

- 6) Issue of tender document : From 25-01-2018 to 05-02-2018
- 7) Last date for submission of tender : On 10-02-2018 up to 14.00 hours.
- 8) Date of opening the sealed tenders : On 10-02-2018 at 14.30 hours.

9) Cost of tender document: Rs 500/- (Demand draft or banker's cheque payable at Hyderabad drawn in favor of "Pay & Accounts Officer, NFC")

Quotations are to be submitted strictly in the format enclosed. Tender and EMD shall be placed in two separate envelopes clearly indicating tender No. and each marked as TENDER & EMD respectively. Both the envelopes shall be submitted together in another sealed envelope super scribing Tender No. & Description of work along with due date and time of submission on the outer cover.

Your offers shall be deposited in tender box kept for the purpose at the office of Manager M(STP&TRTP), Nuclear Fuel Complex, ECIL Post, Hyderabad – 500062, **up to 14.00 hours on 10-02-2018.**

Tenders will be opened at Works Section, III floor, Aadhar Building, NFC. Late /delayed & tenders not accompanied by EMD shall not be considered.

Tender document issued to the contractor is non transferable.

Manager
Maint (STP & TRTP)
For & on behalf of the President of India

Note : NFC is committed to a corruption free work environment. "All the purchase and contracts commitments of NFC will honored without the citizen having to pay any bribe". "In case any person demands any bribe, it is the duty of a responsible citizen to inform the matter to the Vigilance Officer, NFC, Hyderabad". Telephone No. 040-27122181 & 040-27184314 (Office) and 040-27137012 (Residence). Email:vo@nfc.gov.in

Terms and Conditions of NIT No. : NFC/M-STP/(97)/NIT/2017/01

- 1) The contractor shall be completely responsible for the maintenance work. The contractor shall deploy sufficient and capable man power for execution of the works which involves **overhead jobs** and jobs in the **cellar** also. The requirement of manpower is as under
 - i. ITI qualified and experienced Fitters capable of doing overhauling and repair works.(4 + years experienced - skilled, 2 +years experienced- semi skilled)
 - ii. ITI qualified and experienced Electricians capable of doing maintenance and repair works of electrical machines, circuits and panels (4 + years experienced - skilled)
 - iii. ITI qualified Turner capable of operating lathe machine including NH26 & L 45 (4 + years experienced - skilled)
 - iv. Qualified and experienced welder capable of doing in-situ overhead pipe line repair work(3 G position qualified) and general fabrication and repair works. (4 + years experienced - skilled)
 - v. Mechanical supervisor shall be a Diploma holder in Mech Engg with four + years maintenance experience or an ITI holder with 10 + years maintenance experience capable of executing the maintenance and repair works as mentioned in the scope. And he shall fully be responsible for carrying out the works properly & safely.
 - vi. Electrical supervisor shall be a Diploma holder in Electrical Engg with four + years maintenance experience or an ITI holder with 10 + years maintenance experience capable of executing electrical maintenance and repair works as mentioned in the scope shall be deployed. And he shall fully be responsible for carrying out the works properly & safely.

Certificates with respect to experience and educational qualifications of the personnel and the supervisor shall be submitted along with the offer

The contractor shall authorize the supervisors for safe execution of the assigned jobs. Undertaking for the same shall be furnished by the contractor in writing.

- 2) Contractor will be completely responsible for the job and shall deploy qualified manpower along with required tools & tackles. He should have minimum three years experience in the similar works in govt./reputed organizations. The details of experience should be submitted along with the offer.
- 3) Tenders will be issued to eligible contractors provided they produce definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority of having satisfactorily completed similar works of magnitude specified below:

Criteria of eligibility for issue of tender documents

- | | | |
|-----|---------------------|-------------------------------------|
| 3.1 | One similar work | not less than 80% of estimated cost |
| 3.2 | Two similar works | not less than 60% of estimated cost |
| 3.3 | Three similar works | not less than 40% of estimated cost |

- 3.4 For the purpose of this clause similar work means fabrication, laying, erection, of services pipe lines with pedestal and other supports. List of works executed together with the certificate/testimonials (Like work orders issued with detailed

schedule of quantities and corresponding completion certificates.) from clients in support of the works executed of the like nature and magnitude during the past five years.

- 3.5 Contractor shall submit solvency certificate from any schedule bank of financial standing taken within one year and value not less than 40% of estimated cost unless otherwise indicated in the NIT.
 - 3.6 Contractor shall submit audited balance sheets indicating value of works carried out/in progress, loss/profit for last 5 years.
 - 3.7 Contractor shall submit technical establishment profile of the company with details like No. of technical people, workman and equipment/machinery etc., available with company.
 - 3.8 Contractor has to take appropriate ESI & EPF for the engaged labors.
 - 3.9 GST Registration certificate shall be submitted.
- 4) The contractor shall be responsible for supervision of work/people. He has to ensure safe working practices and use of necessary Personal Protective Equipments (PPE) which will be provided by him(contractor).
 - 5) Contractor has to follow safety rules and regulations stipulated by NFC.
 - 6) The Contractor must follow all Labor Laws such as Contractor (Regulation & Abolition Act), Minimum Wages, Payment of Wages Act, EPF & MP Act, ESI Act, Payment of Bonus Act, Employees Compensation Act etc.. NFC reserves right to ask Contractor to furnish proofs/documentary evidence for following above laws. Contractor have to follow and revise/update minimum wages of his employees as per the circular issued by Chief Labour Commissioner, Ministry of Labour & Employment, New Delhi from time to time during the period of contract i.e. 12 months. If Contractor needs any clarification regarding provisions in above laws, he/she may directly contact Welfare Officer, NFC, Hyd, for such clarifications. He may be contacted on 040-27183059 or wo@nfc.gov.in on any working day during office hours. Such clarifications shall be sought before quoting, ESI & EPF coverage shall be made compulsory for all the contract laborers engaged.
 - 7) The contractor shall also give an undertaking that he shall bear all the expenses towards medical treatment incase of any accident to his personal while working.
 - 8) The employees of the contractor are required to produce police verification certificate, medical certificates, height passes or any other documents as required by the security of NFC.
 - 9) No child labor (Below 18 Years old) should be engaged and wages are to be paid as per Minimum Wages Act. At the time of claiming payment, certificate to that effect is to be attached, duly approved by Officer-in-charge at NFC.
 - 10) Before quoting, the contractor may visit NFC for assessment of work with prior permission of Manager M(STP&TRTP). He may contact at 040 - 27184883 / 27183265/ 27184452/27183472. Email : dnr@nfc.gov.in, ambarish@nfc.gov.in/ssr@nfc.gov.in
 - 11) NFC reserves right to ask the contractor for replacement of any of their workman for any reason such as unruly behavior, lack of integrity or lack of workmanship. Further NFC reserve it's right to cancel the contract if the overall performance is not satisfactory even after replacement of few workman.

- 12) Contract labour are to be engaged in General Shift and in case of need will be continued in II shift for attending pending works.
- 13) The workers engaged by the contractor should wear uniform which is distinct from NFC uniform. Safety shoes and other PPE as required by the job are to be provided by the contractor for all the workers engaged by him and ensure its usage. The contractor has to ensure safe working practices and follow all safety rules and regulations stipulated by SED, NFC from time to time. The contractor shall also give an undertaking that he shall bear all the expenses towards medical treatment incase of any accident to his personal while working.
- 14) Wages are to be paid as per Minimum Wages Act, circulated by RLC (C) from time to time. Certificate from Officer-in-Charge at NFC regarding payment of minimum wages to the contract labour is to be enclosed along with the claim.
- 15) Earnest Money Deposit at the rate of 2% of estimated cost put to tender shall be submitted along with tender in the form of Fixed Deposit Receipt /crossed demand draft in favour of "Pay and Accounts Officer, NFC" payable at Hyderabad. Offers without EMD will be summarily rejected.
- 16) Valid Medical fitness certificate from at least an MBBS doctor for the workers engaged shall be submitted. He will also submit height passes or any other documents as required by NFC.
- 17) The quoted value shall be exclusive of ESI, EPF and inclusive of GST. The payment towards ESI, EPF will be released against submission of documentary evidence towards payment of ESI, EPF to the concerned authorities.
- 18) The contractor shall provide the registration details of Income Tax ESI, EPF, GST etc. while collecting tender document and copies of the same shall be submitted along with tender document.
- 19) Performance Guarantee @5% of Work Order value shall be submitted within 10 days from the date of issue of letter of acceptance or before the commencement of work which ever is earlier in the form of Fixed Deposit Receipt or Demand Draft or Bank Guarantee. (In case Bank Guarantee is furnished, it shall be valid up to 14 months plus claim period of 6 months) Extension of time for submission of Performance guarantee at the request of the contractor shall be charged @ 0.1% per day of performance guarantee amount. If the performance guarantee is not submitted within the extended time, the EMD submitted shall be forfeited.
- 20) In case of non-submission of Performance Guarantee within prescribed/extended time, the Earnest Money Deposit submitted will be forfeited.
- 21) Security Deposit @ 2.5% of the Work Order Value shall be recovered from Running Account bills. The Security Deposit amount recovered shall be released after Three (3) months from the date of completion of entire work, or after payment of final bill, whichever is later.
- 22) Income tax and GST as applicable at source shall be deducted from the payments made. Non-submission of PAN or incorrect PAN No. attracts Income tax @20% on the gross bill. Contractor shall furnish his PAN No. and bank details along with a photocopy of the same duly countersigned by him.

- 23) Payment for the work done by the contractor shall be made based on the work done by contractor which was accepted and measured by the Officer-in-charge, duly approved by Competent Authority. In this works contract, payment will be made bi-monthly for the works completed.
- 24) The offer should be kept valid for a period of three months from the date of opening of tender.
- 25) Incomplete and conditional tenders shall be rejected. However unconditional rebates are acceptable.
- 26) Contractors shall quote the rates both in words and figures.
- 27) In case there is variation between the rates in figures and words, the rate which corresponds to amount worked out by the contractor shall be taken as correct.
- 28) When the amount of an item is not worked out by the contractor, or if it does not correspond with the rates written either in figures or in words, then the rate quoted by the contractor in words shall be taken as correct.
- 29) When the rate quoted by the contractor, in figures and in words tallies, but the amount is not worked out correctly, the rate quoted by the contractor shall be taken as correct and not the amount.
- 30) Contractor shall sign each page of the tender document along with the Schedule of quantities & Rates.
- 31) In case the contractor fails to commence the work specified in the tender document within the prescribed time schedule, then the Government shall without prejudice to any other right or remedy be at liberty to forfeit whole Performance Guarantee absolutely.
- 32) The contractor shall ensure that labour deployed for the contract would confine themselves to their respective places of work and not indulge in activities that would be harmful to NFC.
- 33) NFC reserves right to accept or reject any quotation, either completely or partly, without giving any reasons.
- 34) If on acceptance of the tender, owing to the circumstances if the scope of the work remains altered, reduced or abandoned for any reason NFC shall give a notice in writing to that effect to the contractor who shall act accordingly. Also, if the workmanship is not satisfactory, the contract shall be cancelled. NFC reserves right to ask the contractor for replacement of any of their workman for any reason such as unruly behavior, lack of integrity or lack of workmanship.
- 35) If the contractor fails to execute the work completely, then the Government shall without prejudice to any other right or remedy be at liberty to forfeit whole Security Deposit and Performance Bank Guarantee absolutely.
- 36) If the L-1 bidder quoted much lower than the estimated cost, then a Bank guarantee for the differential cost may be obtained from the L-1 bidder as per CVC guide lines.
- 37) The detailed description of work given in Annexure I and II is in detail and quite extensive. But it is not explicit. Hence, the contractor is obliged to carry out any other minor work which is required to fulfill the objective of the work order without addition of cost.
- 38) The contractor shall submit duly filled in Form-C, which is enclosed along with tender.

Ref: No NFC/M-STP/(97)/2017/01

Date:

To
The Manager Maintenance (STP&TRTP)
Nuclear Fuel Complex, ECIL(PO)
Hyderabad -500 062

QUOTATION

Sub: Works contract for outsourcing of Preventive and Corrective Maintenance and minor repair works of STP & TRTP equipments

Ref: NFC/M-STP/(97)/NIT/2017/01 Dtd: -----

Dear Sir

In response to your notice inviting Tenders, we hereby submit our quotation for carrying out the following jobs

Electrical works

S. No	Description of item (Refer Annexure I for electrical works and II for mechanical works	Qty per year	Unit	Unit price (Rs) (in figures & words	Total Amount (Rs)
01	Preventive maintenance and repairs of the following				
a	PDBs	24	No		
b	Control circuits and MCCs	10	No		
c	Lighting DBs	24	No		
d	Switch Boards, metal clad sockets etc	300	No		
e	DC Motors (up to 10kW)	5	No		
f	DC Motors (10kW - 100kW)	6	No		
g	DC Motors (100kW- 860kW)	2	No		
h	Slip Ring motors (upto 10kW)	16	No		
i	Slip Ring motors (10kW-45kW)	10	No		
j	SC motors (Up to 20kW)	170	No		
k	SC motors (above 20kW)	07	No		
02	Cable Laying	400	Mtr		
03	Maintenance and repair of HPMV lamps	200	Nos		
04	Maintenance and repair of fluorescent lamps	320	Nos		
05	Maintenance and repair of fans and man coolers	150	Nos		
	Total amount for electrical works (Rs) [A]				
	Total amount for electrical works (Words)				

Mechanical works

Sl No	Description of item (Refer Annexure II for electrical works and IIA for mechanical works	Qty per year	Unit	Unit price (Rs) (in figures & words	Total Amount (Rs)
01	Cleaning, Overhauling and minor repair of belt grinding head units for tubes. Total no of machines = 6 Each machine to be attended once in 3 months) Total qty per year : $6 \times 4 = 24$	24	Nos		
02	Cleaning, overhauling and minor repair of Transfer trolleys. Total no of machines = 4 Each machine to be attended once in 2 months) Total qty per year : $4 \times 6 = 24$	24	Nos		
03	Cleaning, overhauling and minor repair of gear box units. 24 gear boxes each twice in a year Total no of gear box units = 24 Each unit to be attended twice in a year) Total qty per year : $24 \times 2 = 48$	48	Nos		
04	Preventive maintenance of CRTM 60-160 pilger mill Total no of machines = 1 The machine to be attended once in every month) Total qty per year : $1 \times 12 = 12$	12	Nos		
05	Preventive Maintenance of 150, 75 Pilger Mills. Total no of machines = 2 Each machine to be attended once in every month) Total qty per year : $2 \times 12 = 24$	24	Nos		
06	Preventive Maintenance of Cranes as per schedules given for: 10 Ton EOT cranes - 2 Nos 5 Ton EOT cranes - 4 Nos 2 Ton EOT cranes - 2 Nos 0.5 Ton Under slung cranes - 1 Nos Total no of cranes = 9 Each crane to be attended once in every month) Total qty per year : $9 \times 12 = 108$	108	Nos		
07	Cleaning, Overhauling and minor repair of Honing machines, gear boxes, lubrication and coolant system Total no of machines = 3 Each machine to be attended once in 3	12	Nos		

	months) Total qty per year : 3 x 4 = 12				
08	Cleaning, Overhauling and minor repair of hydraulic systems of Band/circular saw machines/Sand Blasting machines Total no of machines = 4 Each machine to be attended once in 2 months) Total qty per year : 4 x 6 = 24	24	Nos		
09	Cleaning, Overhauling and minor repair and reconditioning of coolant pumps for pilger mills Total no of pumps = 12 Each pump to be attended once in 6 months) Total qty per year : 12 x 2 = 24	24	Nos		
10	Cleaning, Overhauling and minor repair and reconditioning of gear boxes and hydraulic system of 3x3 roll straightening machine Total no of machines = 1 The machine to be attended once in every month) Total qty per year : 1 x 12 = 12	12	Nos		
11	Maintenance of overhead water lines, hydraulic and pneumatic lines which are in the scope of M-STP. Which may involve laying of new lines. The operations involved can be heating, bending, welding etc. (24 times in a year)	24	Nos		
12	Fabrication of brackets for electrical panels, tube light mounting brackets, building up of shafts by welding, fabrication of different frames for maintenance application, fabrication of shelves etc in needed etc.	140	Nos		
13	Turning jobs of various shafts and housings etc.	220	Nos		
14	Miscellaneous works: 1. Up keeping and recording of MSTP spares - 200 Nos 2. Photocopying the documents/drawings - 400 Nos 3. Arranging of the files/folders in order - 300 Nos 4. Cleaning of tables of M(STP&TRTP) - 300 Nos	1100	Nos		
	Total amount for Mechanical works (Rs) [B]				
	Total amount for Mechanical works (Words)				
	Grand total for Electrical & Mechanical Works (in figures)			[A+B]	
	Grand total amount for Electrical and Mechanical works (Words)				

Note: The price quoted shall be exclusive of ESI, EPF and inclusive of GST & other expenses.

SCOPE OF WORK for Electrical works

Tender No: NFC/M-STP/(97)/NIT/2017/01

Scope of Work : To carry out Preventive maintenance and minor repair works of LT PDBs, MCCs Lighting DBs, Switch boards and Metal clad Sockets. Preventive maintenance and repair works of AC motors & DC motors, complete overhauling of motors (as and when required), maintenance and repair of high bay lamps and tube lights, fans, man coolers. Cable laying and termination as and when required. Preventive maintenance schedules for all the works will be issued by the department. Detailed scope of work for each item is given below.

1(a) Preventive Maintenance and repairs of Power Distribution Boards

1. Ensure proper Isolation / shut down of Power Supply to PDB from OIC, NFC and take copy of electrical work permit.
2. Ensure the availability of suitably rated rubber mats in front of the panel for its full length.
3. Switch off the Incomer of PDB. Remove the fuses if the incomers are SFU and keep the fuses in self custody.
4. Ensure the availability of required tools for carrying out the work safely and systematically..
5. Check the mechanical operations of all SFU.
6. Check the interlocking of Rotary Operating Handle of all the SFU. Panel should not be open able while the SFU is in "ON" position.
7. Ground the bus bars to discharge any stored energy with properly insulated cable and remove the grounding after 10 seconds.
8. Clean the Panel.
9. Check the Bus Bars physical condition. Check the air gap of Bus Bars between Phases and Phases and ground. It should be minimum of 25 mm and 19 mm respectively.
10. Check all the Bus Bars Insulators for any physical damage or contamination.
11. Check and clean all the accessories physically.
12. Check the connections of the followings for any loose contacts, burnt terminals, integrity of insulation etc. Measure contact resistance with a micro-ohm-meter and ensure contact resistance of less than 15 micro-ohms.- SFU, fuses, bus bars, selector switches, meters, current transformers, indication lamps, connectors, other auxiliaries
13. Tighten all contacts/terminals.
14. Check and ensure correct rating of fuses are intact in position..
15. Check all the earthing terminals and continuity.
16. Check for proper glanding for all the incoming and outgoing cables
17. Remove the control fuses and measure the IR values, between phases, phases to neutral and ground. Minimum IR value of 20 M ohm should be ensured.
18. After completing all the above works ensure that no tools are left inside the panel.
19. Adjust the gaskets of each and every modules so the required degree of protection is ensured.
20. Keep incomer and all the out going SFU of PDB at "OFF" position and surrender the line clearance to OIC, NFC
21. Check the indication lamps and voltmeter for availability of 3 phase supply.
22. Switch on the incomer and the out goings of the PDB.
23. If any of the components need replacement, carryout the replacement of components and carryout repair and testing of the removed components in workshop.
24. During regular repair and breakdown maintenance of the PDBs, carryout the maintenance as required in coordination with the NFC electricians.

1(b) Preventive Maintenance and repairs of Motor Control Centre and control circuits

1(b-i)MCCs

1. Disconnect the Power supply of MCC from the PDB and ensure that the fuses are removed and kept in self custody.
2. Put a Danger Board indicating " MEN ON LINE"/" DON'T SWITCH ON" at the respective PDB outgoing.
3. Ensure the availability of suitably rated rubber mats in front of the panel for its full length.
4. Switch off the Incomer of MCC. Remove the fuses if the incomers are SFU and keep the fuses in self custody.
5. Carryout steps as indicated from point 5 to 16 at 1(a)
6. Check the setting of over load relays.
7. Check all the earthing terminals and continuity.
8. Carryout steps as indicated from point 17 to 19 at 1(a)
9. Keep incomer and all the out going of MCC in "OFF" and switch on the PDB outgoing.
10. Remove all the caution boards at respective PDB.
11. Check the indication lamps and voltmeter for availability of 3 phase supply.
12. Switch on the incomer and the out goings of the MCC under intimation to the NFC

1(b-ii)Control circuits

1. Disconnect the Power supply of MCC from the PDB and ensure that the fuses are removed and kept in self custody.
2. Put a Danger Board indicating " MEN ON LINE"/" DON'T SWITCH ON" at the respective PDB outgoing.
3. Ensure the availability of suitably rated rubber mats in front of the panel for its full length.
4. Carry out the preventive maintenance as per the checklist provided by OIC for the equipment.
5. After completion of the checklist as per the PPM checklist provided, switch on the equipment panel under intimation to NFC.

If any of the control circuits/ MCC panels require diagnosis of the fault, rectification or repair carryout the same as and when required to make the equipment available for carrying out the regular production. Also, testing of the removed components/ new components/ wiring in the panels is to be carried out as required in coordination with NFC personnel.

1(c)Preventive maintenance and repairs of Lighting DBs

1. Identify the PDB from where the incoming supply to the LDB panel is given.
2. Switch off the corresponding outgoing feeder of the PDB.
3. Remove fuses from the switch.
4. Check with series test lamp unit and ensure that the outgoing terminals are not live. Display "Danger 415V, DO NOT OPERATE MEN AT WORK" caution notice board at the corresponding outgoing switch of the PDB
5. Remove all the covers of the Lighting DB and carryout cleaning
6. Check all the bus bar connections, cable terminations for proper tightness.
7. Check for any overheating of the cable and rectify the same.
8. Check all the handles of Lighting DB for proper position with marking. rectify the same if required.
9. Remove all unwanted material screws ,washers from the panel.
10. Check for any unwanted holes exists in the panel. Close them properly to avoid rats and lizards entering.

11. Check for proper labeling of incoming and all outgoing feeders. Label properly as and where required.
12. Fix all the covers for Lighting DB properly . See that all the screws are fixed properly, ensure all material, tools removed from the panel.
13. Switch on the power supply. switch on all the feeders which were on before maintenance work is started.
14. Carryout the repairs of the lighting DBs including changing MCBs, cables, rectification for any loose contacts, overheated terminals, etc as and when required in coordination with NFC personnel. Also testing of the removed components, new switchgear and wiring in the DBs is to be carried out as and when required.

1(d) Preventive maintenance and minor repairs of switches and metal clad sockets.

1. Identify the LDB/ PDB from where the incoming to the switch/socket is given. Switch off the supply, remove fuses from the LDB/PDB.
2. Display 'DO NOT OPERATE MEN AT WORK" board at the PDB/LDB.
3. Blow out the dust on the switch and socket using blower.
4. Remove the switch board covers
5. Ensure zero voltage at the incoming terminals with series test lamp unit.
6. Check the cables/wires and switches for any loose connections.
7. Make a note of the abnormalities and rectify the same.
8. Replace the switches, sockets, plug tops, MCBs etc if found damaged.
9. Check the cable gland for proper fixing.
10. Check for the proper earthing of the switch board.
11. Provide double earthing.
12. Restore the supply to the switch/ socket.
13. Carryout out fault diagnosis and repairs during the works other than during preventive maintenance in coordination with NFC personnel.

1 (e to k) Preventive Maintenance and repairs of Motors

1. Disconnect/Isolate Power supply of motors from MCC .Remove fuses and keep the fuses in self custody.
2. If MCCB is used in MCC , Switch "OFF" the MCCB and if locking provision is available, lock it.
3. If locking provision is not available in case of MCCB, isolate the control circuit.
4. Put a Danger Board indicating "MEN ON LINE"," DON'T SWITCH ON" at SFU/ MCCB operating handle of MCC.
5. Remove the belts, pulley etc and decouple the load if required.
6. Clean the motor body and fan cover.
7. Check the earthing terminals and continuity.
8. Check the terminal block , clean it and tighten all the terminals.
9. In case of slip ring motors check the condition of slip rings, brushes clean then properly.
10. In case of DC motors check the condition of the commutator for clean surface properly. Check the carbon brushes for proper tensioning.
11. Measure IR value of Winding to Body and record it. Measure WR (Winding Resistance) value and Record it.
12. If IR value is less than 1M_, then drying is required.
13. Observe the bearing sound by rotating the shaft by hand. Check for the shaft balance by rotating it and noting down its final rest position.
14. If bearing sound is not smooth, greasing may be required. Replacement may be required in extreme case after taking clearance from supervisor/officer.

15. Remove the motor from foundation with the help of proper lifting arrangements.
16. Before replacement of bearings , dismantle the rotor properly. For handling the rotor chain pulley block or zip crane is to be used as per the site condition.
17. After removing of rotor, cover the stator properly with a clean polythene sheet.
18. If drying is required , dismantle the fan, rotor etc . properly and dry the motor using a hot air blower.
19. Motor should be dried till insulation resistance rises above 1M ohm.
20. After drying , air drying insulating varnish should be applied on the winding surface when motor is in hot condition.
21. After that assemble the rotor, fans etc. whatever removed.
22. If bearing replacement required , follow below mentioned procedure : -
 - (i) Remove the bearing with proper bearing puller
 - (ii) Clean the shaft .
 - (iii) Clean bearing housing.
 - (iv) Examine the bearing housing for any signs of wear, Repair or Repair the housing if necessary.
 - (v) Assemble the bearings.
 - (vi) If bearing is sealed one greasing is not required.
 - (vii) Assemble the dismantled parts of motor.
 - (viii) Rotate the shaft by hand and observe the smoothness of bearings.
23. After above works install the motor.
24. After proper installation of motor, connect the earthing. Connect the motor terminals properly.
25. Ensure the gasket of the terminal covers in place.
26. Switch ON the motor at no load and check the direction of motor rotation.
27. If motor direction is not OK, interchange the phase and run the motor.
28. Record the no load current.
29. After above work inform NFC for arrangement of proper alignment of motor with load part (i.e. Fan or Pump) whichever applicable.
30. If any of the motors need replacement during faults to cater the urgent requirement, carryout routine testing out of the new motors before installation to the unit.

2. Cable Laying

1. Cables of 1.1kV grade of various sizes are to laid in the shop floor during installation of new equipments/ rectification and repairs of equipments/ revamping of equipments.
2. Cables have to laid on ground/ in trenches or overhead as per the requirement.

3. Fluorescent lamp maintenance

1. Identify the MCB from which the supply to the lamp fitting is fed.
2. Check if the starter, choke and lamp are functioning properly.
3. Carryout the repair and rectification of the fitting, connecting cables as required.
4. Replace the lamp/ fitting if necessary.
5. Ensure working of the fitting and lamp.
6. Carryout the repair of the removed fitting at the workshop

4. HPMV lamp maintenance

1. Inform the OIC for sparing the EOT crane and authorized crane operator.
2. Wear all the PPEs- helmets when climbing on to the crane platform and on to the crane.

3. Ensure only authorized crane operator is operating the crane.
4. Mount the ladder on to the CT girder. Secure the ladder.
5. Identify the LDB from which supply is being fed to the lamp. Isolate lighting power supply by switching off the MCB of the corresponding row and also incomer MCB.
6. Ensure the ladder is below the fitting for which maintenance is to be carried out.
7. Wear full body harness safety belt and secure it properly.
8. Carry out maintenance in the fitting and in junction box. In case of replacement of fitting/ lamps, ensure proper storage
9. Untie the safety belt, step down from the ladder on to the CT girder and switch on the power supply. Ensure working of the lamp and fitting.
10. Remove all the fittings and lamps after maintenance from the crane and store them at their designated places.
11. Carryout testing of the removed fitting after maintenance in the work shop and store at identified locations.

Common points for all the above works.

- a. Material movement
- b. Segregation of material

Note: All parts/ switchgear/cables will be provided by NFC and the supplier shall return the faulty parts/ switchgear.

(S. Srinivasula Reddy)
Manager, M(STP &TRTP)
For & On behalf of the President of
India

SCOPE OF WORK for Mechanical works

Tender No. : NFC/M-STP/(97)/NIT/2017/01

Detailed Description of Work : It is required to carry out cleaning, overhauling, minor repair works & preventive maintenance for 3 No. Pilger Mills, 09 No. Cranes, 2 No. of multi-station heavy duty wet belt grinding machines, 4 No belt grinding machines, 2 No. of ID polishing machines for grinding and polishing of zircaloy pressure tubes, Calandria tubes and fuel blanks special tubes/products at STP inside NFC, as per the schedule provided by us. Typical works to be carried out are listed below.

I) List of works :

- a) Complete cleaning and dismantling of sub-assemblies from the machine.
- b) Replacement of oil, grease, seals and other consumables(hardware items).
- c) Mounting of respective reconditioned/spare sub-assemblies on the machine.
- d) Checking of alignment and trial runs.
- e) Shifting of dismantled sub-assemblies to the maintenance area.
- f) Cleaning and dismantling of parts using proper tools.
- g) Inspection of parts for any damage/wear-out.
- h) Minor repair/ duplication of damaged parts, if required after consulting our Engineers.
 1. Fabrication/machining of the parts using existing lathe/drilling machine located in Maintenance Machine Shop including operation of L45 lathe.
 2. Welding of parts/ assemblies of machines/EOT cranes etc as listed above, weld repair of overhead pipe lines located inside the plants using existing welding machine..
- i) Replacement of damaged/wear-out parts with spares.
- j) Assembly and lubrication of all moving parts.
- k) Repeat the procedure as per schedule given by our Engineers.
- l) The workman who is engaged as office boy shall carry out the office related works such as Dispatch of documents/office papers, Photocopying of documents. up keeping of files and office stationery and any office related works.

Note :

1. Before commencement of work, all contract workmen will be trained in various aspects of safety and procedures to be followed for safe handling of zircaloy powder.
2. The contractor should engage his technicians for any other work other than the above mentioned works, but required to fulfill the objective of the work order.

(S. Srinivasula Reddy)
Manager, M(STP &TRTP)
For & On behalf of the President of
India