HTC02CT007	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
333	20HTC02CT008	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
334	20HTC02CT009	Unit2 Booster Fan-B bearing RTD	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
335	20HTC02CT010	Unit-2 Booster Fan-B Bearing Room temp TT-1	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
336	20HTC02CT011	Unit-2 Booster Fan-B HYD Room temp TT-2	TT	FAN	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-27	
337	30HTA01CT001	Unit-3 ID Fan A Outlet (Bypass Duct-A)temperature transmitter 1	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-28	
338	30HTA01CT002	Unit-3 ID Fan A Outlet (Bypass Duct-A) temperature transmitter 2	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-28	
339	30HTA01CT003	Unit-3 ID Fan A Outlet (Bypass Duct-A) temperature transmitter 3	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-28	
340	30HTA01CT004	Unit-3 Booster Fan- A Outlet Temperature	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-29	
341	30HTC01CT012	Unit-3 Booster Fan-A Suction TT-1	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Conventional				TTE-3	
342	30HTC02CT012	Unit-3 Booster Fan-B Suction TT-1	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Conventional				TTE-3	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
343	30HTA01CT011	Unit-3 Absorber Inlet temperature transmitter 1	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-30	
344	30HTA01CT012	Unit-3 Absorber Inlet temperature transmitter 2	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-30	
345	30HTA01CT013	Unit-3 Absorber Inlet temperature transmitter 3	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-30	
346	30HTA01CT021	Unit-3 Absorber Outlet temperature transmitter 1	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-31	
347	30HTA01CT022	Unit-3 Absorber Outlet temperature transmitter 2	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-31	
348	30HTA01CT023	Unit-3 Absorber Outlet temperature transmitter 3	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-31	
349	30HTA02CT001	Unit-3 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 1	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-32	
350	30HTA02CT002	Unit-3 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 2	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-32	
351	30HTA02CT003	Unit-3 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 3	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-32	
352	30HTA02CT004	Unit-3 Booster Fan- B Outlet Temperature	TT	Flue Gas	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-33	
353	30HTC01CT021	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
354	30HTC01CT022	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
355	30HTC01CT023	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
356	30HTC01CT024	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
357	30HTC01CT025	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
358	30HTC01CT026	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
359	30HTC01CT027	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
360	30HTC01CT028	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
361	30HTC01CT029	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
362	30HTC01CT030	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
363	30HTC01CT031	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
364	30HTC01CT032	Unit-3 Booster FanA motor winding RTD based temperature Transmitter-12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-34	
365	30HTC01CT015	Unit-3 Booster FanA motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-35	
366	30HTC01CT016	Unit-3 Booster FanA motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-35	
367	30HTC01CT017	Unit-3 Booster FanA motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-35	
368	30HTC01CT018	Unit-3 Booster FanA motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-35	
369	30HTC01CT019	Unit-3 Booster FanA motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-35	
370	30HTC01CT020	Unit-3 Booster FanA motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-35	
371	30HTC01CT001	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
372	30HTC01CT002	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
373	30HTC01CT003	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
374	30HTC01CT004	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
375	30HTC01CT005	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
376	30HTC01CT006	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
377	30HTC01CT007	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
378	30HTC01CT008	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
379	30HTC01CT009	Unit-3 Booster Fan-A bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
380	30HTC01CT010	Unit-3 Booster Fan-A Bearing Room temp TT-1	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
381	30HTC01CT011	Unit-3 Booster Fan-A HYD Room temp TT-2	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-36	
382	30HTC02CT021	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
383	30HTC02CT022	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
384	30HTC02CT023	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
385	30HTC02CT024	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
386	30HTC02CT025	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
387	30HTC02CT026	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
388	30HTC02CT027	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
389	30HTC02CT028	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
390	30HTC02CT029	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
391	30HTC02CT030	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
392	30HTC02CT031	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
393	30HTC02CT032	Unit-3 Booster Fan-B motor winding RTD based temperature Transmitter-12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-37	
394	30HTC02CT015	Unit-3 Booster Fan-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-38	
395	30HTC02CT016	Unit-3 Booster Fan-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-38	
396	30HTC02CT017	Unit-3 Booster Fan-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-38	
397	30HTC02CT018	Unit-3 Booster Fan-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-38	
398	30HTC02CT019	Unit-3 Booster Fan-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-38	
399	30HTC02CT020	Unit-3 Booster Fan-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-38	
400	30HTC02CT001	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
401	30HTC02CT002	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
402	30HTC02CT003	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
403	30HTC02CT004	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
404	30HTC02CT005	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
405	30HTC02CT006	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
406	30HTC02CT007	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
407	30HTC02CT008	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
408	30HTC02CT009	Unit-3 Booster Fan-B bearing RTD	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
409	30HTC02CT010	Unit-3 Booster Fan-B Bearing Room temp TT-1	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
410	30HTC02CT011	Unit-3 Booster Fan-B HYD Room temp TT-2	TT	FAN	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-39	
411	10HTA01CT001	Unit-1 ID Fan A Outlet (Bypass Duct-A)temperature transmitter 1	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-4	
412	10HTA01CT002	Unit-1 ID Fan A Outlet (Bypass Duct-A) temperature transmitter 2	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-4	
413	10HTA01CT003	Unit-1 ID Fan A Outlet (Bypass Duct-A) temperature transmitter 3	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-4	
414	10HTG01CT011	Unit-1 Oxidation Blower common discharge to JAS inlet temperature transmitter	TT	Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-40	
415	20HTG01CT011	Unit-2 Oxidation Blower common discharge to JAS inlet temperature transmitter	TT	Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-41	
416	30HTG01CT011	Unit-3 Oxidation Blower common discharge to JAS inlet temperature transmitter	TT	Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-42	
417	10HTG01CT001	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
418	10HTG01CT002	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
419	10HTG01CT003	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
420	10HTG01CT004	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
421	10HTG01CT005	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
422	10HTG01CT006	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
423	10HTG01CT007	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
424	10HTG01CT008	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
425	10HTG01CT009	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
426	10HTG01CT061	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
427	10HTG01CT062	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
428	10HTG01CT063	Unit-1 Oxidation Blower-A motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-43	
429	10HTG01CT021	Unit-1 Oxidation Blower-A motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
430	10HTG01CT022	Unit-1 Oxidation Blower-A motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
431	10HTG01CT023	Unit-1 Oxidation Blower-A motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
432	10HTG01CT031	Unit-1 Oxidation Blower-A motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
433	10HTG01CT032	Unit-1 Oxidation Blower-A motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
434	10HTG01CT033	Unit-1 Oxidation Blower-A motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
435	10HTG01CT041	Unit-1 Oxidation Blower-A RTD based temperature Transmitter1 - DE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
436	10HTG01CT042	Unit-1 Oxidation Blower-A RTD based temperature Transmitter2 - DE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
437	10HTG01CT043	Unit-1 Oxidation Blower-A RTD based temperature Transmitter3 - DE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
438	10HTG01CT051	Unit-1 Oxidation Blower-A RTD based temperature Transmitter1 - NDE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
439	10HTG01CT052	Unit-1 Oxidation Blower-A RTD based temperature Transmitter2 - NDE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	
440	10HTG01CT053	Unit-1 Oxidation Blower-A RTD based temperature Transmitter3 - NDE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-44	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
441	10HTG02CT001	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
442	10HTG02CT002	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
443	10HTG02CT003	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
444	10HTG02CT004	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
445	10HTG02CT005	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
446	10HTG02CT006	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
447	10HTG02CT007	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
448	10HTG02CT008	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
449	10HTG02CT009	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
450	10HTG02CT061	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
451	10HTG02CT062	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
452	10HTG02CT063	Unit-1 Oxidation Blower-B motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-45	
453	10HTG02CT021	Unit-1 Oxidation Blower-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
454	10HTG02CT022	Unit-1 Oxidation Blower-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
455	10HTG02CT023	Unit-1 Oxidation Blower-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
456	10HTG02CT031	Unit-1 Oxidation Blower-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
457	10HTG02CT032	Unit-1 Oxidation Blower-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
458	10HTG02CT033	Unit-1 Oxidation Blower-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
459	10HTG02CT041	Unit-1 Oxidation Blower-B RTD based temperature Transmitter1 - DE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
460	10HTG02CT042	Unit-1 Oxidation Blower-B RTD based temperature Transmitter2 - DE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
461	10HTG02CT043	Unit-1 Oxidation Blower-B RTD based temperature Transmitter3 - DE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
462	10HTG02CT051	Unit-1 Oxidation Blower-B RTD based temperature Transmitter1 - NDE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
463	10HTG02CT052	Unit-1 Oxidation Blower-B RTD based temperature Transmitter2 - NDE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
464	10HTG02CT053	Unit-1 Oxidation Blower-B RTD based temperature Transmitter3 - NDE	TT	blower	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-46	
465	20HTG01CT001	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
466	20HTG01CT002	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
467	20HTG01CT003	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
468	20HTG01CT004	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
469	20HTG01CT005	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
470	20HTG01CT006	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
471	20HTG01CT007	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
472	20HTG01CT008	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
473	20HTG01CT009	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
474	20HTG01CT061	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
475	20HTG01CT062	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
476	20HTG01CT063	Unit-2 Oxidation Blower-A motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-47	
477	20HTG01CT021	Unit-2 Oxidation Blower-A motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
478	20HTG01CT022	Unit-2 Oxidation Blower-A motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
479	20HTG01CT023	Unit-2 Oxidation Blower-A motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
480	20HTG01CT031	Unit-2 Oxidation Blower-A motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
481	20HTG01CT032	Unit-2 Oxidation Blower-A motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
482	20HTG01CT033	Unit-2 Oxidation Blower-A motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
483	20HTG01CT041	Unit-2 Oxidation Blower-A RTD based temperature Transmitter1 - DE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
484	20HTG01CT042	Unit-2 Oxidation Blower-A RTD based temperature Transmitter2 - DE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
485	20HTG01CT043	Unit-2 Oxidation Blower-A RTD based temperature Transmitter3 - DE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
486	20HTG01CT051	Unit-2 Oxidation Blower-A RTD based temperature Transmitter1 - NDE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
487	20HTG01CT052	Unit-2 Oxidation Blower-A RTD based temperature Transmitter2 - NDE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
488	20HTG01CT053	Unit-2 Oxidation Blower-A RTD based temperature Transmitter3 - NDE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-48	
489	20HTG02CT001	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
490	20HTG02CT002	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
491	20HTG02CT003	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
492	20HTG02CT004	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
493	20HTG02CT005	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
494	20HTG02CT006	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
495	20HTG02CT007	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
496	20HTG02CT008	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
497	20HTG02CT009	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
498	20HTG02CT061	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
499	20HTG02CT062	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
500	20HTG02CT063	Unit-2 Oxidation Blower-B motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-49	
501	10HTA01CT004	Unit-1 Booster Fan- A Outlet Temperature	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-5	
502	20HTG02CT021	Unit-2 Oxidation Blower-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
503	20HTG02CT022	Unit-2 Oxidation Blower-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
504	20HTG02CT023	Unit-2 Oxidation Blower-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
505	20HTG02CT031	Unit-2 Oxidation Blower-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
506	20HTG02CT032	Unit-2 Oxidation Blower-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
507	20HTG02CT033	Unit-2 Oxidation Blower-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
508	20HTG02CT041	Unit-2 Oxidation Blower-B RTD based temperature Transmitter1 - DE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
509	20HTG02CT042	Unit-2 Oxidation Blower-B RTD based temperature Transmitter2 - DE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
510	20HTG02CT043	Unit-2 Oxidation Blower-B RTD based temperature Transmitter3 - DE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
511	20HTG02CT051	Unit-2 Oxidation Blower-B RTD based temperature Transmitter1 - NDE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
512	20HTG02CT052	Unit-2 Oxidation Blower-B RTD based temperature Transmitter2 - NDE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
513	20HTG02CT053	Unit-2 Oxidation Blower-B RTD based temperature Transmitter3 - NDE	TT	blower	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-50	
514	30HTG01CT001	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
515	30HTG01CT002	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
516	30HTG01CT003	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
517	30HTG01CT004	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
518	30HTG01CT005	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
519	30HTG01CT006	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
520	30HTG01CT007	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
521	30HTG01CT008	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
522	30HTG01CT009	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
523	30HTG01CT061	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
524	30HTG01CT062	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
525	30HTG01CT063	Unit-3 Oxidation Blower-A motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-51	
526	30HTG01CT021	Unit-3 Oxidation Blower-A motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
527	30HTG01CT022	Unit-3 Oxidation Blower-A motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
528	30HTG01CT023	Unit-3 Oxidation Blower-A motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
529	30HTG01CT031	Unit-3 Oxidation Blower-A motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
530	30HTG01CT032	Unit-3 Oxidation Blower-A motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
531	30HTG01CT033	Unit-3 Oxidation Blower-A motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
532	30HTG01CT041	Unit-3 Oxidation Blower-A RTD based temperature Transmitter1 - DE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
533	30HTG01CT042	Unit-3 Oxidation Blower-A RTD based temperature Transmitter2 - DE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
534	30HTG01CT043	Unit-3 Oxidation Blower-A RTD based temperature Transmitter3 - DE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
535	30HTG01CT051	Unit-3 Oxidation Blower-A RTD based temperature Transmitter1 - NDE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
536	30HTG01CT052	Unit-3 Oxidation Blower-A RTD based temperature Transmitter2 - NDE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
537	30HTG01CT053	Unit-3 Oxidation Blower-A RTD based temperature Transmitter3 - NDE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-52	
538	30HTG02CT001	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
539	30HTG02CT002	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
540	30HTG02CT003	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
541	30HTG02CT004	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
542	30HTG02CT005	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
543	30HTG02CT006	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
544	30HTG02CT007	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
545	30HTG02CT008	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
546	30HTG02CT009	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
547	30HTG02CT061	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
548	30HTG02CT062	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
549	30HTG02CT063	Unit-3 Oxidation Blower-B motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-53	
550	30HTG02CT021	Unit-3 Oxidation Blower-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
551	30HTG02CT022	Unit-3 Oxidation Blower-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
552	30HTG02CT023	Unit-3 Oxidation Blower-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
553	30HTG02CT031	Unit-3 Oxidation Blower-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
554	30HTG02CT032	Unit-3 Oxidation Blower-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
555	30HTG02CT033	Unit-3 Oxidation Blower-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
556	30HTG02CT041	Unit-3 Oxidation Blower-B RTD based temperature Transmitter1 - DE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
557	30HTG02CT042	Unit-3 Oxidation Blower-B RTD based temperature Transmitter2 - DE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
558	30HTG02CT043	Unit-3 Oxidation Blower-B RTD based temperature Transmitter3 - DE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
559	30HTG02CT051	Unit-3 Oxidation Blower-B RTD based temperature Transmitter1 - NDE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
560	30HTG02CT052	Unit-3 Oxidation Blower-B RTD based temperature Transmitter2 - NDE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
561	30HTG02CT053	Unit-3 Oxidation Blower-B RTD based temperature Transmitter3 - NDE	TT	blower	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-54	
562	00HTK01CT001	Ball Mill motor A winding temperature transmitter 1	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
563	00HTK01CT002	Ball Mill motor A winding temperature transmitter 2	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
564	00HTK01CT003	Ball Mill motor A winding temperature transmitter 3	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
565	00HTK01CT004	Ball Mill motor A winding temperature transmitter 4	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
566	00HTK01CT005	Ball Mill motor A winding temperature transmitter 5	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
567	00HTK01CT006	Ball Mill motor A winding temperature transmitter 6	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
568	00HTK01CT007	Ball Mill motor A winding temperature transmitter 7	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
569	00HTK01CT008	Ball Mill motor A winding temperature transmitter 8	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
570	00HTK01CT009	Ball Mill motor A winding temperature transmitter 9	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
571	00HTK01CT010	Ball Mill motor A winding temperature transmitter 10	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
572	00HTK01CT011	Ball Mill motor A winding temperature transmitter 11	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
573	00HTK01CT012	Ball Mill motor A winding temperature transmitter 12	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-55	
574	00HTK01CT021	Ball Mill motor A motor bearing RTD based temperature Transmitter1-DE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-56	
575	00HTK01CT022	Ball Mill motor A motor bearing RTD based temperature Transmitter2-DE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-56	
576	00HTK01CT023	Ball Mill motor A motor bearing RTD based temperature Transmitter3-DE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-56	
577	00HTK01CT031	Ball Mill motor A motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-56	
578	00HTK01CT032	Ball Mill motor A motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-56	
579	00HTK01CT033	Ball Mill motor A motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-56	
580	00HTK02CT001	Ball Mill motor B winding temperature transmitter 1	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
581	00HTK02CT002	Ball Mill motor B winding temperature transmitter 2	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
582	00HTK02CT003	Ball Mill motor B winding temperature transmitter 3	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
583	00HTK02CT004	Ball Mill motor B winding temperature transmitter 4	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
584	00HTK02CT005	Ball Mill motor B winding temperature transmitter 5	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
585	00HTK02CT006	Ball Mill motor B winding temperature transmitter 6	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
586	00HTK02CT007	Ball Mill motor B winding temperature transmitter 7	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
587	00HTK02CT008	Ball Mill motor B winding temperature transmitter 8	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
588	00HTK02CT009	Ball Mill motor B winding temperature transmitter 9	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
589	00HTK02CT010	Ball Mill motor B winding temperature transmitter 10	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
590	00HTK02CT011	Ball Mill motor B winding temperature transmitter 11	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
591	00HTK02CT012	Ball Mill motor B winding temperature transmitter 12	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-57	
592	00HTK02CT021	Ball Mill motor B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-58	
593	00HTK02CT022	Ball Mill motor B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-58	
594	00HTK02CT023	Ball Mill motor B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-58	
595	00HTK02CT031	Ball Mill motor B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-58	
596	00HTK02CT032	Ball Mill motor B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-58	
597	00HTK02CT033	Ball Mill motor B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-58	
598	10HTD10CT001	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
599	10HTD10CT002	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
600	10HTD10CT003	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
601	10HTD10CT004	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
602	10HTD10CT005	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
603	10HTD10CT006	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
604	10HTD10CT007	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
605	10HTD10CT008	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
606	10HTD10CT009	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
607	10HTD10CT010	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
608	10HTD10CT011	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
609	10HTD10CT012	Unit-1 RC Pump-A motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-59	
610	10HTA01CT011	Unit -1 Absorber Inlet temperature transmitter 1	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-6	
611	10HTA01CT012	Unit -1 Absorber Inlet temperature transmitter 2	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-6	
612	10HTA01CT013	Unit -1 Absorber Inlet temperature transmitter 3	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-6	
613	10HTD10CT021	Unit-1 RC Pump-A motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
614	10HTD10CT022	Unit-1 RC Pump-A motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
615	10HTD10CT023	Unit-1 RC Pump-A motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
616	10HTD10CT031	Unit-1 RC Pump-A motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
617	10HTD10CT032	Unit-1 RC Pump-A motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
618	10HTD10CT033	Unit-1 RC Pump-A motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
619	10HTD10CT041	Unit-1 RC Pump-A RTD based temperature Transmitter1	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
620	10HTD10CT042	Unit-1 RC Pump-A RTD based temperature Transmitter2	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
621	10HTD10CT043	Unit-1 RC Pump-A RTD based temperature Transmitter3	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
622	10HTD10CT051	Unit-1 RC Pump-A RTD based temperature Transmitter4	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
623	10HTD10CT052	Unit-1 RC Pump-A RTD based temperature Transmitter5	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
624	10HTD10CT053	Unit-1 RC Pump-A RTD based temperature Transmitter6	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-60	
625	10HTD20CT001	Unit1 RC Pump-B motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
626	10HTD20CT002	Unit1 RC Pump-B motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
627	10HTD20CT003	Unit1 RC Pump-B motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
628	10HTD20CT004	Unit1 RC Pump-B motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
629	10HTD20CT005	Unit1 RC Pump-B motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
630	10HTD20CT006	Unit1 RC Pump-B motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
631	10HTD20CT007	Unit1 RC Pump-B motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
632	10HTD20CT008	Unit1 RC Pump-B motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
633	10HTD20CT009	Unit1 RC Pump-B motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
634	10HTD20CT010	Unit-1 RC Pump-B motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
635	10HTD20CT011	Unit-1 RC Pump-B motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	
636	10HTD20CT012	Unit-1 RC Pump-B motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-61	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
637	10HTD20CT021	Unit1 RC Pump-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
638	10HTD20CT022	Unit1 RC Pump-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
639	10HTD20CT023	Unit1 RC Pump-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
640	10HTD20CT031	Unit1 RC Pump-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
641	10HTD20CT032	Unit1 RC Pump-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
642	10HTD20CT033	Unit1 RC Pump-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
643	10HTD20CT041	Unit1 RC Pump-B RTD based temperature Transmitter1	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
644	10HTD20CT042	Unit1 RC Pump-B RTD based temperature Transmitter2	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
645	10HTD20CT043	Unit1 RC Pump-B RTD based temperature Transmitter3	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
646	10HTD20CT051	Unit1 RC Pump-B RTD based temperature Transmitter4	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
647	10HTD20CT052	Unit1 RC Pump-B RTD based temperature Transmitter5	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
648	10HTD20CT053	Unit1 RC Pump-B RTD based temperature Transmitter6	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-62	
649	10HTD30CT001	Unit1 RC Pump-C motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
650	10HTD30CT002	Unit1 RC Pump-C motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
651	10HTD30CT003	Unit1 RC Pump-C motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
652	10HTD30CT004	Unit1 RC Pump-C motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
653	10HTD30CT005	Unit1 RC Pump-C motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
654	10HTD30CT006	Unit1 RC Pump-C motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
655	10HTD30CT007	Unit1 RC Pump-C motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
656	10HTD30CT008	Unit1 RC Pump-C motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
657	10HTD30CT009	Unit1 RC Pump-C motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
658	10HTD30CT010	Unit-1 RC Pump-C motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
659	10HTD30CT011	Unit-1 RC Pump-C motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
660	10HTD30CT012	Unit-1 RC Pump-C motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-63	
661	10HTD30CT021	Unit1 RC Pump-C motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
662	10HTD30CT022	Unit1 RC Pump-C motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
663	10HTD30CT023	Unit1 RC Pump-C motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
664	10HTD30CT031	Unit1 RC Pump-C motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
665	10HTD30CT032	Unit1 RC Pump-C motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
666	10HTD30CT033	Unit1 RC Pump-C motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
667	10HTD30CT041	Unit1 RC Pump-C RTD based temperature Transmitter1	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
668	10HTD30CT042	Unit1 RC Pump-C RTD based temperature Transmitter2	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
669	10HTD30CT043	Unit1 RC Pump-C RTD based temperature Transmitter3	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
670	10HTD30CT051	Unit1 RC Pump-C RTD based temperature Transmitter4	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
671	10HTD30CT052	Unit1 RC Pump-C RTD based temperature Transmitter5	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
672	10HTD30CT053	Unit1 RC Pump-C RTD based temperature Transmitter6	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-64	
673	10HTD40CT001	Unit1 RC Pump-D motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
674	10HTD40CT002	Unit1 RC Pump-D motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
675	10HTD40CT003	Unit1 RC Pump-D motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
676	10HTD40CT004	Unit1 RC Pump-D motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
677	10HTD40CT005	Unit1 RC Pump-D motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
678	10HTD40CT006	Unit1 RC Pump-D motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
679	10HTD40CT007	Unit1 RC Pump-D motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
680	10HTD40CT008	Unit1 RC Pump-D motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
681	10HTD40CT009	Unit1 RC Pump-D motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
682	10HTD40CT010	Unit-1 RC Pump-D motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
683	10HTD40CT011	Unit-1 RC Pump-D motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
684	10HTD40CT012	Unit-1 RC Pump-D motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-65	
685	10HTD40CT021	Unit1 RC Pump-D motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
686	10HTD40CT022	Unit1 RC Pump-D motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
687	10HTD40CT023	Unit1 RC Pump-D motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
688	10HTD40CT031	Unit1 RC Pump-D motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
689	10HTD40CT032	Unit1 RC Pump-D motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
690	10HTD40CT033	Unit1 RC Pump-D motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
691	10HTD40CT041	Unit1 RC Pump-D RTD based temperature Transmitter1	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
692	10HTD40CT042	Unit1 RC Pump-D RTD based temperature Transmitter2	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
693	10HTD40CT043	Unit1 RC Pump-D RTD based temperature Transmitter3	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
694	10HTD40CT051	Unit1 RC Pump-D RTD based temperature Transmitter4	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
695	10HTD40CT052	Unit1 RC Pump-D RTD based temperature Transmitter5	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
696	10HTD40CT053	Unit1 RC Pump-D RTD based temperature Transmitter6	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-66	
697	10HTD50CT001	Unit1 RC Pump-E motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
698	10HTD50CT002	Unit1 RC Pump-E motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
699	10HTD50CT003	Unit1 RC Pump-E motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
700	10HTD50CT004	Unit1 RC Pump-E motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
701	10HTD50CT005	Unit1 RC Pump-E motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
702	10HTD50CT006	Unit1 RC Pump-E motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
703	10HTD50CT007	Unit1 RC Pump-E motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
704	10HTD50CT008	Unit1 RC Pump-E motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
705	10HTD50CT009	Unit1 RC Pump-E motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
706	10HTD50CT010	Unit-1 RC Pump-E motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
707	10HTD50CT011	Unit-1 RC Pump-E motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
708	10HTD50CT012	Unit-1 RC Pump-E motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-67	
709	10HTD50CT021	Unit1 RC Pump-E motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
710	10HTD50CT022	Unit1 RC Pump-E motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
711	10HTD50CT023	Unit1 RC Pump-E motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
712	10HTD50CT031	Unit1 RC Pump-E motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
713	10HTD50CT032	Unit1 RC Pump-E motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
714	10HTD50CT033	Unit1 RC Pump-E motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
715	10HTD50CT041	Unit1 RC Pump-E RTD based temperature Transmitter1	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
716	10HTD50CT042	Unit1 RC Pump-E RTD based temperature Transmitter2	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
717	10HTD50CT043	Unit1 RC Pump-E RTD based temperature Transmitter3	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
718	10HTD50CT051	Unit1 RC Pump-E RTD based temperature Transmitter4	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
719	10HTD50CT052	Unit1 RC Pump-E RTD based temperature Transmitter5	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
720	10HTD50CT053	Unit1 RC Pump-E RTD based temperature Transmitter6	TT	pump	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-68	
721	20HTD10CT001	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
722	20HTD10CT002	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
723	20HTD10CT003	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
724	20HTD10CT004	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
725	20HTD10CT005	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
726	20HTD10CT006	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
727	20HTD10CT007	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
728	20HTD10CT008	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
729	20HTD10CT009	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
730	20HTD10CT010	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
731	20HTD10CT011	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
732	20HTD10CT012	Unit-2 RC Pump-A motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-69	
733	10HTA01CT021	Unit -1 Absorber Outlet temperature transmitter 1	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-7	
734	10HTA01CT022	Unit -1 Absorber Outlet temperature transmitter 2	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-7	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
735	10HTA01CT023	Unit -1 Absorber Outlet temperature transmitter 3	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-7	
736	20HTD10CT021	Unit-2 RC Pump-A motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
737	20HTD10CT022	Unit-2 RC Pump-A motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
738	20HTD10CT023	Unit-2 RC Pump-A motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
739	20HTD10CT031	Unit-2 RC Pump-A motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
740	20HTD10CT032	Unit-2 RC Pump-A motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
741	20HTD10CT033	Unit-2 RC Pump-A motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
742	20HTD10CT041	Unit-2 RC Pump-A RTD based temperature Transmitter1	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
743	20HTD10CT042	Unit-2 RC Pump-A RTD based temperature Transmitter2	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
744	20HTD10CT043	Unit-2 RC Pump-A RTD based temperature Transmitter3	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
745	20HTD10CT051	Unit-2 RC Pump-A RTD based temperature Transmitter4	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
746	20HTD10CT052	Unit-2 RC Pump-A RTD based temperature Transmitter5	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
747	20HTD10CT053	Unit-2 RC Pump-A RTD based temperature Transmitter6	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-70	
748	20HTD20CT001	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
749	20HTD20CT002	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
750	20HTD20CT003	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
751	20HTD20CT004	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
752	20HTD20CT005	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
753	20HTD20CT006	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
754	20HTD20CT007	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
755	20HTD20CT008	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
756	20HTD20CT009	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
757	20HTD20CT010	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
758	20HTD20CT011	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
759	20HTD20CT012	Unit-2 RC Pump-B motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-71	
760	20HTD20CT021	Unit-2 RC Pump-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
761	20HTD20CT022	Unit-2 RC Pump-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
762	20HTD20CT023	Unit-2 RC Pump-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
763	20HTD20CT031	Unit-2 RC Pump-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
764	20HTD20CT032	Unit-2 RC Pump-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
765	20HTD20CT033	Unit-2 RC Pump-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
766	20HTD20CT041	Unit-2 RC Pump-B RTD based temperature Transmitter1	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
767	20HTD20CT042	Unit-2 RC Pump-B RTD based temperature Transmitter2	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
768	20HTD20CT043	Unit-2 RC Pump-B RTD based temperature Transmitter3	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
769	20HTD20CT051	Unit-2 RC Pump-B RTD based temperature Transmitter4	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
770	20HTD20CT052	Unit-2 RC Pump-B RTD based temperature Transmitter5	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
771	20HTD20CT053	Unit-2 RC Pump-B RTD based temperature Transmitter6	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-72	
772	20HTD30CT001	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
773	20HTD30CT002	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
774	20HTD30CT003	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
775	20HTD30CT004	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
776	20HTD30CT005	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
777	20HTD30CT006	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
778	20HTD30CT007	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
779	20HTD30CT008	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
780	20HTD30CT009	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
781	20HTD30CT010	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
782	20HTD30CT011	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	
783	20HTD30CT012	Unit-2 RC Pump-C motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-73	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
784	20HTD30CT021	Unit-2 RC Pump-C motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
785	20HTD30CT022	Unit-2 RC Pump-C motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
786	20HTD30CT023	Unit-2 RC Pump-C motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
787	20HTD30CT031	Unit-2 RC Pump-C motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
788	20HTD30CT032	Unit-2 RC Pump-C motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
789	20HTD30CT033	Unit-2 RC Pump-C motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
790	20HTD30CT041	Unit-2 RC Pump-C RTD based temperature Transmitter1	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
791	20HTD30CT042	Unit-2 RC Pump-C RTD based temperature Transmitter2	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
792	20HTD30CT043	Unit-2 RC Pump-C RTD based temperature Transmitter3	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
793	20HTD30CT051	Unit-2 RC Pump-C RTD based temperature Transmitter4	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
794	20HTD30CT052	Unit-2 RC Pump-C RTD based temperature Transmitter5	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
795	20HTD30CT053	Unit-2 RC Pump-C RTD based temperature Transmitter6	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-74	
796	20HTD40CT001	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
797	20HTD40CT002	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
798	20HTD40CT003	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
799	20HTD40CT004	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
800	20HTD40CT005	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
801	20HTD40CT006	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
802	20HTD40CT007	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
803	20HTD40CT008	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
804	20HTD40CT009	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
805	20HTD40CT010	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
806	20HTD40CT011	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
807	20HTD40CT012	Unit-2 RC Pump-D motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-75	
808	20HTD40CT021	Unit-2 RC Pump-D motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
809	20HTD40CT022	Unit-2 RC Pump-D motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
810	20HTD40CT023	Unit-2 RC Pump-D motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
811	20HTD40CT031	Unit-2 RC Pump-D motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
812	20HTD40CT032	Unit-2 RC Pump-D motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
813	20HTD40CT033	Unit-2 RC Pump-D motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
814	20HTD40CT041	Unit-2 RC Pump-D RTD based temperature Transmitter1	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
815	20HTD40CT042	Unit-2 RC Pump-D RTD based temperature Transmitter2	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
816	20HTD40CT043	Unit-2 RC Pump-D RTD based temperature Transmitter3	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
817	20HTD40CT051	Unit-2 RC Pump-D RTD based temperature Transmitter4	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
818	20HTD40CT052	Unit-2 RC Pump-D RTD based temperature Transmitter5	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
819	20HTD40CT053	Unit-2 RC Pump-D RTD based temperature Transmitter6	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-76	
820	20HTD50CT001	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
821	20HTD50CT002	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
822	20HTD50CT003	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
823	20HTD50CT004	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
824	20HTD50CT005	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
825	20HTD50CT006	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
826	20HTD50CT007	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
827	20HTD50CT008	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
828	20HTD50CT009	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
829	20HTD50CT010	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
830	20HTD50CT011	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
831	20HTD50CT012	Unit-2 RC Pump-E motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-77	
832	20HTD50CT021	Unit-2 RC Pump-E motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
833	20HTD50CT022	Unit-2 RC Pump-E motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
834	20HTD50CT023	Unit-2 RC Pump-E motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
835	20HTD50CT031	Unit-2 RC Pump-E motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
836	20HTD50CT032	Unit-2 RC Pump-E motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
837	20HTD50CT033	Unit-2 RC Pump-E motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
838	20HTD50CT041	Unit-2 RC Pump-E RTD based temperature Transmitter1	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
839	20HTD50CT042	Unit-2 RC Pump-E RTD based temperature Transmitter2	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
840	20HTD50CT043	Unit-2 RC Pump-E RTD based temperature Transmitter3	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
841	20HTD50CT051	Unit-2 RC Pump-E RTD based temperature Transmitter4	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
842	20HTD50CT052	Unit-2 RC Pump-E RTD based temperature Transmitter5	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
843	20HTD50CT053	Unit-2 RC Pump-E RTD based temperature Transmitter6	TT	pump	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-78	
844	30HTD10CT001	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
845	30HTD10CT002	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
846	30HTD10CT003	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
847	30HTD10CT004	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
848	30HTD10CT005	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
849	30HTD10CT006	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
850	30HTD10CT007	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
851	30HTD10CT008	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
852	30HTD10CT009	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
853	30HTD10CT010	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
854	30HTD10CT011	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
855	30HTD10CT012	UNIT 3 RC Pump-A motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-79	
856	10HTA02CT001	Unit-1 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 1	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-8	
857	10HTA02CT002	Unit-1 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 2	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-8	
858	10HTA02CT003	Unit-1 ID Fan B Outlet (Bypass Duct-B) temperature transmitter 3	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-8	
859	30HTD10CT021	UNIT 3 RC Pump-A motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
860	30HTD10CT022	UNIT 3 RC Pump-A motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
861	30HTD10CT023	UNIT 3 RC Pump-A motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
862	30HTD10CT031	UNIT 3 RC Pump-A motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
863	30HTD10CT032	UNIT 3 RC Pump-A motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
864	30HTD10CT033	UNIT 3 RC Pump-A motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
865	30HTD10CT041	UNIT 3 RC Pump-A RTD based temperature Transmitter1	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
866	30HTD10CT042	UNIT 3 RC Pump-A RTD based temperature Transmitter2	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
867	30HTD10CT043	UNIT 3 RC Pump-A RTD based temperature Transmitter3	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
868	30HTD10CT051	UNIT 3 RC Pump-A RTD based temperature Transmitter4	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
869	30HTD10CT052	UNIT 3 RC Pump-A RTD based temperature Transmitter5	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
870	30HTD10CT053	UNIT 3 RC Pump-A RTD based temperature Transmitter6	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-80	
871	30HTD20CT001	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
872	30HTD20CT002	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
873	30HTD20CT003	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
874	30HTD20CT004	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
875	30HTD20CT005	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
876	30HTD20CT006	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
877	30HTD20CT007	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
878	30HTD20CT008	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
879	30HTD20CT009	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
880	30HTD20CT010	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
881	30HTD20CT011	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
882	30HTD20CT012	UNIT 3 RC Pump-B motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-81	
883	30HTD20CT021	UNIT 3 RC Pump-B motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
884	30HTD20CT022	UNIT 3 RC Pump-B motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
885	30HTD20CT023	UNIT 3 RC Pump-B motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
886	30HTD20CT031	UNIT 3 RC Pump-B motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
887	30HTD20CT032	UNIT 3 RC Pump-B motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
888	30HTD20CT033	UNIT 3 RC Pump-B motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
889	30HTD20CT041	UNIT 3 RC Pump-B RTD based temperature Transmitter1	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
890	30HTD20CT042	UNIT 3 RC Pump-B RTD based temperature Transmitter2	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
891	30HTD20CT043	UNIT 3 RC Pump-B RTD based temperature Transmitter3	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
892	30HTD20CT051	UNIT 3 RC Pump-B RTD based temperature Transmitter4	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
893	30HTD20CT052	UNIT 3 RC Pump-B RTD based temperature Transmitter5	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
894	30HTD20CT053	UNIT 3 RC Pump-B RTD based temperature Transmitter6	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-82	
895	30HTD30CT001	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
896	30HTD30CT002	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
897	30HTD30CT003	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
898	30HTD30CT004	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
899	30HTD30CT005	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
900	30HTD30CT006	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
901	30HTD30CT007	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
902	30HTD30CT008	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
903	30HTD30CT009	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
904	30HTD30CT010	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
905	30HTD30CT011	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
906	30HTD30CT012	UNIT 3 RC Pump-C motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-83	
907	30HTD30CT021	UNIT 3 RC Pump-C motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
908	30HTD30CT022	UNIT 3 RC Pump-C motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
909	30HTD30CT023	UNIT 3 RC Pump-C motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
910	30HTD30CT031	UNIT 3 RC Pump-C motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
911	30HTD30CT032	UNIT 3 RC Pump-C motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
912	30HTD30CT033	UNIT 3 RC Pump-C motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
913	30HTD30CT041	UNIT 3 RC Pump-C RTD based temperature Transmitter1	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
914	30HTD30CT042	UNIT 3 RC Pump-C RTD based temperature Transmitter2	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
915	30HTD30CT043	UNIT 3 RC Pump-C RTD based temperature Transmitter3	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
916	30HTD30CT051	UNIT 3 RC Pump-C RTD based temperature Transmitter4	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
917	30HTD30CT052	UNIT 3 RC Pump-C RTD based temperature Transmitter5	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
918	30HTD30CT053	UNIT 3 RC Pump-C RTD based temperature Transmitter6	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-84	
919	30HTD40CT001	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
920	30HTD40CT002	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
921	30HTD40CT003	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
922	30HTD40CT004	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
923	30HTD40CT005	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
924	30HTD40CT006	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
925	30HTD40CT007	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
926	30HTD40CT008	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
927	30HTD40CT009	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
928	30HTD40CT010	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
929	30HTD40CT011	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	
930	30HTD40CT012	UNIT 3 RC Pump-D motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-85	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
931	30HTD40CT021	UNIT 3 RC Pump-D motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
932	30HTD40CT022	UNIT 3 RC Pump-D motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
933	30HTD40CT023	UNIT 3 RC Pump-D motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
934	30HTD40CT031	UNIT 3 RC Pump-D motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
935	30HTD40CT032	UNIT 3 RC Pump-D motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
936	30HTD40CT033	UNIT 3 RC Pump-D motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
937	30HTD40CT041	UNIT 3 RC Pump-D RTD based temperature Transmitter1	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
938	30HTD40CT042	UNIT 3 RC Pump-D RTD based temperature Transmitter2	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
939	30HTD40CT043	UNIT 3 RC Pump-D RTD based temperature Transmitter3	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
940	30HTD40CT051	UNIT 3 RC Pump-D RTD based temperature Transmitter4	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
941	30HTD40CT052	UNIT 3 RC Pump-D RTD based temperature Transmitter5	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
942	30HTD40CT053	UNIT 3 RC Pump-D RTD based temperature Transmitter6	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-86	
943	30HTD50CT001	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter1	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
944	30HTD50CT002	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter2	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
945	30HTD50CT003	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter3	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
946	30HTD50CT004	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter4	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
947	30HTD50CT005	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter5	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
948	30HTD50CT006	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter6	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
949	30HTD50CT007	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter7	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
950	30HTD50CT008	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter8	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
951	30HTD50CT009	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter9	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
952	30HTD50CT010	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter10	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
953	30HTD50CT011	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter11	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
954	30HTD50CT012	UNIT 3 RC Pump-E motor winding RTD based temperature Transmitter12	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-87	
955	30HTD50CT021	UNIT 3 RC Pump-E motor bearing RTD based temperature Transmitter1-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
956	30HTD50CT022	UNIT 3 RC Pump-E motor bearing RTD based temperature Transmitter2-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
957	30HTD50CT023	UNIT 3 RC Pump-E motor bearing RTD based temperature Transmitter3-DE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
958	30HTD50CT031	UNIT 3 RC Pump-E motor bearing RTD based temperature Transmitter1-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
959	30HTD50CT032	UNIT 3 RC Pump-E motor bearing RTD based temperature Transmitter2-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
960	30HTD50CT033	UNIT 3 RC Pump-E motor bearing RTD based temperature Transmitter3-NDE	TT	WDG	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
961	30HTD50CT041	UNIT 3 RC Pump-E RTD based temperature Transmitter1	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
962	30HTD50CT042	UNIT 3 RC Pump-E RTD based temperature Transmitter2	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
963	30HTD50CT043	UNIT 3 RC Pump-E RTD based temperature Transmitter3	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
964	30HTD50CT051	UNIT 3 RC Pump-E RTD based temperature Transmitter4	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
965	30HTD50CT052	UNIT 3 RC Pump-E RTD based temperature Transmitter5	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
966	30HTD50CT053	UNIT 3 RC Pump-E RTD based temperature Transmitter6	TT	pump	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-88	
967	00HTM01CT001	Vaccum Pump-A motor winding RTD based temperature Transmitter1	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-89	
968	00HTM01CT002	Vaccum Pump-A motor winding RTD based temperature Transmitter2	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-89	
969	00HTM01CT003	Vaccum Pump-A motor winding RTD based temperature Transmitter3	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-89	
970	00HTM01CT004	Vaccum Pump-A motor winding RTD based temperature Transmitter4	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-89	
971	00HTM01CT005	Vaccum Pump-A motor winding RTD based temperature Transmitter5	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-89	
972	00HTM01CT006	Vaccum Pump-A motor winding RTD based temperature Transmitter6	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-89	
973	00HTM01CT007	Vaccum Pump-A RTD based temperature Transmitter1 - DE	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-89	
974	00HTM01CT008	Vaccum Pump-A RTD based temperature Transmitter2 - NDE	TT		COMMON	BAP RANIPET IN EDN	Fieldbus based				TTE-89	
975	10HTA02CT004	Unit-1 Booster Fan- B Outlet Temperature	TT	Flue Gas	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-9	
976	00HTM01CT009	Vaccum Pump-B motor winding RTD based temperature Transmitter1	TT		COMMON						TTE-90	
977	00HTM01CT010	Vaccum Pump-B motor winding RTD based temperature Transmitter2	TT		COMMON						TTE-90	
978	00HTM01CT011	Vaccum Pump-B motor winding RTD based temperature Transmitter3	TT		COMMON						TTE-90	
979	00HTM01CT012	Vaccum Pump-B motor winding RTD based temperature Transmitter4	TT		COMMON						TTE-90	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
980	00HTM01CT013	Vaccum Pump-B motor winding RTD based temperature Transmitter5	TT		COMMON						TTE-90	
981	00HTM01CT014	Vaccum Pump-B motor winding RTD based temperature Transmitter6	TT		COMMON						TTE-90	
982	00HTM01CT015	Vaccum Pump-B RTD based temperature Transmitter1 - DE	TT		COMMON						TTE-90	
983	00HTM01CT016	Vaccum Pump-B RTD based temperature Transmitter2 - NDE	TT		COMMON						TTE-90	
984	10HTW01CT001	Unit-1 FGD Bypass Damper-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-91	
985	10HTW01CT002	Unit-1 FGD Bypass Damper-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-91	
986	10HTW01CT003	Unit-1 Booster Fan Inlet Gate-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-92	
987	10HTW01CT004	Unit-1 Booster Fan Inlet Gate-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-92	
988	10HTW01CT005	Unit-1 Booster Fan Outlet Gate-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-92	
989	10HTW01CT006	Unit-1 Booster Fan Outlet Gate-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-92	
990	10HTW02CT001	Unit-1 FGD Bypass Damper-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-93	
991	10HTW02CT002	Unit-1 FGD Bypass Damper-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-93	
992	10HTW02CT003	Unit-1 Booster Fan Inlet Gate-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-94	
993	10HTW02CT004	Unit-1 Booster Fan Inlet Gate-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-94	
994	10HTW02CT005	Unit-1 Booster Fan Outlet Gate-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-94	
995	10HTW02CT006	Unit-1 Booster Fan Outlet Gate-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #1	BAP RANIPET IN EDN	Fieldbus based				TTE-94	
996	20HTW01CT001	Unit-2 FGD Bypass Damper-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-95	
997	20HTW01CT002	Unit-2 FGD Bypass Damper-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-95	
998	20HTW01CT003	Unit-2 Booster Fan Inlet Gate-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-96	
999	20HTW01CT004	Unit-2 Booster Fan Inlet Gate-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-96	
1000	20HTW01CT005	Unit-2 Booster Fan Outlet Gate-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-96	
1001	20HTW01CT006	Unit-2 Booster Fan Outlet Gate-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-96	
1002	20HTW02CT001	Unit-2 FGD Bypass Damper-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-97	
1003	20HTW02CT002	Unit-2 FGD Bypass Damper-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-97	
1004	20HTW02CT003	Unit-2 Booster Fan Inlet Gate-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-98	
1005	20HTW02CT004	Unit-2 Booster Fan Inlet Gate-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-98	
1006	20HTW02CT005	Unit-2 Booster Fan Outlet Gate-B Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-98	
1007	20HTW02CT006	Unit-2 Booster Fan Outlet Gate-B Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #2	BAP RANIPET IN EDN	Fieldbus based				TTE-98	
1008	30HTW01CT001	Unit-3 FGD Bypass Damper-A Seal Air Blower-A Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-99	
1009	30HTW01CT002	Unit-3 FGD Bypass Damper-A Seal Air Blower-B Temperature Transmitter	TT	Seal Air	UNIT #3	BAP RANIPET IN EDN	Fieldbus based				TTE-99	
1010	PGB05CT011	ECW PUMP FOR FGD AUX. DISCH HDR TEMP	TT		COMMON	PEM EDN					TTJB-01	
1011	PGB06CT011	PHE FOR FGD AUX.-A I/L TEMP	TT		COMMON	PEM EDN					TTJB-01	
1012	PGB06CT012	PHE FOR FGD AUX.-A O/L TEMP	TT		COMMON	PEM EDN					TTJB-01	
1013	PGB07CT011	PHE FOR FGD AUX.-B I/L TEMP	TT		COMMON	PEM EDN					TTJB-01	
1014	PGB07CT012	PHE FOR FGD AUX.-B O/L TEMP	TT		COMMON	PEM EDN					TTJB-01	
1015	PGB08CT011	PHE FOR FGD AUX.-C I/L TEMP	TT		COMMON	PEM EDN					TTJB-01	
1016	PGB08CT012	PHE FOR FGD AUX.-C O/L TEMP	TT		COMMON	PEM EDN					TTJB-01	
1017	PGB09CT011	PHE FOR FGD AUX.-D I/L TEMP	TT		COMMON	PEM EDN					TTJB-01	
1018	PGB09CT012	PHE FOR FGD AUX.-D O/L TEMP	TT		COMMON	PEM EDN					TTJB-01	
1019	PGB12CT011	PHE FOR FGD AUX. DISCH HDR TEMP	TT		COMMON	PEM EDN					TTJB-01	
1020	PCB36CT011	ACW PUMPs O/L HDR TEMP	TT		COMMON	PEM EDN					TTJB-02	
1021	PCB41CT011	PHE FOR FGD AUX.-A I/L TEMP	TT		COMMON	PEM EDN					TTJB-02	
1022	PCB41CT012	PHE FOR FGD AUX.-A O/L TEMP	TT		COMMON	PEM EDN					TTJB-02	
1023	PCB42CT011	PHE FOR FGD AUX.-B I/L TEMP	TT		COMMON	PEM EDN					TTJB-02	
1024	PCB42CT012	PHE FOR FGD AUX.-B O/L TEMP	TT		COMMON	PEM EDN					TTJB-02	
1025	PCB43CT011	PHE FOR FGD AUX.-C I/L TEMP	TT		COMMON	PEM EDN					TTJB-02	
1026	PCB43CT012	PHE FOR FGD AUX.-C O/L TEMP	TT		COMMON	PEM EDN					TTJB-02	
1027	PCB44CT011	PHE FOR FGD AUX.-D I/L TEMP	TT		COMMON	PEM EDN					TTJB-02	
1028	PCB44CT012	PHE FOR FGD AUX.-D O/L TEMP	TT		COMMON	PEM EDN					TTJB-02	

SNO	KKS TAG NO	DESCRIPTION	INSTRUMENT TYPE	MEDIUM	UNIT/COMMON	SCOPE FROM SISTER UNIT	TRANSMITTER TYPE	SCHEME NO	AIR & INT PURG	CONT PURG	LIE/LIR/TTE NO	GROUPING REMARKS
1029	PCB30CT011	COOLING TOWER O/L TEMP	TT		COMMON	PEM EDN					TTJB-03	
1030	PCB45CT011	COOLING TOWER I/L TEMP	TT		COMMON	PEM EDN					TTJB-03	

PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

HOOK UP SCHEMES

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	20/07/23

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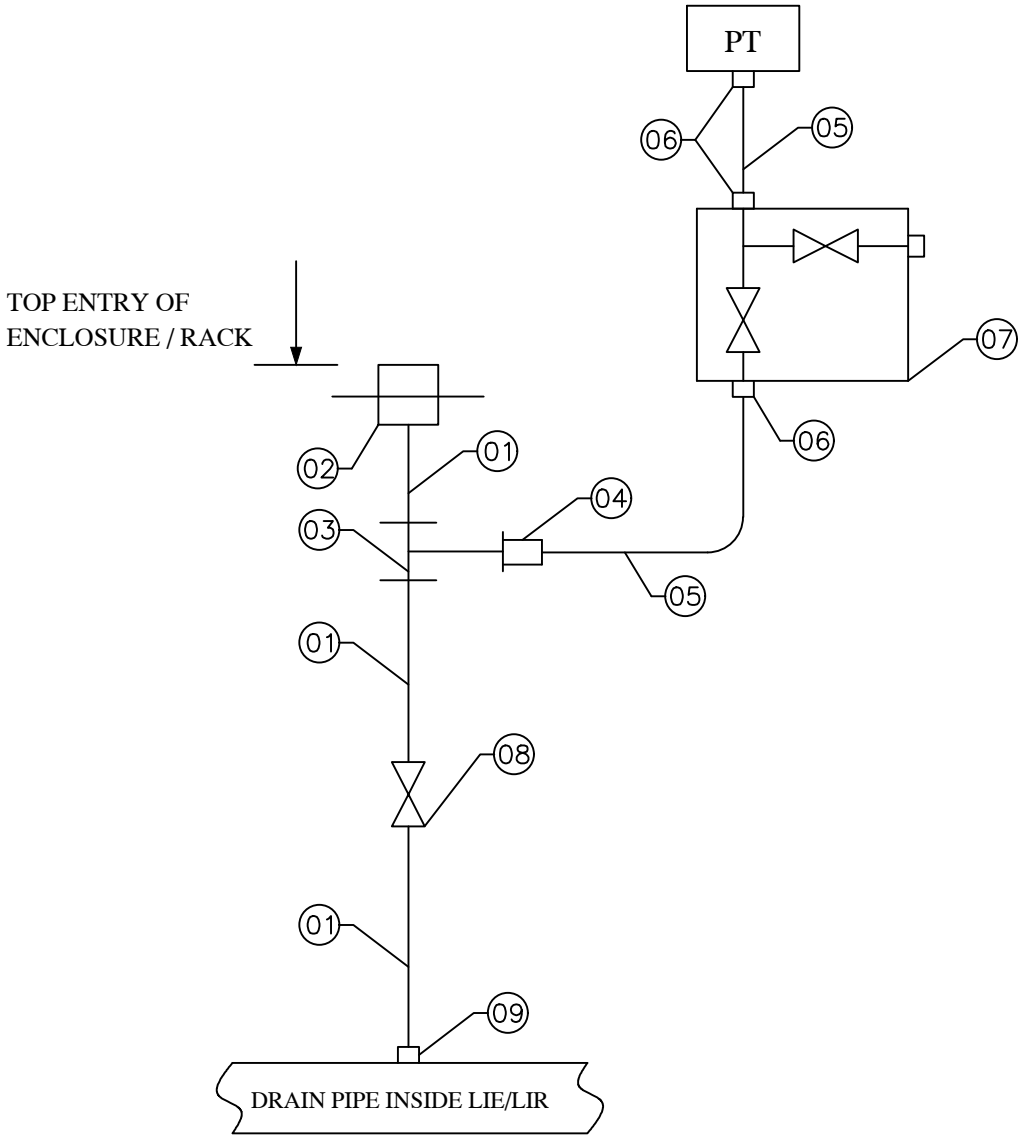
A4 – 11



NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 03 OF 11

CE/416/FGD/HUP

REV. NO. 00

PAGE 02 OF 11

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
01	IMPULSE PIPE MATL: ASTM A106 Gr.C SIZE: 1/2" NB-SCH 80	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16:11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL 3000 LBS	01
03	FORGED EQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL 3000 LBS	01
04	TEE-TUBE UNION MATL: SS316 SIZE: OD OF 1/2" NB x TO SUIT 1/2" OD SS TUBE	01
05	TUBE MATL: A213 TP 316H SIZE: 1/2" OD x 2.1mm THK.	A/R
06	TUBE FITTING / DFDC MATL: SS316 SIZE: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	03
07	TWO VALVE MANIFOLD WITH VENT PLUG MATL: SS316 PORT SIZE: 1/2" NPTF / RATING: 3000PSI	01
08	FORGED GLOBE VALVES BODY MATL: ASTM A105 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL 800	01
09	HALF COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL 3000 LBS	01

REVISION NO | DATE

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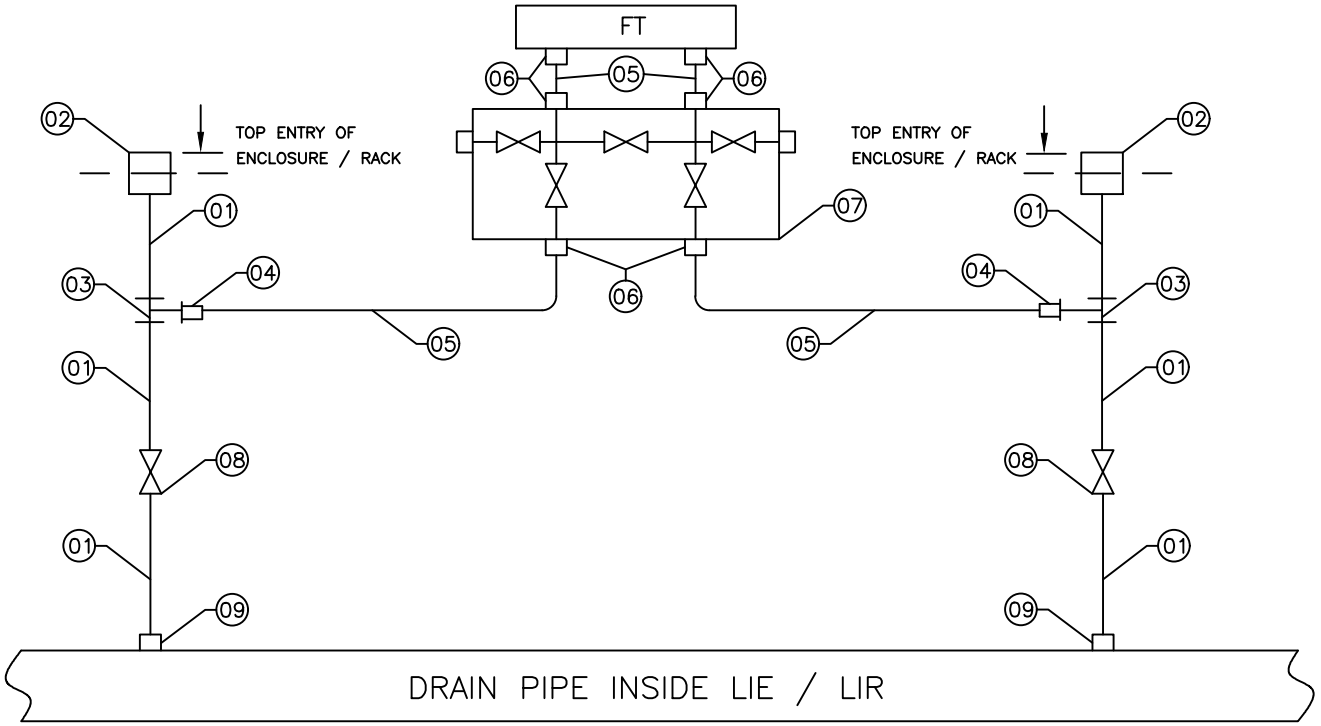

NOTE:

1. " TRANSMITTER BELOW SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 05 OF 11

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
01	IMPULSE PIPE MATL: ASTM A106 Gr. C SIZE: 1/2" NB-SCH 80	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL 3000 LBS	02
03	FORGED EQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL 3000 LBS	02
04	TEE TUBE UNION MATL: SS316 SIZE: OD OF 1/2" NB - PIPE X TO SUIT 1/2" OD SS TUBE	02
05	TUBE MATL: ASTM A213 TP 316H SIZE: 1/2" OD X 2.1mm THK.	A/R
06	TUBE FITTING / DFDC MATL: SS316 SIZE: 1/2" NPTM X TO SUIT 1/2" OD SS TUBE	06
07	FIVE VALVE MANIFOLD WITH VENT PLUGS MATL: SS316 PORT SIZE: 1/2" NPTF / RATING: 3000PSI	01
08	FORGED GLOBE VALVE BODY MATL: ASTM A105 / STEM MATL: A182 Gr.F6a SIZE: 1/2" NB-SW / CL 800	02
09	HALF COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 1/2" NB-SW / CL 3000 LBS	02

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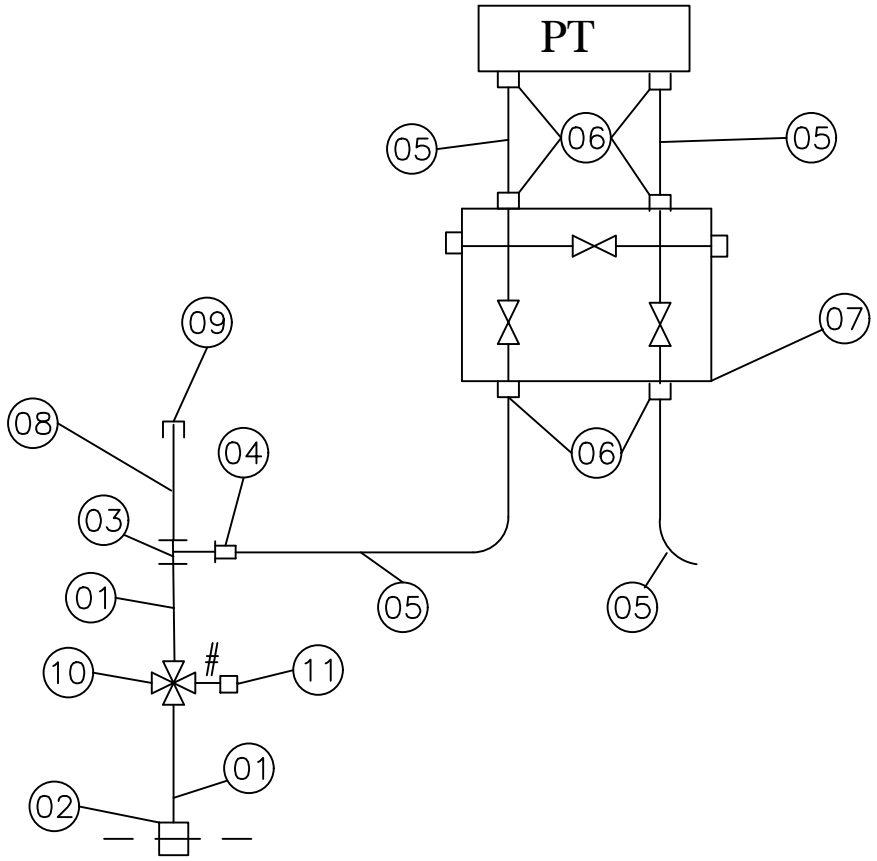
A4 – 11



NOTE:

1. " TRANSMITTER ABOVE SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 07 OF 11
3. FOR INTERMITTENT PURGING REFER PAGE 10 OF 11

CE/416/FGD/HUP

REV. NO. 00

PAGE 06 OF 11

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
01	IMPULSE PIPE MATL: A106 Gr.C SIZE: 3/4" NB-SCH 80	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW / RATING: CL 3000	01
03	FORGED EQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW / RATING: CL 3000	01
04	TEE TUBE UNION MATL: SS316 SIZE: OD OF 3/4" NB - PIPE x TO SUIT 1/2" SS TUBE	01
05	TUBE MATL: ASTM A213 TP 316L SIZE: 1/2" OD x 1.1mm THK.	A/R
06	TUBE FITTING / DFDC MATL: SS316 SIZE : 1/2" NPT (M) x TO SUIT 1/2" OD TUBE,	06
07	THREE VALVE MANIFOLD MATL: SS316 PORT SIZE: 1/2" NPT (F) / RATING: 3000PSI	01
08	NIPPLE / MATL: ASTM A106 Gr.C SIZE: 3/4" NB SCH 80 CONN. ONE END PLAIN x OTHER END 3/4"NPTM	01
09	CAP MATL: ASTM A105 SIZE: 3/4" NPTF	01
10	FOUR WAY VALVE BODY MATL: ASTM A105 SIZE: (2 x 3/4" NB-SW) x (2 x 1/2" NPTF) / RATING: CL 800	01
11	QUICK DISCONNECTING FITTING MATL: SS 304 SIZE: 1/2" NPTM	01

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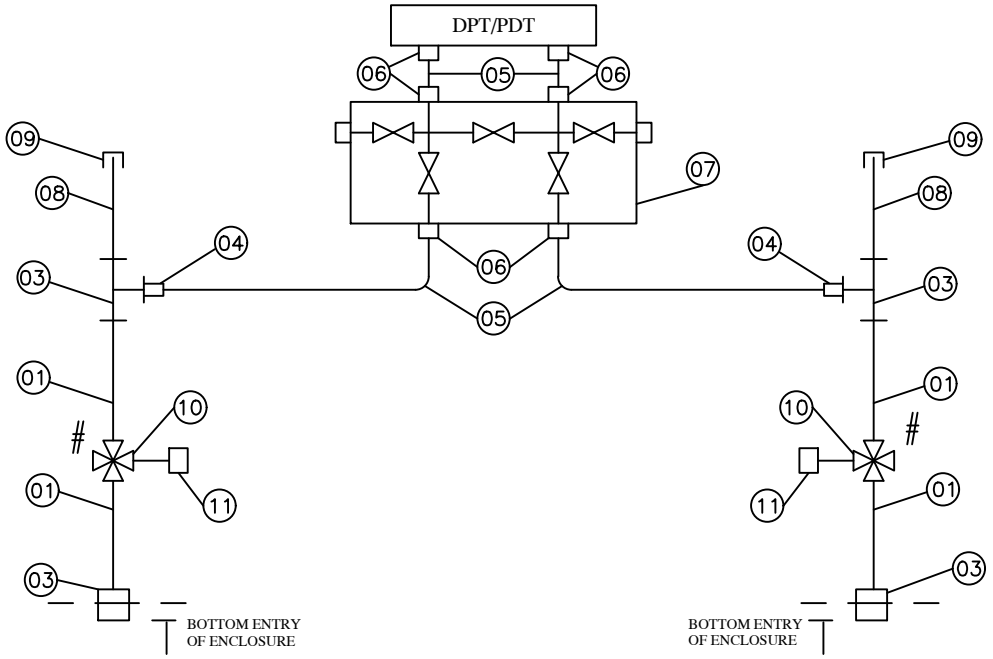

NOTE:

1. " TRANSMITTER ABOVE SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 09 OF 11
3. FOR INTERMITTANT RANGING REFER PAGE 10 OF 11

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CE/416/FGD/HUP

REV. NO. 00

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
01	IMPULSE PIPE MATL: ASTM A106 Gr.C SIZE: 3/4" SCH-80	A/R
02	BULK HEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW / CL 3000	01
03	FORGED EQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW / CL 3000	02
04	TEE-TUBE UNION MATL: SS316 CONN: OD OF 3/4" NB PIPE x TO SUIT TO 1/2" OD SS TUBE	02
05	TUBE MATL: A213 TP 316L SIZE: 1/2" OD x 1.1mm THK.	A/R
06	TUBE FITTING / DFDC MATL: SS316 CONN: 1/2" NPTM x TO SUIT 1/2" OD SS TUBE	06
07	FIVE VALVE MANIFOLD WITH VENT PLUGS BODY: SS316 PORT SIZE: 1/2" NPTF / RATING: 3000PSI	01
08	NIPPLE MATL: ASTM A106 Gr.C SIZE: ONE END PLAIN x OTHER END 3/4" NPTM	02
09	C.S CAP MATL: ASTM A105 SIZE: 3/4" NPTF	02
10	FOUR WAY VALVE MATL: ASTM A105 SIZE: (2 x 3/4" NB-SW) x (2 x 1/2" NPTF)	02
11	QUICK DISCONNECTING FITTING MATL: SS 304 SIZE: 1/2" NPTM	02

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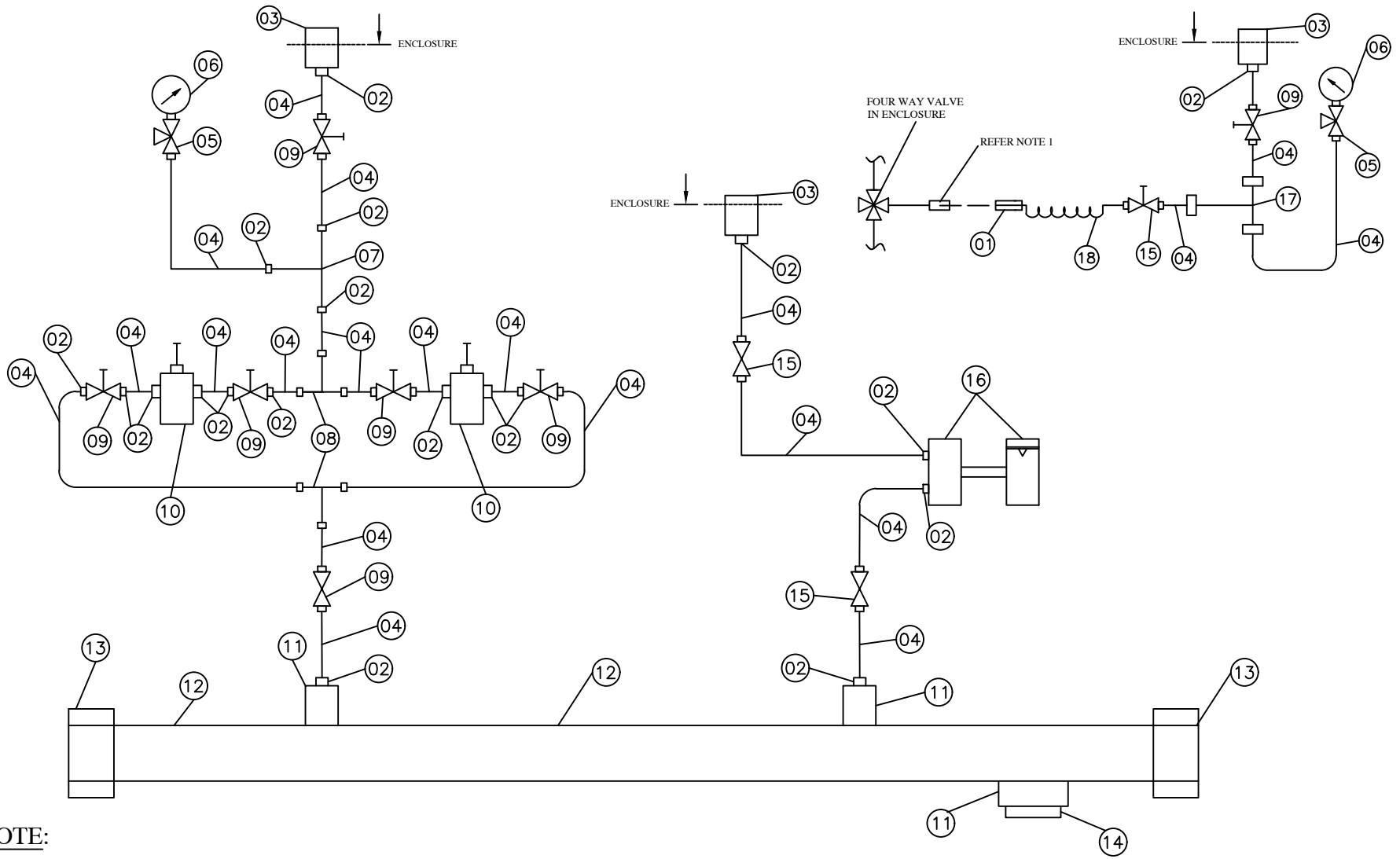
REVISION NO	DATE	COPY RIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in anyway detrimental to the interest to the Company.		

TYPICAL PURGE AIR SCHEME



NOTE:

1. THIS QUICK DISCONNECT FITTING IS CONNECTED TO FOUR WAY VALVE IN SERVICES WHERE MEDIUM IS FLUE GAS/DIRTY AIR
2. FOR BILL OF MATERIAL REFER PAGE 11 OF 11
3. THE PURGE AIR SCHEME IS COMING INSIDE LOCAL INST. ENCLOSURE (LIE) IN BHEL-EDN'S SCOPE OF SUPPLY

CE/416/FGD/HUP

REV. NO. 00

REVISION NO	DATE	COPY RIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in anyway detrimental to the interest to the Company.		

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
01	QUICK DISCONNECTING FITTING-SS304/MALE SIZE : END CONN. TO SUIT 1/2" OD SS-TUBE	01
02	TUBE CONNECTOR SIZE : 1/2" NPTM x TO SUIT 1/2" OD SS TUBE MATL. ASTM Gr. SS316	03
03	BULK HEAD UNION / MATL : SS316 SIZE : 1/2" NPT (F) x 1/2" NPTF	A/R
04	TUBE MATL: ASTM A213 TP316L SIZE: 1/2" OD - 1.13mm THK.	A/R
05	THREE WAY GUAGE COCK MATL: SS316 SIZE: 1/2" NPTF x TO SUIT 1/2" OD SS TUBE	02
06	PRESSURE GUAGE / DIAL SIZE : 4" RANGE : 0-10 KG/Sq. CM BOTTOM CONN: 1/2" NPTM	02
07	EQUAL TEE FITTING / SS316 END CONN: 1/2" NPTF x (2 x TO SUIT 1/2" OD SS TUBE)	01
08	EQUAL TEE FITTING / FLARELESS FITTING SIZE : TO SUIT 1/2" OD SS TUBE	02
09	ISOLATING VALVE/GATE TYPE PROCESS CONN : 1/2" OD SS TUBE MTL : ASTM A182 F316	04
10	AIR FILTER REGULATOR PROCESS CONN : 1/2" NPTF	02

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
11	SS COUPLET SIZE : 1/2" NPTF MATL : SS316	01
12	AIR HEADER SIZE : 1" NB-SCH 40 / MATL: SS316	01
13	SS END CAP SIZE : 1" BSPF / MATL : SS316	02
14	PLUG SIZE : 1/2" NPTM MAT : SS316	01
15	NEEDLE VALVE/MATL : SS316 SIZE : END CONN. TO SUIT 1/2" OD SS TUBE	02
16	PURGE ROTAMETER PROCESS CONN : 1/2" NPTF	01
17	EQUAL TEE FITTING / MATL : A182 Gr F316 END CONN. - TO SUIT 1/2" OD SS TUBE	01
18	NYLON FLEXIBLE HOSE BRAIDED WITH SS WIRE SIZE = 1/2 " DIA.	1 MTR

BHEL

CE/416/FGD/HUP

REV. NO. 00

PAGE 11 OF 11

PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

COMPONENT VENDOR LIST

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	20/07/23

VENDOR LIST

Sl No	Item Description	Approved Vendors
1	Socket Weld Fittings	PRECISION ENGG INDUSTRIES, MUMBAI
		V.K.INDUSTRIES,BANGALORE
		VIKAS INDUSTRIAL PRODUCTS,NOIDA
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		PMT ENGINEERS,AHMEDABAD
		FLOWTECH, KOLKATA.
		PANAM ENGINEERS LTD,MUMBAI
		AURA INC,NEW DELHI
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		PAUL INDUSTRIES,HOWRAH
		ARCELLOR CONTROLS ,AHMEDABAD
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		NAV DURGA FORGING AND FITTINGS PVT LTD, THANE, MAHARASTRA.
		PRIME ENGINEERS,MUMBAI
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
2	Compression Fittings	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD, MUMBAI
		METPRESS ENGINEERING WORKS, KOLKATA
		ASTEC VALVE & FITTINGS PVT. LTD., MUMBAI
		FLUID CONTROLS PVT. LTD,PUNE
		PANAM ENGINEERS LTD,MUMBAI
		AURA INC, NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD, CHENNAI
		PMT ENGINEERS,AHMEDABAD
		PRIME ENGINEERS,MUMBAI
		ARCELLOR CONTROLS ,AHMEDABAD
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
		SWAGELOCK,USA
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		FLOWTECH. KOLKATA.
		FLUID FIT ENGINEERING PVT LTD, PALGHAR, MAHARASHTRA.
		PARKER HANNIFIN INDIA PVT. LTD.,CHENGAL PATTU,TAMILANADU
3	Instrument Valves	BHARAT HEAVY ELECTRICALS LIMITED VALVES DIVISION, TIRUCHIRAPALLI, TAMILANADU.
		PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		PMT ENGINEERS,AHMEDABAD
		AURA INC,NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		FLUID CONTROLS PVT LTD,PUNE
		FLOWTECH, KOLKATA.
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		INSTRUMENTATION LIMITED,PALGHAT

VENDOR LIST

Sl No	Item Description	Approved Vendors
4	Valve Manifolds	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		ASTEC VALVE & FITTINGS PVT. LTD,MUMBAI
		FLOWTECH, KOLKATA.
		AURA INC,NEW DELHI
		PMT ENGINEERS,AHMEDABAD
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		MICRO PRECISION PRODUCTS PVT LTD, FARIDABAD, HARYANA.
		FLUID CONTROLS LIMITED ,PUNE
		ARCELLOR CONTROLS, AHMEDABAD.
		PRIME ENGINEERS,MUMBAI
		Parker HANNIFIN INDIA PVT. LTD,LEBANON (D407131-Super technical dealer for Parker)
		VIPAL ENTEPRISES PVT LTD, MUMBAI.
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
		SHREE MARUTI INSTRUMENTS PVT LTD, GUJARAT.
		FLUID FIT ENGINEERING PVT LTD, PALGHAR, MAHARASHTRA.
5	Air Filter Regulator	PLACKA INSTRUMENTS INDIA PVT LTD CHENNAI
		DIVYA CONTROL ELEMENTS PVT LTD,VADODARA
		PARKER ,HANNIFIN,LEBANON
		SHAVO NORGREN(INDIA)PVT LTD BANGALORE
6	Impulse Pipes / Seamless Tube	BHARAT HEAVY ELECTRICALS LTD, TIRUCHIRAPALLI, TAMILANADU.
		SUMITOMO CORPORATION, JAPAN.
		TPS TECHNITUBE ROHREN WERKE GMBH,DAUN,GERMANY
		INDIAN SEAMLESS METAL TUBES LTD, PUNE. (Only CS only)
		MAXIM TUBES COMPANY PVT LTD,AHMEDABAD
		SURAJ STAINLESS LIMITED,AHMEDABAD (Only SS only)
		MBM TUBES PVT LTD,CHATTRAL,GUJARAT (Only SS only)
		TUBACEX PRAKASH INDIA PVT LTD,UMBERGAON ,GUJARAT (Only SS only)
		SHUBHLAXMI METALS AND TUBES PVT. LTD, MUMBAI (Only SS only)
		JINDAL SAW LTD,CHENNAI (Only CS only)
		RATNAMANI METALS & TUBES LTD, AHMADABAD (Only SS only)
		MAHARATRA SEAMLESS TUBES (CS ONLY)
		HEAVY METAL AND TUBES LTD,AHMEDABAD/MUMBAI

VENDOR LIST

Sl No	Item Description	Approved Vendors
7	Instrumentation Cable	PARAMOUNT COMMUNICATIONS LTD, ALWAR.
		CORDS CABLE INDUSTRIES LTD, BHIWADI/NEW DELHI.
		DELTON CABLE LTD, FARIDABAD.
		KEI INDUSTRIES LTD, BIWADI.
		POLYCAB WIRES PVT LTD, DAMAN.
		ELKAY TELELINKS,FARIDABAD
		HAVELS INDIA PVT LTD, ALWAR.
		RR KABEL, SILVASA.
		THERMO CABLES, HYDERABAD.
		TORRENTS CABLES, AHMEDABAD.
		INDO ALUSYS, BHIWADI.
		RADIANT CABLES, HYDERABAD.
		GEMS CAB INDUSTRIES, BHIWADI.
		FINOLEX, PUNE.
		SBEE CABLES, BANGALORE.
		SCOTT INNOVATION WIRES AND CABLES, BADDI.
		SUYOG CABLES, VADODARA.
		GEMSCAB INDUSTRIES LTD (Under approval)
		KEC INTERNATIONAL LTD (Under approval)
		SPM CABLES, HYDERABAD.
		INCAB, PUNE.
		NICCO CABLES, SHAMNAGAR, KOLKATA.
		HINDUSTAN VIDYUT PRODUCTS PVT LTD, FARIDABAD.
		UNIVERSAL CABLES, SATNA.
		PARAMOUNT CABLES, KHUSHKERA.

Note: Bidders Can Propose additional sub component vendors for above items with filling supplier registration format (https://www.bhel.com/supplier-registration), However if same is not approved by customer/BHEL, vendors to provide sub component makes from the approved list without any price impact.

PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

SCHEMATIC DRAWINGS
FOR
LOCAL INSTRUMENT ENCLOSURE / RACKS
(LIE / LIR)

REVISIONS :

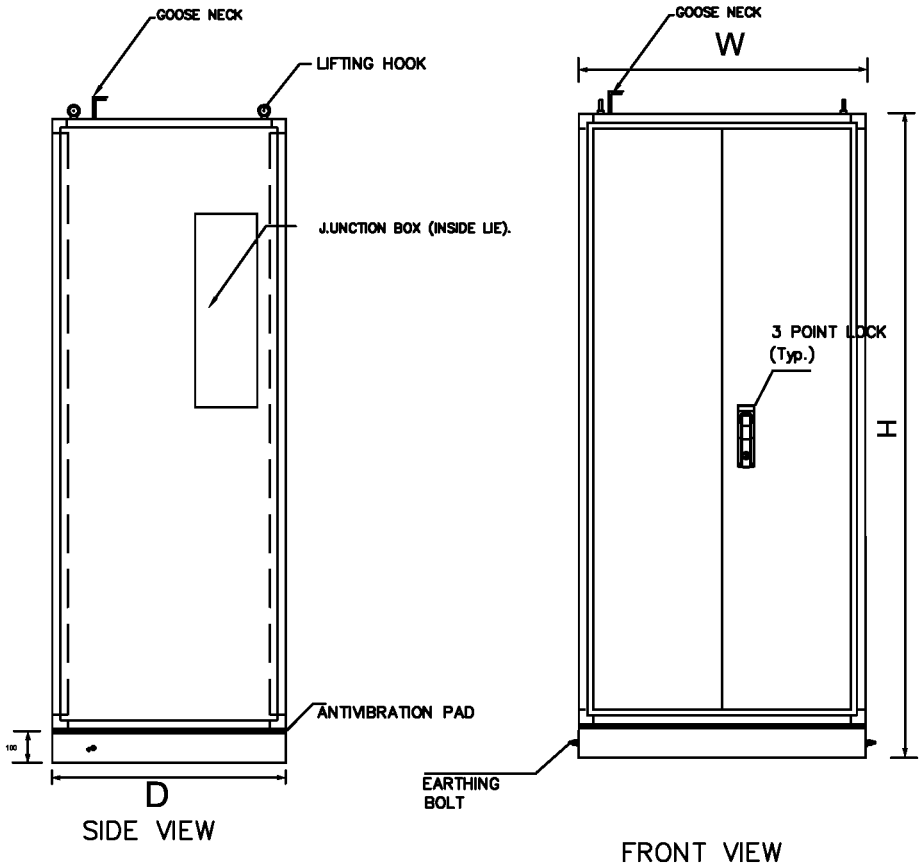
APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	20/07/23

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

DWG. NO. CE/416/LIE/LIR/OGA2



NOTES:-

1. ALL SHEETs ARE 1.6mm CRCA SHEET
2. ALL DOORS WILL BE FLUSH / CONCEALED TYPE
3. BULK HEAD PLATE (Minimum 6mm thick) FOR TOP & BOTTOM SHALL BE PROVIDED
4. CABLE GLAND PLATE OF THICKNESS 3.0 mm. CRCA SHEET SHALL BE PROVIDED AT BOTTOM OF J.B
5. ENCLOSURE SHALL BE OF IP-55 PROTECTION CLASS
6. TERMINAL SHALL BE PROVIDED IN SIDE THE J.B. AS PER TRANSMITTER GROUPING
7. DOORS SHALL BE THREE POINT LOCKING FOR FRONT AND REAR DOOR
8. GASKET SHALL BE PROVIDED BETWEEN BULK HEAD PLATE & ENCLOSURE
9. EARTH BUS BAR 25x6mm COPPER SHALL BE USED
10. MIN JB DIMENSION 800 MM X 200 MM X 200 MM.
11. BASE FRAME SHALL BE MADE OF ISMC 100
12. 1 No LED 11W,230V AC WITH FIXTURE SHALL BE PROVIDED
13. DRAIN PIPE SLOPE WILL BE 1 : 25 APPROX.
14. POWER SOCKET SHALL BE PROVIDED IN J.B. OF ENCLOSURE

LIE TYPE	H	W	D
A	2200	1400	800
B	2200	1000	800
C	2200	700	800

REF. DRG. No. FLREF

SIGN. & DATE

INVENTORY No.

PROD / PROJ : –

CUSTOMER: –

REV.	DATE	ALTERED – / CHECKED – / APPROVED –
–	–	

REV.	DATE	ALTERED – / CHECKED – / APPROVED –
–	–	

	NAME	SIGN	DATE
DRAWN	SAMY		14.09.2021
CHECKED	RKL		14.09.2021
APPROVED	RKL		14.09.2021

DEPT. BOP | CODE 416

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA-FOR-LIE

No. OF SHEETS 04

SHEET No. 02

WBS. No. –

DRG. No. CE/416/LIE/LIR/OGA2

REV 00

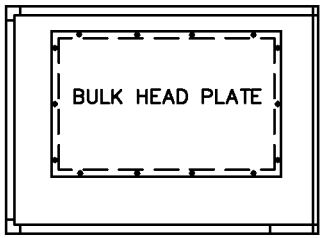
FORM No. A3-03

A3 SIZE

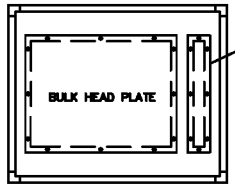
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

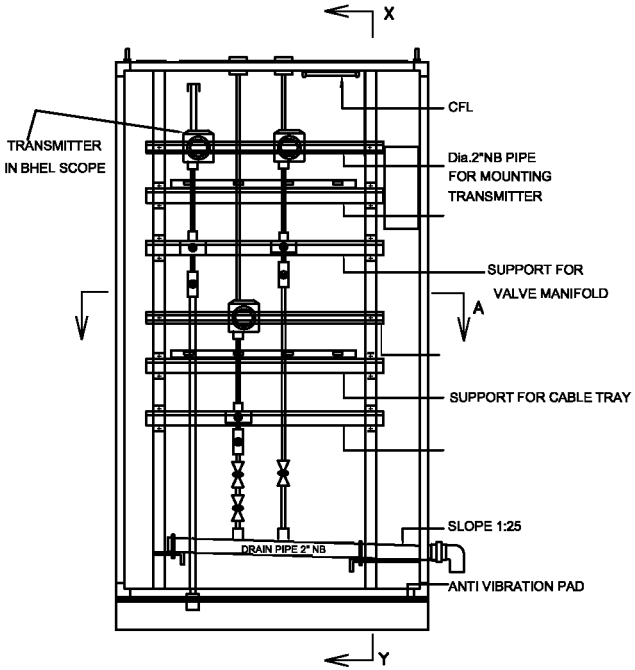
DWG. NO. CE/416/LIE/LIR/OGA2



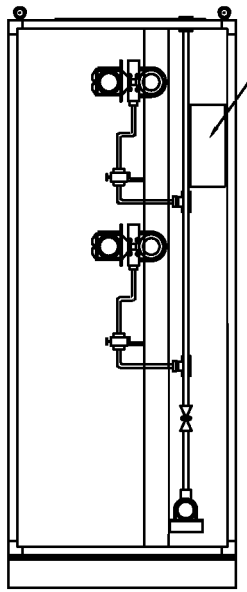
TOP VIEW



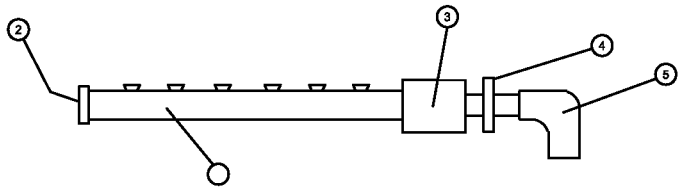
BOTTOM VIEW



FRONT VIEW



SIDE VIEW FROM X–Y



DRAIN PIPE

ITEM	DESCRIPTION	QTY.
1	2" NB ASTM A-106' SCH80/GR-C	A/R
2	2" S.W.CAP,CS ASTM A105	1No.
3	2" NBSW X 1" NPT(F) COUPLING CS ASTM A105	1No.
4	1" NPT (M) X1" BSP(M) HEX. COUPLING, CS ASTM105	1No.
5	1" BSP (F) ELBOW, CS ASTM A105	1No.

PROD / PROJ : –

CUSTOMER: –

REV.	DATE	ALTERED – / CHECKED – / APPROVED –	REV.	DATE	ALTERED – / CHECKED – / APPROVED –
–	–		–	–	

	NAME	SIGN	DATE
DRAWN	SAMY		14.09.2021
CHECKED	RKL		14.09.2021
APPROVED	RKL		14.09.2021

DEPT. BOP | CODE 416

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIE

No. OF SHEETS 04 | SHEET No. 03

WBS. No. –

DRG. No. CE/416/LIE/LIR/OGA2 | REV 00

REF. DRG. No. FLREF | SIGN. & DATE | INVENTORY No.

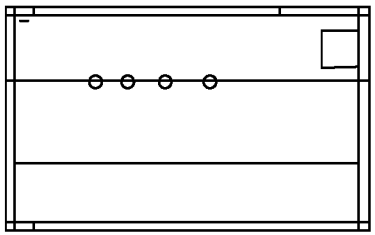
FORM No. A3–03

A3 SIZE

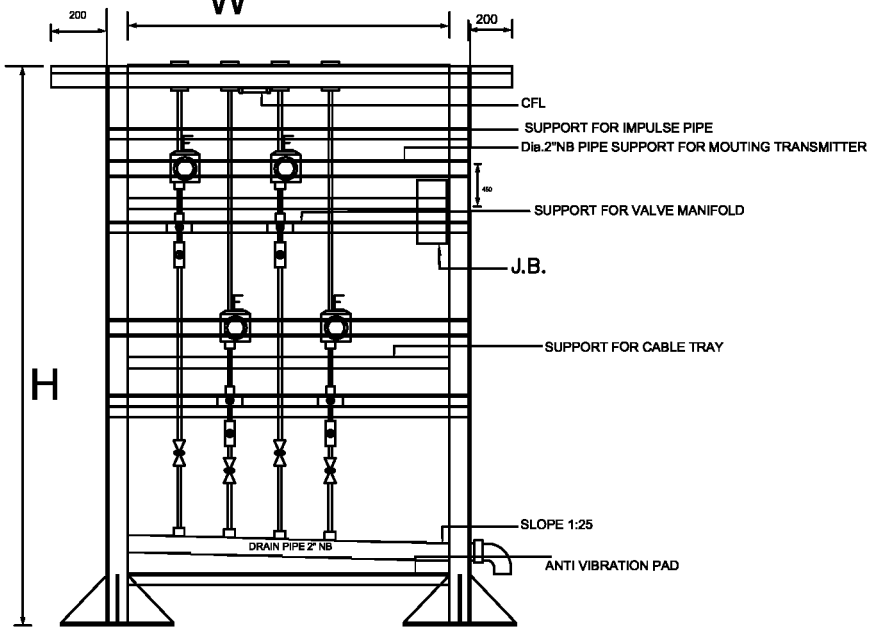
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

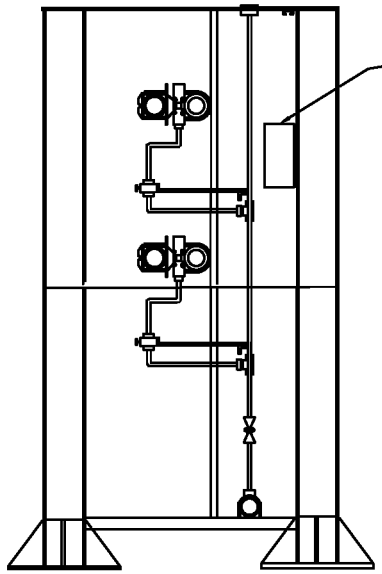
DWG. NO. CE/416/LIE/LIR/OGA2



TOP VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. JB TO BE LOCATED INSIDE THE LIR. JB DOOR SHALL OPEN FORM OUTSIDE.
2. LIR's ARE WITH 4 LEGS.
3. MINIMUM JB DIMENSION IS 800MM X 200MM X 200 MM.
4. SUPPORTING LEG SHALL BE MADE OF 6 MM THK ANGLE.
5. BULK HEAD PLATE SHALL BE PROVIDED AT THE TOP
6. TERMINAL SHALL BE PROVIDED IN SIDE THE J.B. AS PER TRANSMITTER GROUPING
7. GASKET SHALL BE PROVIDED BETWEEN BULK HEAD PLATE & RACK
8. EARTH BUS BAR 25x6mm COPPER SHALL BE USED
9. 1 No LED 11W,230V AC WITH FIXTURE SHALL BE PROVIDED
10. POWER SOCKET SHALL BE PROVIDED IN J.B. OF RACK
11. CANPAY ASSEMBLY WITH 3MM THICK CRCA SHEET

LIR TYPE	H	W	D
A	2200	1650	800
B	2200	1330	800
C	2200	1010	800

REF. DRG. No. FLREF

SIGN. & DATE

INVENTORY No.

REV.	DATE	ALTERED – / CHECKED – / APPROVED –
–	–	

REV.	DATE	ALTERED – / CHECKED – / APPROVED –
–	–	

	NAME	SIGN	DATE
DRAWN	SAMY		14.09.2021
CHECKED	RKL		14.09.2021
APPROVED	RKL		14.09.2021

DEPT. BOP | CODE 416

PROD / PROJ : –

CUSTOMER: –

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIR

No. OF SHEETS 04

SHEET No. 04

WBS. No. –

DRG. No. CE/416/LIE/LIR/OGA2

REV 00

FORM No. A3–03

A3 SIZE

PROJECT: NORTHKARANPURA FGD PACKAGE 3 X 660MW STPP

CUSTOMER: M/s NTPC

CONSULTANT: M/s NTPC

TYPICAL QUALITY CHECK LIST

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH LINGUTLA	416	20/07/23

	MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. :19.07.2023 PAGE : 02 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY				REMARKS
										M	C	E	
1	2	3	4	5	6	7	8	9	D*	**10			11
(A)	***MATERIAL***												
1	CRCA SHEET	A) MATERIAL	MAJOR	CHEMICAL COMPOSITION	SAMPLE	IS-513 APP.DRG	IS-513	M.T.C./Q.A.REP.		V	V	V	
		B) THICKNESS	MAJOR	MEASUREMENT	100%	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	
		C) HARDNESS	MAJOR	STRENGTH	SAMPLE	IS-513	IS-513	M.T.C./Q.A.REP.		V	V	V	
		D) SURFACE FINISH	MAJOR	VISUAL	100%	IS-513	IS-513	M.T.C./Q.A.REP.		P	V	V	
2	MS C- CHANNELS / MS ANGLE	A) DIMENSION	MAJOR	VISUAL	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		P	V	V	
		B) SURFACE DEFECTS	MAJOR	VISUAL	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		V	V	V	
		C) STRAIGHTNESS	MAJOR	MESUERMENT	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		V	V	V	
3	GASKET	A) DIMENSION	MAJOR	MEASUREMENT	SAMPLE	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		P	V	V	
		B) HARDNESS/SHORE HARDNESS	MAJOR	MEASUREMENT	SAMPLE	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C.		V	V	V	
4	TERMINALS	A) TYPE, SIZE & MAKE	MAJOR	VISUAL	100%	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	

		LEGEND :	FOR END USER :
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.	DOC. NO.
		** M : MANUFACTURER/ SUBCONTRACTOR	
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER	
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION	
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY
			NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

MANUFACTURER'S NAME & ADDRESS	**MANUFACTURING QUALITY PLAN**	
	ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	**QP Ref NO.: CE/416/LIE-LIR/QP** **REV. : 00** **DT. : 19.07.2023** **PAGE : 03 OF 06**

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	RECORD		M	C	E	REMARKS
1	2	3	4	5	6	7	8	9	D*		**10		11
5	PVC WIRE/ CABLE	A) TYPE, SIZE, MAKE	MAJOR	MEASUREMENT	SAMPLE	IS 694/APPD. APP.DRG	IS 694/APPD. APP.DRG	M.T.C./Q.A.REP.		P	V	V	
6	PAINT	A) SHADE	MAJOR	VISUAL	SAMPLE	APP. DRG	APP. DRG	M.T.C./Q.A.REP.		P	V	V	
		B) FINISH	MAJOR	VISUAL	SAMPLE	APP. DRG	APP. DRG	M.T.C./Q.A.REP.		P	V	V	
7	FLEXIBLE CONDUIT / M.S. CABLE TRAY	A) TYPE, SIZE & MAKE	MAJOR	VISUAL	SAMPLE	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	
(B)	***COMPONENTS ****												* TYPE / MODEL /RANGE OF COMPONENTS AS PER BOM OF LIE/ LIR .
1	VALVES, MANIFOLDS	MECHANICAL	MAJOR	A)CHEM. TEST	SAMPLE	SUPPLIER CAT./ APP.DRG	SUPPLIER CAT./ APP.DRG	M.T.C./Q.A.REP.		V	V	V	
				B)FUNCTIONAL	100%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C) DIMENSION	100%/SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				D)HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
2	FITTINGS	MECHANICAL	MAJOR	A)CHEM. TEST	SAMPLE	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%/SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C)HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
3.a	PIPES	MECHANICAL	MAJOR	A)CHEM. & PHY. TEST	SAMPLE	-DO-	-DO-	M.T.C./Q.A.REP. M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%/ SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	

		LEGEND :	FOR END USER :
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.	DOC. NO.
		** M : MANUFACTURER/ SUBCONTRACTOR	
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER	
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION	
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY
			NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
	ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 19.07.2023 PAGE : 04 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	RECORD	D*	M	C	E	REMARKS
1	2	3	4	5	6	7	8	9	D*	**10			11
3.b	TUBES	MECHANICAL	MAJOR	A)CHEM. & PHY. TEST	SAMPLE	SUPPLIER CAT./ APP.DRG	SUPPLIER CAT./ APP.DRG	M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C) HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
(C)	**INPROCESS**												
1	FABRICATED/CUBICLE AND COMPONENTS	A) DIMENSION	CRITICAL	MEASUREMENT	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	
		B) LIFTING FACILITY	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	
		C) CABLE ENTRY	CRITICAL	VISUAL	100%	APP.DRG	APP. APP.DRG	Q.A. REPORT		P	V	V	
		D) STRAIGHTNESS / WAVINESS	CRITICAL	VISUAL	100%					P	V	V	
		E) GASKET ARGMNT.	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	
		F) DEBURRING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	
		G) WELDING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	
		H) REMOVAL OF WELDING SLAGS	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	

LEGEND :

* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.

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C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER
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AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'

MANUFACTURER /SUBCONTRACTOR	CONTRACTOR
SIGNATURE	

FOR END USER :	DOC. NO.
REVIEWED BY	NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

	MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN		
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 19.07.2023 PAGE : 05 OF 06	

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
										M	C	E	
1	2	3	4	5	6	7	8	9	D*	**10			11
2	PRETREATMENT	A) DEGREASING	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
	(7 TANK PROCESS)	B) DERUSTING	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
		C) PHOSPHATISING	CRITICAL	MEASUREMENT	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
		D) PASSIVATION	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
3	SURFACE PREPARA-	A) PRIMER(2 COATS)	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
	-TION & PAINTING	B) SURFACER	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		C) FINAL PAINTING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		D) THICKNESS	CRITICAL	MEASUREMENT	SAMPLE	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
4	ELECTRICAL & MECH.	A) CHECK ARRANGE / LAYOUT OF COMP. & MOUNTING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		B) WIRE CLAMPING & FERULING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		C) INTERCONNECTION B/W COMPONENT	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		D)LUG SIZE&CRIMPING	CRITICAL	VISUAL	100%	APPD. APP.DRG	F.S./APP.DRG	Q.A.REPORT		P	V	V	
		E) COMPONENT IDENTIFICATION	CRITICAL	VISUAL	100%	APPD. APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		F) WIRE SIZE	MAJOR	VISUAL	SAMPLE	IS-694 / APP.DRG	IS-694 / APP.DRG	M.T.C./QA REP.		P	V	V	
		G) NAME PLATES	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		H) PIPING	MAJOR	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	

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MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER	
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SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY

DOC. NO.

NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

MANUFACTURER'S NAME & ADDRESS	MANUFACTURING QUALITY PLAN	
	ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 19.07.2023 PAGE : 06 OF 06

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
										M	C	E	
1	2	3	4	5	6	7	8	9	D*	**10			11
D)	***FINAL INSPECTION***												
1	A) VERIFICATION OF COMPONENTS /RATING/ ARRANGEMENTS/ LOCATION FOR EASY ACCESSABILITY AND MAINTENANCE .		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	B) COMPLETENESS OF WIRING ,TUBING/ PIPING		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	C) TERMINAL ARRANGEMENTS,SPARE TER--MINALS , EARTH BUS TIN PLATED COPPER)		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	D) PAINT SHADE,THICKNESS & ADHESION		CRITICAL	MEASUREMENT	SAMPLE	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	E) DOOR ALIGNMENT		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	F) GENERAL APPEARENCE (STRAIGHTNESS, FREE FROM SCRATCHES, BENDS, DENTS AND SHEET THICKNESS)		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	G) HYDROSTATIC TEST FOR ASSEMBLY. (1.5 TIMES RATED PRESSURE) (PNEUMATIC TEST FOR PURGING LINES (NO LEAKAGED WITH SOAP SOLUTION)		CRITICAL	MECHANICAL	100%	APP.DRG	APP.DRG/ NO LEAK/ PRESSURE DROP	Q.A. REPORT		P	W	W	PERFORMED BY VENDOR 100 % BHEL WITNESS ON 10%
2	OVERALL FINISH		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
3	CONTINUITY TEST		MAJOR	FUNCTIONAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
4	IR TEST		MAJOR	MEASUREMENT	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
5	HV TEST		MAJOR	MEASUREMENT	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
6	FUNCTIONAL TEST		MAJOR	FUNCTIONAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
7	IP TEST TYPE TEST		MAJOR	VERIFICATION	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	

M. T.C. = MANUFACTURER'S / MATERIAL TEST CERTIFICATE
F.S. = FACTORY STANDARD
Q.A.REP.= QUALITY ASSURANCE REPORT
APP. APP.DRG = APPROVED DRAWING
SAM. = SAMPLE

NOTE :- CUSTOMER / INSPECTION AGENCY / END USER MAY DO INSPECTION ON SAMPLE BASIS

LEGEND :
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AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'

MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	REVIEWED BY	NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL
SIGNATURE			

CORPORATE QUALITY ASSURANCE/ कॉरपोरेट गुणवत्ता आश्वासन

SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली

i.	***Item/Scope of Sub-contracting*** **उप-सविदा(नुबध) का मद/ दायरा**			
ii.	***Address of the registered office*** पंजीकृत कार्यालय का पता		***Details of Contact Person*** संपर्क व्यक्ति का विवरण ***(Name, Designation, Mobile, Email)*** (नाम, पदनाम, मोबाइल, ईमेल)	
iii.	***Name and Address of the proposed Sub-vendor's works where item is being manufactured*** प्रस्तावित उप-विक्रेता के कार्यों का नाम और पता, जहां मद का निर्माण किया जा रहा है		***Details of Contact Person:*** संपर्क व्यक्ति का विवरण ***(Name, Designation, Mobile, Email)*** (नाम, पदनाम, मोबाइल, ईमेल)	
iv.	***Annual Production Capacity for proposed item/scope of sub-contracting*** **उप-सविदा(नुबध)** के प्रस्तावित मद / दायरे के लिए वार्षिक उत्पादन क्षमता			
v.	***Annual production for last 3 years for proposed item/scope of sub-contracting*** **उप-सविदा(नुबध)** के प्रस्तावित मद / दायरे के लिए पिछले 3 वर्षों का वार्षिक उत्पादन			
vi.	***Details of proposed works*** **प्रस्तावित कार्यों का विवरण**			
1.	***Year of establishment of present works*** वर्तमान फैक्टरी की स्थापना का वर्ष			
2.	***Year of commencement of manufacturing at above works*** उपरोक्त फैक्टरी में निर्माण कार्य शुरू होने का वर्ष			
3.	***Details of change in Works address in past (if any*** पूर्व में फैक्टरी स्थल में परिवर्तन का विवरण (यदि कोई हो)***)***			
4.	***Total Area*** कुल क्षेत्र			
	Covered Area शामिल क्षेत्र			
5.	***Factory Registration Certificate*** फैक्टरी पंजीकरण प्रमाण पत्र		***Details attached at Annexure – F2.1*** विवरण अनुलग्नक- एफ 2.1 पर संलग्न है	
6.	***Design/ Research & development set-up*** डिजाइन / अनुसंधान और विकास सेटअप ***(No. of manpower, their qualification, machines & tools employed etc.)*** (श्रमिकों की संख्या, उनकी योग्यता, मशीन और उपलब्ध उपकरण आदि)		***Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design)*** ***Details attached at Annexure – F2.2*** ***(if applicable)*** लागू / लागू नहीं, अगर विनिर्माण मुख्य संविदाकार / खरीददार के डिजाइन के अनुसार है) विवरण अनुलग्नक –एफ 2.2 पर संलग्न है । (यदि लागू हो)	
7.	***Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc)*** मैनपावर विवरण के साथ समग्र संगठन का चार्ट(डिजाइन / विनिर्माण / गुणवत्ता आदि)		***Details attached at Annexure – F2.3*** विवरण अनुलग्नक – F2.3 में संलग्न है ।	
8.	***After sales service set up in India, in case of foreign sub-vendor(Location, Contact Person, Contact details etc.)*** भारत		***Applicable / Not applicable*** लागू / लागू नहीं	

	में बिक्री सेवा की स्थापना के बाद, विदेशी उप-विक्रेता के मामले में(स्थल , संपर्क व्यक्ति, संपर्क विवरण आदि)	***Details attached at Annexure – F2.4*** विवरण अनुलग्नक -2.4 पर संलग्न है।
9.	***Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any*** फ्लोचार्ट सहित विनिर्माण प्रक्रिया निष्पादन योजना , जिसमें आउटसोर्स प्रक्रिया, यदि कोई हो, सहित कच्चे माल से तैयार उत्पाद तक विनिर्माण के विभिन्न चरणों को दर्शाया गया हो,	***Details attached at Annexure – F2.5*** विवरण अनुलग्नक - F2.5में संलग्न है।
10.	***Sources of Raw Material/Major Bought Out Item*** कच्चे माल के स्रोत / खरीदे हुए मुख्य मद	***Details attached at Annexure – F2.6*** विवरण अनुलग्नक - F2.6में संलग्न है।
11.	***Quality Control exercised during receipt of raw material/BOI, in-process , Final Testing, packing*** कच्चे माल / खरीदे हुए मद, प्रक्रियाबद्ध, अंतिम परीक्षण, पैकिंग करते समय गुणवत्ता नियंत्रण	***Details attached at Annexure – F2.7*** विवरण अनुलग्नक - F2.7 पर संलग्न है
12.	***Manufacturing facilities (List of machines, special process facilities, material handling etc.)*** विनिर्माण सुविधा(मशीनों की सूची , विशेष प्रक्रिया सुविधाएं, सामग्री रख-रखाव आदि)	***Details attached at Annexure – F2.8*** विवरण अनुलग्नक - F2.8में संलग्न है।
13.	***Testing facilities (List of testing equipment)*** परीक्षण सुविधाएं(परीक्षण उपकरण की सूची)	***Details attached at Annexure – F2.9*** विवरण अनुलग्नक – F2. 9 में संलग्न है।
14.	***If manufacturing process involves fabrication then-*** यदि निर्माण प्रक्रिया में फेब्रिकेशन की गई है तो-	***Applicable / Not applicable*** लागू / लागू नहीं ***Details attached at Annexure – F2.10*** विवरण अनुलग्नक - F2.10में संलग्न है। ***(if applicable)*** लागू / लागू नहीं
	List of qualified Welders पात्र वेल्डर की सूची	
	List of qualified NDT personnel with area of specialization विशेषज्ञता के क्षेत्र सहित पात्र एनडीटी कार्मिकों की सूची	
15.	***List of out-sourced manufacturing processes with Sub-Vendors' names & addresses*** सब-वेंडर द्वारा बाह्य स्रोतों (उनके नाम और पते सहित)से करवाएं गए निर्माण प्रक्रियाओं की सूची	***Applicable / Not applicable*** लागू / लागू नहीं ***Details attached at Annexure. –F2.11*** विवरण अनुलग्नक - F2.10में संलग्न है। ***(if applicable)*** (यदि लागू हो)
16.	***Supply reference list including recent supplies*** नवीनतम आपूर्ति सहित आपूर्ति संदर्भ सूची	***Details attached at Annexure – F2.12*** विवरण अनुलग्नक - F2.12 में संलग्न है। ***(as per format given below)*** (नीचे दिए गए प्रारूप के अनुसार)

Project/ package परियोजना /पैकेज	***Customer Name*** ग्राहक का नाम	***Supplied Item (Type/Rating/Model /Capacity/Size etc)*** आपूर्ति की गई वस्तु (प्रकार / रेटिंग / मॉडल / क्षमता / आकार आदि)	***PO ref no/date*** पीओ संदर्भ सं. / तिथि	***Supplied Quantity*** आपूर्ति की मात्रा	***Date of Supply*** आपूर्ति की तारीख

17.	***Product satisfactory performance feedback letter/certificates/End User Feedback*** उत्पाद के संतोषजनक प्रदर्शन संबंधी फीडबैक पत्र / प्रमाण पत्र / अंतिम उपयोगकर्ता फ़ीडबैक	***Attached at annexure - F2.13*** अनुलग्नक F2. 3पर संलग्न है
18.	***Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product***	***Applicable / Not applicable*** लागू / लागू नहीं

	(similar or higher rating) प्रस्तावित उत्पाद (एक समान या उच्च रेटिंग वाले) के लिए टाइप टेस्ट रिपोर्ट (टाइप टेस्ट विवरण, रिपोर्ट संख्या, एजेंसी, जांच की तारीख) का सारांश नोट: - रिपोर्ट प्रस्तुत करने की आवश्यकता नहीं है ***Note:- Reports need not to be submitted***	***Details attached at Annexure – F2.14*** विवरण अनुलग्नक - F2.1 4में संलग्न है ***(if applicable)*** (यदि लागू हो)
19.	***Statutory / mandatory certification for the proposed product*** प्रस्तावित उत्पाद के लिए वैधानिक / अनिवार्य प्रमाणीकरण	***Applicable / Not applicable*** लागू / लागू नहीं ***Details attached at Annexure – F2.15*** ***(if applicable)*** (यदि लागू हो)
20.	***Copy of ISO 9001 certificate*** आईएसओ 9001 प्रमाण पत्र की प्रति ***(if available***(यदि उपलब्ध हो)	***Attached at Annexure – F2.16*** अनुलग्नक में संलग्न - F2.1 6 है
21.	***Product technical catalogues for proposed item (if available)*** प्रस्तावित मद के लिए उत्पाद तकनीकी कैटलॉग (यदि उपलब्ध हो)	***Details attached at Annexure – F2.17*** विवरण अनुलग्नक - F2.1 7 में संलग्न है

Name: ***नाम:***		***Desig:*** ***पदः***		***Sign:*** ***हस्ताक्षर:***		***Date:*** ***तिथि:***	

Company's Seal/Stamp:- कंपनी की मुहर / मोहर: -

SECTION – C

PROJECT: BAKRESHWAR STAGE II COMBUSTION MODIFICATION PACKAGE (DE NOX) 1 X 210MW TPS UNIT #5.

CUSTOMER: M/s WBPDCL.

CONSULTANT: M/s WBPDCL.

PURCHASE SPECIFICATION
FOR
LOCAL INSTRUMENT ENCLOSURE
(LIE)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED	ISSUED	DATE
RAJESH LINGUTLA	416	21/07/23

CONTENTS

PROJECT: BAKRESHWAR STAGE II COMBUSTION MODIFICATION PACKAGE (DE NOX) 1 X 210MW TPS UNIT #5.

CUSTOMER: M/s WBPDCL.

CONSULTANT: M/s WBPDCL.

SCOPE OF SUPPLY
FOR
LOCAL INSTRUMENT ENCLOSURE
(LIE)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	21/07/23

Scope of supply

The Scope of supply is as per Technical requirements attached with this specification. Vendor shall quote for each line item of the Table A, Table B. The unit rate shall be valid until the completion of the contracts. For this purpose, vendors shall maintain MS Excel file indicating total Bill of materials Table A, Table B.

TABLE: A –

S.No	Page no of HUP Ref CE/416/COMB/ HUP	Material Code	Description	Quantity	Unit
1		PR0830000020	LIE TYPEA	1	NO
2		PR0830000046	LIE TYPE C	2	NO
3	2	PR0830000194	Hook up DPT/FT/DPS Flue gas	2	NO
4	4	PR0830000267	Hook up for Intermittent Purging	2	NO
5		PR0900007443	Hardware for Loose Schemes- as per TABLE:B	1	ST
6		PR0830000275	Mandatory Spares for LIE/LIR as per TABLE:C	1	ST

Note:

1. Colour:, INTERNAL, EXTERNAL-(FRONT,REAR & TOP) RAL:9002
   SIDE OF PANEL –RAL :5012 (FINAL COLOUR WILL BE DECIDED DURING DETAILED ENGG)
2. IP65 Type test to be submitted for LIE for approval. Report should not be older than Dec 2018

TABLE:B -HARD WARE FOR LOOSE SCHEMES

SL. NO.	ITEM DESCRIPTION	QTY	UNIT
1	Bulk Head Union Material:Brass Size:1/4"NPTF	12	Nos
2	Copper Tube in Coils-light brown Tempered:PVC Coated As per ASTM B 75 /: 1/4" OD X 1 MM Thick	20	M
3	Brass Male Connector DFDC Size:1/4" to suit 1/4" Copper tube	20	Nos
4	Impulse Pipe ASTM A106 Gr C - 3/4" NB SCH 80	150	M
5	Forged Coupling Mat:ASTM A105 Size: 3/4" NB-SW CL-3000 / ANSI B 16.11	30	Nos
6	Forged Reducer Mat:A105 1" NB SW TO 3/4" NB SW CLASS 3000 / ANSI B16.11 END TO END DIMENSION=100MM	3	Nos
7	Forged Cross Mat:ASTM A105 Size:3 X 3/4" NB-SW and one end 3/4"NPTF CL-3000 / ANSI B 16.11	3	Nos
8	Plug Mat:ASTM A105 Size:3/4"NPTM Class 3000	3	Nos
9	NIPPLE MAT: ASTM A106 Gr.B SIZE: 3/4" NB SCH 80 / LENGTH = 100 mm ONE END -3/4" NTPM ,OTHER END : PLAINCAP/ ASTM A 105 -SIZE - 3/4" NPTF	5	Nos
10	Flexible Hose SS Braided 1/2" OD x 1 Meter with clamps.One end with adopter of 1/2" NPTM and other end with Bras adopter of 1/2" NPTF Rating10 KG/CM2	1	Nos
11	"Isolation valve Ball type body a 105 & Trim=SS 316. Size:1/2"NPTF Pr.Testing:900PSI"	2	Nos
12	COUPLING MAT: ASTM A105 GALVANISED TO 10/15 MICRONS SIZE: 1/2" NPTF/ PR. TESTING: 800 PSI	35	Nos
13	ELBOW MAT: ASTM A105 GALVANISED TO 10/15 MICRONS SIZE: 1/2" NPTF/ PR. TESTING: 800 PSI	10	Nos
14	EQUAL TEE MAT: ASTM A105 GALVANISED TO 10/15 MICRONS SIZE: 1/2" NPTF/ PR. TESTING: 800 PSI	10	Nos
15	THREE PIECE UNION, MATL: ASTM A105 GALVANISED TO 10/15 MICRONS, SIZE: 1/2" NPTF, PRESSURE RATING: 800 PSI.	8	Nos
16	U CLAMP - TO SUIT 3/4" NB PIPE WITH NUTS AND WASHERS CS GALVANISED TO 10/15 MICRONS	500	Nos
17	GI PIPE-1/2" NB "GI pipe-1/2" NB Heavy grade / as per IS1239 threaded ends (1/2" NPT) to be protected Running length 6 Meters"	50	M

TABLE:C -MANDATORY SPARE LIST

SL. NO.	ITEM DESCRIPTION	QTY	UNIT
1	Bulk Head Union Material:Brass Size:1/4"NPTF	2.00	Nos
2	Copper Tube in Coils-light brown Tempered:PVC Coated As per ASTM B 75 /: 1/4" OD X 1 MM Thick	2.00	M
3	Brass Male Connector DFDC Size:1/4" to suit 1/4" Copper tube	2.00	Nos
4	Impulse pipe ASTM A106 Gr C - 3/4" NB SCH 80	15.00	M
5	Forged Coupling Mat:ASTM A105 Size: 3/4" NB-SW CL-3000 / ANSI B 16.11	3.00	Nos
6	Forged Reducer Mat:A105 1" NB SW TO 3/4" NB SW CLASS 3000 / ANSI B16.11 END TO END DIMENSION=100MM	1.00	Nos
7	Forged Cross Mat:ASTM A105 Size:3 X 3/4" NB-SW and one end 3/4"NPTF CL-3000 / ANSI B 16.11	1.00	Nos
8	Plug Mat:ASTM A105 Size:3/4"NPTM Class 3000	1.00	Nos
9	NIPPLE MAT: ASTM A106 Gr.B SIZE: 3/4" NB SCH 80 / LENGTH = 100 mm ONE END -3/4" NTPM ,OTHER END : PLAINCAP/ ASTM A 105 -SIZE - 3/4" NPTF	1.00	Nos
10	Flexible Hose SS Braided 1/2" OD x 1 Meter with clamps.One end with adopter of 1/2" NPTM and other end with Bras adopter of 1/2" NPTF Rating10 KG/CM2	1.00	Nos
11	"Isolation valve Ball type body a 105 & Trim=SS 316. Size:1/2"NPTF Pr.Testing:900PSI"	1.00	Nos
12	COUPLING MAT: ASTM A105 GALVANISED TO 10/15 MICRONS SIZE: 1/2" NPTF/ PR. TESTING: 800 PSI	4.00	Nos
13	ELBOW MAT: ASTM A105 GALVANISED TO 10/15 MICRONS SIZE: 1/2" NPTF/ PR. TESTING: 800 PSI	1.00	Nos
14	EQUAL TEE MAT: ASTM A105 GALVANISED TO 10/15 MICRONS SIZE: 1/2" NPTF/ PR. TESTING: 800 PSI	1.00	Nos
15	THREE PIECE UNION, MATL: ASTM A105 GALVANISED TO 10/15 MICRONS, SIZE: 1/2" NPTF, PRESSURE RATING: 800 PSI.	1.00	Nos
16	U CLAMP - TO SUIT 3/4" NB PIPE WITH NUTS AND WASHERS CS GALVANISED TO 10/15 MICRONS	50.00	Nos
17	GI PIPE-1/2" NB "GI pipe-1/2" NB Heavy grade / as per IS1239 threaded ends (1/2" NPT) to be protected Running length 6 Meters"	5.00	M

Unit rate of each item for Hardware for loose schemes & Mandatory spares to be provided in the offer.

PROJECT: BAKRESHWAR STAGE II COMBUSTION MODIFICATION PACKAGE (DE NOX) 1 X 210MW TPS UNIT #5.

CUSTOMER: M/s WBPDCL.

CONSULTANT: M/s WBPDCL.

TECHNICAL REQUIREMENT
FOR
LOCAL INSTRUMENT ENCLOSURE
(LIE)

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	21/07/23

TECHNICAL REQUIREMENTS FOR TRANSMITTER ENCLOSURES AND TRANSMITTER RACKS:

I. TRANSMITTER ENCLOSURES:

1. The Transmitter enclosures (Closed type) are provided for mounting Transmitters etc. and located in Boiler area. This shall be constructed of 3 mm thick CRCA material. These shall confirm to IP 65 protection class.

2. The Transmitter Enclosures shall be of following sizes (in millimeters).

   Type A - 1450(W) x 800(D) x 2200(H) (For 5 to 6 Transmitters)
   Type C - 700(W) x 700(D) x 2200(H) (For 1 to 2 Transmitters)

3. These shall be reinforced as required to ensure true surfaces and to provide adequate Support for instruments and other equipment mounted therein. Double interlocking doors shall be provided and shall be arranged for maximum possible access to the module interior. Center posts or any member which would reduce access shall not be provided.

4. The doors shall be the three-point locking type constructed of not less than 3 mm steel sheet. Doors shall have concealed quick removal type pinned hinges and locking handles. Enclosure door locks shall accept the same / common key all over the plant. Gaskets shall be used between all mating sections to achieve dust proof enclosure rating for the modules and waterproof and dust tight rating on the Terminal / Junction boxes. All enclosures shall have access doors on Front and Rear sides.

5. Internal wirings between the Transmitters and Terminal / Junction box shall run through flexible dust tight conduits.

6. Anti Vibration Pads of minimum 15 mm thickness shall be provided for supporting each enclosure.

7. Construction of same shall be typically as per enclosed drawing CE/416/LIE/LIR/OGA1.

8. Service Power and Lighting

Each enclosure shall be provided with one receptacle, one light fixture with wire guard and one lighting switch and suitable MCBs. Lighting switches may be doors actuated, mounted door. Light switches and receptacles shall be installed inside the enclosure on the wall near the latch side of the enclosure door. Light fixtures shall be installed on the ceilings of the enclosures. Power supplies for miscellaneous devices shall be provided with fuses located within the Enclosure JB. Fuses shall be mounted in fuse blocks. Fuse ratings will be given on electrical schematic diagrams. Power supply shall be 240 V AC.

9. Equipment Installation

a. Enclosures shall be provided to mount field instrument, equipment and accessories. Vendor shall prepare enclosures and piping drawings indicating the layout for each enclosure. Special attention shall be given in the piping layout to avoid air traps in liquid filled piping, or water pockets in piping intended to be dry.

b. Drawings shall indicate the arrangement of all Piping, Valves and Fittings within the enclosures.

10. **Impulse Piping /Tubing**

a. Transmitter enclosures shall be complete with impulse tubing piping, valves from enclosure bulkhead connection to all instruments and necessary drain / blow down connections. The type, sizes, material and pressure class of pipes/tubes, fittings, valves etc. shall be suitable for the intended applications as per the Schemes / Tagging list of Instrument, provided by BHEL.

b. Bulkhead (Thickness shall be not less than 6mm) connection shall be used when instrument piping/ tubing enters the enclosure through Bulkhead plate. Typically through Bulk heads, Impulse pipe entry shall be through Top side of the Enclosure for Steam and Liquid services and for Air / flue gas services, impulse pipe entry shall be from Bottom side.

c. All Instrument Blow down lines, except those measuring vacuum shall be connected to a two-inch header, which is extended through one end of the enclosure and turned downward at other end.

d. Instrument piping and tubing shall be hydrostatically tested at one and one-half times the Design pressure (As per Instrument schedule) for that instruments except for vacuum measurement the test pressure will be 8 Kg / Cm2.

11. For Purging :

a. Pneumatic tubing shall be installed for all pneumatic devices, such as Air filter Regulator, Purge rotameters, Isolation valves, distribution air-header etc. Pneumatic tubing shall be installed in a neat workmanlike manner in protected locations with suitable supports. All Pipes / Tubes, which enter or leave the enclosure, shall be terminated on bulkhead fittings in the bulkhead plate. Pneumatic tubing material shall be ½" OD SS316 tubing Flareless SS- Tube fittings shall be used for tubing connections.

b. Instrument tubing schematic, connection and interconnections diagrams shall be furnished.

12. Wiring Within Enclosures and Grounding

Vendor shall furnish general arrangement and wiring diagrams for each transmitter Enclosures for approval.

13. **Enclosure Electrical Junction Box**

a. IP 65 junction box for the termination of all internal wiring shall be provided for each transmitter enclosure.

b. Junction boxes for enclosures shall be fabricated externally on one end of each enclosure assembly to accept field wiring through the top or bottom of the junction box. The Junction box shall be 150 millimeters minimum depth. A hinged door shall give access to

the interior of the junction box. Junction boxes shall be provided with fluorescent lighting. Same key shall be used to lock both Junction box & enclosure.

III. General Requirement applicable to Transmitter Enclosures & Racks :

1. Surface preparation And Painting

a. All sheet metal / exterior steel surfaces shall rust free and scale free and all other residue during fabrication operation such as Oil, grease and salts etc. shall be removed by one or more solvent cleaning methods. Epoxy primer surface shall be applied to all exterior and interior surfaces. Epoxy paint shall be applied to all surfaces and the paint thickness shall be 100 to150 microns. The finish colours for exterior and interior surfaces shall conform to the shades mentioned in scope of supply.

1. Grounding

a. Enclosures and Racks shall be provided with a continuous tinned copper ground bus of minimum 50 mm X 6 mm cross section, extended along the entire length. The ground bus shall have two (2) bolts drilling with GI bolts and nuts at each end.

2. Name plate / Label.

a. Service details and Tag no. shall be engraved on a nameplate or label for each of the Transmitter. These Nameplates or Labels shall be of white non-hygroscopic material with engraved black lettering. This shall be fixed on to the Impulse Pipe closer to the Transmitter inside the Enclosure / Rack.

3. Wiring Details

a. Interconnecting wiring shall be provided between all electrical devices mounted in the panels and between the devices and terminal blocks if the devices are to be connected to equipment outside the panels by cabling. All interior wiring shall be installed neatly and carefully and shall be terminated at suitable terminal blocks in the Junction box. Sufficient clearance shall be provided for all control and instrumentation leads.

b. Each wire shall be identified at both ends with wire designations as per approved wiring diagram. Interlocking type ferrules shall be used for identification.

c. All wire termination shall be made with insulated sleeve and cage clamp type terminals.

d. All signal wiring shall be done with 2 pair, 0.5 sq. mm annealed tinned copper, pair twisted overall & shielded (Individual & overall), voltage grade 225 V , FRLS PVC sheathed cable and 4 pair, 0.5 sq. mm for PS/DPS. For power supply application, 2.5 sq mm, 1100V cable shall be used.

e. Wires shall be dressed and run in trays or troughs with clamp-on type covers. Wiring may be neatly bunched in-groups by non-metallic cleats or bands. Shield wires shall be terminated on separate terminal blocks.

f. Internal wiring shall follow distinct color coding to segregate different voltage levels viz. 24V DC & 230V AC

g. Junction Box of enclosures will be provided with removable, gasketted cable gland for cable entrance.

4. Fuse Blocks

a. Fuse blocks shall be modular type with bakelite frame and reinforced retaining clips.

5. Terminal Blocks

a. Terminal blocks shall be DIN rail mounted and shall have Cage clamp type connection which shall be maintained for all panels uniformly.

b. The rated cross section of the terminal blocks shall be suitable for connecting 0.5-mm²/2.5 mm². Conductor of suitable voltage grade as specified.

c. Terminal blocks shall be mounted vertically with adequate spacing between rows for routing the cable troughs and to allow adequate free workspace for termination and removal of wires.

d. Terminal blocks shall be provided with white marking strips/self adhesive marker cards.

e. At least 25 percent spare unused terminals shall be provided on each terminal blocks for circuit modifications and for termination of all conductors in a multi conductor control cables.

f. Terminal blocks for termination of electrical power supply shall be type WAGO / PHOENIX make of suitable size with marking strips.

g. The last terminal in a rail-mounted assembly shall be closed with an end plate and end bracket.

IV. Documents to be Submitted by Vendor for Approval :

1. OGA for Transmitter Enclosure and Racks.
2. Layout of Components in each of Transmitter Enclosure and Rack.
3. Electrical diagrams for each Transmitter Enclosure and Rack.
4. Component datasheets
5. Quality plan including Welding Procedure specification and Welder Procedure qualification Record.
6. The quality plan shall include Visual inspection, GA BOM/Layout features verification, Dimensions, Paint shade, thickness measurement, Alignment of sections, component ratings, Wiring, IR, HV, review of TC for instruments / Devices, Accessibility of TBs / Devices, Illumination, Tubing and Degree of protection (Review of type test certificate)

V. Specific requirements

1. Where grouping is not provided for instruments, same shall be indicated during detailed engineering.
2. SS tubing between valve manifold and transmitter for each service shall be done as per Transmitter model Nos with mounting details will be provided by BHEL EDN.In Case If Transmitter model Nos with mounting details are not received before dispatch, Vendor has to supply tube and tube connectors and Erect the transmitters and valve manifold during commissioning time as per BHEL EDN Instruction.
3. **PQR requirement: Unpriced PO Copies and Customer Approved Data sheets or Dispatch Documents (Previous executed projects) etc for 200MW or above Coal Fired power plant shall be provided for Local Instrument Enclosure/Rack with Hook up Schemes. This documents will be submitted to Customer for Vendor approval in this project. Please note that BHEL Will wait 30 Days for vendor approval from the date of submission, if the same is not approved from customer within this period your offer will not be acceptable.**
4. Deviations (If Any) shall be discussed with only those bidders who quoted for this tender.

P PROJECT: BAKRESHWAR STAGE II COMBUSTION MODIFICATION PACKAGE (DE NOX) 1 X 210MW TPS UNIT #5.

CUSTOMER: M/s WBPDCL.

CONSULTANT: M/s WBPDCL.

INSTRUMENT SCHEDULE

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	21/07/23

Instrument schedule

KKS TAG NO	Descritption	Instrument Type	Medium	Operating Pressure	Maximum Pressure	Units of Pressure	Operating Temp(Deg C)	Scheme No	Int Purg	LIE No	Location of LIE
HHL41CF001	BOFA FLOW TRANSMITTER CORNER 1 & 2	FT	SEC.AIR	70	160	mmWC	313	2	Yes	LIE-001	Boiler Floor at 44.7 Meter elevation.
HHL42CF001	BOFA FLOW TRANSMITTER CORNER 3 & 4	FT	SEC.AIR	70	160	mmWC	313	2	Yes	LIE-002	Boiler Floor at 44.7 Meter elevation.
HHL11CP125	BOFA - A - PRESSURE	PS	INSTRUMENT AIR	0.2 to 1.05	10	Kg/cm2				LIE-003	Boiler Floor at 44.7 Meter elevation.
HHL11CP126	BOFA - B - PRESSURE	PS	INSTRUMENT AIR	0.2 to 1.05	10	Kg/cm2				LIE-003	Boiler Floor at 44.7 Meter elevation.
HHL11CP127	BOFA - C - PRESSURE	PS	INSTRUMENT AIR	0.2 to 1.05	10	Kg/cm2				LIE-003	Boiler Floor at 44.7 Meter elevation.

PROJECT: BAKRESHWAR STAGE II COMBUSTION MODIFICATION PACKAGE (DE NOX) 1 X 210MW TPS UNIT #5.

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CONSULTANT: M/s WBPDCL.

HOOK UP SCHEMES

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	21/07/23

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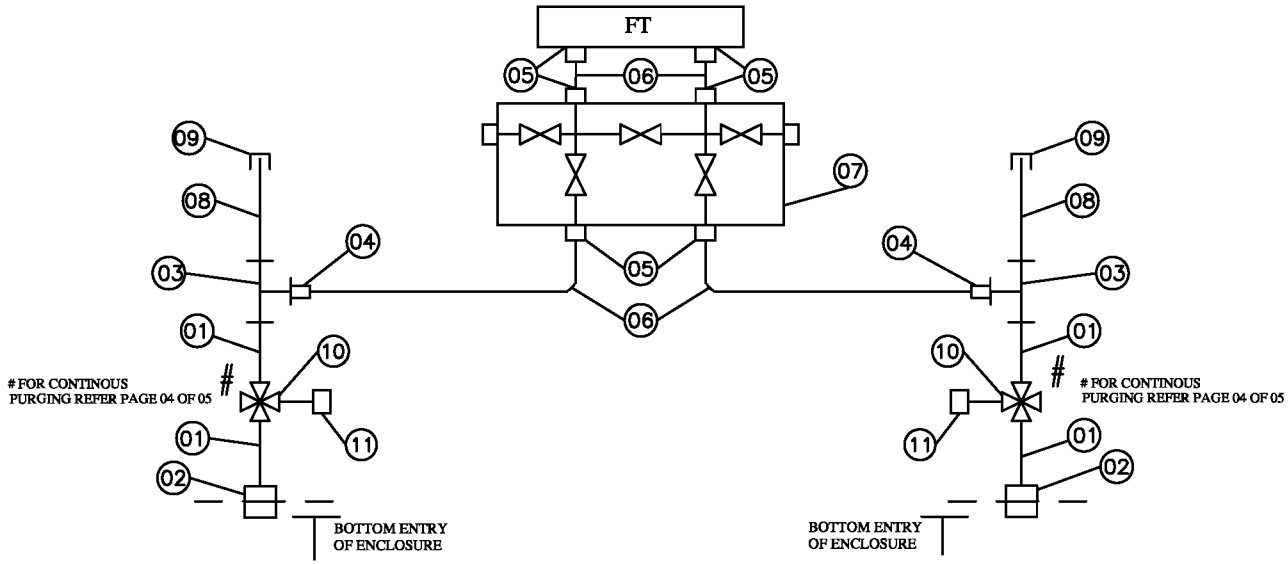
A4 – 11



NOTE:

1. " TRANSMITTER ABOVE SOURCE"
2. FOR BILL OF MATERIAL REFER PAGE 03 OF 05
3. #FOR INTERMITTENT PURGING REFER PAGE 04 OF 05

CE/416/COMB/HUP

REV. NO: 00

PAGE: 02 OF 05

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
01	IMPULSE PIPE MATL: ASTM A106 Gr.C SIZE: 3/4" SCH-80	A/R
02	BULKHEAD UNION / COUPLING / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW / CL 3000	02
03	FORGED EQUAL TEE / AS PER ANSI B16.11 MATL: ASTM A105 SIZE: 3/4" NB-SW / CL 3000	04
04	TEE-TUBE UNION MATL: SS316 CONN: OD OF 3/4" NB-PIPE X TO SUIT OD OF 1/2" SS TUBE	02
05	TUBE FITTING / DFDC MATL: SS316 CONN: 1/2" NPTM X TO SUIT 1/2" OD SS TUBE	06
06	TUBE MATL: ASTM A213 TP 316L SIZE: 1/2" OD X 1.13mm THK.	A/R
07	FIVE VALVE MANIFOLD WITH VENT PLUG BODY: SS316 PORT SIZE: 1/2" NPTF / RATING: 3000PSI	01
08	NIPPLE MATL: ASTM A106 Gr.C SIZE: ONE END PLAIN X OTHER END 3/4" NPTM	02
09	CAP MATL: ASTM A105 SIZE: 3/4" NPTF	02
10	FOUR WAY VALVE MATL: ASTM A105 SIZE: (2 x 3/4" NB-SW) x (2 x 1/2" NPTF)	02
11	QUICK DISCONNECTING FITTING MATL: SS 304 SIZE: 1/2" NPTM	02

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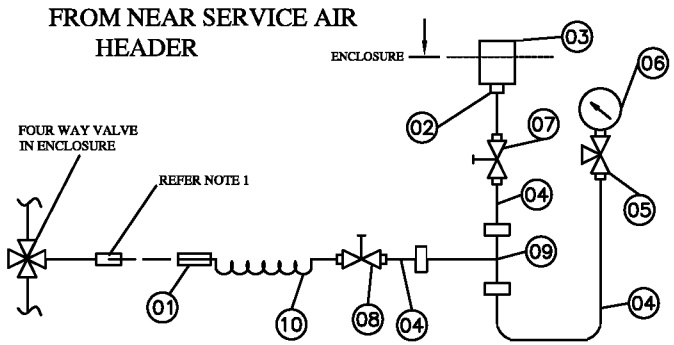
TYPICAL PURGE AIR SCHEME



NOTE:

1. THIS QUICK DISCONNECT FITTING IS CONNECTED TO FOUR WAY VALVE IN SERVICES WHERE MEDIUM IS FLUE GAS/DIRTY AIR
2. FOR BILL OF MATERIAL REFER PAGE 05 OF 05

CE/416/COMB/HUP

REV. NO: 00

ITEM NO.	ITEM DESCRIPTION	QTY/INST.
01	QUICK DISCONNECTING FITTING-SS304/MALE SIZE : END CONN. TO SUIT 1/2" OD SS-TUBE	01
02	TUBE CONNECTOR SIZE : 1/2" NPTM x TO SUIT 1/2" OD SS TUBE MATL. ASTM Gr. SS316	03
03	BULK HEAD UNION / MATL : SS316 SIZE : 1/2" NPT (F) x 1/2" NPTF	A/R
04	TUBE MATL: ASTM A213 TP316L SIZE: 1/2" OD - 1.13mm THK.	A/R
05	THREE WAY GUAGE COCK MATL: SS316 SIZE: 1/2" NPTF x TO SUIT 1/2" OD SS TUBE	02
06	PRESSURE GUAGE / DIAL SIZE : 4" RANGE : 0-10 KG/Sq. CM BOTTOM CONN: 1/2" NPTM	02
07	ISOLATING VALVE/GATE TYPE PROCESS CONN : 1/2" OD SS TUBE MTL : ASTM A182 F316	01
08	NEEDLE VALVE/MATL : SS316 SIZE : END CONN. TO SUIT 1/2" OD SS TUBE	01
09	EQUAL TEE FITTING / MATL : A182 Gr F316 END CONN. - TO SUIT 1/2" OD SS TUBE	01
10	NYLON FLEXIBLE HOSE BRAIDED WITH SS WIRE SIZE = 1/2 " DIA.	1 MTR

REVISION NO | DATE

PROJECT: BAKRESHWAR STAGE II COMBUSTION MODIFICATION PACKAGE (DE NOX) 1 X 210MW TPS UNIT #5.

CUSTOMER: M/s WBPDCL.

CONSULTANT: M/s WBPDCL.

SCHEMATIC DRAWINGS
FOR
LOCAL INSTRUMENT ENCLOSURE
(LIE)

REVISIONS :

APPROVED

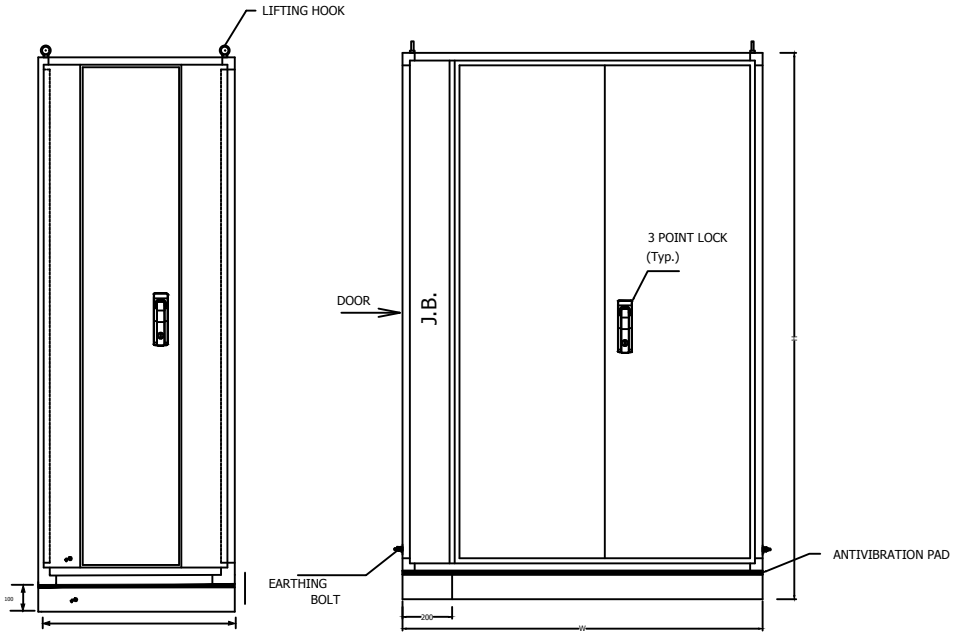
DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	21/07/23

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. No. CE/416/LIE/LIR/OGA1



LH SIDE VIEW

FRONT VIEW

NOTES: –

1. ALL SHEETs ARE 3.0mm CRCA SHEET
2. ALL DOORS WILL BE FLUSH / CONCEALED TYPE
3. BASE FRAME SHALL BE MADE OF ISMC 100
4. BULK HEAD PLATE FOR TOP & BOTTOM SHALL BE PROVIDED
5. CABLE GLAND PLATE OF THICKNESS 3.0 mm. CRCA SHEET SHALL BE PROVIDED TOP AND BOTTOM OF J.B
6. ENCLOSURE SHALL BE OF IP–65 PROTECTION CLASS
7. TERMINAL SHALL BE PROVIDED IN SIDE THE J.B. AS PER TRANSMITTER GROUPING
8. DOORS SHALL BE THREE POINT LOCKING FOR FRONT AND REAR DOOR AND SIDE DOOR LEAF
9. GASKET SHALL BE PROVIDED BETWEEN BULK HEAD PLATE & ENCLOSURE
10. EARTH BUS BAR 25x6mm TINNED COPPER SHALL BE USED
11. 2 Nos LED 11W,230V AC WITH FIXTURE SHALL BE PROVIDED
12. DRAIN PIPE SLOPE WILL BE 1 : 25 APPROX.
13. POWER SOCKET SHALL BE PROVIDED IN J.B. OF ENCLOSURE

LIE TYPE	H	W	D
A	2200	1450	800
B	2200	1100	800
C	2200	700	700

REF. DRG. No.

SIGN. & DATE

INVENTORY No.

REV.	DATE	ALTERED / CHECKED / APPROVED	REV.	DATE	ALTERED / CHECKED / APPROVED

	NAME	SIGN	DATE
DRAWN	HKS		15.04.2015
CHECKED	RKL		15.04.2015
APPROVED	AM		15.04.2015

DEPT. BPE | CODE 416

PROD / PROJ :

CUSTOMER:

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIE

No. OF SHEETS: 04

SHEET No.: 02

WBS. No.

DRG. No. CE/416/LIE/LIR/OGA1

REV 00

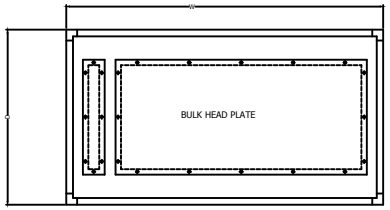
FORM No. A3–03

A3 SIZE

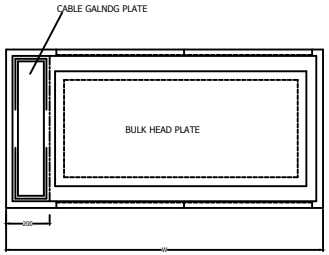
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

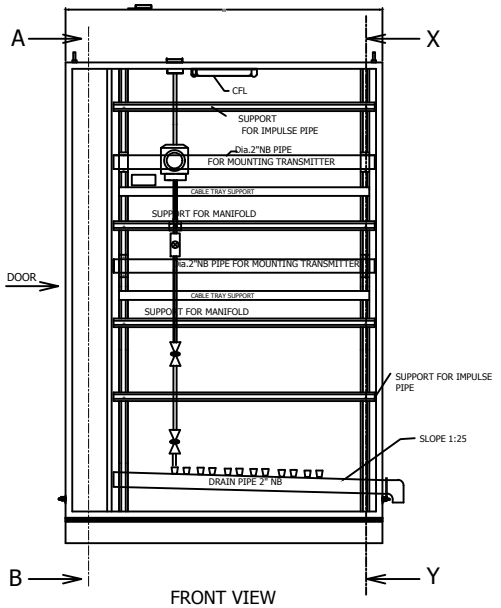
DRG. No. CE/416/LIE/LIR/OGA1



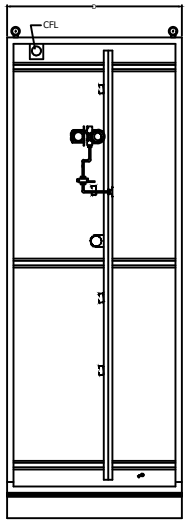
TOP VIEW



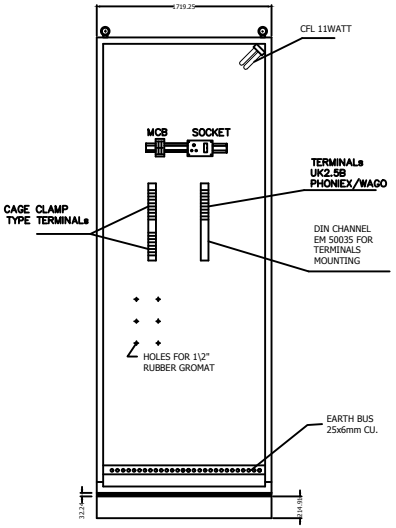
BOTTOM VIEW



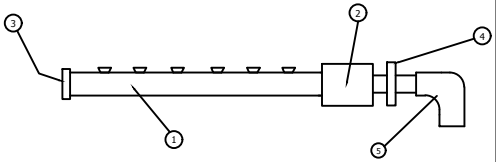
FRONT VIEW



SIDE VIEW FROM X-Y



SIDE VIEW FROM A-B



DRAIN PIPE

ITEM	DESCRIPTION	QTY.
1	2" NB ASTM A-106' SCH80/GR-C	A/R
2	2" NBSW X 1" NPT(F) COUPLING CS ASTM A105	1No.
3	2" S.W.CAP,CS ASTM A105	1No.
4	1" NPT (M) X1" BSP(M) HEX. COUPLING, CS ASTM105	1No.
5	1" BSP (F) ELBOW, CS ASTM A105	1No.

PROD / PROJ :

CUSTOMER:

REV.	DATE	ALTERED / CHECKED / APPROVED	REV.	DATE	ALTERED / CHECKED / APPROVED

	NAME	SIGN	DATE
DRAWN	HKS		15.04.2015
CHECKED	RKL		15.04.2015
APPROVED	AM		15.04.2015

DEPT. BPE | CODE 416

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

TITLE: OGA–FOR–LIE

No. OF SHEETS: 04

SHEET No.: 03

WBS. No.

DRG. No. CE/416/LIE/LIR/OGA1

REV 00

REF. DRG. No.

SIGN. & DATE

INVENTORY No.

FORM No. A3–03

A3 SIZE

PROJECT: BAKRESHWAR STAGE II COMBUSTION MODIFICATION PACKAGE (DE NOX) 1 X 210MW TPS UNIT #5.

CUSTOMER: M/s WBPDCL.

CONSULTANT: M/s WBPDCL.

COMPONENT VENDOR LIST

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH L	416	21/07/23

VENDOR LIST

Sl No	Item Description	Approved Vendors
1	Socket Weld Fittings	PRECISION ENGG INDUSTRIES, MUMBAI
		V.K.INDUSTRIES,BANGALORE
		VIKAS INDUSTRIAL PRODUCTS,NOIDA
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		PMT ENGINEERS,AHMEDABAD
		FLOWTECH, KOLKATA.
		PANAM ENGINEERS LTD,MUMBAI
		AURA INC,NEW DELHI
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		PAUL INDUSTRIES,HOWRAH
		ARCELLOR CONTROLS ,AHMEDABAD
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		NAV DURGA FORGING AND FITTINGS PVT LTD, THANE, MAHARASTRA.
		PRIME ENGINEERS,MUMBAI
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
2	Compression Fittings	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD, MUMBAI
		METPRESS ENGINEERING WORKS, KOLKATA
		ASTEC VALVE & FITTINGS PVT. LTD., MUMBAI
		FLUID CONTROLS PVT. LTD,PUNE
		PANAM ENGINEERS LTD,MUMBAI
		AURA INC, NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD, CHENNAI
		PMT ENGINEERS,AHMEDABAD
		PRIME ENGINEERS,MUMBAI
		ARCELLOR CONTROLS ,AHMEDABAD
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
		SWAGELOCK,USA
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		FLOWTECH. KOLKATA.
		FLUID FIT ENGINEERING PVT LTD, PALGHAR, MAHARASHTRA.
		PARKER HANNIFIN INDIA PVT. LTD.,CHENGAL PATTU,TAMILANADU
3	Instrument Valves	BHARAT HEAVY ELECTRICALS LIMITED VALVES DIVISION, TIRUCHIRAPALLI, TAMILANADU.
		PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		PMT ENGINEERS,AHMEDABAD
		AURA INC,NEW DELHI
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		FLUID CONTROLS PVT LTD,PUNE
		FLOWTECH, KOLKATA.
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		INSTRUMENTATION LIMITED,PALGHAT

VENDOR LIST

Sl No	Item Description	Approved Vendors
4	Valve Manifolds	PRECISION ENGG INDUSTRIES, MUMBAI
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI
		METPRESS ENGINEERING WORKS,KOLKATA
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI
		ASTEC VALVE & FITTINGS PVT. LTD,MUMBAI
		FLOWTECH, KOLKATA.
		AURA INC,NEW DELHI
		PMT ENGINEERS,AHMEDABAD
		HP VALVES & FITTINGS (INDIA) PVT. LTD,CHENNAI
		MICRO PRECISION PRODUCTS PVT LTD, FARIDABAD, HARYANA.
		FLUID CONTROLS LIMITED ,PUNE
		ARCELLOR CONTROLS, AHMEDABAD.
		PRIME ENGINEERS,MUMBAI
		Parker HANNIFIN INDIA PVT. LTD,LEBANON (D407131-Super technical dealer for Parker)
		VIPAL ENTEPRISES PVT LTD, MUMBAI.
		DYNA FLUID VALVES AND FLOW CONTROLS,UDYAMBAG,BELGAUM
		ARYA CRAFTS & ENGINEERING PVT. LTD,MUMBAI
		SHREE MARUTI INSTRUMENTS PVT LTD, GUJARAT.
		FLUID FIT ENGINEERING PVT LTD, PALGHAR, MAHARASHTRA.
5	Air Filter Regulator	PLACKA INSTRUMENTS INDIA PVT LTD CHENNAI
		SHAVO NORGREN(INDIA)PVT LTD BANGALORE
6	Impulse Pipes / Seamless Tube	BHARAT HEAVY ELECTRICALS LTD, TIRUCHIRAPALLI, TAMILANADU.
		SUMITOMO CORPORATION, JAPAN.
		TPS TECHNITUBE ROHREN WERKE GMBH,DAUN,GERMANY
		INDIAN SEAMLESS METAL TUBES LTD, PUNE. (Only CS only)
		MAXIM TUBES COMPANY PVT LTD,AHMEDABAD
		SURAJ STAINLESS LIMITED,AHMEDABAD (Only SS only)
		MBM TUBES PVT LTD,CHATTRAL,GUJARAT (Only SS only)
		TUBACEX PRAKASH INDIA PVT LTD,UMBERGAON ,GUJARAT (Only SS only)
		SHUBHLAXMI METALS AND TUBES PVT. LTD, MUMBAI (Only SS only)
		JINDAL SAW LTD,CHENNAI (Only CS only)
		RATNAMANI METALS & TUBES LTD, AHMADABAD (Only SS only)
		MAHARATRA SEAMLESS TUBES (CS ONLY)
		HEAVY METAL AND TUBES LTD,AHMEDABAD/MUMBAI

VENDOR LIST

Sl No	Item Description	Approved Vendors
7	Instrumentation Cable	PARAMOUNT COMMUNICATIONS LTD, ALWAR.
		CORDS CABLE INDUSTRIES LTD, BHIWADI/NEW DELHI.
		DELTON CABLE LTD, FARIDABAD.
		KEI INDUSTRIES LTD, BIWADI.
		POLYCAB WIRES PVT LTD, DAMAN.
		ELKAY TELELINKS,FARIDABAD
		HAVELS INDIA PVT LTD, ALWAR.
		RR KABEL, SILVASA.
		THERMO CABLES, HYDERABAD.
		TORRENTS CABLES, AHMEDABAD.
		INDO ALUSYS, BHIWADI.
		RADIANT CABLES, HYDERABAD.
		GEMS CAB INDUSTRIES, BHIWADI.
		FINOLEX, PUNE.
		SBEE CABLES, BANGALORE.
		SCOTT INNOVATION WIRES AND CABLES, BADDI.
		SUYOG CABLES, VADODARA.
		GEMSCAB INDUSTRIES LTD (Under approval)
		KEC INTERNATIONAL LTD (Under approval)
		SPM CABLES, HYDERABAD.
		INCAB, PUNE.
		NICCO CABLES, SHAMNAGAR, KOLKATA.
		HINDUSTAN VIDYUT PRODUCTS PVT LTD, FARIDABAD.
		UNIVERSAL CABLES, SATNA.
		PARAMOUNT CABLES, KHUSHKERA.

Note: Bidders Can Propose additional sub component vendors for above items with filling supplier registration format (https://www.bhel.com/supplier-registration), However if same is not approved by customer/BHEL, vendors to provide sub component makes from the approved list without any price impact.

PROJECT: BAKRESHWAR STAGE II COMBUSTION MODIFICATION PACKAGE (DE NOX) 1 X 210MW TPS UNIT #5.

CUSTOMER: M/s WBPDCL.

CONSULTANT: M/s WBPDCL.

TYPICAL QUALITY CHECK LIST

REVISIONS :

APPROVED

DIPTENDU GHOSH

PREPARED BY	ISSUED	DATE
RAJESH LINGUTLA	416	21/07/23

	MANUFACTURER'S NAME & ADDRESS	TYPICAL QUALITY CHECK LIST/PLAN	
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. :07.04.2023. PAGE : 02 OF 06

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
									M	C	E	
1	2	3	4	5	6	7	8	9	D*	**10		11
(A)	***MATERIAL***											
1	CRCA SHEET	A) MATERIAL	MAJOR	CHEMICAL COMPOSITION	SAMPLE	IS-513 APP.DRG	IS-513	M.T.C./Q.A.REP.		V	V	V
		B) THICKNESS	MAJOR	MEASUREMENT	100%	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V
		C) HARDNESS	MAJOR	STRENGTH	SAMPLE	IS-513	IS-513	M.T.C./Q.A.REP.		V	V	V
		D) SURFACE FINISH	MAJOR	VISUAL	100%	IS-513	IS-513	M.T.C./Q.A.REP.		P	V	V
2	MS C- CHANNELS / MS ANGLE	A) DIMENSION	MAJOR	VISUAL	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		P	V	V
		B) SURFACE DEFECTS	MAJOR	VISUAL	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		V	V	V
		C) STRAIGHTNESS	MAJOR	MESUERMENT	100%	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		V	V	V
3	GASKET	A) DIMENSION	MAJOR	MEASUREMENT	SAMPLE	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C./Q.A.REP.		P	V	V
		B) HARDNESS/SHORE HARDNESS	MAJOR	MEASUREMENT	SAMPLE	APP.DRG/ F.S.	APP.DRG/ F.S.	M.T.C.		V	V	V
4	TERMINALS	A) TYPE, SIZE & MAKE	MAJOR	VISUAL	100%	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V

		LEGEND :	FOR END USER :	DOC. NO.
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.		
		** M : MANUFACTURER/ SUBCONTRACTOR		
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER		
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION		
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY	NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

MANUFACTURER'S NAME & ADDRESS	TYPICAL QUALITY CHECK LIST/PLAN	
	ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 07.04.2023. PAGE : 03 OF 06

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	RECORD		M	C	E	REMARKS
1	2	3	4	5	6	7	8	9	D*		**10		11
5	PVC WIRE/ CABLE	A) TYPE, SIZE, MAKE	MAJOR	MEASUREMENT	SAMPLE	IS 694/APPD. APP.DRG	IS 694/APPD. APP.DRG	M.T.C./Q.A.REP.		P	V	V	
6	PAINT	A) SHADE	MAJOR	VISUAL	SAMPLE	APP. DRG	APP. DRG	M.T.C./Q.A.REP.		P	V	V	
		B) FINISH	MAJOR	VISUAL	SAMPLE	APP. DRG	APP. DRG	M.T.C./Q.A.REP.		P	V	V	
7	FLEXIBLE CONDUIT / M.S. CABLE TRAY	A) TYPE, SIZE & MAKE	MAJOR	VISUAL	SAMPLE	APP.DRG	APP.DRG	M.T.C./Q.A.REP.		P	V	V	
(B)	***COMPONENTS ******												* TYPE / MODEL /RANGE OF COMPONENTS AS PER BOM OF LIE/ LIR .
1	VALVES, MANIFOLDS	MECHANICAL	MAJOR	A)CHEM. TEST	SAMPLE	SUPPLIER CAT./ APP.DRG	SUPPLIER CAT./ APP.DRG	M.T.C./Q.A.REP.		V	V	V	
				B)FUNCTIONAL	100%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C) DIMENSION	100%/SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				D)HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
2	FITTINGS	MECHANICAL	MAJOR	A)CHEM. TEST	SAMPLE	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%/SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	
				C)HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		V	V	V	
3.a	PIPES	MECHANICAL	MAJOR	A)CHEM. & PHY. TEST	SAMPLE	-DO-	-DO-	M.T.C./Q.A.REP. M.T.C./Q.A.REP.		V	V	V	
				B) DIMENSION	100%/ SAM.	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V	

		LEGEND :	FOR END USER :	DOC. NO.
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.		
		** M : MANUFACTURER/ SUBCONTRACTOR		
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER		
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION		
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY	NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

	MANUFACTURER'S NAME & ADDRESS	TYPICAL QUALITY CHECK LIST/PLAN												
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK				QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 07.04.2023. PAGE : 04 OF 06								
S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	RECORD		M	C	E	REMARKS	
1	2	3	4	5	6	7	8	9	D*	**10			11	
3.b	TUBES	MECHANICAL	MAJOR	A)CHEM. & PHY. TEST	SAMPLE	SUPPLIER CAT./ APP.DRG	SUPPLIER CAT./ APP.DRG	M.T.C./Q.A.REP.		V	V	V		
				B) DIMENSION	100%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V		
				C) HYDROSTA-TIC	10%	-DO-	-DO-	M.T.C./Q.A.REP.		P	V	V		
(C)	**INPROCESS**													
1	FABRICATED/CUBICLE AND COMPONENTS	A) DIMENSION	CRITICAL	MEASUREMENT	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		B) LIFTING FACILITY	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		C) CABLE ENTRY	CRITICAL	VISUAL	100%	APP.DRG	APP. APP.DRG	Q.A. REPORT		P	V	V		
		D) STRAIGHTNESS / WAVINESS	CRITICAL	VISUAL	100%					P	V	V		
		E) GASKET ARGMNT.	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		F) DEBURRING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		G) WELDING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		
		H) REMOVAL OF WELDING SLAGS	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V		

		LEGEND :	FOR END USER :
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.	DOC. NO.
		** M : MANUFACTURER/ SUBCONTRACTOR	
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER	
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION	
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY
			NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

	MANUFACTURER'S NAME & ADDRESS	TYPICAL QUALITY CHECK LIST/PLAN	
		ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 07.04.2023. PAGE : 05 OF 06

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
										M	C	E	
1	2	3	4	5	6	7	8	9	D*	**10			11
2	PRETREATMENT	A) DEGREASING	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
	(7 TANK PROCESS)	B) DERUSTING	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
		C) PHOSPHATISING	CRITICAL	MEASUREMENT	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
		D) PASSIVATION	CRITICAL	VISUAL	100%	IS- 6005/F.S.	IS- 6005/F.S.	Q.A. REPORT		P	V	V	
3	SURFACE PREPARA-	A) PRIMER(2 COATS)	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
	-TION & PAINTING	B) SURFACER	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		C) FINAL PAINTING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		D) THICKNESS	CRITICAL	MEASUREMENT	SAMPLE	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
4	ELECTRICAL & MECH.	A) CHECK ARRANGE / LAYOUT OF COMP. & MOUNTING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		B) WIRE CLAMPING & FERULING	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		C) INTERCONNECTION B/W COMPONENT	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		D)LUG SIZE&CRIMPING	CRITICAL	VISUAL	100%	APPD. APP.DRG	F.S./APP.DRG	Q.A.REPORT		P	V	V	
		E) COMPONENT IDENTIFICATION	CRITICAL	VISUAL	100%	APPD. APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		F) WIRE SIZE	MAJOR	VISUAL	SAMPLE	IS-694 / APP.DRG	IS-694 / APP.DRG	M.T.C./QA REP.		P	V	V	
		G) NAME PLATES	CRITICAL	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	
		H) PIPING	MAJOR	VISUAL	100%	APP.DRG	APP.DRG	Q.A.REPORT		P	V	V	

		LEGEND :	FOR END USER :	DOC. NO.
		* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.		
		** M : MANUFACTURER/ SUBCONTRACTOR		
MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER		
		INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION		
SIGNATURE		AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'	REVIEWED BY	NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL

MANUFACTURER'S NAME & ADDRESS	TYPICAL QUALITY CHECK LIST/PLAN	
	ITEM : LOCAL INSTRUMENT ENCLOSURE & LOCAL INSTRUMENT RACK	QP Ref NO.: CE/416/LIE-LIR/QP REV. : 00 DT. : 07.04.2023. PAGE : 06 OF 06

S. NO.	COMPONENTS & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	D*	AGENCY M	AGENCY C	AGENCY E	REMARKS
1	2	3	4	5	6	7	8	9	D*	**10			11
D)	***FINAL INSPECTION***												
1	A) VERIFICATION OF COMPONENTS /RATING/ ARRANGEMENTS/ LOCATION FOR EASY ACCESSABILITY AND MAINTENANCE .		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	B) COMPLETENESS OF WIRING ,TUBING/ PIPING		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	C) TERMINAL ARRANGEMENTS,SPARE TER--MINALS , EARTH BUS TIN PLATED COPPER)		CRITICAL	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	D) PAINT SHADE,THICKNESS & ADHESION		CRITICAL	MEASUREMENT	SAMPLE	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	E) DOOR ALIGNMENT		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	F) GENERAL APPEARENCE (STRAIGHTNESS, FREE FROM SCRATCHES, BENDS, DENTS AND SHEET THICKNESS)		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
	G) HYDROSTATIC TEST FOR ASSEMBLY. (1.5 TIMES RATED PRESSURE)		CRITICAL	MECHANICAL	100%	APP.DRG	APP.DRG/ NO LEAK/ PRESSURE DROP	Q.A. REPORT		P	W	W	PERFORMED BY VENDOR 100 % BHEL WITNESS ON 10%
	(PNEUMATIC TEST FOR PURGING LINES (NO LEAKAGED WITH SOAP SOLUTION)												
2	OVERALL FINISH		MAJOR	VISUAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
3	CONTINUITY TEST		MAJOR	FUNCTIONAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
4	IR TEST		MAJOR	MEASUREMENT	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
5	HV TEST		MAJOR	MEASUREMENT	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
6	FUNCTIONAL TEST		MAJOR	FUNCTIONAL	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	W	W	
7	IP TEST TYPE TEST		MAJOR	VERIFICATION	100%/SAM.	APP.DRG	APP.DRG	Q.A. REPORT		P	V	V	

M. T.C. = MANUFACTURER'S / MATERIAL TEST CERTIFICATE
F.S. = FACTORY STANDARD
Q.A.REP.= QUALITY ASSURANCE REPORT
APP. APP.DRG = APPROVED DRAWING
SAM. = SAMPLE

NOTE :- CUSTOMER / INSPECTION AGENCY / END USER MAY DO INSPECTION ON SAMPLE BASIS

LEGEND :
* RECORDS, INDENTIFIED WITH `TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.
** M : MANUFACTURER/ SUBCONTRACTOR
C: CONTRACTOR/ NOMINATED INSPECTION AGENCY E : END USER
INDICATE `P' PERFORM, `W' WITNESS AND `V' VERIFICATION
AS APPROPRIATE "CHP" END USER SHALL IDENTIFIED IN COLUMN `E'

MANUFACTURER /SUBCONTRACTOR	CONTRACTOR	REVIEWED BY	NAME & SIGN OFAPPROVING AUTHORITY WITH SEAL
SIGNATURE			