

OIL & GAS DEVELOPMENT COMPANY LIMITED



TENDER ENQUIRY NO. PROC-SERVICES/CB/P&P- 4701/2020

**HIRING OF CONDITION MONITORING / VIBRATIONAL ANALYSIS
INSPECTION SERVICES.**

Note:

Bid bond of **PKR 236,000/- (PKR Two Hundred Thirty Six Thousand Only)** must be submitted with the technical bid. Please see tender documents for further detail.

The master set of tender documents (services) uploaded on OGDCL website (www.ogdcl.com) is the integral part of this TOR.

TERMS OF REFERENCE

HIRING OF CONDITION MONITORING / VIBRATIONAL ANALYSIS INSPECTION SERVICES.

1. OBJECTIVE

OGDCL, the biggest Oil & Gas Exploring & Production Company in Pakistan intends to hire services of Third Party Testing, Inspection, Verification and Certification Company for conducting the Condition Monitoring and Vibrational Analysis services for the assets listed in the following scope of work.

- a. Process & Plant Department Facilities/Assets
- b. Plants based Machines (Rotary & Reciprocating)
- c. Different Piping Networks / Systems

It will support the P&P department to monitor the integrity of the assets and to streamline the preventive maintenance plans of the assets for smooth and effective operations.

1.1 INTRODUCTION

OGDCL's plants, fields, assets are located throughout the country in all regions. The inspections, tests, evaluations, certifications, vibrational analysis etc. shall be conducted at following fields / locations on "As & When Required Basis" against a rate-running contract for a period of 02 year further extendable with mutual agreement. This Contract will provide us the tie-up support in addition to our running contract. Regional-wise names of fields / plants are given below;

A. Sindh Region:

- a. Bobi Processing plant.
- b. Sinjhoru Field and processing plant.
- c. Kunnar / KPD-TAY field and processing plant.
- d. QadirPur Gas field
- e. Any other Field etc.

B. Balochistan Region:

- a. Uch gas field including sale gas line, delivery station & processing plant
- b. Uch – II gas field & processing plant
- c. PirKoh Gas Field and Processing plant.
- d. Any other field.

C. Punjab Region:

- a. Dakhni Gas-condensate field and processing plant.
- b. Any other field.

D. Khyber-Pakhtoonkhwa Region:

- a. Chanda Oil Field and Processing plant.

- b. Mela Oil Field and Processing Plant.
- c. Nashpa Oil Field.
- d. Any Other Field.

2. LIST OF ASSETS.

Condition Monitoring, Vibrational Analysis, etc, shall be carried out for minimum following listed assets but not limited to;

A. Processing Plant Facilities:

These include ALL KIND of ROTARY & RECIPROCATING Assets but not limited to following:

- a. Turbines of different Makes and specifications including driven units
- b. Engines of different Makes and Specifications
- c. Compressors of different Makes and Specification including driven units
- d. Pumps of different makes and specifications including driven units
- e. Motors
- f. Blowers / Fans
- g. Any other Rotary / Reciprocating Equipment's

3. TECHNICAL CAPABILITIES OF BIDDER.

The successful / responsive bidder is required to have minimum but not limited to the following listed Condition Monitoring / Vibrational Analysis, inspection equipment's and relevant tools & software(s)(optional) available with them along with certified engineers / technical man-power / inspectors on their regular payroll to meet OGDCL's day to day inspection requirements on "As & when Required" basis.

3.1. CONDITION MONITORING / VIBRATION ANALYSIS & LUBE OIL ANALYSIS.

- a. This condition monitoring based on vibration analysis, detail analysis, bearing conditions, monitoring of the rotating and reciprocating equipment's and lube & wear debris analysis with further trending based on the vibration monitoring readings and signatures. The vibration monitoring shall be carried out for such of that equipment's as per plant requirements and as decided by OGDCL.
- b. All manpower, instruments, tools & tackles required for the work shall be under the scope of the bidder. The instruments, hardware & software which would be used for the work shall be of reputed make and shall be able to provide trending, analysis and results in a meaning manner. All the instruments deployed for the work should be preferably suitable for zone.
- c. The bidder has to provide valid calibration certificate of the instrument(s) prior to putting it to use. The calibration certificate needs to be renewed prior to the actual expiry of the validity and shall be resubmitted for the records / references. The accuracy level(s) of the instrument also needs to be established / authenticated by the bidder with documents / field trials / O&M manuals of the manufacturer etc.

- d. Upon completion of every visit, the recorded values in the form of site report shall be duly acknowledged by the Engineer-In-Charge or his authorized representative, which shall be submitted by the bidder before leaving the site or within 07 days after leaving site.
- e. The broad scope of condition monitoring work shall be as briefed below, but not limited to the following only. The monitoring shall be primarily for the rotating and reciprocating equipment's but with detailed Vibration Analysis & Machine Fault Diagnostic.

- Data Gathering of All Machines
- Vibration History
- Vibrational Analysis / Detailed Vibration Analysis
- Alignments (including laser alignment wherever required)
- In situ Field / Dynamic Balancing.
- Bearing defects / Faults Analysis
- Diagnostic testing of bearings faults (stage-1), Valves & Cables using ultrasonic technique.
- Run up and Coast down Tests
- Workshop balancing of rotors up to 30 ton (OGDCL will hold responsibility to shift the rotor to/from bidder prescribed premises).
- Ultrasonic thickness measurement to evaluate structural integrity.
- Diagnostic testing of power transformers and other electrical equipment.
- Operational Deflection Shape Analysis (ODS) to diagnose complex machinery faults which are non-detectable with conventional vibration data.
- Data acquisition of compressor/engines using vibration data of the plant instrumentation, i.e. from buffered output signals.
- Foundation defects, soft foot, cracks, deterioration etc
- Gear Mesh defects
- Belt Vibration (wherever applicable)
- Machine Mechanical Looseness
- Motor Current Analysis (MCA)
- Thermography Infrared Thermography should be conducted by IRT camera having temperature range above 1000° C and analyst should be Level-I certified.
- Boroscopy / Video Imaging
- Piping flow induced vibration analysis (where required).
- Compressor piping pulsation analysis
- Stress/fatigue analysis for design evaluation of passive/rotating equipment
- Recommendation of remedial measures.
- Special Data Acquisition and Analysis.

- Lube Oil & Wear Debris Analysis
 - Compilation and Reporting.
- f. In order to accurately analyze and diagnose rotary machines fault, vibration analyzer (VA) should be four channel vibration analyzer having frequency range: DC to 80 kHz maximum, able to sample at minimum 100,000 samples/sec and lines of resolution up to 300,000 with capability to perform: Route vibration collection, advanced vibration analysis, cross-channel analysis, transient analysis, dynamic balancing, and motor current analysis and ODS (operational deflection shape) modal analysis.
 - g. In order to analyze the reciprocating machines fault, windrock performance analyzer (PA) and vibration analyzer (VA) with basic, combustion, mechanical, compression performance and economic evaluation functions to evaluate reciprocating compressors and engines, as well as rotating machinery faults. The analyzer should have capability to diagnose following engine and compressors faults: Detonation, Misfires, Firing Pressure Imbalance, Leaking Valves and Rings, Worn or Scored Liners, Primary and Secondary Ignition, Turbo Charger Problems, Leaking Valves and Rings, Rider Band Wear, Crosshead Wear, Liner Damage, Excessive Frame Vibration, Lack of Rod Reversal, Foundation or Grout Damage
 - h. Vibration Data Collection should be performed by certified vibration analyst and reporting should be done by CAT-II/III analyst. These certifications must be either from MOBIUS institute Australia or Vibration Institute USA.
 - i. All vibration reports must be finally reviewed by CAT-III / IV vibration analyst or PhD in condition monitoring.
 - j. Software capable of generating equipment history, calculating MTTR/MTBF, generating work orders and automatically recording feedback must be developed & installed at least 03 on-site computers (Optional).
 - k. For equipment's like Gas Turbines and Compressors where the surfaces are either hot or cold, some are remotely accessible, special arrangement shall be made by the bidder for taking vibration of those equipment's
 - l. In case, any additional consultancy / reference is required to supplement the bidder's scope of work, same is required to be arranged by the bidder without any additional financial implication to OGDCL.
 - m. The software (where required) to visualize modal shapes should animate physical movement of machinery for root cause of chronic or complex machinery problems.
 - n. Diagnostic Test System for Bearings, Valves & Cables (DT270DU)
The analyzer should have the capability for bearing stage-1 fault detection, Compressed air and vacuum leak & tightness testing, Low speed bearing & Pump cavitation testing.

Deliverables:

- Comprehensive vibration analysis report mentioning observations, analysis and recommendations along with the Risk / Health Matrix as per ISO & relevant standards.
- Reports along with updated excel templates clearly showing the results and category of machines.

- Comprehensive report mentioning problematic area and proposed solution.
- Comprehensive report as per ISO-10816-3, ISO-14964 & other relevant standards.
- For engine oil testing, oil lab should be ISO-17025 or relevant accredited.
- FFT Spectrum Plots
- Different Curves / Plots / Graphical Representations in support to final reports

3.2 SCOPE OF WORK FOR LUBE OIL ANALYSIS

The scope of work shall include but not limited to analysis for lubricants of rotating equipment. This shall include the following against standards:

A. GENERAL ANALYSIS:

TEST	STANDARAD	TEST	STANDARAD
Appearance	ASTM D1500	Large Ferrous Particles,	ASTMD7416
Density @ 15C Kg/L,	ASTMD1298	Contamination Index,	ASTMD7416
Viscosity (cSt @ 40Oc,	ASTMD445	Sulphates,	IR
Viscosity cSt @ 100Oc,	ASTMD445	Antiwear additives,	IR
Viscosity Index,	ASTMD2270	Soot,	IR
Flash Point Degree	ASTMD93	Oxidation,	IR
Total Base No. mg KOH/g,	ASTMD2896	Large Ferrous Particles,	ASTMD7416
Oxidation Stability,	RBOTASTMD2272	Contamination Index,	ASTMD7416
Water	ASTMD6304	Ferrous Index,	ASTMD7416
Carbon Residue,	ASTMD189	Large Ferrous Particles,	ASTMD7416
Ferrous Index,	ASTMD7416	Large Ferrous Particles,	ASTMD7416
Any other Analysis Applicable			

B. WEAR DEBRIS ANALYSIS:

Ferrous and nonferrous wear particle analysis for:

- 1) Normal rubbing wear
- 2) Severe sliding wear
- 3) Fatigue wear
- 4) Cutting wear
- 5) Contaminants for ferrous oxides (black oxide, red oxide)
- 6) Metal, Sand particles/ fibers Analysis as per Standard D6595 etc
- 7) Any other analysis applicable.

3.3. TECHNICAL MAN-POWER.

The responsive / successful bidder is required to have minimum but not limited to following technical man-power on their regular pay-roll / pay-role employees;

- i. Mechanical / Metallurgical Engineers (Masters / Doctoral Degree shall be preferred).
- ii. Certified Vibrational Analyst Level-II / III / IV

4. QUALIFYING CRITERIA FOR SUCCESSFUL BIDDER.

- i. A successful bidder must meet minimum but not limited to following criteria to become responsive for the above-mentioned service's contract.

- a. Authorized / Registered Corporate Office and / Or Local Representative.
 - b. Availability of certified and experienced technical manpower as listed above.
 - c. Previous Job Experience / References (Globally / Regionally / Locally).
 - d. Organogram, all certificate of inspectors and their contact Information.
 - e. Financial Standing.
- ii. Certificate of calibration shall be attached with each equipment with their calibration block at the time of inspection. Calibration certificate should be latest and given by well reputed organization.
 - iii. In view of the above listed techniques, it is mandatory requirement for the service company to have on-line inspection capabilities, tools, equipment's and techniques so as to carry out various inspections on assets etc. The inspection tools / equipment's must be in good working condition with valid calibration certificates. Such certification must be provided in the technical bid
 - iv. Moreover it shall also be mandatory requirement that the service company must have relevant certified personnel to carry out the required testing / inspection according to international standers such as;
 - a. Vibration Analysts Level-I/II/III/IV (Mobius Institute USA, etc)
 - v. As requirement inspection company shall be capable / should have appropriate software(s) to provide comprehensive Inspection Data Management Solution (in normal view, graphic and printable form) including data monitoring, able to show critical risk areas / equipment's with location and severity of fault / anomaly, able to indicate time-wise repair alerts of all fields / plants inspections already carried out and / or to be completed through this contract.
 - vi. Optional: Any supportive software (Condition Monitoring) training, installation & its update and Software online access up to expire date of contract period will be in the scope of contractor without any financial impact to OGDCL.

5. CONTRACTOR'S RESPONSIBILITIES.

Successful bidder / contractor shall be liable minimum but not limited to following technical responsibilities;

- i. Inspection.
- ii. Verification.
- iii. Certification.
- iv. Availability of tools / Equipment's.

- v. Availability of Vibrational Analyst / Special Equipment Technicians in Pakistan ready to move on call and also inform if contractor providing freelancer on field.
- vi. Scaffolding requirement must be shared by bidder and will be provided by OGDCL.
- vii. Initially Reporting will be prepared / submitted at field before leaving the site.
- viii. Presentation of findings & results deliver to relevant in-charges / F.Ms / P.Ms at each field for all completed jobs at that field.
- ix. Entry of previous and current condition monitoring data into software, generate time-to-time alerts, indicate the company about repair alerts, generate graphs, reports etc. in the software (optional).
- x. Contractor must prepare & submit detail excel templates (format will be shared by OGDCL) which reflect machines vibration data history and visit details along with final report after each visit within two weeks.
- xi. Bidder will not move any unfit person to site and check fitness level of team prior to mobilization.
- xii. To provide required PPE's for inspection team.
- xiii. Contractor shall arrange consumables / arrangements for the execution of condition monitoring jobs activity within the allowed time of frame.
- xiv. For general awareness regarding day to day improvements of modern Condition Monitoring / Vibration Analysis, Inspection techniques and to discuss general findings, results, recommendation and actionable points of the already carried out inspections, the successful bidder / contractor shall educate the site teams with latest techniques / methods adopted for the jobs and as well on running activities during time period of contract exclusively.

6. REPORTS OF FINDINGS.

- i. Daily Progress Reports
The contractor has to submit a daily progress & activity report to Manager (TSS-P&P) at Head Office through Field / Location Incharge showing at least following:

- a. Portion of the inspection work completed.
 - b. Any particular finding(s) that might be alarming along with remedial action suggestion.
 - c. Bottle necks during the inspection and possible delay in the next day's job.
 - d. Planning for the next day job.
 - e. After completing the job at relevant field / plant, contractor has to obtain "Work Completion Certificate / Job Ticket (format will be shared by OGDCL)" duly signed and officially stamped by respective Incharge(s) to be attached with invoice for payment.
 - f. Contractor will also be required to submit preliminary report of each equipment after completion of inspection.
- ii. Final Report (Min 02 hard copies)

When job is completed on individual field location / processing plant, the contractor shall have to submit a final report in shape of at least 02 hard copies and soft copies within maximum of 07 working days period but for emergency/emergent conditions final report must be submitted within 24Hrs. The final report must contain at least but not limited to the following items.

- a. Executive summary
- b. Description of each location/equipment inspected.
- c. Detailed inspection findings showing all reading etc.
- d. Interpretation of the readings / graphs / spectrums etc.
- e. Recommendations on the basis of inspection findings.
- f. Calculations etc.
- g. Spectrum & Trend of problematic machines, machines that are in alarming Conditions (either in alarm 1 (Red Category), 2 (Yellow Category) or 3 (Green Category)) with extensive problem description and recommendation of an Engineering solution for its rectification.
- h. The final report shall be supported with relevant photographs both in the soft and hard copies.
- i. Detail excel templates consisting of machines history vibration data / trends and must submit both in soft and hard copies.
- j. As a pre-requisition, the entire inspection should be carried out under the direct supervision of OGDCL site Engineer, however the final report shall be vetted by a professional / Vibration Analyst specialist with minimum following criteria;

- ❖ Atleast 15 years relevant experienced preferably in Condition Monitoring.
- ❖ Masters / Doctoral degree (PhD) in the relevant field (recommended)
- ❖ Relevant certification(s).

(Proof of all above must be provided in the technical portion of the bid. In case of missing of such certificate, the bid will be out rightly declared technically non – responsive).

7. PROJECT SCHEDULES / COMPLETION TIME

- i. The service order / contract shall be treated as "Rate-Running Contract" to provide Condition Monitoring / Vibrational Analysis services as described above on "As and when required basis" for a minimum of 02 year period at Fix Price and shall be extendable if agreed mutually.

- ii. The service company has to provide assurance in technical bid to provide the services on time on call as per contract without any delay reasons.
- iii. Through this contract, the contractor should ensure to mobilize equipment and inspectors / professionals to the site location within 72 hours for routine jobs and within 36 Hrs for an emergent conditions when called through written request for such services at any of the field location / processing plant.

8. EVALUATION OF THE BID

- i. The technical portion of the bid will be evaluated first to check the conformity of the requirement of the inspection job and relevant experience qualification & certification of the proposed experts /man power along with attested degrees. Therefore, it should be very clear that only technical qualified / responsive bids shall be considered further for financial evaluation.
- ii. The company shall have right to visit bidder's facilities during evaluation of technical bid to make itself satisfied with the availability of the equipment's, quality, condition, quantity, certifications, man-power verification etc. and other available facilities. They may also discuss various inspections, evaluation methodologies etc. with bidder's nominated professionals etc. The bidder will have to make all necessary arrangements and will coordinate and full support for such visit.
- iii. The **technical portion** of the bid must contain at least but not limited to the following:
 - a. Total relevant experience of the company / bidder, especially in Pakistan with evidence of proof.
 - b. All contacting details (Address, phone, fax, email, web site etc.)
 - c. List of certified inspectors on the pay roll of company.
 - d. Names and CVs (showing experience, certification level, qualification etc.) of the proposed inspector(s) and other team members.
 - e. Job description of each team member for inspection.
 - f. Proof of working experience of similar nature in Pakistan or abroad.
 - g. Organogram of the company.
 - h. Project activity bar chart showing day –to –day activities and bottle necks due to which job may be delayed (where required by OGDCL).
 - i. Bidder should also submit the list of available equipment's / tools along-with its make, model, manufacturer, year of manufacturing, calibration / certifications etc in their technical bid.

9. CURRENCY OF THE BID.

Since this will be processed through press tendering and local companies are expected to participate in the bidding process, therefore the currency of the bid shall be in PKR.

10. BOARDING, LODGING, TRANSPORTATION ETC.

i. **Boarding & Lodging:**

OGDCL will provide boarding, lodging facilities for professionals of the contractor at field facilities / camp. The contractor's professionals will be accommodated according to the seniority. All engineers, supervisors and technicians shall be accommodated in officer's camp where

as other staff will be provided accommodation in staff camp.

ii. **Transportation:**

Transportation of material / equipment's shifting and man-power movement to and from field / plant site shall be sole responsibility of the contractor.

iii. **Security cover**

OGDCL will provide standard / in-place security cover (where ever needed) to the contractor's employees at the field / plant sites during job.

iv. **Security Clearance.**

- i. In case contractor intends to hire foreign expert(s) / inspector(s) for this job, it will be his responsibility to obtain security clearance from concerned authorities well in time so that the job should not be delayed.
- ii. Contractor shall be responsible for providing all type of tools, equipment's, consumables, required for the proper preparation and completion of work.

11. **HSEQ POLICY.**

The contractor shall strictly follow OGDCL's HSEQ & Security policy/guidelines submitted by company during entire job.

- a. It's mandatory for all service contractor's employees / inspectors etc to wear proper PPEs during job at field / plant area.
- b. Proper follow up of instructions given in the work permits issued by concerned field / plant authorities.
- c. To properly follow up security plans as instructed by field / plant management.
- d. To fulfill timing for field mobilizations - after sunset mobilization at site is generally not allowed.

12. **SITE VISIT.**

Though all the relevant available information have been provided with these documents, however it is strongly advised for better interest of the bidder, to pay a visit of the proposed site location(s) so as to make himself acquainted / familiar with the site where he has to carry out the job. By this way he can gather actual site information. The visit will be paid purely and solely at bidder's own risk and cost with prior permission. OGDCL will not pay any sort of compensation for this visit.

13. **SCHEDULE OF PAYMENT / PAYMENT TERMS AND CONDITIONS.**

The contractor shall be liable to invoice for payment after;

- i. Completing the job and submission of the final report of full Condition Monitoring / Vibrational Analysis Report, DVA etc. Other individual Technique, Inspector's visit etc of each individual field location / processing plant or each technique carried out at any field location.

- ii. Verification of job completion by the respective location In-charges by signing “Work Completion Certificate”.
- iii. Endorsement of invoices by respective Field / Plant Manager & Manager (Technical Support Services-P&P).
- iv. Payment will be made after * clean invoice and Final Inspection Report.
*Clean Invoice means Verification of the Invoice from Field / Location Incharge

15. APPLICABLE CODES & STANDARDS.

The contractor shall have to follow international codes, standards & recommended practices in vogue to complete the

job, especially Condition Monitoring or equivalent codes as mentioned below:

ISO reference	ISO reference
ISO 1925, <i>Mechanical vibration — Balancing — Vocabulary</i>	ISO 10816-2, <i>Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 2: Land-based steam turbines and generators in excess of 50 MW with normal operating speeds of 1 500 r/min, 1 800 r/min, 3 000 r/min and 3 600 r/min</i>
ISO 1940-1, <i>Mechanical vibration — Balance quality requirements of rigid rotors — Part 1: Specification and verification of balance tolerances</i>	ISO 10816-3, <i>Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 3: Industrial machines with nominal power above 15 kW and nominal speeds between 120 r/min and 15 000 r/min when measured in situ</i>
ISO 1940-2, <i>Mechanical vibration — Balance quality requirements of rigid rotors — Part 2: Balance errors</i>	ISO 10816-4, <i>Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 4: Gas turbine driven sets excluding aircraft derivatives</i>
ISO 2017, <i>Mechanical vibration and shock — Resilient mounting systems — Part 1: Application of source and receiver isolation</i>	ISO 10816-5, <i>Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 5: Machine sets in hydraulic power generating and pumping plants</i>
ISO 2041, <i>Vibration and shock — Vocabulary</i>	ISO 10816-6, <i>Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 6: Reciprocating machines with power ratings above 100 kW</i>
ISO 2954, <i>Mechanical vibration of rotating and reciprocating machinery — Requirements for instruments for measuring vibration severity</i>	ISO 11342, <i>Mechanical vibration — Methods and criteria for the mechanical balancing of flexible rotors</i>
ISO 5348, <i>Mechanical vibration and shock — Mechanical mounting of accelerometers</i>	ISO 13372, <i>Condition monitoring and diagnostics of machines — Vocabulary</i>
ISO 7919-1, <i>Mechanical vibration of non-reciprocating machines — Measurement on rotating shafts and evaluation criteria — Part 1: General guidelines</i>	ISO 13373-1, <i>Condition monitoring and diagnostics of machines — Vibration condition monitoring — Part 1: General procedures</i>
ISO 7919-2, <i>Mechanical vibration — Evaluation of machine vibration by measurements on rotating shafts — Part 2: Land-based steam turbines and generators in excess of 50 MW with normal operating speeds of 1 500 r/min, 1 800 r/min, 3 000 r/min and 3 600 r/min</i>	ISO 13379, <i>Condition monitoring and diagnostics of machines — General guidelines on data interpretation and diagnostics techniques</i>
ISO 7919-3, <i>Mechanical vibration of non-reciprocating machines — Measurements on rotating shafts and evaluation criteria — Part 3: Coupled industrial machines</i>	ISO 14694, <i>Industrial fans — Specifications for balance quality and vibration levels</i>
ISO 7919-4, <i>Mechanical vibration of non-reciprocating machines — Measurements on rotating shafts and evaluation criteria — Part 4: Gas turbine sets</i>	ISO 14695, <i>Industrial fans — Method of measurement of fan vibration</i>
ISO 7919-5, <i>Mechanical vibration of non-reciprocating machines — Measurements on rotating shafts and evaluation criteria — Part 5: Machine sets in hydraulic power generating and pumping plants</i>	ISO 17359, <i>Condition monitoring and diagnostics of machines — General guidelines</i>
ISO 8528-9, <i>Reciprocating internal combustion engine driven alternating current generating sets — Part 9: Measurement and evaluation of mechanical vibrations</i>	ISO 18436-1, <i>Condition monitoring and diagnostics of machines — Requirements for training and certification of personnel — Part 1: Requirements for certifying bodies and the certification process</i>
ISO 8569, <i>Mechanical vibration and shock — Measurement and evaluation of shock and vibration effects on sensitive equipment in buildings</i>	
ISO 10816-1, <i>Mechanical vibration — Evaluation of machine vibration by measurements on non-rotating parts — Part 1: General guidelines</i>	

It will be contractor's responsibility to be fully aware of the relevancy and requirement of the applicable codes and standards for particular inspection, assessment, evaluation or certification and also provide the soft copy of Latest codes of relevant condition monitoring Codes to Manager (TSS-P&P), Head Office, OGDCL.

EVALUATION AND MARKING CRITERIA

Sr. No	Item Description	OGDCL Requirement	Max. Marks	Allocated Marks	Acceptance Criteria	Bidder to provide
1.	General Experience of the Contractor/Firm (bidder) in Inspection Services (Condition Monitoring).)	Experience of Firm	20		Must meet Min 50%	OGDCL Team will also visit the Facility. Pls share the details/evidence of the Jobs performed under each category For experience less than 10 years = zero points
		Min 10-14 years relevant exp is required		10		
		For 15-19 years relevant exp is required		15		
		Over-all 20+ years		20		
2.	Legally Registered Local Office & Laboratories in Pakistan	For better coordination , local office is mandatory		10	Must Meet 100 %	All contacting details, manpower, technical/financial, capabilities must be provided
3.	Technical Manpower For Inspection Services	Under 3.1 & 3.2	40		Must meet Min 75%	Submit the resumes / certifications record of local employees working in Pakistan. Condition Monitoring (CAT I-III) (Certified Mobius /Vibration Institute USA)
3.1	Lead Analyst (Minimum-01)	Min Master's Degree / PhD will be preferred with 10 years relevant industry experience		15		
3.2	Certified Rotary Analysts with Min 05 Years' Experience (Minimum – 01 against each category)	Certified CAT-I		05		
		Certified CAT-II		10		
		Certified CAT-III		10		
4.	List of available Condition Monitoring / vibration analysis equipment's / inspection tools etc. for required SOW available in Pakistan for ready use.	Condition Monitoring Tools & Equipment's (Min 01 sets of each tool)		10	Must Meet 100 %	A complete list of equipment's, tools must be provided with details of manufacturer. (OGDCL will have right to inspect the availability of tools , their conditions, certification etc during evaluation of the bid for satisfaction)
5.	Reference projects / Contracts with Industries	Oil & Gas, petro-chemical, power plants and relevant industries	10		Must meet Min 50%	Provide contract details evidence
		Min 3-5 Projects		05		
		For 6-10 Projects		10		
6.	Financial Soundness Minimum Turnover (01 Million per year)	Last Five Years	10		Must meet Min 50%	Provide evidence in form of Bankers certificate
		Last 2-3 years		05		
		For 4-5 years		10		

MIN QUALIFICATION SCORE = 70 / 100

Note: Bidders securing less than 70% mark will be declared non-responsive and must meet the minimum acceptance criteria as mentioned above otherwise their financial proposal will not be opened.

FINANCIAL BID FORMAT

The **Financial portion** of the bid shall be submitted as per following format. Total lump sum cost must be inclusive of all applicable taxes, duties, levis except PST & ICT.

CONDITION MONITORING / QUANTUM OF WORK						
Sr.No	Description	Unit	Work Quantum For 01 Year	Work Quantum For 02 Years	Unit Price	Remarks
A Condition Monitoring / Vibrational Analysis						
1	Vibration Data Acquisition, Analysis and Report Submission of centrifugal machines. (Min approx 01 ~ 90 machines per visit)	Per Visit	42	84		Will include data update for all machines and tool mobilization. All skid mounted machines will be considered as one unit. Unit include driven and drivers machines but reports will be provided separately for skid mounted machines.
2	Detailed Vibration Analysis for Machines (Turbines, Engines, Recip compressors etc) with machine health analyzer & Windrock Technologies for complete analysis. (Min approx 01-50 machines per visit)	Per Visit	42	84		In case more equipment's are being inspected during one-go then Mob-Demob charges will remain same.
3	Bearing Fault Analysis	Per Day	5	10		Will include data update for all machines and tool mobilization. All skid mounted machines will be considered as one unit. Unit include driven and drivers machines but reports will be provided separately for skid mounted machines. In case more equipment's are being inspected during one-go then Mob-Demob charges will remain same.
	Bearing Controlled Lubrication		5	10		
	Borosopic Inspection / Video Imaging		10	20		
	Gear Mesh defects		2	4		
	Ultrasonic Thickness Measurement		5	10		
	Corona Discharge detection & LV, MV Electrical Panel Testing for Skid Mounted		5	10		
	On skid vessel leak test		2	4		
4	Thermography (Maximum Machines offered during day)	Per Day	9	18		In case more equipment's are being inspected during one-go then Mob-Demob charges will remain same.
	Motor Current Signature Analysis (Maximum Machines offered during day)		5	10		
	Calibration and testing of vibration equipment, online system installed/available at all sites		2	4		
5	Services of Corrective Maintenance Techniques (Laser Alignment / Field Balancing/ Workshop balancing etc)	Per Machine	10	20		
6	Stress/fatigue analysis for design evaluation rotating equipment using finite element based software's	Per Job	2	4		
7	Root cause failure analysis of rotating and static equipment's (on skid)	Per Job	2	4		
8	Lube Oil / Wear Debris Analysis	Per Sample	33	66		M/s OGDCL will send the samples to prescribed bidder lab premises.
B Technical Manpower Normal Day rate						
1	Vibration Analyst Engineers , Level-VII / III	Per Day	100	200		
2	General Technicians	Per Day	100	200		
C Technical Manpower Emergecny Day rate						
1	Vibration Analyst Engineers Level-VII / III	Per Day	10	20		
2	General Technicians	Per Day	10	20		
D Mobilization / Demobilization						
1	Punjab Region	Per Visit	10	20		Same For Routine and Emergency Visits
2	KPK Region	Per Visit	10	20		
3	Sindh Region	Per Visit	20	40		
4	Baluchistan Region	Per Visit	10	20		
TOTAL (T = A+B+C+D)						

Total lump sum cost must be inclusive of all applicable taxes, duties, levis except PST & ICT.

NOTE:

1. The quoted Prices/Rates should be inclusive of all applicable taxes and levies as per Government of Pakistan rules except Provincial Sales Tax on Services. Provincial Sales Tax on Services if applicable will be paid by OGDCL.
2. Bidders quoting non-firm, ambiguous rates or additional terms and conditions having financial impact are most likely to be rejected.
3. Please quote rates strictly as per provided Financial Bid Format.
4. Evaluation will be carried out on complete package basis Technically & Commercially {Total bid value (T= A+B+C+D)} as rate running contract.
5. Discount if any, should clearly be mentioned in financial bid format, if mentioned elsewhere the same shall not be entertained.
6. Bidders will work on 12hrs shift basis whereas for emergency 24hrs shift service will be considered during visit. For Day-Night Jobs mob-demob remain the same.
7. Master set of tender documents uploaded on OGDCL website is the integral part of this TOR.
8. Prices must be quoted in Pak Rupees.