

CIVIL ENGINEERING SECTION

Tenders Documents
for
Execution of

Pressure Transient Test or Injection Fall off Test on identified target - Coal Seams for In-situ Permeability and In-situ Stress Measurement.

In

Raniganj, Jharia, East Bokaro, North Karanpura, South Karanpura Coalfields in West Bengal and Jharkhand and SCCL Lease hold Area in Andhra Pradesh. Few sites may be in other coalfields also.

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NIT NO.:

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CENTRAL INSTITUTE OF MINING & FUEL RESEARCH, DHANBAD
(Council of Scientific & Industrial Research)
NOTICE INVITING TENDER

No. 23(282)/2007-GA/

Dated: 10/09 /2007

sealed tenders are hereby invited from reputed and experienced firms/parties for carrying out the following works:

Sl.	Description of work	Earnest money	Time of completion	Cost of Tender Documents
1.	Pressure Transient Test or Injection Fall off Test on identified target - Coal Seams for In-situ Permeability and In-situ Stress Measurement.	1,20,000.00	2 Years	1000=00

The following proof of documents in original or duly attested to be produced at the time of issuing tender paper and also to be submitted longwith submission of tender for verification.

1. Valid Sales tax, registration no. & Clearance certificate.
2. Full details of the firm/party, information on providing of similar services to different organizations, details of projects handled, testimonials and documentary evidences in support of satisfactory performance, financial capabilities and other relevant information.
3. The average annual financial turnover of similar work during the last 3 years ending 31st March.
4. Documentary proof of ownership of equipment required for the execution of above referred work.

Tenders to be submitted in 2 Bid System

1. Part-I
(Technical Bid)

Consists of following documents

- a) Proof of documents as mentioned above
- b) Earnest Money
- c) Cost of Tender documents (In case of tender document down loading from CIMFR Web site.)

2. Part-II

Consists of following documents

- a) Costing alongwith full specifications of the items involved in the work including all Taxes & Levies as per different laws.

Tender paper will be on sale from 11/09/2007 to 12/10/2007 on payment basis (Non refundable) on all working days of CIMFR up to 3:00 P.M. and will be also available in CIMFR website www.cmriindia.nic.in / www.cimfr.nic.in that can be downloaded for submission. Those parties who submit their tenders after down loading, shall be required to pay the above mentioned amount (Cost of Tender Documents) in form of Account Payee D.D. drawn in favour of Director, CMRI, Dhanbad payable at SBI, Hirapur, alongwith their Technical Bid.

Part-I & Part-II are to be individually sealed in separate envelopes and both parts are to be put in a 3rd envelope which shall also be sealed and superscribed with the name of work in bold letters, tender notice reference no., due date & time, address of the depositors and may be submitted by registered post OR may be dropped in the Tender Box kept in the Office of the Administrative Officer, CIMFR, Dhanbad, after duly signed by him on or before 26/10/2007 at 3:00 P.M. and will be opened on the same day at 3:30 P.M., in presence of the intending tenderers or their authorized representatives whoever present themselves at the time of opening of tenders.

- Ø IT IS REQUIRED TO SUBMIT THE COST OF TENDER DOCUMENTS ALONG WITH TECHNICAL BID AS MENTIONED ABOVE.
- Ø EARNEST MONEY SHOULD BE DEPOSITED IN THE FORM OF ACCOUNT PAYEE DEMAND DRAFT PAYABLE AT SBI, HIRAPUR (CODE-1670) DHANBAD IN FAVOUR OF DIRECTOR, CENTRAL MINING RESEARCH INSTITUTE, DHANBAD.
- Ø INCOMPLETE TENDERS, CONDITIONAL OFFER, LATE / DELAYED TENDERS AS WELL AS TENDERS WITHOUT EARNEST MONEY SHALL BE SUMMARILY REJECTED.
- Ø DIRECTOR, CIMFR, RESERVES THE RIGHT OF ACCEPTING ANY TENDER IN PART OR FULL OR REJECTING ALL WITHOUT ASSIGNING ANY REASON.

In-Charge (Civil)

Administrative Officer

Y CIMFR may kindly approve for press, advertisement through the following agency in approved rate DAVP as applicable to Govt. Deptt.

1. The Telegraph, Kolkata Publication (English daily)
2. Hindustan Times, New Delhi Publication (English National)
3. Hindustan, Dhanbad Edition (Hindi Local) - May be briefly to press

Name of Media - Union Publicity Bureau,
34B, Ballygunge Gardens,
Golpark, kolkata - 700 019.

S.O.
Director

INSTRUCTION TO BIDDER

Tenderers are requested to read carefully the Tender Document so that offer is not rejected due to their mistake or oversight.

Central Institute of Mining & Fuel Research (CMRI), Barwa Road, Dhanbad 826 001, Jharkhand (India) is an Institute under the aegis of Council of Scientific and Industrial Research (CSIR), Rafi Marg, New Delhi - 110 001, a constituent body under the Ministry of Science & Technology, Govt. of India. This Institute is engaged in Research, Development and testing for Mining & Allied Industries.

1. Quotation shall be submitted as per NIT No. 23(282)/07-GA/ dt.10/09/07 in two separate envelopes in two bids system stating as i). Technical Bid and ii) Commercial Bid. Each envelope should be properly sealed and both of them should be put together in a large envelope, which will also be sealed. The outer cover should bear the name : *The Director, CIMFR, Barwa Road, Dhanbad - 826 001. Jharkhand (India)* along with the valid reference number, the name of the work & due date.

2. The inner covers for both Technical & Commercial part of each item should bear :

i) Address i.e. The Director, CIMFR, Barwa Road, Dhanbad, Jharkhand.

ii) File No.

iii) Date of opening:

iv) a) Technical Bid i.e. only technical part including terms & condition without mentioning any price.

b) Commercial Bid

3. All correspondence should be addressed to :

The Director, Central Institute of Mining & Fuel Research (CMRI), Barwa Road, Dhanbad - 826 001. Jharkhand (India).

4. The details of the tender are as below:

Place of Sale / submission / Opening of Tender	Date of issue of tender documents	Last date of submission of tender	Date of opening of technical bid
Administration Section, Central Institute of Mining & Fuel Research (CMRI), Barwa Road, Dhanbad - 826 001. Jharkhand (India),.	From: 11/09/2007 To 12/10/2007	26/10/2007 upto 3.00 PM.	26/10/2007 at 3.30 PM.

5. CIMFR will not be held responsible for delay, loss or non-receipt of application or tender document of either side if sent by post and will not entertain any correspondence in this regard. Tenders sent by Telex/Telegram/Fax/E-mail) will not be accepted. Requested for clarification in this regard received after 3.00 PM on 26/10/2007 will not be entertained.

6. The following proof of documents in original or duly attested to be produced at the time of issuing tender paper and also to be submitted along with submission of tender for verification.

- Ø Valid Sales tax, registration no. & clearance certificate.
- Ø Completion certificate alongwith payment received of three similar works (including schedule) of values as mentioned above from an officer not below the rank of Executive Engineer of the concerned department.
- Ø The average annual financial turnover of similar work during the last 3 years ending 31st March.
- Ø Documentary proof of ownership of equipment required for the execution of above referred work

7. Earnest Money in the form of D.D. in favour of Director, Central Mining Research Institute, Barwa Road, Dhanbad - 826 001. Jharkhand (India).

TECHNICAL SPECIFICATION

(A) JOB DESCRIPTION

- (a) Title : Pressure Transient Test or Injection Fall off Test on identified target - Coal Seams for In-situ Permeability and In-situ Stress Measurement.
- (b) Site Location : Raniganj, Jharia, East Bokaro, North Karanpura, South Karanpura Coalfields in West Bengal and Jharkhand and SCCL Lease hold Area in Andhra Pradesh. Few sites may be in other coalfields also.

(B) SPECIFICATION OF JOB

To conduct of pressure transient test in 15 or more number of open core holes of NQ and conventional oil well size: Through this programme, Injection Fall-off Absolute permeability tests would be conducted on identified target - Coal seams intersected in the coreholes. The depth ranges may vary from 100m -1400m and a minimum of 5 – 10 zones are planned for testing.

(C) DATA TO BE GENERATED FOR EXPLORATORY BOREHOLES

- Break down (Fracture initiation) procedure
- Fracture re-opening and fracture closure pressure
- Micro crack length
- Fluid loss co-efficient
- In-situ permeability and In-situ principal stress
- Orientation of principal stresses
- Initial reservoir pressure/formation pore pressure
- Skin factor
- Well bore storage co-efficient and formation storage co-efficient
- Radius of investigation
- Distance of nearest structural/formation boundary (impervious boundary)
- Hydraulic tensile rock strength

The development and refinement of the programme and procedures would be performed by the combined resources of CIMFR and the service provider, the details to be agreed prior before commencement of the job.

The service provider should offer testing tools and equipment along with associated equipment packages, which meet the specifications of the proposed program. The service provider must ensure proper maintenance of all equipment and its reliability and safety must be guaranteed.

(D) TEST PROCEDURE

Testing work to be carried out as per the following sequence:

- The pre-stimulation test (like short term pressure pulse test, refract test) to be carried out before hand for obtaining fracability (Break down pressure, Hydraulic tensile strength) and infectivity information followed by performing fracture test cycle and refract test cycle.
- After all above tests, final slow pumping injection fall off/step rate test to be carried out.
- After the entire hydraulic/hydrofrac test, the orientations of induced fracture/nature fractures to be determined.
- A pre-fracture pressure pulse test (2 MPa) and observation of the pressure decline over an adequate time period (P-test) to determine near wellbore.
- A microfrac test with an injection rate of 1 litre per minute to induce a fracture.
- Two subsequent re-frac tests to re-open and close the induced fracture, and determine the injected and recovered fluid volumes (injection rates: 1-2 lpm).
- A subsequent step-rate injection test for determination of rock conductivity.
- A final flow-rate injection and pressure decline test.
- Impression packer tests to determine the orientation of induced fracture.

(E) REPORT FORMAT/DELIVERABLES

- An initial operation report containing all in-situ test record may be submitted within 5 days after completion of field-testing of each borehole.
- Final report may be submitted for comment to the Director, CIMFR or his representative within an appropriate and approved time after the completion of field testing normally within 4 weeks of completion of the field tests, including the results of in-situ and laboratory test, both on paper and on CD-ROM of each borehole.

The final report should contain the following information:

- Location of the borehole with grid reference coordinates and relevant technical and geological information, may be submitted.
- Detail daily record of the main events and the testing procedures during field testing.
- A description of testing equipment and the tests procedures used.
- All relevant pressure testing data.

- Description of data analysis and test interpretation method may be provided.
- Determined in-situ permeability and the determined stress regime at the borehole location. Detail discussion of the test data commenting on the confidence of all test result followed by a final conclusion on in-situ permeability and stress regime will be mentioned.
- The fracture re-opening pressure from an analysis of the hydraulic system stiffness during various test cycles (P vs injection volume) may be included.
- The shut-in or fracture closure pressure from P vs injection rate plots, Musket plot, and the analysis of the transition from linear pressure drop to diffusion-dominated pressure decrease may be included.
- The analysis of permeability/transmissivity tests (pressure pulse or low rate injection tests) should yield information of reservoir formation pore pressure; well bore storage and formation storage coefficients. This should be mentioned in the report.
- The break down pressure analysis should be conducted by a fracture mechanics code, which yields information on micro crack lengths, fluid loss coefficient, and hydraulic tensile rock strength.
- Both, from the in-situ tests pressure records and the fracture mechanics analysis, the in-situ principal stresses may be derived.
- The orientation of principal stresses may derive from an analysis of the fracture traces observed in the impression packer tests. This may be part of report.
- Determined orientations of induced or stimulated fractures.

Graphical Formats:

- Characteristic Pressure vs. depth plots.
- Polar plots for strike and inclination of induced or stimulated fractures.

An Appendix may be included:

- Pressure time plots of all tests performed, indicating test type, test cycle, test interval etc.
- Hard copies of all information on fracture traces determined.
- Record from all laboratory tests on the core material.

Both, in the initial operation report, final report all in-situ tests records (pressure vs. time) may be given in the graphical and digital format to enable CIMFR to conduct its own analysis.

Terms and Conditions for Payments, Penalty and others may be in accordance with CSIR/GoI rules and regulations.

Commercial bid

1. **Title:** Pressure Transient Test or Injection Fall off Test on identified target – Coal Seams for In-situ Permeability and In-situ Stress Measurement.
2. **Location:** Raniganj, Jharia, East Bokaro, North Karanpura, South Karanpura Coalfields in West Bengal and Jharkhand and SCCL Lease hold Area in Andhara Pradesh. Few sites may be in other coalfields also.
3. **No. of boreholes:** 15
 - A. **Minimum Depth:** 100 m
 - B. **Maximum Depth:** 1400 m
4. **Testing to be done-**à As per technical specifications
5. **Data to be generated-**à As per technical specifications
6. **Report to be prepared & submitted**à As per technical specifications.

Rate to be submitted on per borehole basis.