



## TATA Power Mumbai – Automation of tagging authorization process

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### Abstract -

For any Power Transmission /Distribution Utility, Safety of its Manpower, Equipment and Safety of Public at large is of paramount importance. In order to ensure this, it is imperative that Safe Work Procedures are ensured while working on Electrical Equipment's during preventive or breakdown maintenance. Deployment of Permit To Work (PTW) to preauthorized personnel is one of the many steps towards the same. This paper covers the automation of whole process which involves in-house development in SAP for incorporating authorization tagging list while creating permit for equipment outages for Maintenance or Breakdown. While creation of Permit itself, system will check the Person responsible is maintained in the associated order for that plant. Also checks the Order's person responsible is maintained in Safety Tagging List Table. This has been incorporated across Generation, Transmission & Distribution divisions of Tata Power. It has benefitted in terms of reduction in cycle time from 15 Min to 02 Min & nullified wrong issuance of Safety tags and avoided unsafe incidents.

Power System Control Centre (PSCC) at TATA Power is nerve center of Power System Planning & Operations of Generation, Transmission & Distribution along with Power purchase management, System network studies & coordination with State & Central nodal agency.

PSCC is responsible for interviewing and clearing personnel for authorization to carry out operation and maintenance activities. Tata Power have mapped all the equipment's in SAP and any equipment outage requires Tag to be taken in SAP PM module.

Tagging is a process for placing a lock on point of isolation for safety of personnel & equipment.

A Permit to work (PTW) is a written declaration of permit for work on equipment taken out from service condition, the declaration is issued by authorized person & issued to designated person authorized in tagging list. It is an essential element in controlling the workplace risk in an effective manner.

### **Keywords :**

**PSCC** – Power System Control Centre

**Hydro Station**- It consists of Power generating turbines from gravity flow of water

**Thermal Stations** - It consists of Power generating turbines from superheated water steam

**Trombay** – It is TATA Power Thermal Power station located at Trombay, Chembur

**PM Order** – Preventive Maintenance Orders

**SAP system** – Data Processing software application

**Tagging List** – Authorised personnel list for carrying out operations

**Blackstart** – Process of restoring supply of Generating stations & Transmission network after Grid failure

**SLDC** – State Load Dispatch Centre

**WRLDC** – Western Region Load Dispatch Centre of India

### **1. INTRODUCTION**

#### **Brief Summary:**

In conventional way of tagging & authorization in an organization, the responsibility lies with each an individual associated for the said activity. This is to ensure safe working condition, necessary protective equipment & its use, properly planned work performed in safe manner, application of general & special safety instruction by their workmen, assignment of employees in which they are capable of doing job safely, immediate steps to correct any violation of safety rules observed or reported. So the correct functioning.

The correct functioning of tagging system, the placement & removal of tags will be sole responsibility of the authorized operating person in charge. Similarly tags issued to working party should be handled by the authorized person only. Checking and ensuring of this is done by PSCC, when operations for outage is to be done and equipment is to be

handed over to working part for maintenance. Following are the existing process steps

1. PSCC was maintaining hard copy of Safety Tagging List once cleared after the interview process (Name of authorized persons for taking permit) for all plants after regular follow up with all concerned and such was a manual activity ,the accuracy of which depended on the frequency of updation.
2. During outage –PSCC earlier used to cross check the names of personnel taking outage at site with hardcopy available, which was time consuming and prone to errors.
3. Updation of hardcopy after taking input from all planning plants (i.e. Trombay, Hydro, Distribution and Transmission) was very tedious, time consuming and difficult task.
4. It was then decided to create Safety Tagging List in SAP and linking of same with PM orders.

**2 ENHANCEMENT DONE IN SAP :**

1. Creation of notification in SAP for Operational Planning Plants employees: Trombay station- 1001, Hydro - 1101, 1102, 1103, Distribution – 1502, Transmission – 1401, 1402, 1403 with roles as per SAP integration to Human Resource module.
2. Development of new Safety Tagging List Z-Table in SAP database & creation of Transaction code as - ZPMT31 to maintain the safety tagging list
3. While creation of Permit itself system will check the Person responsible maintained in the associated order.
4. If the Person responsible is not maintained in the tagging list of Z-Table, Error Message “Order’s Person Responsible is not authorized as per safety tagging list” The same check will be performed on Order SAVE so that after permit creation also nobody can change the person responsible to un- authorized person.
5. Going Ahead system will check the Order’s person responsible with Safety Tagging List maintained in the Table on SAP having Tcode-ZPMT31 for PSCC authorization group in Permit.

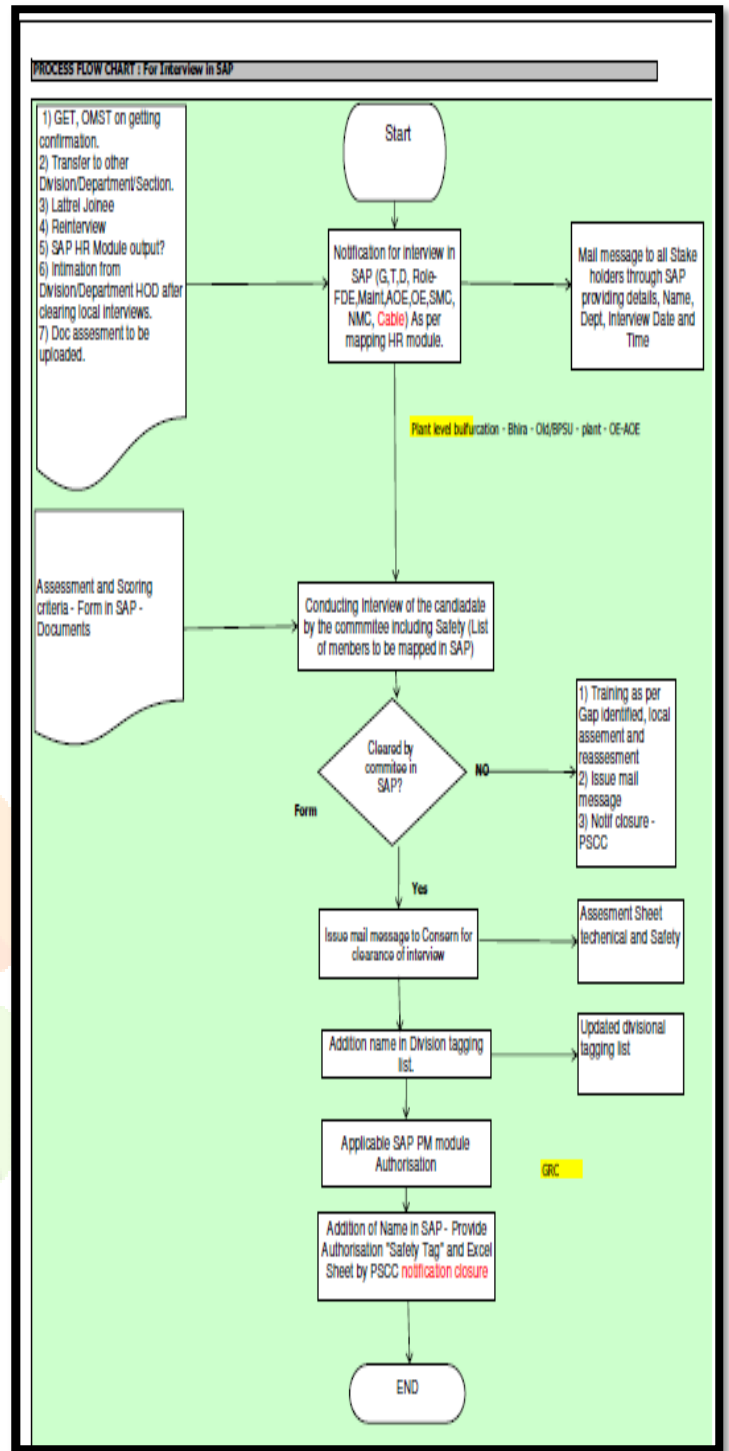


Fig 1- Process flow chart for enhancement done in SAP

4. **KEY ACHIEVEMENTS:**

I. **Impact of improvement / Benefit :**

- Paradigm improvisation of **SAFETY** standards - now system interlock will verify for authorization of personnel for permits.
- Cycle time reduction in process as system itself is capable of checks
- Digitalization of the process with its migration from the manual to E Process in SAP
- Process virtually error free with as it is completely system driven

**Hard Copy of earlier process for Safety Tagging :**

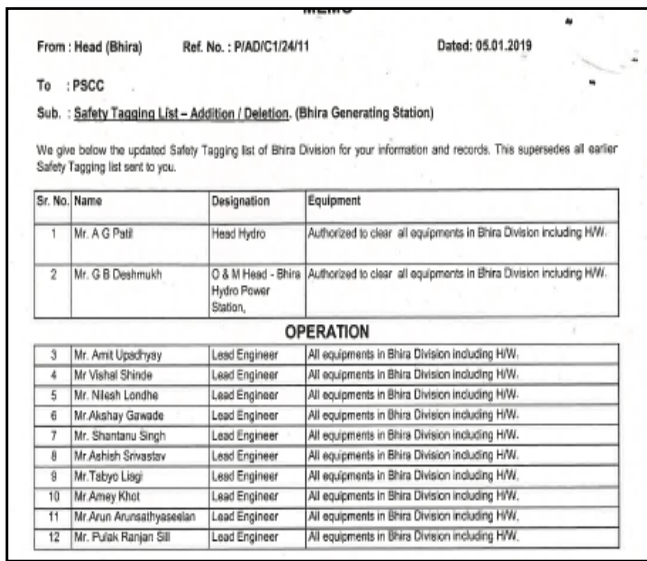


Fig 2. Images of digitized tagging interview process E-tagging in SAP :

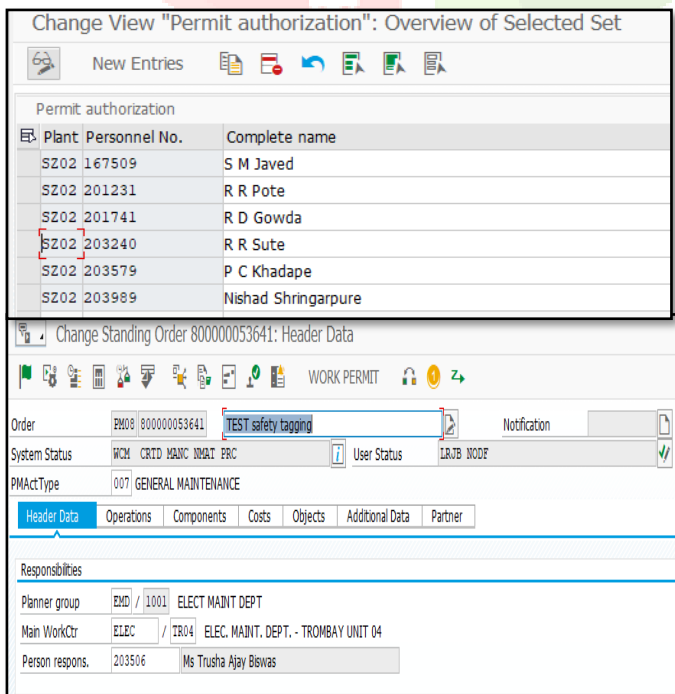


Fig 3. Images of digitized process of E-tagging in system

3. **Digitization of Safety Tagging interview process :**

1. The PSCC Safety interview app was created with in house available resources
2. Cycle time reduction by 400 man hrs per year
  - a. Auto & Standard Email formats
  - b. Auto addition of name in SAP Safety Tagging list
  - c. Checking Interview slots availability made easy

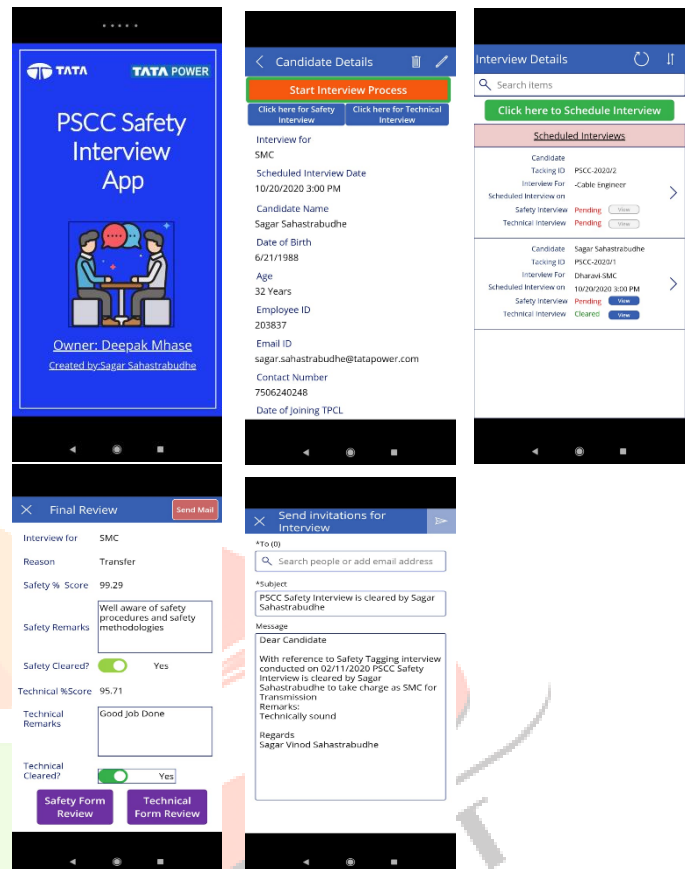


Fig 4. Images of digitized tagging interview process The app helped to stream line the process flow and a single window for all the related activities  
 Step-1: Pre-Evaluation by Division Head  
 Step-2: Scheduling Interview with PSCC  
 Step-3: Safety Interview with Head Corporate Safety. Marks out of 100  
 Step-4: Technical Interview with Head-Grid PSCC, Head-Outage Planning PSCC, Head-Technology PSCC and remarks of assessment  
 Step-5: Final Score assessment and clearance given to take charge at the division.  
 Step-6: Candidate added to Divisional Safety tagging list in SAP

## **6. Conclusions**

Paradigm improvisation of **SAFETY** standards - now system interlock will verify for authorisation of personnel for permits.

Cycle time reduction in process as system itself is capable of checks

Digitalization of the process with its migration from the manual to E Process in SAP.

Process virtually error free with as it is completely system driven.

End to End system based solution, right from Interview to providing authorisation.

## **7. ACKNOWLEDGEMENTS**

The authors wish to thank Seniors/Colleagues in their respective organizations for the support as well as the authorities over there to make available the relevant documents based on which it has been possible to prepare the paper.

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