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VOLUME - IA

Technical Conditions of Contract (TCC) For field quality assurance services

FOR

RAILWAY ELECTRIFICATION PROJECT IN BHANDAI-UDI, BIRLANAGAR-ETAWAH AND SHIKOHABAD-FARRUKHABAD INCLUDING MAINPURI-ETAWAH, SECTION OF AGRA, JHANSI AND ALLAHABAD DIVISIONS OF NORTH CENTRAL RAILWAY UNDER RE PROJECT LUCKNOW, TOTAL RKM 386/440TKM


OF

NORTH CENTRAL RAILWAY

BHARAT HEAVY ELECTRICALS LIMITED



Technical Conditions of Contract (TCC) for Field Quality Assurance Services

 <p>बी एच ई एल BHEL Maharatna Company</p>	Technical Conditions Of Contract (TCC) PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD			Ref No: HY/PE&SD/Projects/TC C/2019-20/ HSE/01	
				Rev. No.	01
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">COPYRIGHT AND CONFIDENTIAL</p> <p>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.</p> <p align="center"> TECHNICAL CONDITIONS OF CONTRACT (TCC) FOR FIELD QUALITY ASSURANCE SERVICES RAILWAY ELECTRIFICATION PROJECT IN BHANDAI-UDI, BIRLANAGAR-ETAWAH AND SHIKOHABAD-FARRUKHABAD INCLUDING MAINPURI-ETAWAH, SECTION OF AGRA, JHANSI AND ALLAHABAD DIVISIONS OF NORTH CENTRAL RAILWAY UNDER RE PROJECT LUCKNOW, TOTAL RKM 386/440TKM </p>					
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**Volume IA
Part I
Contract specific details**

Technical Conditions of Contract (TCC) for Field Quality Assurance Services

Project Information

1. Introduction:

Bharat Heavy Electricals Limited has been awarded the “The Electrification of Railway Lines of the section Birlanagar-Etawah, Bhandai-Udi and Farrukhabad-Shikohabad including Mainpuri-Etawah of North Central Railway 386 RKM/440 TKM” project on EPC basis by Central organization for railway electrification (CORE), Allahabad.

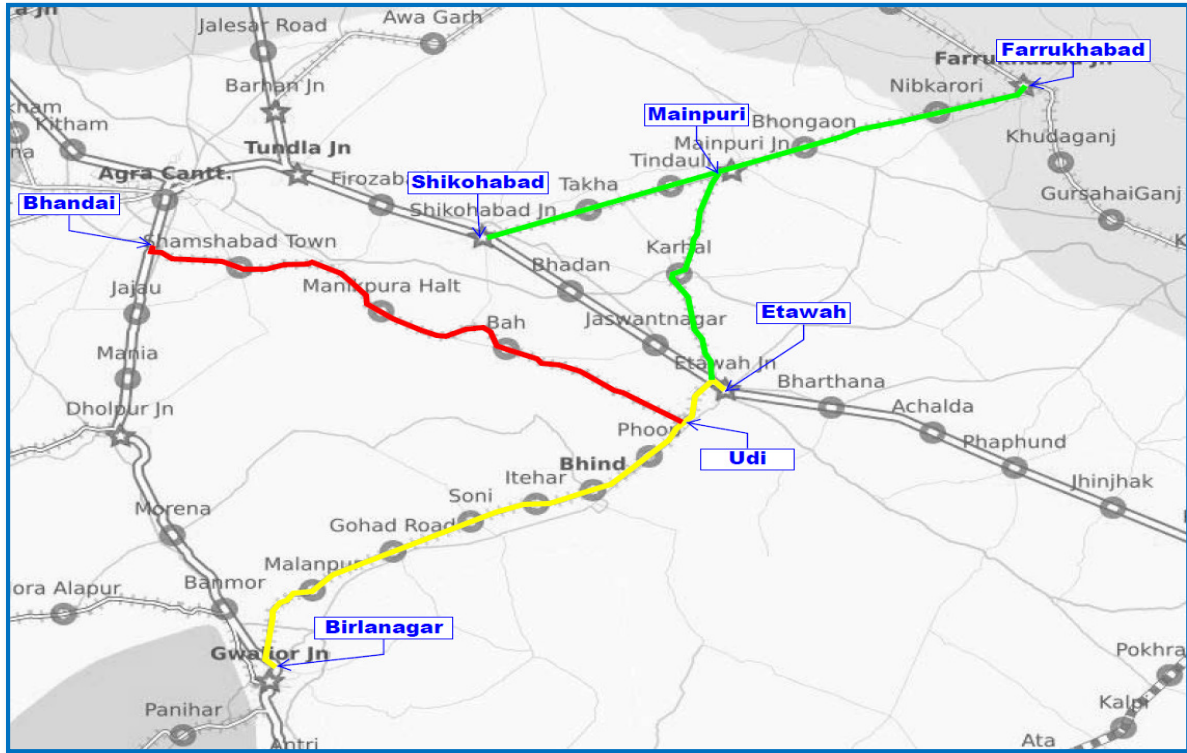
In this regard, BHEL is intended to engage Field Quality Assurance Engineers (FQAE) to assist BHEL in the execution of this project for the Railway Electrification with 25KV AC Traction.

2. Project Information:

1	Customer	:	Central organization for railway electrification (CORE), Allahabad.
2	Project Information	:	Electrification of Railway Lines of the section Birlanagar-Etawah, Bhandai-Udi and Farrukhabad-Shikohabad including Mainpuri-Etawah of North Central Railway 386 RKM/440 TKM
3	Location	:	Birlanagar-Etawah, Bhandai-Udi and Farrukhabad-Shikohabad including Mainpuri-Etawah of North Central Railway 386 RKM/440 TKM, Madhya Pradesh and Uttar Pradesh.
4	Nearest Railway Station	:	Agra, Etawah, Birlanagar, Shikohabad and others
5	Road Approach	:	NA
6	Nearest Air Port	:	Lucknow, Kanpur
7	Ambient Air Temperature (Average)	:	a) Maximum : 450 C b) Minimum : 20 C
8	Average Relative Humidity	:	60% to 80%
9	Climatic Condition	:	Tropical Climate
10	Rainfall & Raining period	:	Approx. 70 cm Annually (Monsoon Rain: June to September and Casual Rain: December to January). Thunderstorms during Monsoon.
11	Wind Pressure	:	155 kgf/sqm As per latest IS 875-1987

Bidder is advised to visit the project site and appraise himself about the local conditions and infrastructure available in the area for fulfilling their commitments under the contract. BHEL will not admit any claims whatsoever on account of Contractor’s non-familiarization of local conditions.

3.0 SECTIONS MAP:



4.0 Scope of Work for Field Quality Assurance Services at Sites:

Bidder agency shall provide Field Quality Assurance Engineers (FQAE) in the areas/ packages mentioned below and as specified elsewhere, at various BHEL Project sites.

The work of Field Quality Assurance services comprises of following areas:

- a. **CIVIL WORKS**
- b. **FABRICATION & ERECTION OF STEEL STRUCTURES**
- c. **ERECTION & COMMISSIONING OF OHE, TSS, SP, SSP, TRACTION TRANSFORMER, SCADA and S&T**

4.1 CIVIL WORKS

Civil Works shall consist of following Civil Structures/ Packages: -

- a. Foundation works and Superstructure of staff quarters, project facilities
- b. Foundation works of OHE, TSS,SP,SSP and S&T ,building,railwork,road etc.
- c. Complete works of TWS
- d. Erection of masts

4.1.1 Scope of the work for the FQAEs deployed by the Contractor, under Civil Works shall comprise of followings mainly: -

Inspection and Sample checking of input materials (consisting mainly of steel, cement, sand, stone chips, bricks etc.) as per Procedures/ Field Quality Plans for Civil Works approved by BHEL/ Client or IS codes/ standards. This shall include inspection of materials after receipt at site and verification of test certificates.

4.1.2 FQAEs shall Prepare the field Quality plan (FQP)and take approval from BHEL Inspection of the various checks/ tests to be performed by respective sub-Contractors of BHEL at Project sites as per approved Field Quality Plans approved by BHEL or Client/ relevant IS codes/ any other applicable documents.

4.1.3 Review of inspection & test reports of the checks which are not under witness category as per FQP and conducting periodical/ as required by BHEL or Client/his representative, quality surveillance audits at various stages of erection and finally on completion of work as per the approved Field Quality Plan.

4.1.4 Collection and compilation of various log sheets/ test results/ reports of checks performed as at Sr. No. 4.1.1, 4.1.2, & 4.1.3, certification/ authentication of test results/ reports, and submitting to BHEL/Client in the format/s mutually agreed between BHEL & Client.

4.1.5 FQAEs shall ensure at all times timely submission of required inputs to BHEL to ensure valid calibration of monitoring/ measuring instruments & devices and testing equipments, proper documentation and record keeping of Inspection data, log sheets, protocols, test certificates etc. as per BHEL quality systems and as per observations/ non-conformance reports released by various Auditors viz. Internal, External Auditor/ CQ Auditor etc.

4.2 FABRICATION & ERECTION OF STEEL STRUCTURES

Scope of work for the FQAEs deployed by the Contractor under this area shall mainly comprise of the followings:

4.2.1 Inspection and Sample checking of input materials as per Procedures/ Field Quality Plans for Fabrication & Erection of Steel Structures approved by BHEL/ Client or IS codes/ standards. This shall include inspection of materials after receipt at site and verification of test certificates, grouting etc.

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- 4.2.2 FQAEs shall Prepare the field Quality plan (FQP) and take approval from BHEL. Review of inspection & test reports of the checks which are not under witness category as per FQP and conducting periodical quality surveillance audits at various stages of erection and finally on completion of work as per the approved Field Quality Plan.
- 4.2.3 Collection and compilation of various log sheets/ test results/ reports of checks performed as at Sr. No. 4.2.1 & 4.2.2, certification/ authentication of test results/ reports, and submitting to client in the agreed format.
- 4.2.4 Conducting periodical quality surveillance audits at the site office of sub-Contractors of BHEL to ensure valid calibration of monitoring/ measuring instruments & devices and testing equipments, Proper documentation and record keeping of Inspection data, log sheets, protocols, test certificates etc. as per BHEL quality systems.

4.3 ERECTION & COMMISSIONING OF OHE, TSS, SP, SSP, TRACTION TRANSFORMER, SCADA and S&T

OHE (Overhead equipment) mainly consists of Erection of bracket assembly, Erection of Transformer, Stringing of contact & catenary wires, SED and ATD checking etc.

Electrical Systems mainly consist of Power Transformers, Auxiliary Transformers, TSS (Traction substation), SP (Switching post), SSP (Subswitching post), SCADA, S&T (Signalling & Telecommunication) etc.

Scope of the work for the FQAEs deployed by the Contractor, under this package shall comprise mainly of following activities: -

- 4.3.1 Inspection for the checks to be performed on the equipment/ systems by the sub-Contractor of BHEL as per applicable Procedures/ Field Quality Plans for Erection & Commissioning approved by BHEL/ Client.
- 4.3.2 FQAEs shall Prepare the field Quality plan (FQP) and take approval from BHEL. Review of inspection & test reports of the checks which are not under witness category as per FQP and conducting periodical quality surveillance audits at various stages of erection and finally on completion of work as per the approved Field Quality Plan.
- 4.3.3 Collection and compilation of various log sheets/ test results/ reports of checks performed as at Sr. No. 4.3.1 & 4.3.2 certification/ authentication of test results/ reports, and submitting to client in the agreed format.
- 4.3.4 Conducting periodical quality surveillance audits at the site office of sub-Contractors of BHEL to ensure valid calibration of monitoring/ measuring instruments & devices and testing equipments, Proper documentation and record keeping of Inspection data, log sheets, protocols, test certificates etc. as per BHEL quality systems.

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- 4.3.5 FQAEs are expected to ensure turn out of Quality requirements in respective equipment/ systems by way of close monitoring & involving in process effectively.

5.0 Qualification and Experience requirements of Contractor's Personnel

5.1 Qualification

- 5.1.1 Field Quality Assurance Engineers (FQAEs) deployed by the Contractor shall be qualified full time Engineering degree holders or qualified full time Diploma holders.
- 5.1.2 Depending upon the requirement of scope of work, FQAEs' branch of Engineering shall be Civil Engineering or Electrical Engineering or Electronics & Telecommunication Engineering.

5.2 Experience

- Graduate Engineers shall have minimum 2 years experience and Diploma holders shall have minimum 3 years' experience in Railway electrification or/ power plants or/ of equivalent nature of work. Depending upon the requirement, the experience of FQAEs' shall include but not be limited to areas and details given below.
- 5.2.1 In general, the experience of FQAEs shall be in the area of Field Quality Assurance in the areas pertaining to scope as mentioned at clause numbers 4.0 above.
- 5.2.2 Good knowledge of Railway electrification products, Field Quality Plans, codes, standards, statutory requirements, inspection and test procedures of Railway electrification equipment's and systems mentioned at clause 4.0 above including materials, various type of welding and their inspection & testing etc.
- 5.2.3 Undertaking inspection of installation of Railway electrification equipment's (like OHE, TSS, SP, SSP, TRACTION TRANSFORMER, SCADA and S&T etc.) in the areas as given at 4.0 above.
- 5.2.4 The deployment of above manpower by the Contractor shall be subject to submission of Credentials of each of the Contractor's personnel to respective Site In-charge of BHEL and obtaining acceptance/ approval from respective Site In-charge of BHEL/ Customers in this regard.

6.0 Other Conditions

- 6.1 Sub-letting of jobs with in the agreed scope of work, in any manner is not permitted.
- 6.2 FQAEs shall be governed by 'Confidentiality' clause. They shall not, in any manner, misuse the data/ information.
- 6.3 All drawings, specifications/ FQP/ QP and other relevant document/ data provided to FQAEs for undertaking relevant tasks, shall be returned to BHEL after completion of job/ completion/ termination of contract. Such documents shall not be used by the FQAEs for any purpose other than for the designated task.

Technical Conditions of Contract (TCC) for Field Quality Assurance Services

- 6.4 All Quality Plans, data/ findings, inspection and other reports, test results etc. generated and used by the FQAE shall be the property of BHEL. These cannot be published/ utilized or taken away by the FQAE or any employee of the Contractor.
- 6.5 Field Quality Assurance Engineers shall undertake visual/ physical checking of instruments and co-relation with valid calibration certificates before using any measuring & testing instruments/ equipments. FQAEs shall ensure for use of calibrated measuring & testing Instruments/ equipments.
- 6.6 Field Quality Assurance Engineers shall be fully responsible for the tasks allotted to/ undertaken by them, authenticity of the test results etc. They shall prepare documents, witness/ undertake inspections and submit the documents/ reports to BHEL in time without hindrance of work.
- 6.7 Credentials of FQAEs shall be verified and approved by BHEL PE&SD and/ or its customer prior to their deployment.
- 6.8 FQAEs at BHEL PE&SD sites shall work under Quality/ Erection Engineers as per Site Construction Manager's decision. They shall administratively report to Construction Manager or his nominee. For any ambiguity, decision shall rest with Head/ Project – PE&SD, HYDERABAD.
- 6.9 FQAEs shall interact with Contractors, customers/ consultants, erection agencies with regard to readiness of items to be inspected and other relevant Quality matters. They shall keep the Construction Manager/ Erection Engineer/ Quality Head (as the case may be) apprised of all such discussions/ interactions on daily basis.
- 6.10 Reasonable office space with furniture for proper functioning of the Contractor's FQAE will be provided by BHEL free of any charges. Accommodation and transportation at sites to FQASs shall be on bidder responsibility.
- 6.11 Normally, the role of FQAEs shall be limited to the place of their deployment project site clause no 2.0 .
- 6.12 Contractor shall make available suitable personnel/ senior level technical personnel (other than Field Quality Assurance Engineers posted at site) for discussions/ interactions with BHEL, Customers/ Consultants, vendors/ sub-Contractors wherever need arises. Senior level personnel of Contractor will visit the respective sites periodically (at least once in a month) wherever their personnel are posted to ascertain the quality of jobs performed by their site personnel and for further betterment of jobs executed by them. Such visits of senior personnel of the Contractor will be free of any additional charges to BHEL.
- 6.13 FQAEs shall follow working hours, number of working days per week, weekly off and holidays as per norms and holiday list of BHEL office where they are deployed.
- 6.14 Each man day shall consist of 8 (eight hours) working hours excluding lunch break. However, at times work may continue round the clock including on Sundays and holidays and services of FQAEs may be required beyond the normal working hours as decided by BHEL. No compensation, in any form, shall be given by BHEL for such over stays beyond normal working hours or working on Sundays and Holidays. However, BHEL shall ensure adequate breaks/ rest to FQAEs during overstay/ Holidays/ Sundays.

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- 6.15 In case FQAEs go on long leave exceeding 15 days, the Contractor will have to make suitable alternative arrangements for deployment of suitable personnel during the absenteeism.
- 6.16 Contractor shall submit monthly report to Construction/Project Manager/BHEL-PE&SD indicating cumulative deployment of FQAEs and other details as may be required by BHEL.
- 6.17 BHEL reserves the right to regulate strength of deployment of Contractor's manpower as per requirements and/ or to short-close the contract. In such eventuality, 15 days notice shall be given by BHEL to the Contractor and payment shall be made for the completed months or part there of on pro-rata basis. No other compensation will be given by BHEL.
- 6.18 BHEL reserves the right to terminate the above contract at any point of time without assigning any reason upon giving 15 days' notice to the Contractor.
- 6.19 In case any the performance of the FQAEs is found to be unsatisfactory, his services shall be discontinued by BHEL and no payment shall be made against deployment of such unacceptable Engineers, from the date FQAE has been notified as unsatisfactory. Replacement of such persons will have to be arranged by the Contractor within 15 days, beyond which provisions of delayed deployment as per clause 6.15 shall apply.
- 6.20 In case any FQAE found to indulge in malpractice/s, their services will be terminated with immediate effect without giving any notice.
- 6.21 Bidder has to submit following documents for approval of FQAEs during bid and after award of contract, if:
- 1) CV/Resume with educational background and experience, in PDF format/hard copy only, attested by Bidder authorize person and also self-attested by FQAEs himself (MS Word/ .doc / other editable format will not be accepted)
 - 2) Self-attested Copy of Experience Certificate, if any
 - 3) The Bidder shall fill the format AA/CQ/A/011A/F-02 for "Particulars of FQA Agency",
 - 4) Copy of Degree/Diploma Certificate (Full time course only)
 - 5) Bio data of all FQAEs in excel sheet as per enclosed
 - a. FORMAT NO: AA/CQ/A/011A/F-01

During the submission of bid, Bidder should also agree for the following:

1. BHEL can seek the following during approval of FQAEs, if contract is awarded to the bidder, before deployment
 - a) Verification of original records for qualification and Experience details of FQAEs as per clause No. 5.2
 - b) Interview of FQAEs may be conducted by BHEL, if required.
3. BHEL may conduct physical verification of FQAEs as per Clause No 5.2
4. BHEL may seek additional Information to assess the capability and capacity of FQAEs during the currency of the contract.
5. The FQAEs should actively participate to get his inspectors qualified and Approved from BHEL Customers, if required

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6) SITE WISE AND AREA WISE DEPLOYMENT OF FQAES

- a. Tentative work project-wise requirement for deployment of Field Quality Assurance Engineers at various projects shall be as given below: -

Sr. No	Project Site	Area Of Work	No. of FQAE Required	Deployment Period
01	Bhandai – Udi : Gr. 240 (Agra Division) : 113 RKM / 123 TKM	Civil Engineer experienced in Civil Works, OHE foundation etc.	2	1FQAE for 18MONTHS 1 FQAE for 9 MONTHS
		Elect. Engineer experienced in quality aspects of Transformer, TSS, SP, SSP, S&T, SCADA and OHE etc.	2	1 FQAE for 18 MONTHS 1 FQAE for 9 MONTHS
02	Birlanagar – Etawah : Gr. 239 (Jhansi Division) : 115 RKM / 128 TKM	Civil Engineer experienced in Civil Works, OHE foundation etc.	2	1 FQAE for 18 MONTHS 1 FQAE for 9 MONTHS
		Elect. Engineer experienced in quality aspects of Transformer, TSS, SP, SSP, S&T, SCADA and OHE etc.	2	1 FQAE for 18 MONTHS 1 FQAE for 9 MONTHS
03	Farrukhabad – Shikohabad including Mainpuri – Etawah : Gr. 241 (Allahabad Division) : 158 RKM / 189 TKM	Civil Engineer experienced in Civil Works, OHE foundation etc.	2	1 FQAE for 18 MONTHS 1 FQAE for 9 MONTHS
		Elect. Engineer experienced in quality aspects of Transformer, TSS, SP, SSP, S&T, SCADA and OHE etc.	2	1 FQAE for 18 MONTHS 1 FQAE for 9 MONTHS

- b. The above deployment plan is tentative and for guidance only and may vary as per actual requirement of FQAEs at sites.
- c. Deployment of specific FQAEs shall be solely at the discretion of BHEL as they may have to be shifted from one project site to another project site during the deployment during the contract period.
- d. FQAEs shall be mobilized/ demobilized progressively depending on BHEL project site's requirement which shall be intimated by Construction Manager/ BHEL Hqrs.
- e. Actual man month deployed at project sites may vary to any extent. The quoted man-month rate shall remain firm throughout the period of Framework Agreement.

7) Site Visit

The Bidders are advised to acquaint themselves with the sites for capturing general working conditions at any given site by visiting the project Sites mentioned in the tender elsewhere before quoting.

8.0 TIME SCHEDULE & MOBILIZATION

8.1 Contract Period

The period of contract is for 18 months from the date of letter of award.

8.2 Mobilization

FQAEs shall be mobilized within 15 days from the date of receipt of clearance/ intimation from BHEL. Following will be the mode for deployment of FQAEs at site.

8.2.1 Intimation for deployment of FQAEs at a particular site shall be sent by Project/ BHEL-PE&SD to Contractors depending upon the requirement at site.

8.2.2 On receipt of intimation for FQAE deployment, Contractor shall submit credentials of each FQAE to respective site In-charge of BHEL as given in intimation letter and copy shall be forwarded to Project/ BHEL-PE&SD.

8.2.3 The Contractor shall obtain acceptance/ approval from respective Site In-charge of BHEL for credentials of each FQAE. Deployment of FQAEs shall be subject to acceptance/ approval of credentials of FQAEs by BHEL site in-charge.

8.2.4 Contractor shall deploy FQAEs at site within 15 days of the intimation as at Sr. No. 8.2.1 above after obtaining acceptance/ approval as at Sr. No. 8.2.3.

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FORMAT NO: AA/CQ/A/011A/F-01

Bio data of all persons offered to BHEL for FQAEs (Hierarchy wise)

SL No.	Name	Date of Birth dd/mm/yy	Age as on 31 March 2019	%tage of Marks (#)	Technical Qualification (Graduation/ Diploma)	Additional Qualification	Date of Joining in Present Company dd/mm/yy	Experience* in inspection in areas as mentioned in clause 5.2 (please write the specific name of the product)		Specimen Signature (attested)	Details**
								No. of Years*	Field		
1											
2											

Mark sheet of Individual (Only Photocopy, Self-Attested by Individual) to be enclosed

* If experience is in other companies, please give Details ** (No of Years , Field and Company Name)

All the information provided is true to the best of my Knowledge and any perjured or untrue information may lead to termination of this contract.

Signature of Authorized Person

Name:

Date:

Seal:

TCC No: HY/PE&SD/Projects/TCC/2019-20/ FQAS/01, Rev.01

Bharat Heavy Electrical Limited, Project Engineering & System Division, RC Puram, Hyd-32.

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Particulars of FQA services			FORMAT No: AA/CQ/A/011A/F-02		
1.3.1	Name of the Company				
1.3.2	Head Office				
	i) Address		Fax No.		
	ii) Phone No.		Website:		
	iii) Email				
1.3.3	Chief Executive				
	i) Name				
	ii) Designation				
	iii) Office Address				
	iv) Phone No.		Mob. No		
	v) Email id:				
	vi) Qualification				
	vii) Profile				
	viii) Experience				
1.3.4	Ownership	Please put v (tick mark) in appropriate box			
		Govt of India Undertaking		State Govt Undertaking	
		Public Limited Company		Private Limited Company	
		Partnership/Individual Firm		Other (Please specify)	
	Please provide documentary proof, such as, Memorandum & Articles of Association, Company Registration certificate, Partnership Deed, as applicable				
1.3.5	i) Total No. of Persons				
	ii) No of Persons engaged in FQA services				
1.3.6	Particulars of Branches: (Add separate sheet if required)				
	i) Location:				
	ii) Name of Branch Manager				
	iii) Address				
	iv) Phone No.		Mob No.		
	v) Fax No.				
	vi) Website				
	vii) Email Id:				
	viii) Total No. of Persons				
	ix) No of persons engaged in Inspection				
1.3.7	Date of Incorporation/Registration				
		Total			

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1.3.8	Quality Manual (to be enclosed)						
1.3.9	Registration with statutory Bodies						
	a)	Income TAX PAN No					
	b)	Registration No. (Please enclose relevant letter/certificate)					
1.3.10	a)	ISO: 9001 certified					YES/NO
	b)	If Yes, Year of Certification					
	c)	Certification Body & Certificate No.					
	d)	ISO/IEC: 17020 certified:					YES/NO
	e)	If Yes, Year of Certification					
	f)	Certification Body & Certificate No.					
1.3.11	Organization: (Please enclose Organization chart)						
1.3.12	List of Clients for which Purchase Order and Completion Certificate/ Evidence of Completion of FQA Contract have been submitted						
	Sl No.	Client	Supplier(s)	Item(s)	P.O/ Contract No	Value	Re ma rk