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Acquisition of the PSM-Subject Facility: Considerations in Due Diligence

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Abstract

Due diligence in mergers and acquisitions (M&A) often focuses on environmental issues, both remedial and compliance. Due diligence associated with health and safety (H&S) concerns is not prevalent during transactions. Typically, limited site observations are combined with an assessment of Worker's Compensation trends (injury and illness statistics). Unfortunately, this approach ignores a significant source of potential M&A liability – compliance with the Process Safety Management standard (29 CFR 1910.119). Process safety management issues, especially those of mechanical integrity and adequate hazards analysis, can cost substantial sums of money to correct, and if uncorrected, can lead to catastrophic loss exposures. Recent accidents and subsequent follow-up reports and findings show how important PSM issues can be in managing a company's risk.

This article discusses an approach to M&A due diligence that optimizes on-site evaluation time; reduces the uncertainty associated with acquiring PSM-subject facilities; and allows an acquirer to develop a rational approach to implementing a PSM program consistent with their firm's PSM approach and values.

Introduction

Mergers and acquisitions (M&A) are an increasingly familiar part of life in international business. In 2006, more than $3.6 trillion in transactions were consummated. With increasing activity comes increasing interest in more competitive deals and less ability to complete "leisurely" due diligence. As such, the scope of due diligence is being constantly reduced, and the time allowed for conducting due diligence has nearly evaporated.

Within the environmental, health and safety (EHS) arena, due diligence generally focuses on past environmental remedial liability (defined in large part by CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act). However, after experiencing acquisitions with significant environmental compliance liabilities, more proactive companies have increased their emphasis on environmental regulatory compliance.

In the realm of H&S, however, little attention has been paid to overall compliance. In general, acquisition due diligence consists of a desk survey of current Worker's Compensation costs and illness and injury statistics (OSHA 300 logs). In some instances, field observers

completing environmental due diligence may be asked to make safety observations, but in general they have little competency in the PSM arena and can only spot the most egregious issues.

As such, acquiring firms may be subject to liability for potentially catastrophic events resulting from process safety concerns. For example, in 2004, an explosion at the Formosa Plastics Corporation facility in Illiopolis, IL resulted in the death of five employees. The U.S. Chemical Safety and Hazard Investigation Board (CSB, 2007a) found that a root-cause of the explosion was failures in the PSM-required analyses conducted by the prior owner, Borden Chemical.

Acquiring managers will need to integrate process safety management (PSM) compliance programs into existing corporate structures. This paper addresses the issues associated with rapid assessment of PSM "choke-points" and subsequent, aggressive integration of PSM programs following merger or acquisition. Lastly, this paper looks at the key findings of the Baker Panel Report (Baker, et. al, 2007) with respect to issues of PSM compliance in M&A activities.

PSM Choke Points

The Process Safety Management standard (29 CFR 1910.119) has been in effect for more than a decade and a half (effective date of May, 1992). Even so, implementation of PSM programs is not uniform across covered firms. Further, in chemical accidents examined by the Chemical Safety Hazard Investigation Board (CSB, 2007b), those that occurred in facilities covered by the PSM standard almost universally involved failures in the PSM system, such as human error and equipment failure (EPA). Our analyses of PSM implementation at hundreds of PSM-subject facilities – including chemical manufacturers, refineries, chemical processors, and end-users – over the past ten years has identified several areas of the PSM program where failed implementation can cause the greatest potential future liability. Further, these areas, which we term "choke points," are readily identifiable by a due diligence or integration team. Attention to the following choke points can reduce PSM liability in M&A integration:

- Process Hazards Analyses
- Mechanical Integrity Programs
- Management of Change
- Pre-startup Safety Review
- Standard Operating Procedures
- Compliance Auditing

There is no "silver bullet" in PSM integration, but there are "leading indicators" of PSM failure. Identifying and correcting these programs can provide for a safer environment in the acquired firm.

Process Hazards Analyses

The process hazards analysis (PHA) is often considered the core of the PSM program. The PSM standard mandated that covered firms complete PHAs over a three-year transition period (1994-1997). As such, original PHA documents are now almost 10 years old, and should have been revalidated at least twice since then.

If the PHA revalidations have been robust, then it is possible that a facility's PHAs do not represent a choke point. However, we have found major issues with the quality of PHAs and their related risk-reduction features:

1. Validity: When the PSM rule was implemented in 1992, the PHA was a novel concept, limited to certain chemical and petrochemical facilities and certain practitioners in the nuclear industry. Since that time, proactive employers have educated their employees, and a solid group of professional PHA facilitators have honed their craft. Unfortunately, many facilities continue to build and maintain PSM programs around PHAs conducted by facilitators with little skill, created without insight from peer group companies, and not incorporating modern codes and standards. Valid PHA revalidations are often wholesale redevelopments of previous PHAs incorporating these techniques and using more modern software techniques to assist in PHA follow-up and follow-through. A simple review of PHA documents can provide an eagle's-eye view of the quality of the PHA exercise.
2. Inclusivity: The PSM standard requires involvement of personnel at all levels of the organization that are involved in operation, maintenance, and design of the system to be involved in the process hazards analysis. However, it is not uncommon to find PHAs that were completed by vendors, third-parties, or by senior engineering staff exclusive of personnel involved in the daily operations and maintenance of the process. This is often the case at facilities where a 3rd party holds a turn-key contract for operation and maintenance of a gas or chemical delivery system, as commonly observed at semiconductor manufacturing facilities. In many of these instances, current operators were not familiar with the PHA and were never involved in their completion. It is possible to develop an assessment/interview tool to be used during M&A due diligence that can easily evaluate the relevance of the PHA to the current staff. Such a tool would likely include effective questions for current employees to determine if they have reviewed the PHA, understand the hazards inherent in the process, and are familiar with a selection of the recommendations from a PHA study.
3. Revalidation Exhaustion: As most facilities move into their third round of PHA revalidations, an understandable amount of fatigue ensues with both personnel involved in the PHA and those responsible for carrying out recommendations. In many cases, the personnel involved in the original PHA are included in the PHA revalidations, and when a covered process has remained relatively unchanged over the life of its operation, completing the PHA revalidation for the first or second time – reviewing potential failure scenarios that have already been reviewed and often not coming up with new potential safeguards or recommendations for improving inherent safety of the system – often becomes redundant and tiresome. We have found significant lapses in completing PHA recommendations and extremely cursory re-validations. A review of the most recent round of PHA revalidations can provide an acquirer an insight into the depth of

the process; for example, if NNI (typically used to document No New Issue) is entered onto every line of the PHA revalidation document, the assessor may have reason to question the thoroughness of the evaluation. Similarly, if there are no new recommendations as a result of the PHA revalidation, the level of intensity of the review may be brought into question.

4. Recommendation Completion: Many PHAs are completed without a view to the end product of the desired outcome of the analysis (Wallace, 1999). As such, many recommendations may have been left open for a considerable length of time, interim actions may have been taken and not accounted for, or a cursory action may have been conducted solely for the sake of closing the recommendation action item.

While PHA quality is an important consideration in acquisitions, it pales in comparison to the importance of PHA follow-up. Unfortunately, it is impractical to comprehensively review PHA follow-up. In some cases, facilities can provide follow-up data that appears, on its face, to be adequate, but upon detailed inspection proves inadequate. Acquirers should interview personnel responsible for follow-up; determine if a system exists to address PHA recommendations; and review recommendation follow-up documentation.

Mechanical Integrity

For many PSM subject facilities, mechanical integrity means little more than maintaining a preventive maintenance program. Few have implemented a risk-based approach to maintenance, and few have evaluated performance factors in developing a mechanical integrity approach.

Determining the quality of a facility's mechanical integrity program is one of the most challenging facets of considering a PSM-subject facility during an acquisition. We suggest looking into several areas:

1. Maintenance Management Process: Evaluating a facility's maintenance management program can provide an insight into the ability of the facility to respond to mechanical integrity issues. A first cut can be made in determining whether the facility has a computerized maintenance management system (CMMS) on site. If such a system exists, an assessor may obtain copies of preventive maintenance items; interview personnel to determine if the system is being used to assess frequency; and judge the depth of preventive maintenance covered in the program. Facilities without a CMMS are at a disadvantage and may be more difficult to assess during an acquisition.
2. Equipment Inspection Process: PSM subject facilities should have extensive records to support the inspection of critical process equipment (29 CFR 1910.119(j)). Of course, the facility should have a critical equipment list established. The list should then have an associated inspection schedule and accompanying criteria.
3. Maintenance Training Programs: Our experience with OSHA inspections over the past ten years indicates that the agency is concerned with the qualifications of those employees or contractors conducting equipment maintenance. We believe this concern is correctly placed. In an environment of cost reductions and outsourcing, pressures placed on facility managers to cut costs often result in deferred maintenance programs or reduced quality of maintenance. Acquirers should pay special attention to where the maintenance staff is coming from (in-house or outsourced) as well as to the training of

the respective maintenance personnel. If outsourced technicians conduct maintenance on the covered process, the assessor should be diligent in requesting to review the contractors' qualifications, including documentation of the technicians' training focused on the maintenance tasks the personnel are conducting.

Management of Change – Pre-Startup Safety Review

If the PHA process is the core of a PSM program, the Management of Change (MOC) program is its vanguard. The best performing facilities use MOC principles to manage deviations from all process changes, not just those considered as PSM-subject (CSHIB, 2001). Given this, a targeted inspection of the MOC process and its relative – the Pre-Startup Safety Review (PSSR) – can provide insights into the quality of the PSM program. The following should be targeted at this choke point:

1. Integration of Engineering Requests and Management of Change: There is often a disconnect between what is frequently termed the Capital Asset Requisition (CAR) process and PSM. This often results from either centralized ("Home Office") engineering processes or from outsourced/turnkey (or design-build) engineering. An acquirer should review the capital project process at the target firm. In particular, the last major capital project should be evaluated and the MOC/PSSR paperwork reviewed. Engineers involved in the process should be interviewed, and the regulatory response (including traditional environmental issues and the Risk Management Plan (RMP)) should be evaluated.
2. MOC/PSSR Follow-through: Just as with the concerns regarding PHA recommendations above (and audit recommendations below), the nature of MOC/PSSR follow-through speaks volumes about the PSM "attitude" of a facility. An assessor who reviews the status of recommendations produced during the process (assuming that a process has been followed) will gain an insight into the nature of the MOC process and the rigor of follow-up. For example, if review of MOC documentation shows that operating and maintenance procedures were to have been developed and employees trained as a result of a change, and the PSSR does not include documentation that these procedures were developed and employees were trained, the assessor may be justified in questioning the effectiveness of the PSM program implementation at the site.
3. PSSR Completed Prior to Startup: An egregious error frequently observed in smaller operations is a failure to complete PSSR at a facility prior to actually starting the process. In many cases, documentation is completed when the transition occurs between the construction team and the "owner," an artificial distinction that has been historically ignored by OSHA (to the detriment of the "owner"). Given that a large percentage of accidents and incidents that occur happen during startup of a process – either the first time the process has been operated, after a period of inoperability, or after a change to the process – failure to conduct pre-startup safety reviews is a significant oversight with potentially massive consequences.

Standard Operating Procedures

The currency and quality of standard operating procedures (SOP) developed at a facility can be an indicator of the quality of the PSM program. OSHA and CSB investigations have shown SOP to be a significant factor in process incidents (EPA). We advocate a thorough review of SOP

during a PSM audit and in the acquisition process. However, we recognize that this may be too time consuming and that a desk review may miss the "implementation" of SOP at the plant floor level. There are a few areas where an acquirer can target this choke point:

1. In-plant Review: A trained environmental due diligence assessor can spend some time looking at SOP issues during a site visit. In particular, he can evaluate whether SOP are present at equipment locations; whether employees can locate and identify crucial SOP for their equipment; and whether SOP have been evaluated on a regular basis.
2. All Systems Go: An assessor can review the systems associated with standard operating procedures. In particular, the acquirer can review the manufacturing process and determine if he believes that procedures are present for the appropriate portions of the process. Strategic interviews with engineers that developed the SOP, line supervisors and maintenance managers responsible for ensuring SOP are implemented, and operations personnel that use the SOP to operate the process can determine whether SOP are being discussed with employees and evaluated for performance on a regular basis.

Compliance Auditing

Compliance audits represent the third of PSM's internal reporting triumvirate. As with PHAs and MOC, above, compliance auditing is key to understanding the quality of a facility's PSM program (Einolf and Menghini, 1999). It is important for an assessor to review compliance audits and their subsequent follow-up to ensure that recommendations have been addressed through implementation of corrective action plans. In particular, evaluators should consider the following:

1. Audit and Auditor Quality and Objectivity: We have evaluated hundreds of PSM compliance audits over the past decade. What's more, we've had the opportunity to complete many more. It is an understatement to say that all audits are not created equal. We recommend that audits be completed using a comprehensive guidance document, such as the OSHA Compliance Guideline CPL 2-2.45A (OSHA, 1994), and that issues be addressed with rigor. Auditors should be selected for their ability to audit, whether that be in a particular area (such as mechanical integrity) or for an overall understanding of the PSM program. We view audits conducted within the facility as suspect owing to an obvious lack of objectivity. Corporate audit programs provide an overlay of objectivity, but they should be regularly benchmarked to ensure they are meeting the requirements of the standard.
2. Follow-up Mechanisms and Accountability: Management should be held accountable for the completion of PSM audit items. If there is no specific accountability mechanism and an "audit trail" cannot be established, then the audit process may be suspect. As with the PHA and MOC processes, a mechanism for producing follow-up requirements and assessing their completion should be in place.

Considerations of the Baker Panel Report

On January 16, 2007, BP US issued the Report of the BP U.S. Refineries Independent Safety Review Panel, also known as the "Baker Panel Report," a much anticipated review of the corporate safety culture, process safety implementation, and other safety issues at BP's five U.S. refineries. The report was recommended by the U.S. Chemical Hazard Investigation Board, and was tasked with reviewing issues and factors not tied directly to the Texas City incident (i.e., they did not conduct an investigation of that incident).

The report is substantial, running to 374 pages. The Baker report focuses on process rather than personal safety. The core of the report – as useful in our discussion of PSM in mergers and acquisition – can be summarized in five findings of the report:

1. The corporate safety management system does not ensure timely compliance with internal process safety standards and programs at individual sites.
2. There has not been adequately assurance that site personnel and contractors have sufficient process safety knowledge and competence.
3. An effective root cause analysis procedure has not been implemented to identify systemic causal factors that may contribute to future accidents. When true root or system causes are not identified, corrective actions may address immediate or superficial causes, but not likely the true root causes.
4. An effective process safety audit system has not been implemented for sites based on the Panel's concerns about auditor qualifications, audit scope, reliance on internal auditors, and the limited review of audit findings.
5. The company … has sometimes failed to address promptly and track to completion process safety deficiencies identified during hazard assessments, audits, inspections, and incident investigations.

These findings are consistent with challenges in implementing an overall corporate PSM management system. What was found by the Baker Panel at BP is not isolated to either BP or to the major oil refiners. PSM audits, inspections, and investigation findings at other facilities bear out these issues, especially as concerns newly-acquired facilities (CSB, 2007a).

Conclusions

We offer no panacea for addressing PSM issues in acquisition, but we believe that addressing the five key choke points in the PSM process can provide acquirers with an adequate "snap shot" of compliance. We feel that the items described above can be obtained from a facility without a specific site visit and can be evaluated by a technically competent PSM specialist within a limited time frame. Evaluation of these issues will likely lead to a series of interview questions that will allow the PSM team of the acquirer to determine the difficulty of integrating the acquired firm into the existing corporate PSM program.

Further, evaluation of the systems behind PSM can provide valuable information to the acquisition team. Beyond the basic cultural differences that will appear in the acquisition process, the system questions will address issues regarding compatible training, software, and direction.

The focus on the PSM choke points allows for the acquisition team to pinpoint resources in a major acquisition, while allowing for expansion to a broader scope for smaller facilities.

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