

**U.S. Chemical Safety and  
Hazard Investigation Board**

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December 20, 2018

Ms. Tari Enos  
Administrative Regulations Analyst  
Department of Labor and Industries  
Division of Occupational Safety and Health (DOSH)  
PO Box 44620  
Olympia, WA 98504  
Email: [tari.enos@lni.wa.gov](mailto:tari.enos@lni.wa.gov)

Dear Ms. Enos:

Thank you for the opportunity to provide comments on the State of Washington Department of Labor and Industries (L&I) Division of Occupational Safety and Health (DOSH) proposed rulemaking to amend Chapter 296-67 WAC, *Safety Standards for Process Safety Management of Highly Hazardous Chemicals*. The proposed regulation has the potential to serve as a model for process safety management (PSM) modernization nationally, and, like the recently adopted California PSM standards, will help prevent accidents and protect workers in petroleum refineries.

Following the U.S. Chemical Safety and Hazard Investigation Board's (CSB) investigation of the April 2, 2010, Tesoro Anacortes Refinery catastrophic heat exchanger rupture that led to seven fatalities, the CSB issued three recommendations to the Governor and Legislature of the State of Washington to enhance and strengthen Washington's PSM program.<sup>1</sup> Those same recommendations are listed in Appendix A.

The CSB reviewed the second draft of Washington's proposed PSM regulation, dated September 24, 2018, and provides these comments.

**Definition of "Outage"**

The CSB recognizes that turnarounds are now incorporated into the definition of "outages." The definition of "outages," however, still does not include unplanned shutdowns. Under this definition, turnaround could be masked as an unplanned shutdown, thereby avoiding the regulatory requirements. The CSB encourages L&I to revise this language to address this potential issue.

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<sup>1</sup> USCSB. 2014. Investigation Report: Catastrophic Rupture of Heat Exchanger, Tesoro Anacortes Refinery. <https://www.csb.gov/file.aspx?DocumentId=5851>.

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### **Process Safety Indicators**

Regarding process safety indicators, the draft PSM regulation only states: “The employer must develop, implement and maintain an effective program to track, document, and assess leading and lagging factors against process safety performance indicators.”

The CSB has noted that process safety indicators that can help drive performance are a key feature of a robust PSM program. Through the collection and assessment of process safety indicators, a regulator may identify issues and shortcomings that, if corrected, may help prevent future incidents. Implementing robust requirements on process safety indicators will allow L&I and the industry to better understand whether the updated regulation is working, and what parts, if any, need revision. Indicator data could also help save government resources by helping state regulators to focus resources and attention on priority areas where specific employers are struggling in terms of safety performance or that appear as problematic to the refining industry, while deferring on inspection or audit activities where data suggest problems or trends do not appear as discernable or are less pressing.

The CSB encourages L&I to add greater detail to the process safety indicators section of the proposed PSM regulations by including specific measurable and actionable leading and lagging indicators. The CSB also encourages L&I to include language requiring employer submission of such data on a regular basis to the Division and L&I to use for continuous process safety improvement and accident prevention, to identify trends and deficiencies, and to make publicly available, including publishing such data in real time or in an annual report.

A model that L&I could follow would be the Contra Costa County Industrial Safety Ordinance (ISO) and the California Accidental Release Prevention (CalARP) program regulations, which include language to require reporting of leading and lagging indicators. The CalARP regulations will require all California petroleum refineries to report indicator data annually beginning in 2019 to the California Governor’s Office of Emergency Services (Cal OES) and the local Unified Program Agency (UPA), the local agency responsible for implementing the CalARP Program. Cal OES will then make these indicators public by posting them on their website. The indicators listed as required are: 1) past due inspections for piping and pressure vessels; 2) past due PHA corrective actions and seismic corrective actions; 3) past due incident investigation corrective actions for major incidents; 4) the number of major incidents that have occurred since the updated regulations were passed; 5) the number of temporary piping and equipment repairs installed on hydrocarbon and high energy utility systems that are past their date of replacement with a permanent repair and the total number of temporary piping and equipment repairs installed on hydrocarbon and high energy utility systems; and 6) site-specific indicators, consisting of activities and other events that are measured in order to

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evaluate the performance of process safety systems for the purpose of continuous improvement.<sup>2</sup>

### **RAGAGEP**

The definition of “Recognized and Generally Accepted Good Engineering Practices,” or RAGAGEP, does not currently include safety guidance and reports published by the Center for Chemical Process Safety (CCPS) or the American Institute of Chemical Engineers (AIChE). The CSB notes that federal OSHA consistently references CCPS publications as “compliance guidelines” and RAGAGEP. To be consistent with modern PSM good practice and federal OSHA compliance guidelines,<sup>3</sup> the CSB urges L&I to include reference to CCPS and AIChE in the definition of RAGAGEP.

### **Compliance Audits**

The draft language currently does not require that the audit report include documentation of all deficiencies and corrective actions taken. The CSB urges L&I to require documenting all deficiencies identified, in addition to recommendations and corrective actions needed, which is necessary to help inform the regulator that the facility is continually working to identify hazards and reduce risks. The benefit that this enhanced type of documentation offers greatly outweighs the de minimus effort needed to capture well understood data. Combined with enhanced indicator data, employers will be better positioned to broaden their focus on prevention efforts, and a richer, documented factual matrix will exist for the benefit of the regulator. Additionally, L&I should require that compliance audits be submitted to the Division upon their completion.

### **Emergency Planning and Response**

The CSB encourages L&I to restore similar language from the first draft that required documentation of the nature and agreement between itself and any expected assistance from external emergency response organizations during an emergency.

This language could read as follows: “(2) The written plan must specify how an emergency response will be executed if it exceeds the capability of the employer’s internal emergency response team. External emergency response organizations shall have an opportunity to review and have input into the plan. If the employer intends to utilize external emergency response entities during an emergency, it shall submit to the Division a copy of the written plan that includes any such agreement between the employer and such external entities.”

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<sup>2</sup> See Section 2762.16(h) of the CalARP Program Regulations at <http://www.caloes.ca.gov/FireRescueSite/Documents/CalARP%20Regs%20Title%2019%20Division%20%20Chapter%204.5.pdf>.

<sup>3</sup> Federal OSHA has used CCPS guidance as compliance guidance, and hence RAGAGEP, for some time. For example, see OSHA Directive CPL 03-00-010, *Petroleum Refinery Process Safety Management National Emphasis Program*. August 18, 2009. [https://www.osha.gov/OshDoc/Directive\\_pdf/CPL\\_03-00-010.pdf](https://www.osha.gov/OshDoc/Directive_pdf/CPL_03-00-010.pdf) (accessed April 13, 2018).

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Such a requirement is important as it helps illustrate whether and to what extent a refinery is trying to involve local emergency response organizations in emergency response drills and practices. The CSB does not believe this language would be duplicative of the language in anticipated EPA Risk Management Program (RMP) regulations. It is also important that L&I have its own enforcement authority for this element of emergency response and planning.

### **Trade Secrets**

The section on “trade secrets” on page 35 undermines the ability of employees to learn about, understand, and help prevent and mitigate hazards. Paragraph (1) should be deleted in its entirety. Paragraph (2) should be removed from page 35 and placed within the Employee Collaboration language. CSB believes that this approach to concerns about disclosure of trade secrets would be more consistent with the approach taken by the California regulations. Additionally, L&I should specify a definition of trade secrets, which may already be provided elsewhere in the state laws of Washington, to help clarify this issue.

### **Legal Terminology**

The terms “chapter”, “section”, “subsection” and “part” are used interchangeably. We were confused by this and urge you to review the appropriate use of the relevant legal terms for intent and accuracy.

### **Conclusion**

Adoption of the proposed changes to the next version of the proposed PSM regulation will ensure a robust Washington petroleum refinery PSM program that meets the intent of the CSB recommendations and helps prevent future incidents.

We look forward to participating in the public hearing(s) on the proposed regulation.

Thank you again for your continuing efforts to protect Washington refinery workers and the public. If you have any questions, please contact Mr. Charles Barbee, the CSB’s Director of Recommendations, at (202) 380-7122 or via email at: Charles.Barbee@csb.gov.

Sincerely,



Kristen M. Kulinowski, PhD  
Interim Executive and Administrative Authority

Enclosure

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**Appendix A:** CSB's Tesoro Anacortes recommendations to the Washington State Governor and Legislature.

### **CSB Recommendation No. 2010-08-I-WA-R5**

*Based on the findings in this report, augment your existing process safety management regulations for petroleum refineries in the state of Washington with the following more rigorous goal-setting attributes:*

- a. *A comprehensive process hazard analysis written by the company that includes:*
  - i. *Systematic analysis and documentation of all major hazards and safeguards, using the hierarchy of controls to reduce those risks to as low as reasonably practicable (ALARP);*
  - ii. *Documentation of the recognized methodologies, rationale and conclusions used to claim that safeguards intended to control hazards will be effective;*
  - iii. *Documented damage mechanism hazard review conducted by a diverse team of qualified personnel. This review shall be an integral part of the Process Hazard Analysis cycle and shall be conducted on all PSM-covered process piping circuits and process equipment. The damage mechanism hazard review shall identify potential process damage mechanisms and consequences of failure and shall ensure effective safeguards are in place to control hazards presented by those damage mechanisms. Require the analysis and incorporation of applicable industry best practices and inherently safer design to the greatest extent feasible into this review, and*
  - iv. *Documented use of inherently safer systems analysis and the hierarchy of controls to the greatest extent feasible in establishing safeguards for identified process hazards. The goal shall be to drive the risk of major accidents to As Low As Reasonably Practicable (ALARP). Include requirements for inherently safer systems analysis to be automatically triggered for all Management of Change and Process Hazard Analysis reviews, prior to the construction of new processes, process unit rebuilds, significant process repairs, and in the development of corrective actions from incident investigation recommendations.*
- b. *A thorough review of the comprehensive process hazard analysis by technically competent regulatory personnel;*
- c. *Required preventative audits and preventative inspections by the regulator;*
- d. *Require that all safety codes, standards, employer internal procedures and recognized and generally accepted good engineering practices (RAGAGEP) used in the implementation of the regulations contain adequate minimum requirements;*
- e. *Require an increased role for workers in management of process safety by establishing the rights and responsibilities of workers and their representatives on health and safety-related matters and the election of safety representatives and*

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- establishment of safety committees (with equal representation between management and labor) to serve health and safety-related functions. The elected representatives should have a legally recognized role that goes beyond consultation in activities such as the development of the comprehensive process hazard analysis, management of change, incident investigation, audits, and identification and effective control of hazards. The representatives should also have the authority to stop work that is perceived to be unsafe or that presents a serious hazard until the regulator intervenes to resolve the safety concern. Workforce participation practices should be documented by the company to the regulator; and*
- f. Requires reporting of information to the public to the greatest extent feasible such as a summary of the comprehensive process hazard analysis which includes a list of safeguards implemented and standards utilized to reduce risk, and process safety indicators that demonstrate the effectiveness of the safeguard and management systems.*

### **CSB Recommendation No. 2010-08-I-WA-R6**

*Establish a well-funded, well-staffed, technically qualified regulator with a compensation system to ensure the Washington Department of Labor and Industries regulator has the ability to attract and retain a sufficient number of employees with the necessary skills and experience to ensure regulator technical qualifications. Periodically conduct a market analysis and benchmarking review to ensure the compensation system remains competitive with Washington petroleum refineries.*

### **CSB Recommendation No. 2010-08-I-WA-R7**

*Work with the regulator, the petroleum refining industry, labor, and other relevant stakeholders in the state of Washington to develop and implement a system that collects, tracks, and analyzes process safety leading and lagging indicators from operators and contractors to promote continuous process safety improvements. At a minimum the program shall:*

- a. Require the use of leading and lagging process safety indicators to actively monitor the effectiveness of process safety management systems and safeguards for major accident prevention. Include leading and lagging indicators that are measureable, actionable, and standardized. Include indicators that measure safety culture, such as incident reporting and action item implementation culture. Require that the reported data be used for continuous process safety improvement and accident prevention;*
- b. Analyze data to identify trends and poor performers and publish annual reports with the data at facility and corporate levels;*
- c. Require companies to publicly report required indicators annually at facility and corporate levels;*

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- d. Use process safety indicators (1) to drive continuous improvement for major accident prevention by using the data to identify industry and facility safety trends and deficiencies and (2) to determine appropriate allocation of regulator resources and inspections; and*
- e. Be periodically updated to incorporate new learning from world-wide industry improvements in order to drive continuous major accident process safety improvements in Washington.*