

## **SAFETY MEASURES ADOPTED BY NLCIL**

Safety measures adopted by the organisation, procedures/guidelines laid down for procurement of critical and safety equipments like Transformer / Reactor / Explosion and the prevention etc.

1. NLC India Limited is taking pioneering efforts in Industrial Safety area.
  - Safety related training and retraining and job related briefings are imparted to all sections of employees.
  - Safety policy is updated and followed. Safety forms an integral part of all activities.
  - Safety awareness is created through probaganda, display of safety pictures, safety caution boards, sign boards, slogan boards, etc.
  - Risk assessment and Safety Audit conducted at regular periodicity by engaging external agency and the recommendations implemented and thereby safety status is improved towards achieving 'Zero' harm at Unit level.
  - Required Personal Protective Equipments are issued to employees.
  - Mock drills are conducted to create awareness among employees.
  - Safety promotional activities like Safety Week Celebrations, Road Safety Week, Fire Week and National Safety Day (In Thermal Units) are observed and conducted every year.
  - Standard Operating procedure and Code of Practices along with Work permit system are followed.
  - Safety Committee inspection and meeting are conducted at regular periodicity.
  - Regular inspection by experienced Supervisors / Engineers is carried out.
  
2. Critical equipment like transformer is purchased based on well established standards and purchase procedures.
  
3. Safety equipment is procured exercising utmost care so as to ensure their quality & reliability. Equipment with detailed technical specifications conforming to Indian Standards / International Standards is purchased by floating tenders as per approved purchase manual.

**PROCEDURE / GUIDELINES FOLLOWED BY NLCI LTD. FOR PROCURING CRITICAL AND SAFETY EQUIPMENTS LIKE TRANSFORMER**

- i) Technical specification and drawings are framed for the materials to be procured by the Technical section.
- ii) Budgetary offers are sought from the vendors. Estimate is prepared based on the lowest budgetary offer.
- iii) Pre-qualification requirement is set and approval obtained for procurement and PQR.
- iv) Indents are raised through ONLINE with test certificate, inspection, contract and material performance guaranty clauses.
- v) Indent is processed by the purchase section after approval.
- vi) Mode of enquiry is by floating Limited Tender, Press Tender & Global Tender enquiries based on the estimate value of the material.
- vii) Make in India and MSME guidelines of Govt. of India are complied in all the procurements by the purchase sections.
- viii) Materials are procured through ONLINE e-procurement and bidders are submitting their bids through ONLINE portal.
- ix) Bids with undertaking letter for accepting NLCIL conditions and submitting proper bids are only considered for evaluation.
- x) Reverse action (RA) is conducted among the bidders through ONLINE and lowest offer in the reverse bid is selected for further evaluation.
- xi) Pre-qualification of the lowest bidder is evaluated and if qualified, Technical specification is evaluated. If the bidder is qualified in both PQ and Technical evaluations, Purchase Order will be placed. Otherwise second lowest bidder is considered for evaluation.
- xii) Inspections are carried out by the NLCIL / Third party during the process of manufacturing / after the completion of the manufacturing for complying of technical specification and testing as per PO conditions.
- xiii) Type and Routine Test certificates submitted by the firm are scrutinized & evaluated as per Standards. Testing shall be done by the firm if they are ISO certified / NABL Accredited, otherwise testing shall be conducted in NABL Accredited labs.
- xiv) Materials received are checked and report given by conducting required testing at site.

- xv) The supplied material is subjected to a warranty clause of 12 / 18 months from the date of commissioning / receipt of materials.

**The details of power transformers available in Mines:**

Sl. No.	Location	Voltage Ratio (KV / KV)	Rating (MVA)	Qty. (Nos.)
1	Mine-I	33 / 11.55	20	2
		230 / 11.55	30	6
2	Mine-IA	33 / 11.55	20	4
3	Mine-II	230 / 11.55	30	8
		230 / 11.55	25	4

**SAFETY MEASURES ADOPTED FOR POWER TRANSFORMERS:**

**I. Electrical Protection System:**

1. Earth Fault Protection.
2. Over Current Protection.
3. Instantaneous Over Current Protection.
4. Restricted Earth Fault Protection.
5. Master Relay.
6. Over Fluxing Protection.
7. Differential Protection.
8. Trip circuit supervision.
9. Non-directional (IDMT) over current relay.
10. Auxiliary relay for DC supply supervision
11. Buchholz Relay Protection.
12. Pressure Relief Valve Protection.
13. Winding Temperature Protection.
14. Oil Temperature Protection.
15. NGR Protection.
16. Earth switch
17. Lightning Arresters
18. Surge Arrester

## **II. General Protection**

1. Emergency Oil Drainage System.
2. Transformer Aside Concrete (BLAST) / Baffle wall system.
3. Emulsifier (Water) protection system.
4. CO<sub>2</sub> and Dry Choke Powder Fire Extinguisher.
5. Breakers & Isolators interlock.
6. Remote Operating System (ON/OFF) for Breakers and Isolator
7. Sand Bucket.
8. Rubber mat.
9. Hand gloves.
10. Earth Rod.

### **DETAILS OF REVENUE & CAPITAL LOSS DUE TO THE FIRE / FAILURE / CRACKS IN MAIN TANK AND TRANSFORMER:**

The failed transformers served its useful life of more than 20 years and reached their residual value and hence no capital loss. These failed transformers were survey reported and disposed through e-auction and earned revenue of Rs. 59.77 Lakhs.

# **Safety measures for transformer / reactor**

## **Mechanical Protection:**

1. Buchholz / Gas relay
2. Pressure relief valve (PRV) for large transformer
3. Explosion vent for small size transformer
4. Fire protection system (Emulsifier System)
5. Underground tank for collecting spill over oil
6. Enclosing the yard with fencing
7. Providing Danger Sign Board

## **Electrical Protection**

1. Differential protection relay for large transformer
2. Stand by earth fault relay for large transformer
3. Over Current relay
4. Restricted earth fault relay
5. Grounding of neutral through treated earth pit
6. Earthing of equipment body and nearby steel structures through earth rod.

## **Safety Checks (Weekly basis)**

1. Cleaning of yard from inflammable materials
2. Dewatering of underground tank
3. Check for any oil leaks / spill
4. Watering of earth pit
5. Healthiness of fire protection system

## **Safety Checks (Annual basis)**

1. Healthiness of Mechanical Protection
2. Healthiness of Electrical Protection

**COMPENSATION AND BENEFITS TO WORKERS**  
**ON REGULAR ROLLS OF NLCIL**

**I. STATUTORY BENEFITS:**

- a) In case of fatal and non fatal accident, the workmen working in the factories covered under ESI Act 1948 are eligible for compensation benefit under ESIC Scheme (Family pension, Dependent Benefits as per eligibility) and those workers falling outside the purview of ESI Act, 1948 and those who are employed in Mines are covered by the provisions on compensation as provided in the Employee Compensation Act, 1923.
- b) In case of fatal accident, the workmen are eligible for the compensation benefit of Rs.6,02,000/- lakh through Employee Deposit Linked Insurance (EDLI) under Employees Provident Fund and Pension under Employees Pension Scheme, 1995. (Rs.6.0 lakh as per rule + Rs.2,000/- additionally provided by NLC India Limited.)
- c) Gratuity (for full term) as per Gratuity Act, 1972

**II. NON-STATUTORY BENEFITS:**

- a) Family Relief to the dependents of deceased employees at the rate mentioned below:
  - i. *Rs.8500/- per month to the dependent in case of death of an employee in an accident arising out of and in the course of employment.*
  - ii. *Rs.6750/- per month to the dependent in case of death of an employee due to natural cause.*
  - iii. *Employment in NLC is provided to the dependant of employee who dies in industrial accidents arising out of and in the course of employment.*
- b) Sanction of special disability leave with full wages to all employees during the period of temporary disablement on account of accident arising out of employment.
- c) In the event of death of the workmen on the rolls of NLC India Limited an amount not exceeding Rs.50/-per month shall be recovered from the salaries of other live workmen and an equal matching contribution of the total amount thus

collected subject to maximum of Rs.50/-per month for each workmen shall be made by the company as "Death Relief Fund". (for eg. If total employee is 14000 at Rs.100, it works out to Rs.14,00,000/-)

- d) Group Personal Accident Insurance Scheme, which covers all the unionized category of workmen/Non-Executives in case of any type of accident resulting in fatality, the amount ranging from Rs.3,00,000/- to Rs.6,00,000/- and in case of Executives ranging from Rs.7,00,000/- to Rs.18,00,000/-.
- e) Funeral expenses of Rs.5000/-.

## **COMPENSATION AND BENEFITS TO CONTRACT WORKERS**

### **WORKING WITH VARIOUS CONTRACTOR EMPLOYERS**

#### **I. STATUTORY BENEFITS:**

- a) In case of fatal and non fatal accident, the contract workmen working in the factories covered under ESI Act 1948 are eligible for compensation benefit under ESIC Scheme (Family pension, Dependent Benefits as per eligibility) and those workers falling outside the purview of ESI Act, 1948 and those who are employed in Mines are covered by the provisions on compensation as provided in the Employee Compensation Act, 1923.
- b) In case of fatal accident, the workmen are eligible for the compensation benefit of **Rs.6,00,000/-** lakhs through Employee Deposit Linked Insurance (EDLI) under Employees Provident Fund and Pension under Employees Pension Scheme, 1995.(Rs.6 lakhs as per rule + Rs.2,000/- additionally provided by NLC India Limited.)
- c) Funeral expenses **Rs.10,000/-** through ESIC, whoever covered under ESI Act 1948.

#### **II. NON-STATUTORY BENEFITS:**

- a) The contract workmen engaged by the Contractor Employer who are executing the work in NLC India Limited, in addition, a group contributory scheme called "Contract Workmen Death Relief Fund" with a matching contribution from the Contract Workmen, Contractors and NLC India Limited as a Principal Employer covering compensation connected to fatal accidents covering Industrial Accident and Death due to natural ailment while on duty and the benefits as given below:

- i. Contract workmen who die in industrial accident, the dependent of the deceased contract workmen will be paid a solatium of **Rs.5 Lakhs** apart from other statutory benefits.*
  - ii. Contract workmen who die in natural cause/ailment during th course of employment, the dependent of the deceased contract workmen will be paid a solatium of **Rs.10 lakhs**.*
- b) NLC management is reimbursing the premium paid towards “Insurance Coverage @ of Rs.113/- per contract workmen to the Contractors for the Insurance Policy taken to cover the accident benefit arising out of employment while on work. In the event of death the insurance coverage is for an amount of Rs. One Lakh and hospitalization expenses eligible up to Rs.25,000/-
- c) Regular employment or Family Relief of Rs.5100/- per month is paid to the eligible dependants of the deceased Contract workmen who have lost their life arising out and in the course of industrial accident in addition to the statutory workmen compensation.
- d) If a contract workman met with an Industrial Accident, he is being referred to PIMS, Puducherry for specialized treatment, if required.

### **COMPENSATION AND BENEFITS TO OUTSIDERS (GENERAL PUBLIC) AFFECTED BY SUCH ACCIDENTS**

NLC India Limited does not operate specific scheme for liability with regards to accidents involving public. NLC India has no previous history of such accident also.