

निर्माण स्थलों पर निगरानी और मापने के उपकरणों की आंशिकन आवश्यकताएँ

CALIBRATION REQUIREMENTS OF MONITORING AND MEASURING DEVICES AT CONSTRUCTION SITES

Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
1	02.07.2020	Revised & Updated	DG	RK	AKK	SKS
0	28.04.2015	Doc No. 9-1940-0030 Rev 0 has been issued as Standard	DJ	SNB	MD	SC

Abbreviations:

BIS	:	Bureau of Indian Standard
NABL	:	National Accreditation Board for Testing and Calibration Laboratories
CEIL	:	Certification Engineers International Ltd.
LRS	:	Lloyd's Register Group Limited
BV	:	Bureau Veritas
ABS	:	ABS Consultancy
DNV	:	Det Norske Veritas
IRS	:	Indian Registrar for Shipping
PMI	:	Positive Material Identification

Construction Standards Committee

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Requirement for control of monitoring and measuring devices.

Sl. No.	Description	Calibration requirements	Frequency	Remarks
A.	Civil-Survey			
A.1.	Theodolite	To check for permanent adjustments by traversing and observing the closing error. (Refer Note).	Once in a year or project duration whichever is earlier.	Record to be maintained
A.2.	Level Instruments (Auto Level / Dumpy Level)	To check by backsight / foresight readings, the temporary adjustments of level. (Refer Note).	Every use.	Record to be maintained
A.3.	Steel measurement tapes	---	---	a. "Freemans" make or BIS approved make shall be used. b. Mutilated, or broken tapes shall not be used. c. Marking on the tape shall be legible
A.4.	Cross staff	---	---	Same as 3b & 3c above.
A.5.	Distomat	Actual Physical Verification at Site.	Before using first time at site.	Records to be maintained.
A.6.	Total Station	To check for permanent adjustments by traversing and observing the closing error, etc. (Refer Note).	Once in a year or project duration whichever is earlier.	Record to be maintained
B.	Civil Laboratory			
B.1.	All balances - Mechanical	Check for zero error	Whenever used.	---
B.2.	Weigh Batcher / Batching Plant	Calibration of scales	Once in three Months.	Records to be maintained.
B.3.	Cube testing machine	Calibration certificate from manufacturers or from calibrating laboratories / agency. (Refer Note).	As per manufacturer specification or once a year whichever is earlier	Records to be maintained.
B.4.	Moisture Meter	Calibration of scales .	6 months.	Records to be maintained.
B.5.	Vicat Apparatus	Calibration certificate from manufacturers or from calibrating laboratories / agency. (Refer Note).	As per manufacturer specification or once a year whichever is earlier.	Records to be maintained.

Sl. No.	Description	Calibration requirements	Frequency	Remarks
C. Mechanical/ Electrical/Welding				
C.1	Pressure gauges	Calibration certificate from calibrating laboratories / agencies or calibrate by dead weight testers with standard weights or with master Gauge. (Refer Note)	Once in 6 months	Records to be maintained.
C.2	Dial gauges	Check for Zero error.	Whenever used	---
C.3	Dead weight tester	Calibration from manufacturer or calibrating laboratories / agency. Calibration certificate shall not be older than one month from the date of mobilization. (Refer Note).	As per manufacturer's recommendation or once in a six month whichever is earlier.	Records (Calibration certificate) to be maintained.
C.4	Vernier caliper / screw gauge	Check for Zero error.	Whenever used.	---
C.5	Holiday tester	Calibration from manufacturer or calibrating laboratories / agency or calibration by zeep meter. (Refer Note).	Once in 6 months.	Records to be maintained.
C.6	Elcometer	Check with standard test films supplied by the manufactures.	Before use .	Records to be maintained.
C.7	Universal Testing machine	Calibration Certificate from various third party inspection agency. Viz. CEIL, LRS, BV, ABS, DNV or IRS etc.	As per manufacturer's recommendation or once a year whichever is earlier.	Records to be maintained.
C.8	Charpy V-notch Impact testing machine.	Calibration Certificate from various third party inspection agency. Viz. CEIL, LRS, BV, ABS, DNV or IRS etc.	As per manufacturer's recommendation or once in a year whichever is earlier.	Records to be maintained.
C.9	Hardness Testing machine.	Check with the standard test block supplied with the machine as per manufacturer's Recommendation.	Before use.	Records to be maintained.
C.10	Chemical Analysis, ex : PMI etc.	Check with the standard samples.	Before use.	Records to be maintained.
C.11	Various Digital and Analog meters.	Calibration Certificate from calibrating laboratories / agencies or the Manufacturer (Refer Note).	Once in Six Months or as per manufacturer's recommendation whichever is earlier.	Records to be maintained.

Sl. No.	Description	Calibration requirements	Frequency	Remarks
C.12	HIPOT Kit, Multimeter / Clampmeter, Ohmmeter Kit, CT Analyser, CRM Kit, BDV Kit, Tachometer etc.	Calibration Certificate from calibrating laboratories / agencies (Refer Note).	Once in Six months.	Records to be maintained.
C.13	Temperature / Pressure recorders	Calibration from manufacturer or any calibrating laboratories / agency (Refer Note).	Once in Six months.	Records to be maintained
C.14	Temperature gauges	Calibration Certificate from calibrating laboratories / agencies (Refer Note).	Once in Six months.	To be discarded in case of damage or malfunctioning.
C.15	Thermocouples	Manufacturer's Certificate or Chemical Check	---	---
C.16	Vibration probes	Calibration from calibrating laboratories / agencies (Refer Note).	Once in a year.	To be discarded in case of damage or Malfunctioning.
C.17	Decibel-Meter	Calibration from calibrating laboratories / agencies (Refer Note).	Once in a year.	To be discarded in case of damage or Malfunctioning.
C.18	Manual Torque Wrench / Electric Torque Machine	Calibration from manufacturer or any calibrating laboratories / agency (Refer Note).	As per manufacturer's recommendation or once in a year whichever is earlier.	Records to be maintained
C.19	Mother Oven	Calibration from manufacturer or any calibrating laboratories / agency (Refer Note).	As per manufacturer's recommendation or once in a year whichever is earlier.	Records to be maintained.

Note: If Error is found, it has to be sent to manufacturers or their agents (Calibrating laboratories / agency) or to any other lab / agency for recalibration / rectification and certification. The calibrating laboratory / agency shall be NABL accredited or any other lab accredited as per ISO/IEC:17025 by any of the National/International accreditation body for relevant testing.

ANNEXURE - XXX TO SPECIAL CONDITIONS OF CONTRACT

[FORM OF CONTRACT]

FORM OF CONTRACT

CONTRACT NO.:

THIS CONTRACT made at Bina, Madhya Pradesh on this _____ day of _____ 20__.
 (“Contract Document”)

BETWEEN

BHARAT PETROLEUM CORPORATION LIMITED (BPCL), having its Registered office at 4&6, Currimbhoy Road, Ballard Estate, Mumbai 400 001 (hereinafter referred to as the “**OWNER**” which expression shall include its successors and assigns) of the One Part;

AND

_____, a Company registered in India under the Indian Companies Act 1913/1956 having its registered office at _____ (hereinafter referred to as the “**CONTRACTOR**” of the other part:

WHEREAS the **OWNER** issued Tender No. _____ for Residual Process Design, Detailed Engineering, Procurement, Supply, Transportation, Storage, Fabrication, Construction, Installation, Testing, Pre-commissioning, Commissioning, Performance, Guarantee Test Run and handing over of Unit for the _____ of **Bharat Petroleum Corporation Limited (BPCL)**, at _____ (“**Project**”).

AND WHEREAS the Contract with respect to the said Tender has been awarded to the **CONTRACTOR**, pursuant whereto, the **CONTRACTOR** has to make supplies of materials and to execute works and to undertake services with the use of the said material as more specifically mentioned and described in the Contract Documents as hereinafter defined.

NOW THEREFORE, in consideration of the premises and the mutual covenants herein contained, the Parties hereby agree as follows:

ARTICLE 1: CONTRACT DOCUMENTS

1.1 The following documents shall constitute the entire agreement between the **OWNER** and the **CONTRACTOR** in relation to the Project, and each shall be read and construed as an integral part of the Contract Document shall comprise the following:

- (i) Form of this Contract Document;
- (ii) Special Conditions of Contract;
- (iii) General Conditions of Contract;
- (iv) Form of Bid, including formats attached to the Form of Bid as embodied in the **CONTRACTOR**'s final bid;
- (v) Form of Schedule of Payment as embodied in the **CONTRACTOR**'s final bid;

- (vi) Bidding Document No. _____;
- (vii) Addendum/Addenda to the Bid Documents;
- (viii) Plans Exhibits _____ to _____;
- (ix) Drawings Exhibits _____ to _____;
- (x) Notification of Acceptance of Bid; and
- (xi) Detailed Letter of Acceptance (including Statement of Agreed Variations and other enclosures/annexures to the Detailed Letter of Acceptance).

1.2 A copy of each of the Tender Documents is annexed hereto and the said copies have been collectively marked Annexure 'A' while a copy of the Detailed Letter of Acceptance of Tender alongwith Annexures thereto and a copy of Notification of Acceptance of Bid dated _____ are annexed hereto have been collectively marked as Annexure 'B'.

1.3 The rule of construction, if any, that a contract should be interpreted against the parties responsible for the drafting and preparation thereof, shall not apply.

1.4 *Order of Precedence*

In the event of any ambiguity or conflict between the Contract Documents listed above, the order of precedence shall be the order in which the Contract Documents are listed in Article 1.2 (*Contract Documents*) above.

If multiple standards or specification apply to the obligations and/or works to be performed by the CONTRACTOR, then it shall be deemed that the highest or most stringent requirement is binding on the CONTRACTOR.

1.5 *Definitions*

Capitalized words and phrases used herein shall have the same meanings as are ascribed to them in the General Conditions of Contract and/or the Special Conditions of Contract.

ARTICLE 2 : SERVICES, SUPPLIES AND WORK

2.1 This Contract Document shall come into full force and effect on _____.

2.2 The CONTRACTOR shall make the Supplies specified in the Contract Documents upon the terms and conditions and within the time specified in the Contract Documents.

2.3 The CONTRACTOR shall undertake the works and perform the services specified in the Contract Documents upon the terms and conditions and within the time specified in the Contract documents.

ARTICLE 3: PRICE AND COMPENSATION

- 3.1 The terms and procedures of payment by the OWNER to the CONTRACTOR for the supply and works under the Contract Documents are set out in Clause [x] of the Special Conditions of Contract.

ARTICLE 4: GOVERNING LAW & DISPUTE RESOLUTION

- 4.1 The Contract shall be governed in all aspects by the law of the Republic of India, without application of the doctrine of Renvoi.

4.2 **Mediation and Arbitration:**

- (i) In the event of a dispute arising out of or in connection with this Contract Document, including any question regarding its existence, validity or termination, the parties shall first seek settlement of that dispute by mediation in accordance with the Mediation Act, 2023.
- (ii) If the dispute is not settled by mediation within [90] days of the appointment of the Mediator, or such further period as the parties shall mutually agree in writing, the dispute shall be referred to and finally resolved by arbitration as per India International Arbitration Centre (Conduct of Arbitration Proceedings) Regulations for the time being in force, which Regulations are deemed to be incorporated by reference into this Article.
- (iii) The language to be used in the mediation and in the arbitration shall be English.
- (iv) In any arbitration commenced pursuant to this clause the number of arbitrator/s shall be:
 - (a) 1 (One) - if the total claim including counterclaim, if any, under arbitration is INR 50 Crores (Indian Rupees Fifty Crores) or less; or
 - (b) 3 (Three) – if total claim including counterclaim, if any, is of more than Rs. INR 50 Crores (Indian Rupees Fifty Crores).
- (v) The seat of arbitration shall be Mumbai, India.
- (vi) The cost of the proceedings shall be equally borne by the parties, unless otherwise directed by the arbitrator/s.
- (vii) Neither party shall be entitled to and claim for any pre-reference or pendente-lite interest, i.e. from the date of cause of action till date of Award by Arbitral Tribunal and claim for any such interest shall not be entertained by Arbitral Tribunal and be void. Further, Arbitral Tribunal shall have no power or authority to award pre-reference or pendente-lite interest in the matter.

- 4.3 In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/Port Trusts inter se and also between CPSEs and Government Departments/Organisations (excluding disputes relating to Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for its resolution through AMRCD as mentioned in DPE OM no. 05/0003/2019-FTS-10937 dated 14th December, 2022 and the decision of

AMRCD on the said dispute will be binding on both the parties.

(* The exclusion would also include disputes concerning GST, State level Sales Tax / VAT etc; though not mentioned explicitly).

ARTICLE 5: ENTIRE CONTRACT

The Contract Documents mentioned in Article-1 hereof embody the entire Contract between the parties hereto, and the parties declare that in entering this Contract they do not rely upon any previous representation, whether express or implied and whether written or oral, or any inducement, understanding or agreements of any kind not included within the Contract Documents and all prior negotiations, representations, contracts and/or agreements and understandings are hereby cancelled.

ARTICLE 6: NOTICES

- 6.1 Subject to any provisions in the Contract documents to the contrary, any notice, order or communication sought to be served by the CONTRACTOR on the OWNER with reference to the CONTRACT shall be deemed to have been sufficiently served upon the OWNER notwithstanding any enabling provisions under any law to the contrary, only if delivered in accordance with the terms and conditions of the General Conditions of Contract and Special Conditions of Contract.
- 6.2 Without prejudice to any other mode of service provided for in the Contract Documents or otherwise available to the OWNER, any notice, order or other communication sought to be served by the OWNER on the CONTRACTOR with reference to the CONTRACT, shall be deemed to have been sufficiently served if delivered by hand or through Courier to the principal office of the CONTRACTOR at _____ or other address for service subsequently notified by CONTRACTOR to the OWNER in this behalf in writing.

ARTICLE 7: WAIVER

No failure or delay by the OWNER in enforcing any right or remedy of the OWNER in terms of the CONTRACT or any obligation or liability of the CONTRACTOR in terms thereof, shall be deemed to be a waiver of such right, remedy, obligation or liability, as the case may be, by the OWNER and notwithstanding such failure or delay, the OWNER shall be entitled at any time to enforce such right, remedy, obligation or liability, as the case may be.

ARTICLE 8: NON-ASSIGNABILITY

The Contract and benefits and obligations thereof shall be strictly personal to the CONTRACTOR and shall not on any account be assignable or transferable by the CONTRACTOR.

ARTICLE 9: LANGUAGE OF CONTRACT AND COMMUNICATION

The language of the Contract shall be English and all communications, drawings, design, data, information, codes specifications and other document whatsoever supporting the bid or otherwise exchanged under the Contract shall be in English. In the event that any technical documentation is in any language other than English, the document should be translated and presented to the OWNER/Engineer-in-Charge in English and English document/translated document shall be regarded as the only authentic document.

ARTICLE 10: GOVERNMENT OF INDIA NOT LIABLE

It is expressly understood and agreed by and between the CONTRACTOR and the OWNER that the OWNER is entering into this agreement solely on its own behalf and not on behalf of any other person or entity. In particular, it is expressly understood and agreed that the Government of India is not a party to this agreement and has no liabilities, obligations or rights thereunder. It is expressly understood and agreed that the OWNER is an independent legal entity with power and authority to enter into contracts, solely in its behalf under the applicable laws of India and general principles of Contract Law. The CONTRACTOR expressly agrees, acknowledges and understands that the OWNER is not an agent, representative or delegate of the Government of India. It is further understood and agreed that the Government of India is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the Contract. Accordingly, CONTRACTOR hereby expressly waives, releases and foregoes any and all actions or claims, including cross claims, impleader claims or counter claims against the Government of India arising out of this Contract and covenants not to sue the Government of India on any matter, claim, cause of action or thing whatsoever arising out of or under this Contract.

ARTICLE 11: LIABILITY AND LIMITATION OF LIABILITY

- 11.1 No Director, employee, consultant or agent of the OWNER or other person representing the OWNER or acting on behalf of the OWNER in or pursuant to the Contract or in the discharge of any obligation to the OWNER under the Contract or otherwise in relation to the Contract shall have any personal liability to the CONTRACTOR or any Sub-Contractor, agent, representative, director or employee of the CONTRACTOR or to any other person acting for or on behalf of the CONTRACTOR and the CONTRACTOR on its own behalf and on behalf of its Sub-Contractors, directors, employees, agents and representatives hereby waives and disclaims any and all right of action which it or they may have whether under tort or Contract or otherwise against the OWNER or any director, employee, agent, consultant or representative of the OWNER for act of omission or commission done or omitted to be done.
- 11.2 Where the CONTRACTOR is a Consortium of one or more entities or persons, all members of the Consortium shall be jointly and severally liable for the performance of the Contract and of all obligations of the CONTRACTOR arising under the Contract and for the discharge of all the CONTRACTOR's liabilities to the OWNER under or in respect of the Contract and any claim of the OWNER without any limitation of liability as between the OWNER and the members aforesaid, notwithstanding the existence of any agreement between the said members inter se limiting the liability of any member for or in the performance of any duties or obligations under the Contract.
- 11.3 The limitation of liability of the CONTRACTOR under this Contract Document is as set out under Clause [46] of the Special Conditions of Contract.
- 11.4 The total liability of the OWNER to the CONTRACTOR under and in accordance with the provisions of this Contract Document, shall not exceed the Lumpsum Price. For the avoidance of doubt, this Article shall not limit the liability in any case of fraud, wilful misconduct or gross negligence by the OWNER.
- 11.5 The OWNER shall not be liable to for any loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the CONTRACTOR in connection with this Contract Document.

ARTICLE 12: CONFIDENTIALITY

- 12.1 All confidential information and documents (whether financial, technical or otherwise) provided by either Party to the other shall be kept confidential and shall not, without the previous written consent of the other Party be used, copied, published, disclosed or otherwise dealt with by the receiving party. Provided that the receiving party may disclose the confidential information to Sub-contractors, agents, employees, directors, advisors or any person contractually required to or otherwise responsible for the performance of the obligations under the Contract Document ("**Permitted Disclosures**"), for the purpose of this Contract Document.
- 12.2 Any Permitted Disclosure of the confidential information, on a need-to-know basis, by a Party shall not be breach of its obligations herein, if:
- (a) the Party is required to disclose such confidential information by Applicable Laws, government instrumentalities, any judiciary body having competent jurisdiction, reporting requirements or by any regulatory body or any applicable taxation authority, or pursuant to any request of the foregoing;
 - (b) the confidential information has come within the public domain, other than by a breach of these confidentiality obligations by that Party;
 - (c) the disclosure is made to the Party's actual or prospective financiers or its advisors who have a legitimate need to know the confidential information and are bound by a duty of confidentiality;
 - (d) the disclosure is made to the Party's affiliates and its and its affiliates' directors, employees, respective professional advisers or consultants, for completion of scope under this Contract Document; or
 - (e) such disclosure as mutually agreed between the Parties.
- 12.3 The Party must promptly notify the other Party of such requirement stipulated in Article 12.2 (a) to (e), so that other Party has the opportunity to contest such disclosure or seek protective order in respect thereof. Any such disclosure shall be made in the form mutually agreed between the Parties.
- 12.4 For the avoidance of doubt, the CONTRACTOR shall not make any public announcement or media release in respect of any confidential information, without the prior written of the OWNER unless they are in relation to the Permitted Disclosures.

IN WITNESS WHEREOF THE PARTIES hereto have executed this Contract in duplicate at the place, day and year first above written.

SIGNED & DELIVERED

SIGNED & DELIVERED

FOR & ON BEHALF OF

FOR AND ON BEHALF OF

Bharat Petroleum Corporation Limited (BPCL)

(CONTRACTOR)

BY _____

BY _____

(THIS DAY OF _____ 20__)

IN THE PRESENCE OF:

IN THE PRESENCE OF:

1.

1.

2.

2.

ANNEXURE A

TENDER DOCUMENTS

[To be annexed separately]

ANNEXURE B

NOTIFICATION OF ACCEPTANCE OF BID

[To be annexed separately]

ANNEXURE - XXXI TO SPECIAL CONDITIONS OF CONTRACT

**[PROCUREMENT OF TMT BARS, CEMENT AND
STRUCTURAL STEEL]**

Annexure-I

**CONTRACT CLAUSE FOR ACCEPTANCE OF STRUCTURAL STEEL AND TMT BAR
MANUFACTURERS**

1. Steel manufacturers having valid BIS certificate and listed in the BIS website as on date of procurement of steel shall be allowed for supply of steel (Structural and TMT bars) and contractor shall procure from them with prior intimation to Engineer-in-charge.


2. Tests after receipt of structural steel at site :
In addition to availability of valid BIS license and MTC, testing at site shall be conducted by the contractor as per following requirement:

- For each category/size of structural steel procured, one sample for every 50 MT or part thereof shall be drawn and tested in approved laboratory
- The charges for such testing shall be borne by the contractor.

3. Tests after receipt of TMT bars at site:

In addition to availability of valid BIS license and MTC, testing at site in approved laboratory shall be conducted by the contractor as per the following requirement:

- Under 10 mm bars, one sample (diameter wise) for each 25 MT (or part thereof) for consignment below 100 MT and one sample (diameter wise) for each 40 MT for consignment above 100 MT shall be tested
- For 10 mm to 16 mm bars , one sample (diameter wise) for each 35 MT (or part thereof) for consignment below 100 MT and one sample (diameter wise) for each 45 MT (or part thereof) for consignment above 100 MT shall be tested.
- Over 16 mm bars one sample (diameter wise) for each 45 MT (or part thereof) for consignment below 100 MT and one sample (diameter wise) for each 50 MT (or part thereof) for consignment above 100 MT shall be tested.
- The charges for such testing shall be borne by the contractor


(S.R. Gov.)

Annexure - I

CONTRACT CLAUSE FOR ACCEPTANCE OF CEMENT MANUFACTURERS.

1. Cement manufacturers having valid BIS certificate and listed in the BIS website as on date of procurement of cement shall be allowed for supply of cement and contractor shall procure cement from them with prior intimation to Engineer-in-charge.
2. Tests after receipt of cement at site: Each batch of cement (week wise as mentioned on cement bags) supplied by the contractor after delivery at site shall be subjected to the tests and analysis required by the relevant Indian Standard Codes. The contractor shall carry out and bear the cost of all tests and analysis to ensure quality of cement before using in actual works.



 2/4/15

ANNEXURE - XXXII TO SPECIAL CONDITIONS OF CONTRACT

**[DISCONTINUATION OF HYDRA CRANES WITHIN
BINA REFINERY]**

DISCONTINUATION OF HYDRA CRANES WITHIN BINA REFINERY PREMISES

The present Hydra Cranes can be substituted with suitable/equivalent hydraulically operated cranes that are equipped with rear mounted boom and out rigger supports. Some of the models having these features are mentioned below for your easy reference:

Sr. no.	Manufacturer	Models
1	Escort Construction Eqp. Ltd(ECEL)	TRX Series :K10,F15,TRX 1651,TRX 2319, MAC 1214
2	Action Construction Eqp. Ltd. (ACE)	FX 120,FX 150, 15XWE ,15 XWF, Rhino 110 FC

All the contractors are requested to take cognizance of the above, and arrange for alternate equipment, to carry out various jobs inside Bina Refinery.

Please ensure strict compliance failing which suitable action shall be taken as deemed fit.