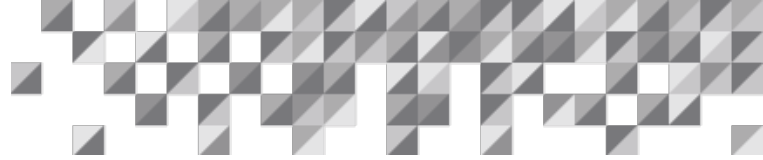# Why Process Safety Management Audits Fail?

An ioMosaic White Paper

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Introduction

Most companies have completed at least three process safety management (PSM) compliance audits of their covered facilities since the promulgation of the OSHA PSM standard. These companies, however, are not seeing noticeable improvements in their PSM programs. In fact, many companies feel that their PSM programs have become less effective. What has happened and why? Are there any lessons learned from the Enron collapse and its auditing program? What needs to be done?

Background

The OSHA process safety management Standard requires compliance audits of all covered facilities every three years. When this requirement took effect on May 26, 1995, some companies were already conducting environmental, health and safety (EHS) audits of their facilities and added this new requirement to their existing audit program. However, for many other companies auditing was something new and they needed help. The typical response was to hire consultants either to conduct audits or to train their staff to conduct the audits. As with many other PSM requirements, such as pre-startup safety reviews, there was limited guidance on how to conduct an effective PSM audit. Various approaches were used ranging from simple checklists listing PSM requirements and focusing on compliance to more in-depth audit programs that evaluated management systems in addition to compliance. These initial PSM audits were often very simple, particularly for those facilities that had yet to develop and implement PSM programs. These audits, thus, had very basic findings for some PSM elements: "There is no program is in place for this element." As guidelines for PSM auditing were developed, such as the "Guidelines for Auditing Process Safety Management Systems" published by the Center for Chemical Process Safety (CCPS) of the American Institute of Chemical Engineers (AIChE), some level of consistency was established.

After the initial audits in 1995, many companies that previously used outside consultants decided to conduct their own audits or limit outside involvement because they felt their PSM programs were in place. In fact, by 1997 all elements of OSHA PSM had to be in place for facilities that were operating covered processes in 1992. At that time companies significantly decreased spending on PSM (mostly in initial program development) and assumed the programs that had been put in place would continue to function effectively.
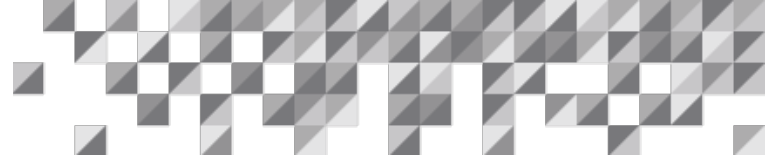
Requirements for a Successful Audit

So why have so many company audit programs failed to identify and/or correct serious flaws in their PSM programs that may lead to accidents?

To answer this question, we must first understand the key characteristics of a successful audit program. An audit program, just as with any effective safety or environmental program, must have its own management system to ensure that the program will continue to be effective over time. Key characteristics of an effective and successful management system for auditing are listed below. Failure to address any of these areas can cause your audit program to fail.

- Scope
- Management Commitment
- Procedures and Protocols
- Objectivity and Familiarity
- Training and Experience
- Planning
- Facility Involvement
- Documentation
- Feedback
- Follow-up

Scope

An audit can be done at different levels, ranging from strict compliance to management systems to quality. These different levels of auditing reflect the maturity of the program being audited. Since most regulatory-based PSM programs should be well established by now, auditing should encompass all three levels. However, most companies are still auditing for compliance and some are auditing management systems. Very few, if any are auditing the quality of PSM elements.

Management Commitment

Company management support is essential for ensuring that an effective audit program is developed and implemented. Company commitment must be demonstrated throughout all phases of an audit particularly to ensure that action items generated from audit are adequately addressed. The full support of management can be obtained if they have a clear understanding of the benefits of an effective audit program. A number of companies have applied the principles of PSM to all of their processes regardless of whether they are covered by the standard and to their
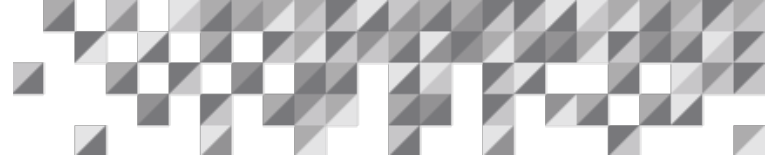
operations worldwide. As determined by a recent study on the Business Case for Process Safety sponsored by CCPS, these companies are now realizing the benefits of PSM listed below:

1. Avoidance of Major Losses
2. Freedom of Self-Determination
3. Protection of Reputation and Shareholder Value
4. Creation of Company and Shareholder Value

A company that views PSM as a regulatory requirement will never have an effective audit program. Furthermore, an audit will not be effective until senior management in the organization being audited views the process as a cooperative effort in the spirit of continuous improvement rather than just a compliance activity. Management commitment is also important to set the tone of the audit for the facility being audited.

Procedures and Protocols

As with any well-functioning management system, an audit program must have guidelines and procedures to describe how an audit should be conducted and what corrective action should be taken. These procedures should define all audit activities, such as planning the audit, onsite activities, and follow-up. Without written audit procedures, the audits will be conducted based on individual skills and preferences and will be conducted inconsistently at best. A key audit tool is the protocol, which guides the auditor through the audit process. Some companies use checklists or questionnaires as protocols. A checklist or questionnaire may be appropriate for an experienced auditor, but will not be an effective tool for new auditors. An effective protocol will define the steps that an auditor needs to take in order to audit a particular PSM element and provide guidance on what to look for and where to look for it.

Objectivity

Good auditors require certain characteristics and skills to be effective. The most important characteristic is objectivity. Objectivity can be obtained by using staff from other processes at a facility that are not included in the current audit, from other facilities, from corporate or from outside consultants. Even third-party auditors may not be totally objective. An organization that provides technical services to a company may not be an unbiased auditor. This was the relationship between Andersen and Enron.
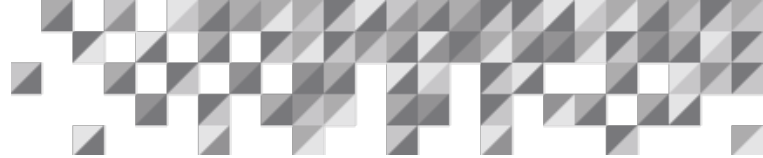
Training and Experience

What information should be reviewed and how much, what is the depth of review, when has a sufficient amount of information been obtained to determine whether a PSM element is being managed properly or not, what information is pertinent in verifying compliance? These are questions skilled auditors should be asking themselves during the audit. Auditing skills, however, are not inborn abilities but must be developed through formal training and on-the-job auditing experience. Too many audits, especially those that fail, are staffed with auditors that have an understanding of the process being reviewed or the PSM regulations, but who do not know how to use that knowledge to determine whether the company has developed and implemented appropriate PSM systems for ensuring compliance with the standard.

Probably one of the most important skills for an auditor to have is the ability to conduct interviews. An effective interviewer can obtain a considerable amount of information through interviews and, thus, may reduce the number of documents that need to be reviewed. Thus the first choice for an auditor is someone who can ask probing open-ended questions and is a good listener. A PSM auditor must be familiar with PSM requirements and good industry practices given the performance based nature of the OSHA PSM Standard. Outside consultants can provide knowledge of good industry practices that can be used to strengthen an existing PSM program. An effective auditor must also have experience in auditing techniques, such as prioritization, sampling and following an audit trail. An audit is only as good as the process, the people and the available time.

There is so much documentation and so many individuals involved in any PSM program that it is impossible for the auditor to interview each individual and review each document. A trained and experienced auditor can prioritize the activities that need to occur during an audit. The auditor must recognize that the amount of time that is available to conduct the audit is limited and then determine the most important individuals and documents that need to be reviewed. An effective way that a skilled auditor prioritizes his activities is by starting with an assessment of the management system for that PSM element and then evaluating the details of the program. Therefore, the auditor must prioritize auditing activities. If there is sufficient data to support a finding for an element, the auditor may decide to move on to another element rather than continue to look for more data to support the finding.

However, in reality, most companies try to cover so much ground in a typical audit there is insufficient time to spend more than a small portion of the total audit time in sampling relevant data. Frequently key people are out of town or on vacation during audits (in fact some plan their vacation when they know an audit is scheduled). Often, interviewing operators on all shifts is difficult unless the auditor wants to come in early to catch the morning shift, and stay late to catch
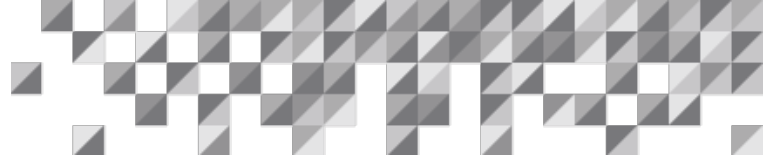
the midnight shift. Sampling of documentation is also important. However, keep in mind that getting a representative sample of data is only critical when the program being audited appears fully implemented and effective. If the audit uncovers significant findings, the only value of having a representative sample is that it may help to define the magnitude of the finding.

Planning

The time available for auditing onsite is limited; therefore, the best way for an audit team to spend their time on site constructively is by effectively planning for the audit. Pre-audit planning allows the audit team to become familiar with the facility and its PSM program before arriving on site, thus spending its efforts on site auditing rather than dealing with administrative details.

An excellent way of obtaining information concerning the facility and its PSM program is by sending out a pre-audit questionnaire. It is also important to identify an individual at the site to be audited to be the audit coordinator who assists with the logistical details including setting up interviews and locating documents. The pre-audit questionnaire and the audit coordinator can be invaluable in determining how much time is necessary to conduct an effective audit. All to often the audit team is constrained by how long the audit can be or the size of the audit team thus potentially resulting in insufficient time to dig deep enough during the audit to uncover issues other than those that are obvious. The level of effort that OSHA has expended during some of their "wall-to-wall" inspections can be ten or more times that for a typical company PSM audit.

When audit teams are constrained by the allowable time on site and/or number of team member, pre-audit planning becomes that much more important. For an audit to be effective, the auditor must have sufficient time to interview key individuals involved in implementing the program, review written procedures, review appropriate documentation and to test the system. The team can spend time before the audit scheduling key interviews and ensuring that important PSM procedures and documents are available to the audit team at the start of the audit. As a result, the audit team can spend more time on site testing the effectiveness of the facility's PSM programs rather than running around trying to schedule interviews and finding important documents. Most audits do a decent job in interviewing key individuals and reviewing written procedures and documents, but generally fail in testing the system. For example, because of time constraints, usually resulting from poor pre-audit planning, many auditors will review training records, which, by definition, are available only for those individuals who have been trained. The auditor spends most of his time on administrative details rather than ensuring that all employees required to be in the training program actually are, that the employees understand the training, the training content is consistent with their roles and responsibilities, etc.
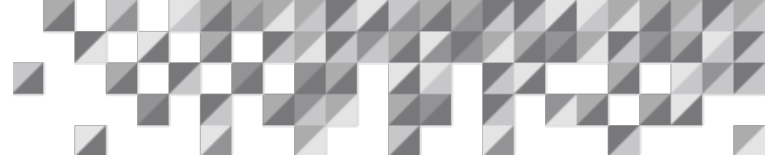
Also, poor pre-audit planning may result in too many auditors for the size of the facility. If there are too many auditors, they will be fighting over scheduling interviews with key facility PSM staff.

Facility Involvement

The success of an audit relies heavily on involvement of facility personnel. Open communication between the audit team and the facility help facilitate an effective audit in terms of value to the facility and use of time on site. An audit team should be free to look at whatever information is available and talk to whomever they feel has an important role in the PSM program. As mentioned earlier, management that is committed to having an effective PSM program usually keep the lines of communication between the audit team and facility personnel very open. Involvement begins by selecting the facility audit coordinator, and continues by completing the pre-audit questionnaire and the audit feedback.

Documentation and Feedback

The results of any audit are the findings and recommendations. As such, the auditor should keep good notes that document the results of interviews, document reviews and testing the PSM program. These notes are essential for communicating findings. Findings should be communicated regularly (daily) during the audit to prepare the facility staff for the final report and allow timely feedback. It is best if there is consensus on the audit findings between the audit team and the facility staff, however in the end the auditors should report what they believe is a finding.

Effective communication of findings requires that findings are worded in such as what that communicate the real issue to the facility. Be specific. All findings must have enough detail so that facility understands the issue and can implement the recommendation and verify that the finding has been closed. Findings that are vague or that can never be closed out by the facility should never be written. Some companies also like for the audit team to write recommendations for each finding. This is a two-edged sword. It allows the facility to develop their action plan in accordance with the audit team's vision of what needs to be done to correct the finding, but it can create a situation where the facility may decide on a better or cost-effective solution to correct a finding. The facility, therefore, must spend extra time explaining and documenting their rationale for not using an audit team's recommendation in the document used to closeout an audit.

Follow-up

Conducting the audit and reporting the findings is the easy part. Follow-up of the findings and implementation of corrective actions is where the difficulty begins. There is no point in conducting an audit if there is inadequate follow-up and closure of the audit findings or if the audited facility
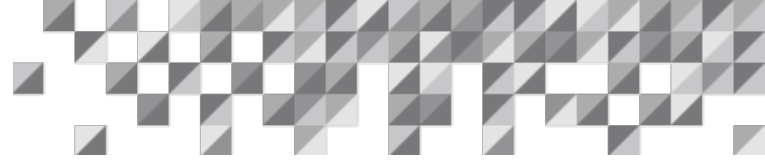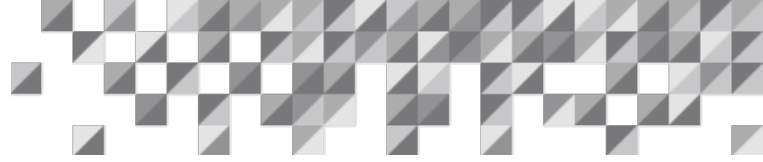
does not attempt to determine the root cause of the finding. Without understanding what "really" caused the deficiency, it is all but impossible to ensure that the next audit will not uncover the same problems. Furthermore, too many companies correct the finding as reported in the audit report without spending the extra time and effort to determine whether the deficiency represents a more endemic problem. Remember, an audit is a sampling exercise, thus all data within the scope of an audit may not be reviewed. Consider this example. The auditor finds that P&IDs for five of a sample of ten changes were not updated. The simple finding would be to update the P&IDs. However, a 50% failure rate would indicate a management systems failure and the need to update the change procedure and/or conduct refresher training on the procedure.

Typical failures that can occur at the follow-up stage in the audit process include the failure to understand the intent of the finding, failure to assign responsibility for follow-up of a finding, failure to track findings to completion, failure to document clearly what was done or failure to allocate resources. This last step of the audit process is by far the most difficult to implement and the source of most audit failures.

Conclusions

The bottom line is that audits can fail because of a variety of reasons. Therefore, before investing considerable time and effort into an audit program, make sure that the key parts of an effective audit program are well understood and that adequate resources are allocated. Remember that without an effective audit program, weaknesses in your PSM programs will not be identified or adequately corrected, and you will not realize the full benefits of your PSM program investment. At the same time you will leave yourself open to citations in case of a regulatory inspection. Once an audit program is established to verify compliance and implementation of effective management systems, it should be expanded to include an evaluation of the quality of the audited programs. This last step in the audit evolution process for a PSM program will allow quality issues to be identified and corrected so that existing PSM programs can be effective in preventing accidents.

Author

1. Henry Ozog, 2002