

NTPC	LMI	LARA
TITLE	SYSTEM FOR PLANT MODIFICATIONS	
REF. NO.	LMI 01-R0/MTP/OD/GEN/006	

**LARA SUPER THERMAL POWER PROJECT
LOCAL MANAGEMENT INSTRUCTION**

LMI 01-R0/MTP/OD/GEN/006

***System for plant
modifications***



All locations are required to comply with this Directive

Approved for Implementation by
HOP(LARA)

Date: 11/01/2018

Enquiries to: AGM(MTP)

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SYSTEM FOR PLANT MODIFICATIONS

1.0 INTRODUCTION

This Directive specifies the requirements for the registration and technical assessment of all proposed modifications of significance in Plant/ Equipment at the Power Station.

2.0 SCOPE

- 2.1** This Directive shall be applicable to all modifications (or design change) to Plant / Equipment / Systems / Components of existing Power Stations after the date of issue of this Directive. For modifications made prior to issue of this revision, procedure described at clause no 5.7 is to be followed.
- 2.2** In the case of Power Stations set up after the date of issue of this Directive, the Directive shall apply from the date the PG Test is conducted or date of completion of warranty of the Contractor, whichever is later.
- 2.3** The Directive shall not be applicable to modifications/ design change to be carried out under contractual obligations of the Contractor under the contract irrespective of the period when such modification is carried out. However, in such cases, where modification is necessarily to be carried out by NTPC before expiry of the warranty period or before PG Test, whichever is later, written consent of the contractor to such proposed modification should be obtained before carrying out the Modification. In all such cases, an approval from Engineering shall be taken, which shall be routed through Regional OS (ROS) and Corporate OS (COS).
- 2.4** The reference design or datum for each Plant / Equipment/ System /

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Component of the Power Station shall be as per the last document approved by Engineering or the original design drawings.

2.5 The Directive shall not be applicable to 'defects' or 'repairs' which require equipment to be reinstated to the original condition.

2.6 For the purpose of this Directive, System or Component shall also include Load Bearing Structures.

3.0 REFERENCE DOCUMENT

OD/OPS/SYST/014 Rev. No.: 1 Date: June 2007

4.0 SUPERSEDED DOCUMENTS

Nil

5.0 PROCESS

5.1 DEFINITION

5.1.1 For the purpose of this Directive, the term modification or design change shall have the following meaning or interpretation:-

5.1.1.1 'Modification' shall include

- i) A repair or replacement of a system/ equipment/ component where it involves a change to its reference design or datum, geometry or materials.
- ii) Any change to the settings, or mode of operations, of a component in a control, interlock or protection system (including computer software).
- iii) Any addition or deletion of a system, component, or of a complete system or complete equipment.

5.1.1.2 The following shall not be construed as modifications for the purpose of this directive:

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- i) The repair/ replacement/ modification of minor components or equipment as may be specified by the Head of the Station in the Location Management Instruction issued for implementation of this Directive. However, details of these shall be intimated to COS.
- ii) The overriding of any interlock (Protection by pass) or any change to the settings, or mode of operation, of any component in a control, interlock or protection system (including computer software), which is authorized, implemented and recorded in accordance with a Location Management Instruction, provided that no such override or change remains in place for a period exceeding 72 hrs. If it is to exceed 72 hrs, it will be treated a modification and will require registration and assessment in accordance with this Directive.

5.2 NEED FOR MODIFICATION

The need for modification or design change may arise from:

- Recommendations of an enquiry report/ ROPR/ ORT/ Audits.
- Proven best practice elsewhere in the utilities known globally.
- Improvement in efficiency / commercial parameters.
- Statutory / Legal requirements
- Feedback from major failures / trip analysis.
- Constraints faced during Plant Operation.

5.3 PROPOSAL

5.3.1 In order to keep record of all modifications or design change to Plant / Equipment / Systems / Components, all proposals for modifications shall be registered with the Station MTP department. Further, to ascertain the suitability of the modifications, all proposals will be assessed technically as per the system laid down hereunder:

5.3.2 A format for Registration of all proposals for modification or design change is given at Annexure I (Modification Registration Performa / Design change Request).

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5.3.3 The proposal for modification / design change may be initiated by concerned department at station/ ROS / COS / Engg. / R&D/ Others, and sent to GM (O&M) of the station for formal initiation. The proposal shall give sufficient details of modification i.e name of the Plant / Equipment / Component / System, its Location, Name of the Supplier / Manufacturer, reasons for modification, approving authority etc. The details of modification shall be maintained by the Head of MTP department of the Power Station in the Performa (request for design change) given at Annexure – 1. A flow diagram showing the process of the system for plant modification / design change has been given in Annexure –II.

5.4 CATEGORIZATION OF MODIFICATIONS

The category of technical assessment required i.e. internal or external to the station, shall be approved by ED (Region) based on the note giving details of modifications received from the Head of Power station.

5.4.1 For the purpose of this Directive, technical assessment of proposals shall be of two types i.e. Category A (requiring external assessment) and Category B (requiring internal assessment).

5.4.2 Category A assessment shall be required in case of all proposals which, if inadequately conceived or executed, could lead to the following:

- A major safety / environmental implication.
- A major plant failure (Boiler, Turbine, Generator, Transformer, Cooling Water System, Ash Disposal System, Coal handling Plant, Switch yard)

Category A assessment shall also be required in case of

- Any change in the protection scheme for main equipment i.e. Boiler, Turbine, and Generator.
- Modifications related to improvement of efficiency/commercial parameters of major equipments.

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5.4.3 Category 'A' assessment may not be required:

- i) If repair/replacement of any System or Component or Equipment is carried out without changing the original design or datum and using NTPC approved procedures relevant to such repair.
- ii) If replacement of any system or component or equipment is being done due to age or obsolescence by a modern equivalent with no change in original design or datum, materials or operating environment.

5.5 CATEGORY 'A' ASSESSMENT

The proposals for modification of all Category 'A' proposals as defined above shall be submitted for technical approval to Engineering by the Power Station through ROS & COS. Engineering may seek the comments from other departments of Corp. Centre e.g. R&D, Safety, CENPEEP etc. The technical approval from engineering will be sent to the Station with a copy to COS and ROS. Thereafter, the proposal would be submitted for approval of Competent Authority by Power Station as per DOP. If required, detailed engineering will be done by engineering and sent to the station for implementation of the modification under intimation to COS and ROS.

5.6 CATEGORY 'B' ASSESSMENT

The proposals which do not qualify for category A assessment shall be categorized as Category B. The proposals involving category B assessment shall be scrutinized and assessed by a team comprising representative of O&M, FQA and Technical Services Departments at the Station in consultation with Corp. OS & Engg. and approved in accordance with DOP if any costs are involved. After the modification has been done a post facto approval will be sought by the station in charge from Engineering detailing the requirement for the modification, implementation status etc. Any recommendations from engineering shall be implemented by the Station.

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5.7 MODIFICATION MADE PRIOR TO THIS DIRECTIVE.

The station shall compile all the modification with relevant details made prior to the issue of this document. For all the modifications which have not been vetted or approved by Engineering, the station will be required to intimate the same to Engineering through ROS and COS along with the relevant details, pre and post modification assessment and amendment to documents and drawings where ever applicable. Any recommendations from engineering shall be implemented by the Station.

5.8 IMPLEMENTATION OF THE DIRECTIVE

Each Head of Power Station is responsible for ensuring that the Directive is implemented at the Power Station by issue of a Location Management Instruction.

5.9 AMENDMENT OF STATION DOCUMENTATION

All relevant as built drawings, operation and maintenance instructions, details in the stores catalogue and other requirements for modified Equipment/ System / Component will be amended before the first modified system or component is commissioned. The amended documentation / as built drawings must be approved by the same authority that initially approved the documentation / drawing. The master List of documents and drawings must accordingly be revised. The issue of these modified documents as above shall be controlled and the old version are stamped as superseded. Where the modification is to be progressive, covering various areas of the Power Station, then care must be taken to clearly identify the system or component or equipment to which the amended documentation applies. The necessary records will be updated in Modification Register Performa.

5.10 EXECUTION OF THE PLANT MODIFICATION

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After the receipt of the detailed Engineering from Corp. Centre, MTP will find out if any procurement is required or not. If any procurement is required than concerned maintenance department will initiate the procurement. After receipt of the material it will execute the modification with relevant quality checks by FQA. Commissioning will be done by Operation. Reports, as required, will be generated and given to MTP for consolidation.

5.11 POST MODIFICATION ASSESSMENT

5.11.1 After the system or component has been commissioned, an assessment shall be carried out by Head of O&M at the Power Station to determine

- that the modification has been implemented in accordance with the approval
- the resulting change in performance as compared to that proposed originally
- that the integrity of the plant safety has not been impaired.

5.11.2 Where appropriate, this assessment shall include such tests and trials specified in the approval.

5.11.3 A report shall be generated by the Head of O&M of the Station stating the improvement after the modification with respect to pre-modification status and shall be sent to Head of Corporate OS and Regional OS. Final acceptance of the modification shall be given by COS in association with Engineering. In case of non-acceptance of the modification necessary analysis shall be done by MTP along with the concerned department(s). Either corrective action is taken and post modification assessment carried out; or pre-modification status is restored. Site may also initiate a fresh proposal for modification.

5.11.4 The Modification Register Performa will now be updated completely and shall be circulated to all concerned including Corp. OS.

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5.12 COMPLIANCE OF DIRECTIVE

The compliance of this Directive shall be verified during the course of Internal and External LMI Audits and Technical Audit of the Station by Corporate OS.

5.13 RECORDS

The following records shall be maintained by MTP department at the station.

- Records of modifications as per Modification Registration proforma.
- Records of approval of modification.
- Reports of Post Modification Assessment.

6.0 REVIEW

The Head of MTP will be responsible for reviewing this document on a 3-yearly basis or as necessary.

7.0 DOCUMENT FOR DISTRIBUTION TO :

S.no	Date of Issue	Issued to
1.		All HOD's
2.		GM-Maintenance
3.		GM- Chem. & Env
4.		GM- Fuel management
5.		GM- O&M
6.		HOP- Lara

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ANNEXURE - 1

MODIFICATION REGISTER PROFORMA / DESIGN CHANGE REQUEST

MODIFICATION REGISTER	Serial No.:
For Plant, Apparatus and Structure	Date Proposed:

1. PROPOSED FOR MODIFICATION AT POWER STATION

Station Code:		Purpose of Modification (State justification)
Component / System:		
Manufacturer :		
Details of Proposal (including time schedule): a) Whether the modification suggested is for phasing out an obsolete item, if so, details. b) Whether the modification suggested is for indigenisation, if so, details.		Effect on interchangeability
Any identified safety hazard / Environment impact on account of the Plant Modifications		
Requirement for amending documents	Yes	No
Pre-modification Condition (e.g. Operational Performance, Emissions, Plant Life. etc.):		
Approval of Head of O&M	Date:	
Approval Head of Power Station	Date:	
2. REVIEW BY ED (REGION) & CATEGORIZATION		
Category of modification as per note ref. no. received from ROS		Date

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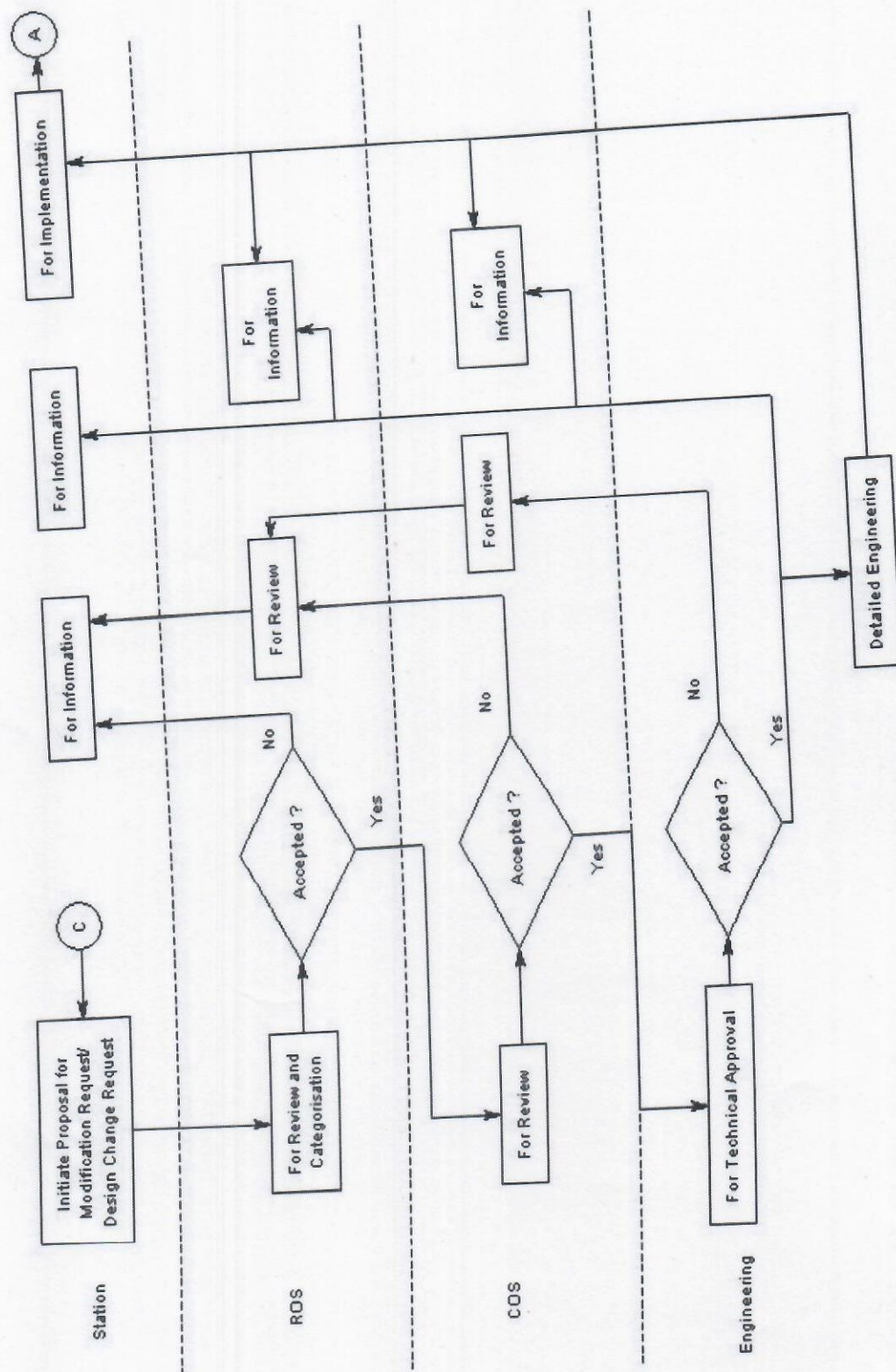
3. APPROVALS		
Final approval from Engineering	Note Ref.	Date:
i) Not Approved	Note Ref. etc.	Date:
4. IMPLEMENTATION		
(After work has been completed, record the means by which modification has been achieved. State Contract Number, etc.)		Signature: Concerned Dept. I/C Date:
5. COMMISSIONING		
Confirm that commissioning has been done as per procedure and the relevant protocol; has been filled up.		Signature: Operation Dept. I/C Date:
6. AMENDMENTS TO DOCUMENTATION		
Confirm the completion of amendments to operating/maintenance Instructions, station manuals, plant status records, stores records, drawings, training programmes, etc.		Signature: Concerned Dept. I/C Date:
7. POST MODIFICATION DATA		
Date of modification		
Confirm completion of commissioning and state the condition after modification compared to the original data recorded in Section 1	Relevant Report Ref. etc	
8. CIRCULATION		
TO	DATE	SIGNATURE
Note:		
1. This Directive applies only to modifications; it does not apply to 'defects' or repairs which require equipment to be reinstated to the original condition.		
2. Section 2 'Categorization'-The selection of Assessment Category is the responsibility of the ED (Region)		

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Annexure - II

FLOW DIAGRAM FOR PROCESS OF MODIFICATION / DESIGN CHANGE

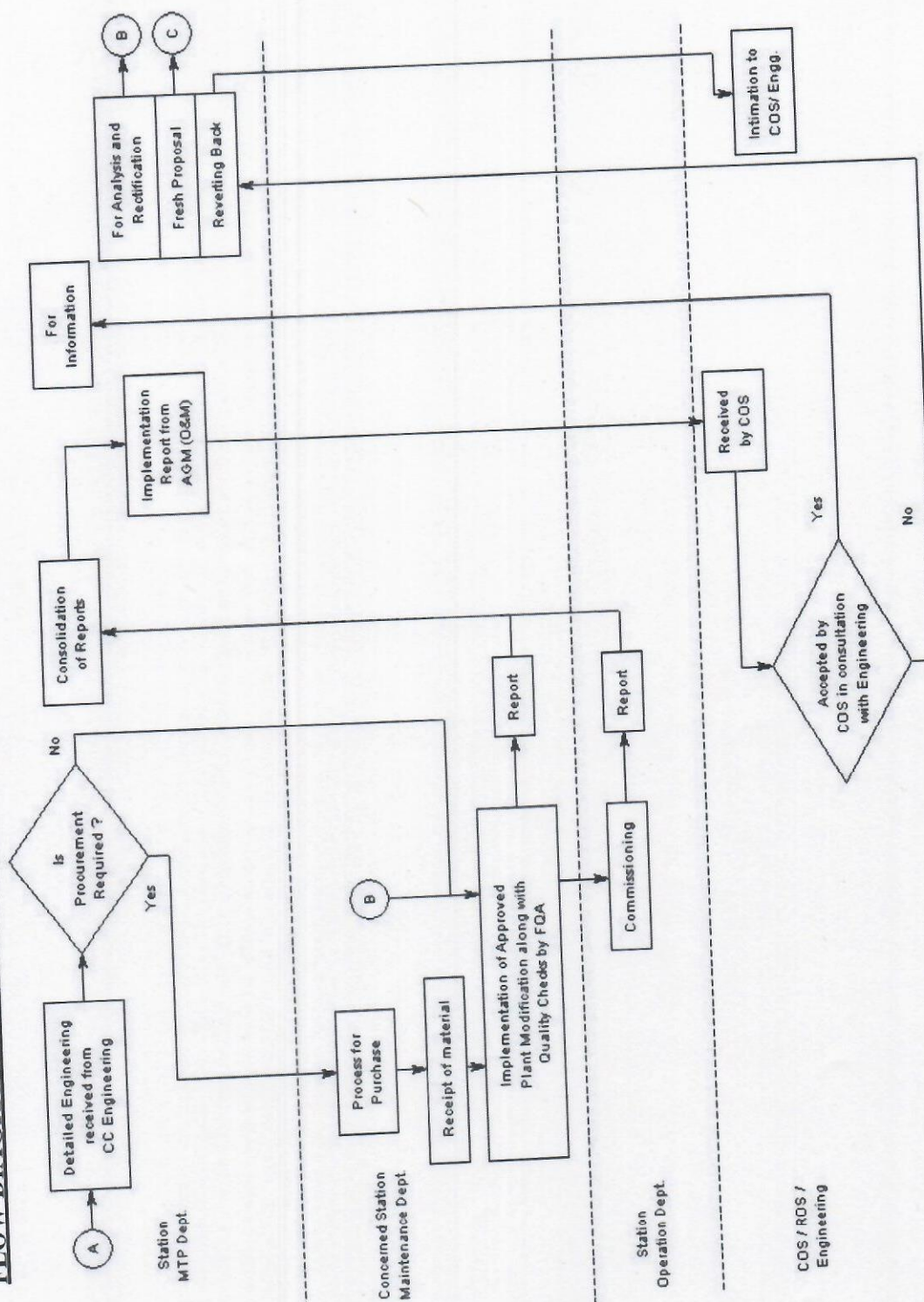


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Annexure - II

FLOW DIAGRAM FOR PROCESS OF MODIFICATION / DESIGN CHANGE (CONTD.)



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