



ब्रह्मपुत्र क्रेकर और पालीमेर लिमिटेड
BRAHMAPUTRA CRACKER AND POLYMER LIMITED
(भारत सरकार का उपक्रम) / (A Government of India Enterprise)

SPECIAL CONDITION OF CONTRACT

GENERAL INTRODUCTION:

The Special Conditions of Contract shall be read in conjunction with the General Conditions of Contract, Schedule of rates, Specifications, and any other documents forming part of the contract.

The tender is for carrying out Thermography services for **Fired Heaters, High Temperature Static Equipments/Piping and Electrical Panels** which are running at very high temperature (Approx. 300 °C to 1100°C) (refer detail Annexure –A).

1. All equipments, accessories, tools & consumables required for carrying out the job shall be in scope of the agency. No equipments or material shall be issued by BCPL to the agency.
2. **Contractual period of this contract shall be 02 (Two) years.** However there is a provision for extension of another **06 (Six) Months** at the same rates, terms & conditions.
3. Agency shall mobilize his manpower and necessary equipments for the job within 07 (seven) days' notice period and on any day including Sundays and holidays.
4. Normal working hours shall be 8 hours duration (**From 9.00 AM to 5.00 PM**). All site jobs shall be completed within the specified period.
5. Agency shall have phone/ fax/ email/ mobile facility for making easy contact.
6. Agency shall be the sole custodian of all its equipments. Upon written request, BCPL may provide a place for keeping the agencies equipment within the plant premises without any obligation to BCPL for any loss or damages.
7. BCPL shall not provide any boarding, lodging or conveyance/transport facilities to the agency during the execution of works.
8. **The distance between all units of BCPL plant is as follows:**
 - i. **BCPL Lepetkata to BCPL Duliajan Unit is approx.60 KM**
 - ii. **BCPL Lepetkata unit to BCPL Lakwa unit is approx.60 KM****To carry out jobs at above units, BCPL shall not provide transportation facilities/vehicles to the agency.**
9. Agency shall cooperate with E-I-C in clarifying any issues related to the inspection works.
10. Agency should be ready to mobilize (On call basis) at any time as per site requirement in BCPL.
11. BCPL shall not provide any transport facility to the agency for executing the thermography survey at BCPL Lakwa and BCPL Duliajan.
12. **SAFETY:**
 - i. Safety training is mandatory for personnel deployed by agency at BCPL site prior to execution of work. Responsibility for arranging safety training for its personnel shall lie solely with the agency.
 - ii. Prior to execution of any work, necessary clearance shall be taken from E-I-C.
 - iii. Work permit shall be obtained from respective unit-in-charge prior to start of work.



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- iv. As the job shall be carried out inside the Plant area, the agency shall ensure all safety measures as instructed by the E-I-C & strictly adhere to safety rules & regulations of BCPL and standard industrial safety norms. Agency shall equip their personnel deployed for the job with PPE and safety gear as deemed necessary to carry out the job safely.
- v. Use of safety helmet and safety shoes is mandatory. No one shall be allowed to enter the work area without safety helmet and shoes. Use of safety belt while working at height is mandatory.
- vi. The agency shall also adhere to all other rules as stipulated in the general conditions of contract (G.C.C).

A. WORK MEASUREMENT

The work shall be measured in accordance with SOR.

B. PAYMENT TERMS & CONDITIONS

1. Payments shall be made against RA bills after being certified by E-I-C. No advance payment shall be made to the agency.
2. For prompt payment, all documents are to be submitted duly signed and stamped by only authorized signatory in original and proper format.
3. Payment shall be made only for the actual no. of days of work performed at BCPL site.
4. No idle or any other charge shall be admissible for days without work due to Sundays, holidays, mobilization/demobilization and other office formalities.

C. PRE-QUALIFICATION CRITERIA

1. The bidder must have a permanent account number (PAN) in India and shall quote the same in all commercial communication.
2. The bidder must have successfully executed thermography survey jobs of insulated or bare static equipments viz. fired heaters, boilers, insulated vessels & piping in Petroleum Refinery, Petrochemical or Fertilizer Industry in the last 5 (five) years. Subcontracted work experience shall not be acceptable. Copy of work order & work completion certificate issued by clients shall be submitted.
3. The bidder shall engage only experienced Engineer to carryout thermography survey job at BCPL site. ASNT Level II or equivalent certification in thermography for personnel carrying out thermography survey at BCPL site is essential. List of the personnel with experience & ASNT Level II qualification detail shall be submitted with their offer.
4. Bidder shall have all necessary equipments, accessories, tools & tackles for executing thermography survey as per the scope of work at BCPL site. All equipments shall be functional & of good quality. List of equipments, accessories, tools & tackles with relevant details shall be submitted with their offer.

D. PENALTY CLAUSE FOR NON PERFORMANCE

1. The Contractor shall report at BCPL Lepetkata site within 07 days from intimation from EIC. If Contractor fails to report within the stipulated time or if the assigned work is not executed due to non availability of the manpower / equipments, a penalty @ **Rs. 1000/-** per day for the delayed period shall be imposed which shall not exceed the quarterly billed amount.
2. If the contractor fails to mobilize the required resources within responsible time as decided by Engineer-In-Charge, BCPL may get the work done through other agency at the risk and cost of the contractor and the security deposit of the contractor is liable to be forfeited.



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E. PENALITY CLAUSE FOR SAFETY VIOLATION

Repeated violation of safety rules & regulation by the contractor shall attract penalty as per details below:-

- a) For first time violation of safety rules & regulation by contractor, HOD (F&S) will issue a warning letter to contractor with intimation to OIC of work center and EIC.
- b) In case of second time violation of safety rules & regulations by same contractor, OIC will call contractor in person and will have a meeting to discuss reason for repeated violation along with EIC and HOD (F&S). A warning letter shall also be issued by EIC to contractor.
- c) In case of further violation, punitive fines will be imposed on contractor. Amount of fine will be decided as per severity of violation of safety.
- d) In case of consistent violation of safety rules & regulation by contractor, BCPL reserves the right to take suitable action against the contractor including forfeiture of security deposit and termination of the contract and upon such termination, BCPL shall have the right to remove the contractor's materials from site.



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Annexure-I

**THE AREA OF EXAMINATION AND SCHEDULE FOR THERMOGRAPHIC STUDY
SHALL BE AS BELOW:**

Sr. No.	Equipment's	Nos.	Areas of examination	Schedule of Thermography study
1	PRESSURE REDUCING DE-SUPER HEATER (PRDS)	01	External shell for any damage to insulation	Quarterly per Annum
2	HEAT RECOVERY STEAM GENERATOR (HRSG)	02	External shell for any damage to insulation	Quarterly per Annum
3	UTILITY BOILERS	02	External shell for any damage to inside refractory/insulation lining	Quarterly per Annum
4	Turbo Driven Boiler Feed Pump	02	External shell for any damage to insulation	Quarterly per Annum
5	Condensate turbine pump	01	External shell for any damage to insulation	Quarterly per Annum
6	Economizer	01	External shell for any damage to insulation	Quarterly per Annum
7	Gas Turbine	02	External shell for any damage to insulation	Quarterly per Annum
8	UB FD fan	02	External shell for any damage to insulation	Quarterly per Annum
9	Steam Turbine Generator	01	External shell for any damage to insulation	Quarterly per Annum
10	Steam Turbine Generator MOP	01		
11	FURNACES	04	External shell for any damage to inside refractory/insulation lining	Quarterly per Annum
12	STEAM DRUMS	04	External shell for any damage to insulation	Quarterly Per Annum
13	VHP Main Header (Piping)		External shell for any damage to insulation	Half Yearly
14	RG HEATER	01	External shell for any damage to inside refractory/insulation lining	Quarterly per Annum
15	RG COMPRESSOR (117-KA-470)	01	External Body for any damage	Quarterly per Annum
16	MAIN LOOP COMPRESSOR (117-KA-400)	01	External shell for any damage to insulation	Quarterly per Annum
17	EJECTOR BOOSTER COMPRESSOR (117-KA-401)	01	External Body for any damage	Quarterly per Annum
18	EXTRUDER (117-LZ-840)	01	External shell for any damage to insulation	Quarterly per Annum
19	VRU COMPRESSOR (117-KA-480)	01	External body for any damage	Quarterly per Annum
20	LIQUID INJECTION PUMP (117-PA-409A)	02	External body for any damage	Quarterly per Annum



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21	PELLET CONVEYING BLOWER (117-KA-880A)	02	External body for any damage	Quarterly per Annum
22	BLOWER (117-KA-440)	01	External body for any damage	Quarterly per Annum
23	AOP OF REFRIGE.PAKAGE (117-MPA-497A)	02	External body for any damage	Quarterly per Annum
24	POWDER CONVEYING BLOWER (117-KA-460 A/B)	02	External body for any damage	Quarterly per Annum
25	PELLET CONVEYING BLOWER (117-KA-880A/B)	02	External body for any damage	Quarterly per Annum
26	FINAL PELLET CONVEYING BLOWER (117-KA-850A/B)	02	External body for any damage	Quarterly per Annum
27	118-ZX-360X	01	External body for any damage	Quarterly per Annum
28	Hot oil unit	01	External body for any damage	Quarterly per Annum
29	Under water Pelletizer	01	External body for any damage	Quarterly per Annum
30	LIN Atmospheric Storage Tank (130-TT-112 A/B(73))	02	External body for any damage	Quarterly per Annum
31	Cold Box A/B, N2 Plant	02	External body for any damage	Quarterly per Annum
32	Super Insulated Vacuum Lines from Cold box to LIN tank,N2 plant		External body for any damage	Quarterly per Annum
33	MCL of RGC A/B, GDU	02	External body for any damage	Quarterly per Annum
34	BCL of RGC A/B, GDU	02	External body for any damage	Quarterly per Annum
35	Glycol Reboiler, GDU	01	External body for any damage	Quarterly per Annum
36	Gas Engine Generator, GDU	01	External body for any damage	Quarterly per Annum
37	RG Heater (11-FF-002), Lakwa	01	External body for any damage	Quarterly per Annum
38	Gas Turbine (11-KA-001), Lakwa	01	External body for any damage	Quarterly per Annum
39	Boiler-A/B(67-LZ-001A/ B) Common stack, Lakwa	01	External body for any damage	Quarterly per Annum
40	All Electrical panels of BCPL Lepetkata, BCPL Lakwa and BCPL Duliajan			

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SECTION – VI

SCOPE OF WORK [SOW]



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A. DESCRIPTION OF ABBREVIATIONS & TERMS USED

1. BCPL : Brahma Putra Cracker & Polymer Ltd. (The owner)
2. E-I-C: Engineer In-Charge of this contract only
3. PPE : Personnel Protective Equipment
4. Agency: Successful bidder of this contract only.

B. BIDDER'S SCOPE OF WORK

1. Provide functional & calibrated thermography camera from reputed manufacturer like Flair, Fluke, Land systems etc.
2. Deploy one team (minimum 02 personnel) of experienced Engineers at BCPL sites (**Including Lepatkata, GDU Duliajan and Lakwa**) for carrying out thermographic survey as per the instruction of the E-I-C. Engineers deployed by the agency at BCPL site shall have **minimum 3 years of experience. ASNT Level-II or equivalent certification is essential**. Proof of experience & copy of ASNT Level-II or equivalent certification shall be submitted to E-I-C prior to start of job.
3. Agency shall carryout thermographic survey of insulated or bare static equipments and electrical panels including fired heaters for health assessment and monitoring as per the instruction of E-I-C. For the purpose of the thermography survey, all the equipments and electrical panels shall be offered in on-stream condition with access from outside.
4. Accuracy and repeatability of the temperature measurements shall be demonstrated to E-I-C or his representative prior to start of the job.
5. Procedure for calibrating and operation of the thermography equipment, recording & analysis of data shall be submitted to E-I-C prior to start of the job.
6. Valid Calibration certificate of the equipment shall be submitted to the E-I-C prior to start of the job.
7. The extent of job at BCPL sites is as per Annexure-I and it may also increase as per site requirement.
8. For the purpose of carrying out thermography survey, agency personnel shall visit BCPL sites on Quarterly basis i.e. 04 visits per year during the contractual period. Quarterly visits shall be of minimum 7 days as per instruction of EIC.
9. Specification of equipment used by the agency for thermographic survey at BCPL site shall be as below:
 - i) Equipment shall be able to measure temperatures in the range of -15 Deg C to 1100 Deg C (with an emissivity(ξ) < 1.0)
 - ii) Equipment shall have measurement accuracy of max +/- 2% of scale
 - iii) Equipment shall have excellent resolution to record good quality images.
 - iv) Equipment shall be capable of operating in the spectral range of 7.5 to 13 μ .
 - v) Equipment shall be capable of real time image recording.
 - vi) Equipment shall have image processing functions & software for multi-point temperature display, max. /min. temperature display, δT (temperature difference) display between 2 points, zooming facility of any selected portion of an image shall be there.
 - vii) Equipment shall have zoom capability upto 2:1 & 4:1 (with spatial filtering).
 - viii) Equipment shall be battery powered.
 - ix) All electrical panels installed at BCPL complex including Lakwa and Duliajan.



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C. GENERAL REQUIREMENTS

1. Professional charge for carrying out thermography survey at all BCPL units includes cost against all forms of transit expenses e.g. fares, accommodation & conveyances, idle charge during travel days, fooding cost, equipment shipping, custom fees, taxes etc **shall be included in contractor scope** . No extra payment shall be made by BCPL to the agency under any circumstances.
2. Professional charge for carrying out thermography survey at BCPL units shall be applicable on Sundays & holidays, only if work is carried out at site as per instructions of the E-I-C. No extra charges shall be admissible for working on Sundays or holidays.
3. Professional charge for carrying out thermography survey at BCPL units shall be considered only for actual no. of working days.
4. Professional charge for carrying out thermography survey at BCPL site shall not be applicable for idle days due to non-functioning of equipment, reasons attributable to the agency, reasons not attributable to BCPL, force majeure etc.
5. For claims with respect to professional charge for carrying out thermography survey at BCPL site, the agency shall maintain adequate records viz. gate pass, work permit etc. with details of job carried out on each day.
6. At all the locations of inspection, thermographs, readings etc. shall be noted & tagged accurately on outline/ development sketches for each static equipment and electrical panels as per standard practice.
7. Defects/ deterioration such as damaged insulation or refractory lining, hot spots etc. identified during the thermographic survey shall be clearly marked at site and accurately mapped on sketches as per standard practice. The position & location of defect shall be traceable for further checking/ repair etc.
8. Any abnormality/ critical condition observed during thermographic survey shall be brought to the notice of the E-I-C immediately at the site itself.
9. Re-testing shall be carried out at any location for the purpose of confirmation, if so desires by BCPL, at no extra cost.
10. Method of reporting & format shall be finalized in consultation with the E-I-C. All documentation shall be done on A-3 or A-4 size paper.
11. A preliminary field report along with thermographs, outline/ development sketches for each static equipment and electrical panel indicating the location of inspection shall be submitted on daily basis to the E-I-C immediately after completion of site work. Rough sketches drawn during site work shall be neatly redrawn. No backlog shall be acceptable. Interim report shall be submitted upon completion of site work for approval of E-I-C. All reports shall be neat and legible.



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D. SUBMISSION OF BILLS & REPORTS:

1. The bills & final reports shall be submitted to the E-I-C within **15** days after completion of site work. The agency shall submit 3 sets of final report along with soft copies of the reports in CD format. If Contractor fails to submit the report within the stipulated time, a penalty @ **Rs. 1000/- per day** for the delayed period shall be imposed which shall not exceed the quarterly billed amount. The report shall consist of compilation of all survey data including coloured thermographs in appropriate format as per instructions of the E-I-C showing locations of inspection, readings, findings etc. accurately mapped on outline/ development drawings drawn in AutoCAD or equivalent software as per standard practice. Each report shall indicate acceptance standard, observation & test result. Report shall also include details of defects found (if any), their nature etc. All document shall be in English and clearly legible.

E. BCPL'S SCOPE OF SUPPLY

Owner shall provide to the agency following at free of charge and at convenient locations as per agencies requirement:

- a) Safe and adequate scaffolding, staging, illumination, insulation removal, manual or mechanical cleaning wherever necessary.
- b) Relevant technical data of equipment or piping shall be made available as and when required.
- c) Gate passes for Engineer & safety work permit.
- d) First aid facility may be used as required during job.