



CSA PSM Standard Promotional Events: Proposal (draft #4)

R. Andersson April 12, 2017

A. Proposal:

The Canadian Society for Chemical Engineering (CSCHE), a constituent society of the Chemical Institute of Canada (CIC), is proposing to run a series of webinars, presentations at industry conferences and a series of one-day promotional / training workshops in 2017 on the new Canadian Standards Association (CSA) Group Z767-16 Process Safety Management (PSM) Standard. The purpose of the events is threefold:

- Create a strong awareness of PSM and the new Standard across Canada in a wide range of government (federal, provincial, municipal) departments and industrial sectors.
- Introduce and train government regulators on how they can use the Standard to help reach their mandate objectives in the requirements for a PSM system for facilities and worksites handling or storing materials that are potentially hazardous.
- Prepare industrial attendees to use the Standard to identify the performance requirements to implement a PSM system or to those that have already have a plan in place.

B. Introduction / Background:

In a country with no prescriptive legislation or regulations on PSM, the CSCHE has taken the lead since the demise of the Major Industrial Accidents Council of Canada (MIACC) in 1999. The CSCHE PSM subject division was created in 2000 with its activities and programs growing over the years; some of these are:

- PSM Committee meets face-to-face three to four times annually to discuss strategies and planning;
- Running an annual three-day Process Safety and Loss Management (PSLM) symposium at the annual CSCHE Canadian Chemical Engineering Conference (since 2001);
- The development of many PSM tools (publications) including its own PSM Standard in 2012 (seed document for Z767).
- Running seminars (e.g., LNG in Vancouver September 2005 in partnership with the American Institute of Chemical Engineers (AIChE), Canadian Environmental Protection Act (CEPA) Section 200 for Environment Canada in Toronto (February 2004) and Edmonton (March 2004))

In 2013 the CSCHE approached the CSA Group about the development of a CSA PSM Standard; the relationship progressed rapidly with the CSCHE / CSA Group signing an



Agreement in 2014. CSChE raised the necessary funding by early 2015 and provided the nucleus of members for the CSA Group Technical Committee.

C. PSM Market

i. Industry

The market for PSM training is large in Canada; well into the thousands of facilities and worksites handling or storing materials that are potentially hazardous. An estimation of numbers is:

- Approximately **4,200 sites** have required notification to Environment Canada's Environmental Emergency Regulations re Regulatory Impact Analysis Statement (RIAS). Of this total number, **about 2,400** have had to meet all of the reporting and planning criteria outlined in the regulations because of container size and quantity on site.
- Innovation, Science and Economic Development Canada shows **2,734 Establishments** in Canada in 2010 for Chemicals and Chemical Products based on the North American Industry Classification System (NAICS) code 325. This **excludes** field processing of crude petroleum and natural gas (code 211), mineral ores (code 212), processing of crude petroleum and coals (code 324) and smelting and refining ores and concentrates (code 331).

ii. Government (federal, provincial, municipal)

Statistics are more difficult to estimate for government bodies; however one need only think of chemical storages in universities, hospitals, government research facilities and military establishments to think that the order would be at least 1,000 plus sites.

D. Training Government Regulators and Workplace Safety Training Agencies

The CSChE will initially reach out to government regulators in terms of introducing and reviewing how they can use the Standard to help reach their mandate objectives in the requirements for a PSM system for facilities and worksites handling or storing materials that are potentially hazardous. This initial step will help "develop a demand" for industry awareness and training.

Provincial workplace training agencies have outreach to all industrial sectors. They are provincially funded and have training facilities. We should reach out to them in terms of potential partnering and use of their facilities (cost reduction).

The natural starting point will be with the many government regulators and workplace training agencies that were on the CSA Technical Committee. These were Environment and Climate Change Canada; Alberta Energy Regulator (AER); Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST Quebec); WorkSafeNB; Ontario Technical Standards & Safety Authority (TSSA); and BC Gas & Oil Commission.



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Champions: WHO(?), Graeme Norval



Training Industry: CSA PSM Standard Workshop Outline:

The industrial training workshop is meant to be interactive with plenty of networking opportunities. The four foundational pillars of PSM will be reviewed in separate sessions; these are:

- Process safety leadership;
- Understanding hazards and risks;
- Risk management; and
- Review and improvement.

Please see *Appendix A* for a sample Workshop Outline. After the seminar, the registrants should have the basic knowledge and networking connections to start implementing their own company PSM systems.

Note that a full and detailed training course in PSM would entail all of the separate elements in each of the above noted pillars; such a course is “estimated” to run from three to five full working days according to the CSChE PSM Committee.

E. Locations and Targeted Industry Sectors:

Since 80% of the Canadian chemical-related industry is located in Alberta, Ontario and Quebec, the preliminary thinking by the CSChE PSM division is to hold the one-day workshops in Calgary, Edmonton, Toronto and Montreal (French).

The CSChE will reach out to its many connections within the chemical trade associations, governments and universities (e.g., special rate for students) to help promote the seminars. This will include not only chemical companies focusing on manufacture and distribution, but also industries such as biotechnology, coatings, crop protection, environmental services, fertilizer, food, mining/metal extraction, oil/gas, pharmaceuticals, plastics, pulp & paper and synthetic fibres.

In Canada, the larger international chemical and petroleum producing companies have technical employees specialized in PS and PSM systems, which meet global legislative and regulatory requirements. These companies, will still be encouraged to participate in the seminars as they can provide tremendous networking opportunities within their communities for the targeted companies, such as SMEs, as well as those that are larger by sales definition, but have limited technical expertise (e.g., processing plants often have only limited technical staff such as engineers and chemists). These are the ones with limited PSM knowledge and are often in need of help to get started.



Government departments and regulatory agencies will be encouraged to help promote the PSM seminars and to participate (e.g., present existing relevant legislation and regulations). Environment and Climate Change Canada; Alberta Energy Regulator (AER); Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST Quebec); WorkSafeNB; Ontario Technical Standards & Safety Authority (TSSA); and BC Gas & Oil Commission were all involved on the CSA PSM STD Technical Committee and are expected to reach out to their respective area industries. The CSChE PSM division also has many members within university chemical engineering departments.

F. 2017 Workshop Schedule (preliminary)

The CSA PSM Standard launch was February 2017. Preliminary thoughts on locations and dates are:

- September 12 Calgary
- September 14 Edmonton
- November 14 Toronto
- November 16 Montreal
- Above will all have to be discussed /confirmed with instructors and potential hosts (e.g., TSSA, Enform, Canadian Association of Petroleum Producers (CAPP))

G. Workshop Registration Fees:

To attract SMEs, the registration fees should be “reasonably” priced. By partnering with organizations such as Enform, CAPP, TSSA, etc. we should be able to reduce some of the higher expenses (e.g., room costs, AV, food & beverage) associated with commercial vendors (e.g., hotels). The proposed fee is \$225 for career people, which will give the registrant:

- Handout materials such as the instructor’s PowerPoint presentations slide deck (room for notes), CSA Group Z767-16 PSM Standard (TBC), and CSChE PSM Site Self-Assessment Tool.
- Coffee (early morning, mid-morning, afternoon) and lunch.
- A one-year membership (\$157 value) in the CSChE PSM subject division, which will give the registrant connections to 300 plus PSM members; many of whom are career experienced in PSM.

A student registration fee of \$50 should be offered.

Budget Estimations: Draft budgets have not been prepared for any of the locations for the industrial training workshops. We could conservatively estimate that:



- attendance should be in the order of 30 to 60 career people (\$6,750 to \$13,500 in registration fees) and 5-10 students (\$375 to \$750 in registration fees);
- Typical hotel costs are \$1,250 for a large enough room, \$1,000 for AV, \$60 per person for coffee and lunch;
- thus overall hotel costs for 30 career and 5 students would be \$4,350 and for 60 career and 10 students it would be \$6,450;
- instructor's travel and accommodation expenses;
- administrative costs for CIC would be \$35 per registrant for registration services / credit card fees and logistics and arrangements; and
- CSA costs for the CSA PSM Standard would be ???

H. Champions (Instructors / Facilitators)

For Calgary and Edmonton, the CSChE will use the services of Gerry Phillips. Gerry Phillips will not charge a fee as he sees this service as "putting back into the community." CSChE will cover his travel and accommodation expenses. Gerry Phillips was the author of the CSChE PSM Standard; the template tool that was used in the development of the CSA PSM Standard. Gerry Phillips was the CSChE Vice-President, President and Past President from 2003-2006.

For Toronto, the CSChE could ask BakerRisk to lead the workshop.

For Montreal, the CSChE must still confirm a presenter to give the seminar in French. There are several strong candidates that have been involved in PSM for decades and are well known within the Quebec and national PSM community.



APPENDIX A: INDUSTRY CSA PSM STANDARD WORKSHOP OUTLINE

Registration will start at 07:30. The workshop should begin between 8:30 and 9:00 AM. Coffee and snacks should be available for the participants and Instructor. Coffee breaks and lunch will provide an opportunity for the participants to network.

The workshop should provide exercises that will assist the participants in developing their own company PSM systems. The US based Center for Chemical Process Safety (CCPS) has several documents that will be useful in developing site-specific standards.

07:30	Registration
08:30	Welcome and Introductions. <ul style="list-style-type: none">• This should include their position in the company and what they expect to get out of the workshop
09:00	Description of the CSA PSM Standard
09:30	Leadership and Accountability as the basis for company participation. <ul style="list-style-type: none">• Without support from company leaders there can be no PSM Program
10:30	Coffee break
10:45	Participation - Identify key concepts in developing a HSE Company Policy
11:15	Sharing of Key concepts and discussion amongst participants
11:45	Lunch
12:15	Hazard Identification as the basis of Process Safety Management <ul style="list-style-type: none">• This will include discussion of the seven process hazards – Fire, Explosion, Exposure to Hazardous Airborne Material, Exposure to Hazardous Liquids and Solids, Material, Electrical Shock and Exposure to Ionizing Radiation. We can also discuss ways to develop the Process Hazard Analysis.
13:30	Risk Assessment for dealing with PSM Issues/Concerns <ul style="list-style-type: none">• Risk assessments can vary from a field level risk assessment prior to undertaking a task to a full site QRA. Participants need to know where to start. Acceptable risk is the risk that workers are willing to accept.
14:30	Coffee Break
15:00	Incident Investigation Techniques Incidents will occur. It is critical that they be investigated and addressed to prevent recurrence.
16:00	Open discussion with participants.
17:00	Closing Remarks