



Benefits of an Electronic Safety Permitting System



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Electronic Safety Permitting systems are key to ensuring the safe execution of hazardous work activities at working facilities. Safety Permitting procedures are usually backed by a Job Hazard Analysis process and a range of related procedural steps for risk-related activities such as confined space, hot work, etc. Different activities require distinct processes and approvals which must be practiced by personnel. The vast majority of operational facilities use hand-written paper-based permit-to-work procedures and forms.

While there are numerous electronic permit-to-work systems available on the market, the question must be asked if an organization should continue to trust personal knowledge, memory and slips of paper to manage critical safety-related events. This White Paper examines the advantages of utilizing SafeTK®, including the enhanced efficiency it can create in areas such as:

- Job Safety Analyses
- Planning and approvals
- Isolation management
- Shutdown performance

Some estimates of the efficiency produced through the utilization of an electronic safety permitting system

which can integrate the areas above will indicate how swiftly such a system can achieve a meaningful Return on Investment (ROI). This paper is focused on establishing the quantifiable rewards of an electronic safety permitting system particularly observing the increased efficiency it provides.

Efficiency

Hand-written permit-to-work procedures and their corresponding paper documents are labor-intensive and can easily be completed inaccurately or ambiguously. Employees spend many hours filling out forms, writing safety tags and shifting the paper forms from location to location which can correspond to a loss of up-time. For example, the work-time forfeited while employees are waiting for their permit to be completed.

The potential efficiency benefits of a safety permitting system include:

- Reduction in time spent performing Job Hazard Analyses
- Earlier identification of conflicts, thus eliminating wasted effort in planning and implementation only to find the action cannot proceed
- Quicker permit planning with equipment items and isolation

points selected from facility equipment lists and the ability to reuse preapproved isolation lists

- Quicker electronic approval of permits due to reduction of time spent physically moving the forms from one location to another
- Reduction in lost tool time with faster permit issuance
- Reduction in permit volume through enhanced work packages Permit Work Request and Job Hazard Analyses

In most safety permitting processes, the first step is the permit request and the corresponding JHA for the function to be completed. In some cases, this includes completing a permit request form, completing the JHA, and then conveying the completed forms to a supervisor or permit-authority. This task alone can take anywhere from a few minutes to an hour or more. SafeTK® has the permit request and JHA processes fully integrated, allowing the permit request and JHA to be related, prepared, and submitted in just minutes with no need to physically deliver the paperwork. Additionally, at this stage there is no need for physical paperwork because work requests and JHAs can be prepared and submitted online.

SafeTK® can deliver time savings of 60% to 85% for this one activity alone. What once took 20 to 30 minutes can be reduced to as little 3 minutes for each permit request. This reduction in time is accomplished by limiting the time spent typing through the use of drop-down lists, integration with CMMS systems and duplicating previous permit requests.

Typical medium to large sized operating facilities will have between 300 and 1,000 requests each month which would result in time saved of 40 to 250 hours per month. If there is an assumed average hourly rate of \$80 per hour, the savings could be up to \$20,000 per month. These savings do not include the savings accrued during planned outages.

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Permit Approval and Conflict Management

The permit request is usually submitted to an authority who will:

- Verify that the request is complete and the JHA is adequate
- Validate that equipment can be released from operations
- Confirm that the planned work doesn't interfere with other work
- Identify any additional requirements or permits needed
- Determine if a higher risk-assessment is needed

These handwritten verifications take time and the establishment of possible conflicts can mean reviewing permits folders or piles of paper permits which may be spread out over multiple locations. In practice, these activities can take up 15 minutes to perform thoroughly.

SafeTK® will automatically reference and identify work on the same isolation points and work conflicts. This automated action will reduce the time spent to complete the activity by approximately 50%. This can result in a time savings of nearly 41 hours per month.

This example does not include any potential savings from inadvertently approving a permit that is later identified as conflicting with other work and the ensuing planning and preparation that needs to be done but cannot be completed due to the conflict.

Pushing Paper

Handwritten paper-based permit-to-work systems need the physical movement of paper permits around the facility to be completed by the appropriate authorized personnel. More complex work, such as hot work inside a confined space, necessitate further authorizations and more time to get the personnel and paper reconciled. Each permit could require as much as 20 minutes of extra movement time.

When using SafeTK®, there is no need for the physical movement of paper nor, in the majority of cases, personnel to complete the authorization. Personnel can log into the system and perform their authorization actions from their device. It would be easy to achieve a minimum of 70% reduced time in effort which culminates savings of up to 116 hours per month. These savings do not include the time forfeited when physical permits are lost or damaged during the

process and the entire operation must begin again.

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Isolation Planning

The system of planning isolation for an operational task usually involves the following steps:

1. Identify the item which needs to be worked on
2. Verify if the item has already been isolated on another isolation certificate
 - a. If it has, check whether the isolations are appropriate for the work and confirm compatibility
 - b. If it has not, use diagrams and electrical schematics and other information to

determine the isolation points suitable for the work

3. Handwrite the isolation certificate and isolation tags
4. Have the isolation plan reviewed by authorized personnel
5. Verify that the equipment is available for release
6. Isolate the equipment

The isolation planning steps often take a significant amount of time, in particular when planning for a large number of isolation points. A single isolation certificate can easily take up to an hour and a half to plan. In SafeTK® where all the isolation points are classified in the equipment list, and with the Approved Standard isolation list available, delivers a significant reduction in planning time. SafeTK® can reduce planning time by up to 75%.

Conclusion

This paper has described a vast range of benefits which can be accomplished with the implementation of the SafeTK® Software. The calculations used demonstrate the various benefits that can be discovered at many stages throughout the risk assessment, permit and isolation process. The gains made with SafeTK® extend well beyond the

monetary cost savings to include avoided costs such as production loss. All corporations that utilize an electronic safety permitting process can gain immediate and invaluable benefits through the implementation of SafeTK®. Stilwell & Associates has compiled this information based on its experience and knowledge of various safety permitting processes. We welcome any feedback to further develop the concepts outlined in this paper. The savings calculations used throughout this paper are conservative estimates and might not accurately describe your site. Stilwell & Associates has an ROI calculator available online to assist you in assessing the actual time and cost savings when using SafeTK®.



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