In 1991, when US OSHA released a notice of rule making that would lead to 29 CFR 1910.119, Process Safety Management (PSM) of Highly Hazardous Chemicals, a small gas processing plant was owned by a major oil and gas exploration and production company. In the late 1990s, the major company began exploring divestment of some properties. In the next few years, ownership would change two more times and acquisition of other organizations would lead to upper management personnel changes throughout the organization. A few key management positions in the gas plant experienced personnel changes as well.

The original process safety management system developed by the major company was highly prescriptive and required an appropriate number of personnel to comply with the requirements. As this company began to explore divestment, budgets were cut and the organization chart shrunk dramatically. A coordinator managed the original PSM system with five positions identified for PSM activities. These positions included a drafting specialist, who insured that process and instrumentation diagrams (P&IDs) were updated appropriately; a training coordinator, who managed training records and developed materials for training required during changes to the process; a process safety information (PSI) manager, who gathered, indexed and managed all documents associated with the processes; a management of change (MOC) coordinator, who was tasked with managing the requirements of the organization’s MOC process; and an administrative assistant, who was responsible for managing the operating procedure development process.

Prior to the divestment, there was a reduction in force within the company and the five positions dedicated to PSM were reduced to one. This caused some problems associated with PSM compliance, especially in the elements of procedures, mechanical integrity and training.

After a smaller, independent company purchased the plant, it appeared that upper management wanted to address the compliance issues. While no additional personnel were permanently assigned to manage process safety, contract personnel were occasionally used to address specific shortfalls in the system.

For several years, plant personnel did a satisfactory job of managing process safety. There were a few deficiencies in the system, but nothing compared to what would occur later.
The new parent company acquired more assets and some of them were applicable to OSHA’s PSM regulation. As more assets were added to the PSM applicable list for the company, an effort was made to manage all process safety activities in the company from a centralized office. A PSM coordinator was assigned and he immediately began dismantling a fairly well maintained system.

This coordinator conducted a PSM compliance audit alone. The major finding from the audit was that the P&IDs did not look the same as the P&IDs at other facilities. He directed that the P&IDs would be recreated using a different template and all equipment numbers would be changed to match the new template. When asked if a management of change would be followed for this change, the response was no response. All queries about this were ignored and when the operations manager for the facility was asked to intervene, he chose to allow the PSM coordinator free rein.

As new drawings were being created, a contractor was assigned to walk down and verify the accuracy of the drawings. Many mistakes were discovered but the project continued.

Several months later, it was time to revalidate the initial process hazards analyses (PHAs) that had been performed on the PSM processes in the plant. Previous revalidations had begun by collecting the P&IDs of the process that were used in the initial PHA. All changes associated with a specific drawing were collected and recorded in the history of the P&ID. The history associated with each P&ID was not transferred to the new drawings. This caused the revalidation attempt to be postponed until somebody could manually transfer the data and add additional MOCs that had been performed after the redraw effort.

Several years later, another redraw was performed without an appropriate MOC to manage this. Once again, confusion existed until all the new drawings were completed and personnel became competent at using them.

While PSM activities were focused on replacing the original P&IDs, management of procedures and training activities were sporadic. Lack of procedure management would lead to some interesting activities later.

During a compliance audit conducted by the PSM coordinator in 2006, it was recommended that “an integrated total facility type PHA “should be conducted. The reasoning given by the PS coordinator was that because the initial PHAs had been conducted on individual processes within the facility, many hazards had to have been missed. His thinking was that these hazards could only be found during a total facility type PHA. While it was strongly recommended that an administrative MOC should be performed on this, the coordinator ignored that suggestion and with the approval of the operations manager, hired a company to prepare and conduct the total PHA.

During the development of the facility’s PSM system, ten individual PSM applicable processes were identified within the plant. Based on the hazards, the age of the process and employee exposure, these processes were prioritized for conducting the initial PHAs
according to the schedule that OSHA directed in 1910.119. Each of these PHAs had been revalidated twice.

Even though an OSHA compliance officer and experienced PSM consultants recommended against abandoning the individual process PHA revalidations and replacing these with a total facility PHA, a friendly consulting company was hired, plant personnel were assigned to participate and two weeks in 2007 was budgeted for the study.

After one week, it was discovered that the study was far behind the schedule. Short cuts were taken to meet the deadline and personnel associated with the PHA agreed that the study was poorly done and was a waste of time and money.

Up until about 2009, there was a contract administrative assistant on staff to manage the documentation associated with the organization’s PSM system. A software package that was passed on during the divestment was being effectively used for management of change and tracking recommendations. It was about this time that the parent company decided to cut costs significantly and the contract administrative assistant was made redundant. Upper management still expected local managers to stay in compliance, but that message was not effectively communicated to the plant level. Plant personnel began ignoring some of the PSM requirements and performing spontaneously to address obvious hazards. There was nobody with expertise or time to manage the software package and stay current with documentation.

During this reduction in force, the corporate PSM coordinator, transferred to a position at another gas plant. Upper management decided that the corporate HSE department could manage the PSM program. This failed miserably and after a couple of years struggling with PSM, a corporate PSM coordinator was hired and PSM coordinators were assigned to several facilities.

By now, another total facility PHA was attempted. This attempt failed as spectacularly as the previous PHA and was subsequently ignored by facility personnel.

There was also turnover of about 1/3 of plant personnel. No organizational MOC was ever created for this turnover.

With the addition of increased staff to manage PSM, upper level managers were again made aware of the deficiencies in PSM at some locations. This and other issues led to dismissal of the plant’s superintendent and the maintenance foreman. No organizational MOC was ever created for this.

The local PSM coordinator was tasked with facilitating another total facility PHA. A few sessions were held and then a break was taken to gather more PSI and answer some questions that arose. During the break, the plant was scheduled for a shutdown to perform maintenance. The PSM coordinator was managing the development and modification of operating procedures to address the shutdown, isolation and start up of
the plant. A few weeks prior to the scheduled shutdown, corporate compliance auditors arrived and performed a compliance audit for all safety and environmental requirements. This included PSM. A couple of hundred audit findings were created and this seemed to create a sense of urgency in management to address the findings. Resources were assigned and work began on addressing the findings.

As the shutdown commenced, the PSM coordinator was fired. No organizational MOC was created for this.

Since the dismissal of the plant superintendent and maintenance foreman, the assistant plant foreman had been performing the duties of both positions. Prior to the dismissal, he had been assigned the responsibility to manage the plant’s MOC program, administer operating procedures, and manage and deliver training for plant operators. With the loss of the PSM coordinator, he was triple loaded with responsibilities.

One of the duties that the assistant plant foreman performed was to sign a document certifying that operating procedures were current and accurate. He had done this several times in the past, but he finally realized what he was actually signing his name to. Procedures had rarely been reviewed for accuracy and operators routinely stated that the procedures were not accurate and most operations tasks were freely performed without the aid of a written procedure. The assistant plant foreman refused to sign the document presented to him. This was met with shock and agitation, but a review of operating procedures history showed that there was considerable work that needed to be done on the procedures.

Upper management was beginning to realize that there were numerous compliance issues associated with process safety, and a PSM compliance audit conducted by US OSHA at another gas plant was the impetus to address these issues. A consultant was retained to assist.

Off and on from September 2013, through February 2014, a concentrated effort was made to update drawings, develop necessary procedures and prepare to conduct a PHA. The PHA was scheduled to begin the first week of February. While the HAZOP facilitator, the plant engineer and PSM consultants were identifying nodes; the assistant plant foreman and one plant maintenance technician were fired. No organizational MOC was created for this.

The first session of the PHA went off as scheduled. During the second week of the PHA session, it was announced that the HSE technician, with little to no oil and gas experience, had been made the plant foreman. No organizational MOC was created for this.

At the end of February, just prior to the second PHA session beginning, the PSM consultants were released and the company is now attempting to address outstanding PSM issues on their own.
Numerous breakdowns in process safety management are illustrated in this story. These breakdowns have not led to a catastrophic release of the process fluids or any major injuries to personnel. This in itself may be miraculous considering the number of near misses and incidents that have occurred. Human error is generally considered the root cause of these incidents.

From November through February, at least ten process safety incidents occurred. Of the ten, only three were reported and only two of the three were investigated. These process safety incidents led to small releases and the potential to injury or kill personnel if conditions had been just a bit different.

This organization does not consider process safety a core value. They have a difficult time deferring to expertise. There is no method in place to gauge the competency of personnel associated with process safety activities. Operations and business managers exhibit little to no knowledge of process safety, other than it exists.

When questioning facility personnel about the need to perform process safety functions, the general response is to personally attack the person questioning and create an excuse for not following through. Overall, if it’s inconvenient to perform process safety activities, there will be no performance.

There is an old saying: “It is better to be lucky than good.” This organization exhibits this on a daily basis. And when it is pointed out to them that they might want to consider becoming good, personnel are offended that someone would believe they aren’t good at what they do.

Organizations must experience a certain level of pain before change is made. This company has not experienced enough pain or learned from the pain of others. Hopefully, they can change enough to reduce the amount of pain to a tolerable level.