



Practice of Permit to Work in industries and it's challenges

Engineering

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ABSTRACT

Permit to Work is a written system for general work practice in all type of hazardous industries where it can be obtained internally for construction, installation, maintenance etc. It is multilevel written communication system among process in-charge of plant, work specific premises-owner and operators. However, there are challenges at design stage of procedure and formats considering type of activity and industry as well execution of system in factual action.

KEYWORDS:

Hazard, Risk, Accident, Toolbox talk

1. Introduction:

Term 'Permit to Work' is word itself mean as it is essential to obtain prior written permission for execution of work in industry where it is required to address involved hazards in safe manner. It is well defined and accepted procedure to control over hazards in all type of industries. To execution of pre-defined system, well developed procedure as well format are also required by following localized norms as per type of the industry which should be a part of Safety Management System of the organization. Procedure and formats are varying as per type of activity of particular plant and industry. Both, procedure and format can be designed on the base of risk assessment and considering control measures to meet as low as reasonably acceptable. In other hand, we can say that Permit to Work system is major controlling 'tool' for any industry by addressing and controlling over hazards and reduce level of risk of particular activity in written format.

2. Norms and Regulation requirement

In India, there are various norms which are reflecting 'Permit to Work' applicability as per type of industry, where most common are state wise Factories Rules under The Factories Act, 1948, Oil Mines Regulations, 1984, The Indian Electricity Rules, 1956, standard of Oil India Safety Directorate (OISD) and may be other pertinent to applicable norms. In Gujarat Factories Rules 1963, it is reflecting in various rules for different type of activities and 'pre-determined' procedure should be revised by any changes in material and equipment including provision of approved type of Personal Protective Equipment (PPE). Detail procedure and formats for various 'categorized' activities given in OISD-STD-105 with detail procedure and format of Permit to Work with roles and responsibilities of all involved employees during prescribed activity.

3. Methodology:

3.1 Design of procedure and format

Strict designed procedure and format compromising Safety Management System address all concern hazards to reduce risk; resultant, you may achieve your overall goal of the organization and reflect similar image at large. Mean, design of any safety procedure is very important to meet 'zero accident' goal as per health & safety policy of your organization and also followed up applicable norms considering type of industry. So that, procedures and formats of the Safety Management System should be designed more stringent and cover all hazards at initial stage. For different type of industry, there are generic or detailed permit to work system reflects in different norms. In Oil Mine Regulation, 1984, installation manager has to ensure for issuance of Hot Work Permit and format with checklist has been defined as 'Second Schedule'. OISD-STD-105 addressed in depth with more clarity including procedure as well format with checklist compromising E & P sector. In OSID-STD-105, color coding system is distinct which is one of the good systems to visualize for ongoing categorized activity with work permit format, especially when it concern with multiple hazards with high level of risk involvement. Pink colored format for hot work, Yellow colored for cold work; for duplicate or triplicate copy of format, word 'COPY' in same color on second or third page of the format on right hand corner. This color coding system of format make easy to identify activities where it

displayed at actual work is going on and help to maintain records in systematic way.

Design of Permit to Work is very significant but most key thing to define of roles and responsibilities of involved employees in procedure part and prepare checklist which is to be covered in synchronize way of process plant. Language of both parts must be so simplest that it can be understood to each level of user at shop floor personnel and execute in safe manner. Defined roles and responsibilities in procedure of permit to work helps actual work in smooth way without miss understanding, which may not further lead to accident. During period of time, both should be reviewed in case of change of process, material, designation etc.

3.2 Type of permit to work and certificate

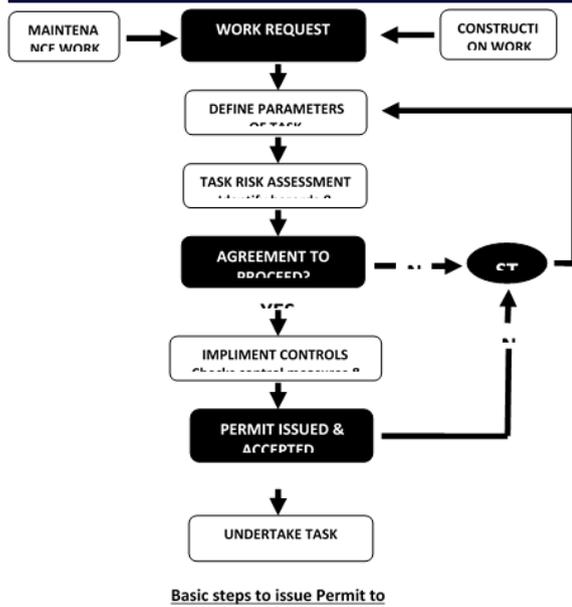
All work permits defined on the base of particular activities of industry. Generally, hot permit and cold permit defined in industry by synchronizing lock-out tag-out procedure to meet actual requirement. Hot permit issues for any spark ignition activity and other permits issue as per defined activities in approved procedures.

In addition to issue permit for concern activity, there may be other activities also part of main activity like excavation activity is secondary activity for electrical maintenance. In such case, there is procedure to issue clearance certificate for excavation and it should be attached with electrical permit in addition to lock-out tag-out. Excavation certificate is nothing but secondary sanction with basic checks which is to be attached with permit. There are different types of certificate like vehicle entry, radiography, and work at height, confined certificates. One or more numbers of certificates might be attached with permit as per requirement of activity.

On prerequisite condition, drawing and rough sketch also attached to make more clarify regarding hazardous situation and same matter communicate to concern departments that all hazards are addressed in safe manner.

3.3 Procedure to be follow for hard copy of permit

Generally, maintenance group head has to requisite site in-charge for issue of permit with details i.e. what is to be done, what are intake hazards and precaution to be taken during activity. It is clearly specify to site in-charge that maintenance group is well aware about steps of activity, hazards and precautions for execution of activity in safe manner. On effect of requisition, concern will fill pre-designed format of permit-to-work with required certificates and drawing after physically joint site visit with safety professional at location of activity. Physical procedure followed as per requirement for site inspection and if satisfied, then permits issue to concern group with all signature of all personnel and displayed at work site. After completion and satisfaction of activity, permit returned to site in-charge. This procedure has certain validity and various steps as per pre-defined in permit in safety management system of the organization. Color of format is defined as per norms and identification of permit for display at activity place.



4. Some of basic challenges during practice

- Steps of permit from requisition for issuance of permit up to surrender should be followed as per pre-defined procedure in safety management system. Procedure steps of permit defined in line with process and local regulatory requirement. Top management is approval body to endorse of all procedure which is designed by safety professional after internal validation of all concern departments. Concern departments may be involved from construction to dispatch of final material by manufacture activity. Deviation of one of the step may invite accident, further may damage reputation of the organization; this is indication of how it is important to design of permit-to-work of particular industry. In present time, there is soft technology also available in the market to remove error creating by manual intervention of employees and as result of advance technology may flow itself as pre-programmed procedure. Soft technology can give reminder for time frame, parameters, problems accrued during process or maintenance
- Short cuts are most dangerous in industry as it invites accident depend on correlated hazards. Once, it is pre-defined procedure established before execution of particular work, it should be followed strictly. Deviations in Standard Operating Procedure (SOP) as well issued permit are not acceptable at all without any pre-intimation to site in-charge and permission to be taken in written for same with all concerns and required safe actions. Short cuts may invites accident by process of single or multiple hazards. Most of accident may take place due to short cut against pre-defined procedure of permit with various intensity and results.
- Extra checkpoints to be mentioned very clearly in ‘any other points’ at end of checklist item of permit format, generally it is not mentioned or not all item identified and addressed in proper way. Hence, it becomes underlying hazards and they may come out at time during activity as result of accident. So that all critical conditions to be mentioned clearly other then given in predefined checklist of permit format.
- When additional attachments are not sufficient or not clearly elaborated, it mean lack communication within permit procedure without or partially stated information. Checklist has limitation considering situation of activity; it may vary with condition, process instrument, workplace, atmosphere and working environment. Addition information must be attached in form of drawings, Lock-out Tag-out procedure, steps of activity etc. it becomes great help to understand final authority who is issuing the permit that all measures have been identified and addressed in controlled manner.
- Lack of communication among multiple sections or maintenance

agencies who are working nearby permitted activity - this is one of the common chances where human interventions from multiple department and agencies present for their own activities. They don't know about permitted activity and interference it by their own activity unknowingly. As solution of the mentioned condition, there is a industrial practice to display of signed final permit format at pre defined activity so that all concerns may aware about ongoing activity at particular place. In case of large area, it is to be barricaded to make aware that permitted activity is going on at particular location.

- During toolbox talk- a short meeting at work place before execution of activity, clear instruction given to all passively participated employees at site including safety measures mentioned in the permit to work and it is also required to ensure for understanding of given instruction to all. If it is not understood, it can be converted into serious accident as result of misunderstood of instruction and act as same. Language barrier has also major role in case of multi level and different region employees involved in same activity.

5. Application

Permit-to-work is designed as per requirement and at large, well defined type of works i.e. Hot work, Cold work, Electrical work including Lock-out & Tag-out procedure. Hot work includes any spark generating activity like chipping, grinding, welding and cutting. Cold work permit issues for which activity does not producing sufficient amount of heat and further ignite flammable material which is present at workplace. Electric work permit issues where electrical activity conducted for maintenance, testing as well installation of any type of electrical equipment in synchronization of lock-out & tag-out procedure. Lock-out & Tag-out procedure is utilized for live instrument to lock for its behavior and tag installed on it to show that is not to operate at present.

6. Conclusion

During industrial activity, Permit to Work is utilized as tool to control over hazards and stop to convert in to accident. However, there are many challenges during practices as per activity and type of industry. Pre-plan and full proof evaluation system for permit to work is required for continual improvement which is helpful to reduce accident and reputation of particular organization at large.

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