दूरभाष :
TELEPHONE :
तार : बार्क-मुंबई, चेम्बूर.
TELEGRAMS : BARC-MUMBAI, CHEMBUR.
टेलेक्स : ०११-६१०१७/०११-६१०२२ बार्क इन
TELEX : 011-61017/011-61022 BARC IN
फेक्स संख्या : ९१-२२-५५६०७५०
FAX NUMBER : 91-22-5560750

ट्रॉम्बे,
मुंबई-४०० ०८५.
TROMBAY.
MUMBAI-400 085.

भारत सरकार
GOVERNMENT OF INDIA
भाभा परमाणु अनुसंधान केन्द्र
BHABHA ATOMIC RESEARCH CENTRE

Ph No. 25596461/25595646 **Product Development Division**

Tender Enquiry

DATE: FEBRUARY 18, 2022

1.	Tender number	:	PDD/2022/Heatexchanger/111
2.	Description of the work	:	**Design, fabrication, supply, installation and testing of "Nickel based heat exchanger and sampling tubes" as per the specifications mentioned in Annexure I.**
3.	a) Sketch/Dwg. No b) Specifications	:	As per Annexure- I
4.	Due date & Time	:	March 11, 2022 1500 hrs
5.	Mailing Address	:	Abhishek Sharma C/o Head, Product Development Division, South Site, BARC, Trombay Mumbai – 400 085
6.	Person to contacted for any clarification		Abhishek Sharma, SO(D), PDD, Tel No. 25596461 or Uday Kumar, SO(D), ChTD, Tel No. 25593611
7.	Terms of Submission	:	The firm should submit the **bid in two parts along with EMD** i.e. Technical bid, Financial bid and EMD separately in sealed envelope super scribing with i) Tender No. ii) Due Date & iii) Name of work **by Indian post only.**
8.	Earnest Money Deposit (EMD)	:	EMD in the form of a Demand Draft of value 2% of the basic cost of the offer in favour of "Accounts Officer, BARC, Mumbai" should be furnished along with the tender. Tenders not accompanied with valid EMD are liable to rejection. EMD of requisite value shall be submitted in a separate cover and the tender bid shall only be opened after confirming the submission of EMD in the specified form. (Annexure – II)

Abhishek 18/02/2022
(ABHISHEK SHARMA)
SO(D), PDD
RC & I Group, BARC

ANNEXURE-I

TECHNICAL SPECIFICATIONS, SCOPE OF WORK & GENERAL INSTRUCTIONS

Tender No.: PDD/2022/Heatexchanger/111 Dated: February 18, 2022

Name of the Work: **Design, fabrication, supply, installation and testing of "Nickel based Heat exchanger and sampling tubes" as per the specifications mentioned in Annexure I.**

Schedule of Quantity:

Sr. No.	Item Description	Quantity Required
1.	Condensor/Heat Exchanger	03
2.	Sampling Tube	10

1.0 Scope:

The scope of supply is to design, fabricate, supply, install and test items mentioned in schedule quantity as per approved QAP (Quality Assurance Plan). The detail specification of the items and quantity required along with schematic diagrams are as follows:

Item No. 1: Heat Exchanger

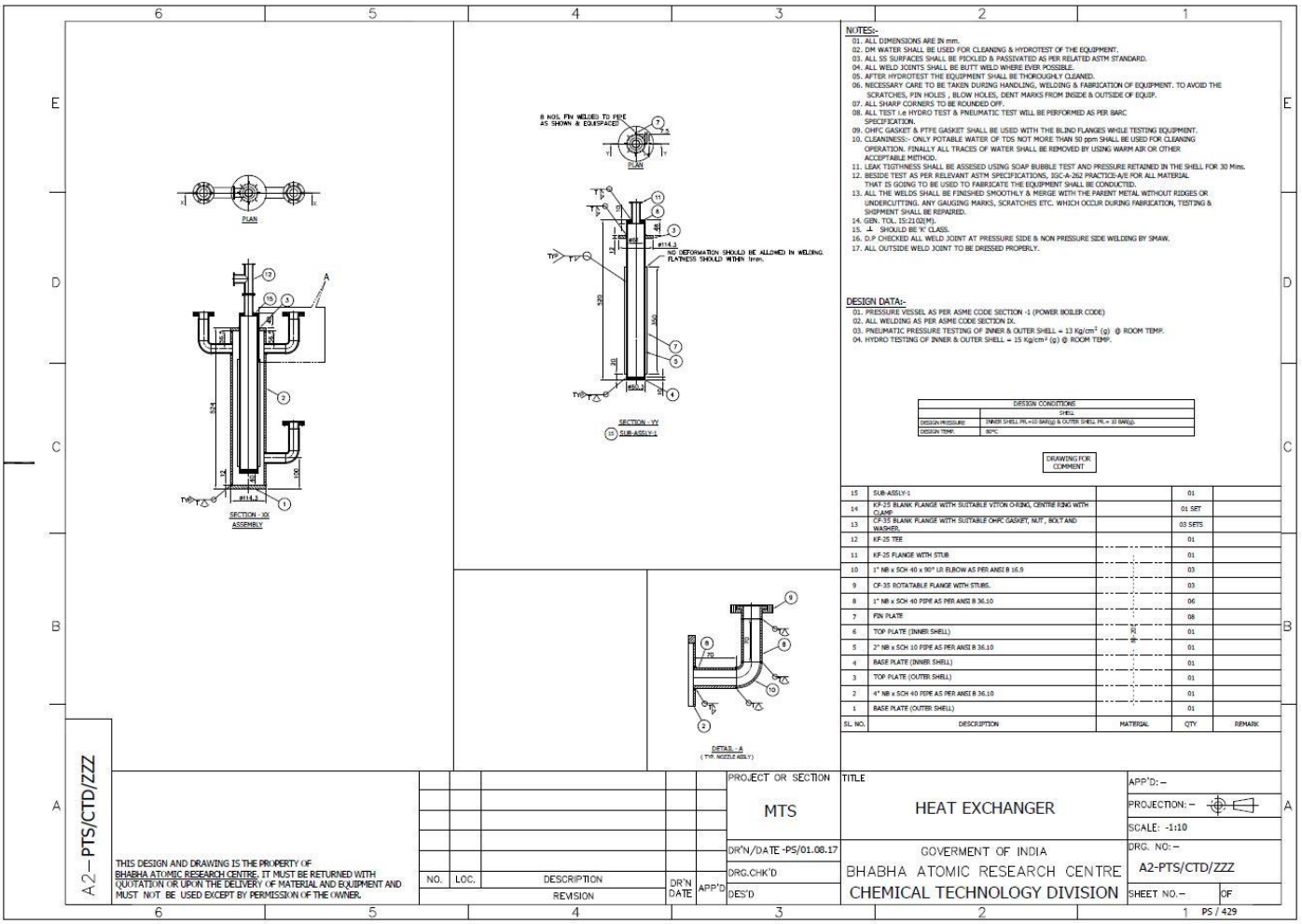
Quantity Required: 03 nos.

The Heat Exchanger vessel (seamless) along with relevant nozzles and flanges has to be designed and fabricated according to the specifications mentioned in relevant sections. The schematic of the heat exchanger is provided below. The vessels should be made of seamless pipes/tubes as per ASTM standards, the size details are mentioned in the schematic drawing.

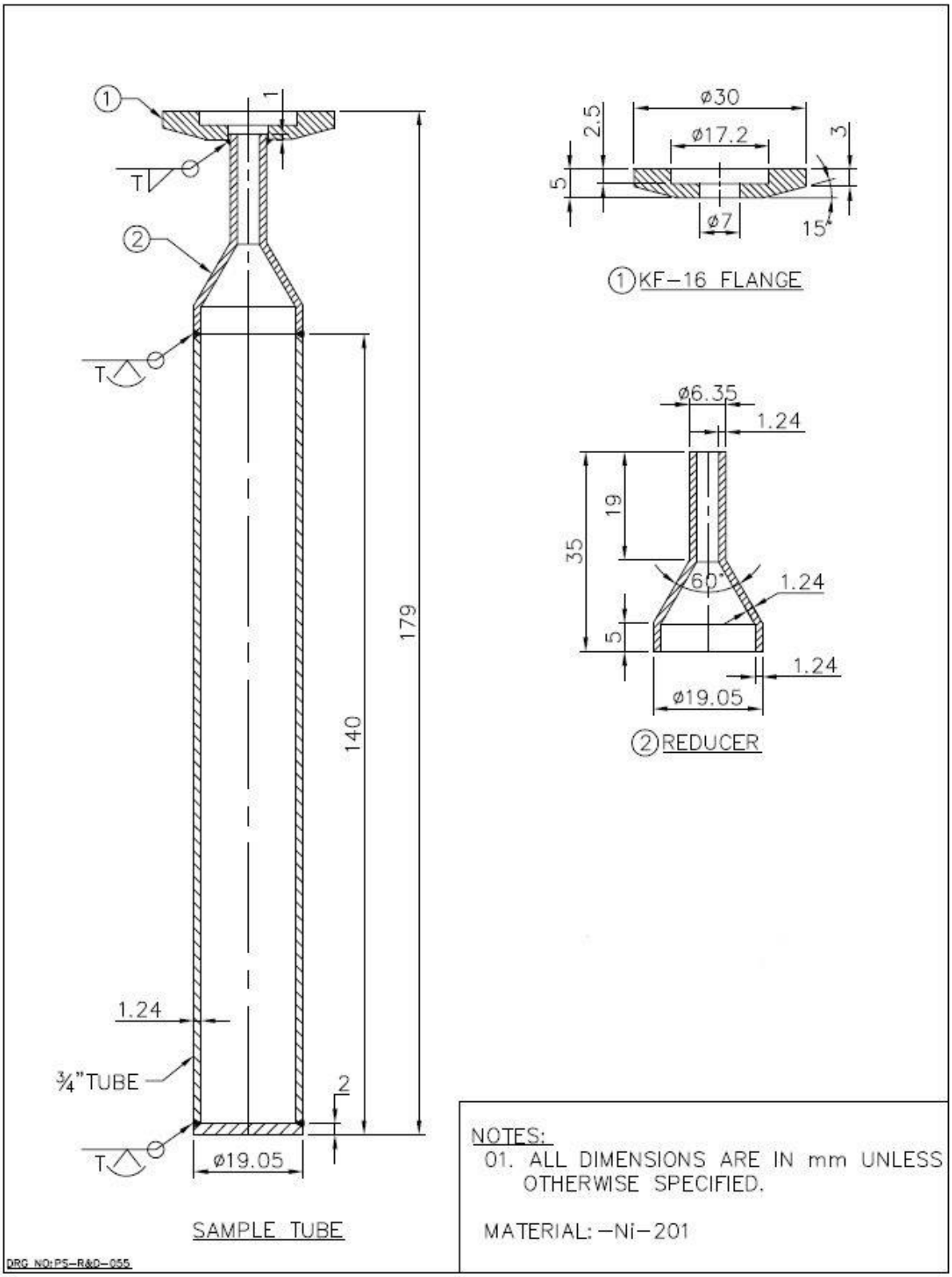
Item No. 2: Sampling Tube

Quantity Required: 10 nos.

The Sampling tube vessel (seamless) along with relevant nozzles and flanges has to be designed and fabricated according to the specifications mentioned in relevant sections. The schematic of the sampling tube is provided below. The vessels should be made of seamless pipes/tubes as per ASTM standards, the size details are mentioned in the schematic drawing



Schematic drawing of Heat Exchanger



Schematic drawing of Sampling Tube

2.0 Bidder Eligibility Criteria:

- The party should the send bid in two parts i.e. Technical and Financial bid. The technical bid shall contain the proposed fabrication drawing along with the following relevant documents.
- Firms need to have experience in similar nature of work at BARC/ DAE/reputed organization.
- Bidder should have experience in Nickel and High Nickel alloys welding.

- Party should have a welder qualified for Nickel/High Nickel Alloys.
- It is mandatory to submit bidder's eligibility documents along with quotation.

3.0 Quality acceptance test & procedure

1. Quality Assurance Plan describing Pre-fabrication, fabrication process, documentation details need to be submitted to user.
2. Fabrication drawing of all the items have to be approved from the user before its actual fabrication. Hard & soft copied of the drawings made by the manufacturer should be submitted to user for the same.
3. Vendor shall start the fabrication only with approved QAP and drawings.
4. Entire fabrication job should have stage-wise inspection starting from a) material procuring, b) machining, bending c) welding and d) final inspection before delivery. Before welding, parts of the items should be inspected & approved by the user.
5. Welding of the vessel should be carried out by a certified qualified welder through GTAW. All welding joints should have full penetration welding and fusion of filler material has to be ascertained at all joints and follow ASTM guidelines while welding. Suitable filler rod should only be used while welding.
6. Dye penetration test on root & final welds shall be carried out by the manufacturer & report of the same shall be submitted for user's review & approval.
7. **Hydrostatic Testing:** The equipment shall be hydro-statically tested with clean and halogen free water at room temperature to test the pressured specified in the drawing and as per requirements of UG 99 Sec. VIII Div.1 of ASME code. The testing shall be considered successful if test pressure had remained constant for at least ½ an hour and if no moisture is detected on the outside walls of container. The details for carrying out the said test shall be submitted back to purchaser.
8. **Pneumatic Testing:** The equipment shall be tested pneumatically. The test shall be done as per UG-100(C) of ASME section VIII Div.1. The equipment shall be inspected for leaks. Any bubble emission, technique with relevant ASTM standard shall be used for this. The procedure intended for test shall be used after the purchaser's approval.
9. **Radiography:** All the items should be fully radiographed (100% radiography). The radiography is to be done in accordance with the procedure in Section V of ASME code. The procedure for radiography and details regarding variables and techniques such as method, source, films, etc. shall be submitted to the purchaser for his prior approval.
10. Finished product shall be subjected to Helium MSLD at users site as per ASME section V. Any leak more than 1E-9 mbar-lit/sec is not acceptable (Vacuum method).
11. Vendors shall submit all documentation (2 copies): Fabrication drawings, QAP, Stage wise inspection reports (MOC test reports, weld clearance reports (Die penetration test), radiography report, Welding qualification/ procedure reports.

4.0 Fabrication/Execution shall be done in following stages:

a) Technical Discussions with user.
b) Quality Assurance Plan (QAP) prepared needs to be approved by user.
c) Preparation of shop/fabrication drawings and the required calculation sheets.
d) Submission and obtaining user's Approval of drawings and calculations.
e) Manufacturing, assembly and testing at supplier's site.
f) Supply of the items at site including packaging, safe transport, unloading and unpacking.
g) Installation and testing at purchaser's site.
h) Guarantee/Warranty of the units and its accessories (as applicable).

5.0 Drawings:

- Fabrication drawings shall be prepared by the fabricator and get it approved by the user/Indenting Officer before fabrication. All the approved drawings shall be the property of the department. The department reserves the right to revise the drawings without materially altering the design prior to the approval of the contractor's shop floor drawings. Such changes shall be considered as within the scope of the specified work and shall not be considered extra.
- Any conflict with the requirement, discretion is with the purchaser. Any modification/changes without affecting the basic design are under the scope of fabrication.
- Party shall prepare detailed fabrication drawings. Any suggestion will be indicated on these drawings. These detailed fabrication drawings shall be submitted to the purchaser for approval. After purchaser's approval only fabrication shall be started.

6.0 Material of Construction:

The material of construction for both Heat Exchanger and Sampling Tube is Ni – 201.
The material should conform to the following properties:

CHEMICAL COMPOSITION

Elements	COMPOSITION %
Nickel	Min. 99
Copper	Max. 0.25
Iron	Max. 0.4
Manganese	Max. 0.35
Carbon	Max. 0.02
Silicon	Max. 0.35
Sulphur	Max. 0.01

MECHANICAL PROPERTIES (ANNEALED CONDITION)

Tensile strength	Min. 403 MPa
Yield strength (0.2% offset)	Min. 103 MPa
Elongation at break	Min. 50%

REPORTS TO BE SUBMITTED

The following documents shall be submitted along with each component.

- Material test certificate (chemical composition, Mechanical properties).
- Microstructure test report.
- IGC Practice A&E test report.
- Ultrasonic test report.
- Ultrasonic Cleaning Report.
- Dimensional Inspection Report.
- Non-Conformance Report. (If Necessary)

7.0 FABRICATION AND MACHINING:

- Workmanship shall be accordance with high-grade practice and adequate to achieve the accuracy & finish.
- All the machining shall be done only after welding.
- All the sharp corners shall be rounded off.
- It is important to machine all the tolerances, accuracies & finish as specified in drawing to achieve the final result.

- Proper care shall be taken to align the various parts and clamp them with suitable fixtures prior to welding to eliminate distortion.
- All the welds shall have full penetration.

8.0 INSPECTION:

- Supplier should make the necessary arrangements for preliminary testing of the system at his site. During the testing, purchaser's representative will inspect and witness the testing.
- The supplier will make necessary improvements/modifications based on the inspection report before supplying the system.
- Unit will be inspected for overall dimensional accuracies, tolerances and functionality.

9.0 Installation & Commissioning:

The firm should supply, install and commission the items/system at purchaser's site.

10.0 Term and Conditions:

(1) You shall send your offer in a sealed envelope indicating delivery period, price inclusive of taxes and other relevant information to:

Abhishek Sharma

C/o Head, Product Development Division,

Bhabha Atomic Research Centre,

Trombay, Mumbai 400 085.

(2) Quotation shall reach us on or before due date. **Quotation received through Indian post (Speed/Registered post) only will be acceptable.**

(3) On top left corner of the envelope please indicate Quotation for **- "Heat Exchanger and sampling tubes" along with due date.**

(4) Quotations are to be on printed letter head/quotation format which should consist of GST registration number, PAN of the firm etc.

(5) Please mention the delivery period, validity of offer, Govt. Duties, all the taxes and charges applicable, payment terms clearly in the offer.

(6) Incomplete quotation will not be considered.

(7) Price quoted shall be for free delivery up to our site at BARC, Trombay, Mumbai – 400085.

(8) No Free Issue Material (FIM) will be supplied for the fabrication job.

(9) Overwriting, scratching etc. must be avoided in the quotation. Rewriting the whole figure shall carry out any alteration in the figure. The authorised person from the firm shall countersign such figure.

(10) The delivery period mentioned in the quotation shall be strictly adhered to. If the contractor fails to supply and secure extension of delivery date before effecting delivery of the supply against the contract, acceptance of such item by the purchaser will in no way prejudice the right of the purchaser to levy liquidated damage nor will it be entitled to the contractor for payment of statutory levies that comes into force after the expiry of the delivery date.

(11) Guarantee/Warranty certificate for one year against any manufacturing defects should be provided.

(12) The supplier may contact Shri. Abhishek Sharma, SO(D), PDD (contact no. 25596461) or Shri. Uday Kumar V, SO (D), ChTD (contact no. 25593611) for any clarification.

11.0 PLACE OF DELIVERY:

The inspected and accepted Assemblies shall be delivered to:

Product Development Division,

South Site,

Bhabha Atomic Research Centre,

Mumbai- 400 085.

12.0 PAYMENT TERMS:

No advance is admissible. Payment will be released only after satisfactory completion of the work on submission of following documents:

a. Satisfactory work completion certificate from our officer

b. Invoice in triplicate

c. Advance stamped receipt

d. Guarantee/Warranty certificate

13.0 CONFIDENTIALITY CLAUSE:

I. CONFIDENTIALITY

No party shall disclose any information to any third party, concerning the matters under this contract generally. In particular, any information identified as **"PROPRIETARY"** in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party.

This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by a party with equal force.

II. "RESTRICTED INFORMATION" CATEGORIES UNDER SECTION 18 OF THE ATOMIC ENERGY ACT, 1962 AND "OFFICIAL SECRETS" UNDER SECTION 5 OF THE OFFICIAL SECRETS ACT, 1923;-

Any contravention of the above-mentioned provisions by any contractor, sub-contractor, consultant, adviser or the employees of a contractor will invite penal consequences under the aforesaid legislation.

III. PROHIBITION AGAINST USE OF BARC'S NAME WITHOUT PERMISSION FOR PUBLICITY PURPOSES:-

The contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shall not use BARC's name for any publicity purpose through any public media like press, radio, T.V. or Internet without the prior written approval of BARC.

Abhishek Sharma
Indenting Officer
SO(D), PDD, BARC

Annexure – II

Form of Earnest Money Deposit

Bank Guarantee Bond

(On Non-Judicial stamp paper of value ₹=100/-)

WHEREAS, contractor..... (Name of contractor) (hereinafter called "the contractor") has submitted his tender dated ..... (date) for the construction of ..... (name of work) (hereinafter called "the Tender")

KNOW ALL PEOPLE by these presents that we ..... (name of bank) having our registered office at ..... (hereinafter called "the Bank") are bound unto ..... (Name and division of Executive Engineer) (hereinafter called "the Engineer-in-Charge") in the sum of Rs. ..... (Rs. in words .....) for which payment well and truly to be made to the said Engineer-in-Charge the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this ..... day of ..... 20..... . THE CONDITIONS of this obligation are:

(1) If after tender opening the Contractor withdraws, his tender during the period of validity of tender (including extended validity of tender) specified in the Form of Tender;

(2) If the contractor having been notified of the acceptance of his tender by the Engineer-inCharge:

(a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to contractor, if required;

OR

(b) fails or refuses to furnish the Performance Guarantee, in accordance with the provisions of tender document and Instructions to contractor,

We undertake to pay to the Engineer-in-Charge either up to the above amount or part thereof upon receipt of his first written demand, without the Engineer-in-Charge having to substantiates his demand, provided that in his demand the Engineer-in-Charge will note that the amount claimed by his is due to him owing to the occurrence of one or any of the above conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date* ..... after the deadline for submission of tender as such deadline is stated in the Instructions to contractor or as it may be extended by the Engineer-in- Charge, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE ..... SIGNATURE OF THE BANK

WITNESS ..... SEAL

(SIGNATURE, NAME AND ADDRESS)

*Date to be worked out on the basis of validity period of 6 months from last date of receipt of tender.