

Directors Corner



Often times, I am asked questions like, “What direction will PSM take in the future? What are the areas PSM will focus on moving forward? What about prescriptive approaches as compared to performance-based approaches? Will the US start requiring the use of Safety Case? Where is the US with regard to other developed countries in the area of safety? What about the use and application of IST and other technologies?” I have pondered all these questions and tried to frame my response based on the current science and knowledge, industry trends, and my predictions. It is important to emphasize that these are solely my opinions.

I believe that PSM is going to continue to evolve as a performance-based standard. It is not possible for a program like PSM to be prescriptive. So as new technology, procedures, and systems are standardized and accepted by industry, they will become required under PSM. Another factor that is a key issue is that in the US, the PSM and risk management programs currently do not directly take risk or probability into account. As time goes on, that is bound to change. I think that in the future a combination of both probability and consequence (i.e., risk) will be taken into account. Ultimately, whether the US and UK regulations start looking like each other only time will tell. I think there is a good possibility that will occur particularly if the science

and technology feeding both regulations is the same.

Some of the PSM elements that industry still seems to be struggling with are process safety information, process hazards analysis, management of change and mechanical integrity. As we move forward, we must find ways to maintain and use the most accurate, up-to-date, and complete process safety information. Note that the entire PSM program is based on the process safety information. So, if the information is bad, then we get “garbage in, garbage out.” With regard to the process hazard analysis, time and again, there have been occasions that PHA’s have not been well done and scenarios that should not have been missed are missed. In this regard, some of the issues that need to be addressed, is selection of PHA facilitators with appropriate experience, education and background; training of PHA participants; occasional audit of PHA’s by third-party experts; re-do of every PHA after the second revalidation (i.e., a PHA from scratch should be performed every 15 years); follow-up and resolution of PHA findings in a timely period. With regard to management of change, there are simply many occasions when a change is not identified and as such not subjected to an appropriate management of change process. What is needed is a very robust process for identification of change and then unfailing adherence to the management

of change procedures. Finally, I believe mechanical integrity is by far the most complicated and difficult element to implement. Even though the requirement is stated very simply--have written procedures for a list of equipment; the task gets quite complex after that. In short, just identifying which parts and equipment in the process should be covered in the mechanical integrity program becomes a major effort. Then, developing the program in sufficient specificity to the instruments and equipment involved is quite complex. And then, finally complying with each and every inspection and testing process, taking corrective action, and then modifying the program based on continuing observation of the process and equipment performance. I believe that both process safety information and mechanical integrity implementation can be immensely improved by adopting and using computerized data gathering and analysis software.

With regard to process safety and risk management program, I believe that a fully prescriptive approach is not possible. In fact, a completely prescriptive approach does not make any sense at all. How can one size fit all? How can one program work for all plants irrespective of the hazard and the risk involved? While there are many discussions regarding the safety case approach and its application to the US offshore industry, I believe it is still too early to tell. One thing is clear, however, the US offshore industry is going to see more regulations and I for one hope that these regulations are performance-based and risk-based. On the other hand, there are certain cases where a prescriptive approach is needed, e.g., cases where the outcome is clearly known and the consequences are clearly known as well. For example, lock-out/tag-out must be done whenever energized equipment or anything that could be energized is worked on.

Where is the US versus other developed countries in the area of process safety? Most countries in Europe are farther ahead in developing and implementing process safety and risk management programs. This stems from many facts, the most primary one being that population zones are quite congested and the perception of risk is much more mature. The other thing is that regulation and risk management practices are based on risk and not just consequences.

In the area of inherently safer technologies IST– do we see any step change taking place in industry? Yes, in the area of IST, some advances are being made. However, I must note that IST has not yet become part of any legislative or regulatory requirements. Some in the US Congress are still pushing for legislation. DHS has also undertaken significant work in addressing a consensus definition of IST, developing metrics for IST, and developing methods and procedures for IST analysis.

Given all I have just stated above, I think PSM has several areas where we as a community of engineers, scientists and legislators need to be careful how we ‘improve’ our nation’s safety. This is not to say that we should not strive to make improvements, but always with science in the forefront of our decision-making.

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