

## Positive Changes from Draft 1 to Draft 2

### Definitions

1. Feasibility: Added economic factors to considerations of feasibility, while noting that economic factors must not be the sole basis in determining feasibility.
2. Process Equipment: Updated the definition
  - a. 1<sup>st</sup> draft—"Equipment that is part of a process"
  - b. 2<sup>nd</sup> draft—"Including but not limited to pressure vessels, rotating equipment, piping, instrumentation, process control, or appurtenances related to the process."
3. Process Safety Culture: Removed reference to environment, as Process Safety Culture is focused on safety.
  - a. This is not to say that environmental impact is not a critical consideration, but it is not Process Safety.

#### Qualified: Replaced Qualified Operator with Qualified

- a. 1<sup>st</sup> Draft—Qualified Operator was defined generically as any person who is qualified to perform their assigned tasks with no specific reference to "Operator" or "Operating" or "Operations"
  - a. This made the "Qualified Operator" definition incorrect in the 1<sup>st</sup> draft.
  - b. The term Qualified can be applied to any role and used to gauge if an employee is qualified to represent their specific craft on a PSM team.
4. Toxic: Replaced with reference to WAC 296-901-14022 (A.1)
  - a. 1<sup>st</sup> Draft—An unreasonable risk to health or the Environment.
    - i. Vague and Incomplete definition

### Employee Collaboration

1. (4)(a)(i) Added the phrase "delay the performance..." in reference to Stop Work authority
  - a. The authority of all affected employees, including employees of contactors, to refuse or delay the performance of a task...
    - i. Not all Stop Work is a refusal to perform a task. Often it is a "Pause Work" to reassess or institute additional controls. The idea of "delay" captures this.
2. (5) Removed requirement for a written log documenting instances when Stop Work authority was activated.
  - a. We repeatedly emphasized that a written log would discourage the Stop Work authority and have a negative impact on safety culture.

### Process Safety Information

1. (5) Removed Piping and Instrument Diagram from "Information pertaining to the Technology of the Process..."
  - a. P&IDs were listed in both information pertaining to the technology of the process AND information pertaining to the equipment in the process.
    - i. Redundancy was not necessary, follow outline of OSHA 1910.119 and Original WAC 296-67 and list PFDs with technology and P&IDs with equipment.

2. (7) Added “where RAGAGEP has been established for that process”
  - a. Simple clarifying statement that acknowledges that RAGAGEP does not exist for all process technologies or process equipment.
  - b. Adds to the idea that “more protective internal practices that ensure safe operation are acceptable”

### **Hazard Analyses**

1. (1)(e) Removed “promptly address” & changed “person” to “affected employees”
  - a. The team must document ~~and promptly address~~ its findings and recommendations in a PHA report, which must be available in the respective work area for review by any ~~person~~ affected employees working in that area.
    - i. PHA teams don’t address findings and recommendations.
    - ii. PHA reports should not be available to just any person working in the area, but rather only those defined as affected employees.
      1. Still need to work on the definition of affected employees.
2. (3)(e) The employer must append the HCA report to the PHA report
  - a. 1<sup>st</sup> Draft identified HCA report as stand-alone and needing to be retained for the life of the process.
    - i. Appending it to the HCA is the appropriate relationship for the two analyses.
  - b. L&I still needs to address the expert feedback that HCA is ineffective as an independent study on existing equipment but, rather a methodology for selection of new safeguards whether through project design or to close risk gaps.
3. (3)(e)(v) removed reference to “best practices”
  - a. Regulations can’t enforce “best practice” because, often, best practice is subjective and not generally accepted.
4. (4) added “in accordance with WAC 296-67-XXXX Corrective Action Program”
  - a. 1<sup>st</sup> Draft—“The Employer must Implement all recommendations”
    - i. No process for recommendation rejection
  - b. Corrective action program covers prioritization and implementation of corrective actions, including process for rejection

### **Operating Procedures**

1. (1)(c)(vi) Changed specific to Unique
  - a. Any Special or ~~specific~~ Unique hazards in relation to required considerations in Operating Procedures

### **Training**

1. (1) Initial Training section separated out Operations employees and maintenance employees and the required training is now applicable to the role.
  - a. Example: Operators trained in Operating procedures, maintenance employees trained in safe work practices.
  - b. 1<sup>st</sup> Draft required all employees to be trained in operating procedures
2. (2) Refresher Training separated out Operations employees and maintenance employees and the required training is now applicable to the role.

- a. Example: Operators trained in Operating procedures, maintenance employees trained in Maintenance procedures.
- b. 1<sup>st</sup> Draft required all employees to be trained in operating procedures

### **Mechanical Integrity**

- 1. (1)(a) Removed the term “Leading factors”
  - a. 1<sup>st</sup> Draft—Was used in reference to written MI procedures and that they, “must include a documented review of Industry Leading Factors”
    - i. It was unclear what Leading Factors are in relation to MI: KPIs? Damage mechanisms? MI related incidents?
    - ii. It was unnecessary to have another documented review as part of PSM.
      - 1. Develop the MI procedures that will support efforts to ensure integrity.
- 2. (5)(f) Added qualifier “in similar service”
  - a. 1<sup>st</sup> Draft—“Once equipment deficiency is identified, substantially similar equipment throughout other areas of the facility must be evaluated for the same deficiency.”
  - b. 2<sup>nd</sup> Draft—“Once equipment deficiency or failure mechanism is identified, substantially similar equipment in similar service must be evaluated for the same deficiency.
    - i. This change will serve to appropriately limit scope of MI evaluation after a deficiency is discovered. Scope should not be based solely on the equipment similarity but also the service of the equipment.

### **Damage Mechanism Review**

- 1. (11) Removed required elements of DMR report
  - a. Damage mechanism flow diagrams, P&IDs, or other technical data relevant to the report
    - i. Including the process drawings into the DMR is unnecessary and adds administrative burden to a report that must be retained for the life of the process.
    - ii. Document numbers and revision numbers can be documented in the report
  - b. Operating metrics, instrumentation and alarms, and other related equipment that could cause, worsen, or mitigate a damage mechanism.
    - i. Requirement was unclear and served to provide little value to the DMR report

### **Management of Change**

- 1. (2)(b) Wording changed to focus on process safety implications of a change
  - a. 1<sup>st</sup> draft—“MOC procedures must ensure the following considerations... (b) Impact of change on safety and health.”
  - b. 2<sup>nd</sup> draft—“MOC procedures must ensure the following are address... (b) Potential process safety impacts of the change.”
- 2. Removed requirement for “author, staff member, employer representative, or manager who is responsible for the management of change must participate in the MOC exercise with affected personnel; and certify in writing that the MOC evaluation is safe, complete, and all action items are completed prior to executing the change.”
  - a. To granular in the “How” MOC must be conducted
  - b. Many of the requirements here overlap what is already required in PSSR.

### **Incident Investigation**

- 1. (6) Cleaned up language pertaining to required timing of report completion.

- a. 1<sup>st</sup> draft—Required the written report within 90 days, unless demonstration in writing is provided for an extension. Extension request must be within first 90 days and every 30 days thereafter but the final investigation report must be complete within 4 months.
  - i. Very confusing, no real benefit of extensions, must have clear cut deadlines
- 2. Removed requirement for Investigation team to update the SPA as part of the investigation
  - a. Investigation teams do not update SPA, they make recommendations for qualified personnel to update SPA.

### **Emergency Planning and Response**

- 1. (2) Cleaned up language on mutual aid agreement requirements
  - a. 1<sup>st</sup> Draft—Placed undue burden on requirements within mutual aid agreements including involvement of external emergency response entity on “all drills, scenarios, response time sequences and debrief action items.”
    - i. Creating burden for municipal departments and refineries will discourage an effective mutual aid relationship.
    - ii. Many, perhaps all, municipal departments cannot meet this requirement, as they do not have the resources to be involved in every drill, scenario, response time sequence and debrief conducted by a refinery.
    - iii. The 2 Anacortes refineries and the 2 Whatcom County refineries fall under 2 municipal departments’ jurisdictions, doubling the burden for those departments.
      - 1. Skagit County Fire District 13 covers March Point
      - 2. Whatcom County Fire District 7 covers BP & Phillips 66
  - b. 2<sup>nd</sup> Draft—Basically just requires that the refinery have a plan for mutual aid for responses that exceed the capability of the refinery.

### **Human Factors**

- 1. (2) replaced “industry best practices” with RAGAGEP
  - a. Regulations can’t enforce “best practice” because, often, a best practice is subjective and not generally accepted.

### **Corrective Action Program**

- 1. (1) Replaced “process safety performance indicators recommended” with Recommendations
  - a. Introduced a new, un-defined, and confusing term, when what really was being addressed is recommendations from the various analyses.
- 2. (12) Added verbiage “unless the employer demonstrates in writing that it is infeasible to do so”
  - a. 1<sup>st</sup> Draft—required that corrective actions requiring a process shutdown be completed during the regularly scheduled turnaround after the analyses.
    - i. Does not account for feasibility of the repair and how setting hard deadlines can promote “band-aid” fixes rather than the correct action.
  - b. 2<sup>nd</sup> Draft allows for written demonstration that the right fix is infeasible by the next shutdown.

## Comments/Recommendations for Draft 2

Text in (parentheses) is referencing the numbering in Draft 2 of the Regulation

Text that is formatted with ~~strikethrough~~ is language from the current Draft 2 that I recommend removing

Text that is formatted with ***italics and bold*** is language that is not in the current Draft 2 that I recommend adding

### Definitions

1. Affected Employee: Anyone who controls, manages, or performs job tasks in or near a process ***whose job involves or is impacted by the application of the process safety elements listed in this chapter.***
  - a. The way the term is used in the regulation ties this term directly back to the specific process safety element where the term is used.
    - i. Example: Written Operating Procedures must be readily accessible to all affected employees, including the employees of contractors...
  - b. As shown in the above example the term affected employees here is used to require employees that are affected by Operating Procedures to have ready access to them.
  - c. “Anyone [all people] who controls manages or performs job tasks in or near a process unit” are not impacted by operating procedures and do not need ready access to them.
    - i. The qualifier recommended above would clarify that any employee whose job involves or is impacted by Operating Procedures need access to them, which is accurate.
      1. Maintenance contractors don’t need ready access to procedures that cover “steps for each operating phase or mode of operation” because they do not operate the units.
      2. Maintenance contractors need ready access to Safe Work practices and Maintenance procedures.
  - d. This increased clarity in definition would be applicable throughout the entire regulation.
2. Hot Work: ...including the use of non-intrinsically-safe equipment
  - a. Do not include this as a part of the Hot Work definition as it is not part of Hot Work
  - b. WAC 296-24-695, as referenced in the Hot Work section, covers the fire prevention and protection requirements for welding and cutting, not non-intrinsically-safe equipment.
3. Human Factors: (f) “potentially adverse consequences created by the design of equipment or systems within a process ***as it relates to Human interaction.***”
  - a. Need to add a qualifier in order for this line to be clearly linked to Human factors.
  - b. All adverse consequences created by the design of equipment are not part of human factors.
    - i. Example: HTHA and metallurgy design is not HF related.
4. Independent Protection Layer: Use the AIChE CCPS definition
  - a. ***A device, system, or action that is capable of preventing a scenario from proceeding to the undesired consequence without being adversely affected by the initiating event or the action of any other protection layer associated with the scenario.***
  - b. Include the sentence from the current draft 2 about independence except change are to must be—
    - i. “IPLs are ***must be*** independent of an initiating cause and...”

5. Isolate: Remove the word “completely”
  - a. “To ~~completely~~ protect workers against the release...”
    - i. No isolation or safeguard or barrier can be said to completely protect workers.
  - b. Often installation of isolation has its own energy risk and, therefore, can’t be said to completely protect workers against the release of energy.
    - i. It is about risk management and incident prevention.
    - ii. Example-You install blinds to significantly reduce the risk of a task but there is never 100% iron-clad guarantee of worker protection.
  - c. (C) Single valve isolation with verification of isolation is acceptable by isolation standards. This definition, however, does not include SVI as an isolation method.
    - i. Include **Single Valve with isolation verification** as a listed option under the definition of isolate
  - d. (c)Alternative isolations are sometimes required and safely applied. This definition, however, does not include alternative isolations as an isolation method
    - i. Include **Alternative isolation methods including but not limited to: mechanical expanded plugs, buoys, stopples, and PSVs.**
  
6. Outage: ~~“Outages also include the reduction of temperatures and/or pressures within equipment and total or partial shutdowns of a process to...”~~
  - a. Remove this sentence. A change to a process variable is NOT an Outage regardless of why it is done-maintenance or otherwise.
    - i. Can you provide a specific example of what behavior/action L&I is trying to prevent by including this wording?
  - b. (a), (b), (c): How are these three items significantly different? If sentence above remains (recommend removing it) these three items can be combined into one concept (for clarity).
    - i. **Total or partial shutdowns of a process to perform maintenance.**
  
7. Preventative Maintenance: “Preventative Maintenance tasks are those activities that are carried out when process equipment is shut down”
  - a. This is not an accurate definition. Examples below:
    - i. PM while online—Online oil change on pump, online filter change, vibration monitoring and adjustment
    - ii. Maintenance which is not PM that occurs when process equipment is shut down—repairing or replacing anything which has failed, seal, bearing, instrument.
  - b. Use the CCPS definition of Preventative Maintenance- **Maintenance that seeks to reduce the frequency and severity of unplanned shutdowns by establishing a fixed schedule of routine inspection and repairs.**
  
8. Process- (g) “Utilities, **if in the event of a failure or malfunction they could potentially contribute to a major incident**” (CAL-OSHA)
  - a. The definition must have this process safety qualifier for utilities because not all utilities should be considered part of the process, as they are not connected to process equipment and have no impact on process operation
    - i. Utility water (used for unit clean up-think garden hose)
    - ii. Utility air (used to operate maintenance tools-think air compressor).

- b. The definition of process sets the scope for all PSM elements in this regulation, so the overly broad inclusion of Utilities creates a high amount of work that add no value to process safety.
      - i. We need to focus our process safety efforts on task that will provide tangible benefit.
- 9. Process Safety Culture: “A combination of group values and behaviors that reflects whether there is a collective commitment by organizational leadership **and all affected employees and employee representatives** to emphasize process safety over competing goals.”
  - a. Draft 2 definition only identifies commitment of organizational leadership
  - b. Culture is the beliefs and behaviors of ALL personnel and their organizations not just leaders
  - c. The CCPS definition of Process Safety Culture includes all levels—The common set of values, behaviors, and norms **at all levels in a facility** or in the wider organization that affect process safety.
- 10. Process Safety Management “The application of management systems to ensure ~~the safety of workers who interface with processes~~ **process safety integrity.**”
  - a. Draft 2 definition infers total safety or universal safety assurances and is not focused on process safety.

#### Process Safety Management Program

- 1. (4) “The employer must develop... ..assess leading and lagging ~~factors~~ **indicators** related to process safety performance.”
  - a. Leading/Lagging factors is not industry terminology and it is not defined in this regulation.
  - b. Assessing leading and lagging factors against process safety performance indicators doesn’t make sense
    - i. Assessing leading and lagging indicators related to process safety performance.

#### Employee Collaboration

- 1. (1)(a) “Effective collaboration by affected operating and maintenance employees throughout ~~all phases~~ **applicable phases**, in performing:”
  - a. “All phases” is not an appropriate requirement
  - b. Employer and employee are capable of determining which affected roles should be involved in each phase of an element.
    - i. Also provides flexibility where maintenance employee involvement is not beneficial or necessary.
    - ii. Time is finite and should remain focused on task that are pertinent to one’s role and where tangible safety insights can be gained by a role’s input.
- 2. (1)(a)(iv) “Change Management”- Use **Management of Change** and include separate line item for **Management of Organizational Change**
  - a. MOC and MOOC are elements in the regulation, “Change Management” isn’t used outside of this line.
    - i. MOC and MOOC are specific industry jargon
- 3. (1)(b) “Effective collaboration... ..throughout ~~all~~ **applicable phases**, in the development...”
  - a. “All phases” is not an appropriate requirement

- b. Employer and employee are capable of determining which affected roles should be involved in each phase of an element.
    - i. Also provides flexibility where maintenance employee involvement is not beneficial or necessary.
    - ii. Time is finite and should remain focused on task that are pertinent to one's role and where tangible safety insights can be gained by a role's input.
4. (1)(c) "Access by employees and employee representatives to all **process safety related** documents or information developed or collected by the employer **pursuant to this section** or **pursuant to this chapter**" (whichever capture that it is referencing the documents associated with the process safety elements).
- a. Appropriate to limit the scope of the document access to those documents which are process safety related.
    - i. Similar scope limit is applied in Process Safety Information (3) as it pertains to contractors.
  - b. "Pursuant to this section" was included in draft 1 and Cal-OSHA.
    - i. The goal of this requirement is to ensure that all employees have access to PSI and process safety related documents and information developed and/or gathered as part of this regulation.
    - ii. Access to all documents with no scope limit is inappropriate
    - iii. Governing access to documents that are not related to this process safety management regulation is not within the scope of this regulation.
    - iv. "Pursuant to this part" is included in Employee Collaboration (2)

### Process Safety Information

- 1. (9) "If existing process equipment was designed and constructed in accordance with codes, **or process safety** standards or practices that are no longer in general use..."
  - a. Codes address safe design requirements for pressure vessels ect., however, standards and practices apply to process safety as well as performance and reliability.
    - i. This regulation must focus on the standards and practices that apply to process safety of equipment.
    - ii. Extensive assessment to ensure the safety of equipment that doesn't meet a performance standard is unnecessary and not industry practice.

### Hazard Analyses

- 1. (1)(a) "The employer must perform and document an effective Process Hazard Analysis... ..to identify **and** evaluate, ~~and control~~ hazards **and controls** associated with each process"
  - a. PHA cannot and do not control anything. They identify and evaluate hazards and controls, however, they themselves do not control any hazards.
- 2. (1)(c)(x) "The findings of **process safety** incident investigations relevant to the process **being analyzed**, pursuant to section XXXX;
  - a. "Incidents relevant to the process" is too broad. Example: An insulator cutting their hand with a knife while working within the unit is an incident and is relevant to the process (based on the regulations definition) but it is not process safety related and, very likely, not pertinent to the PHA.
  - b. Process Safety Incident is defined by the regulation and, therefore, is easily understood.

3. (1)(d) Repeated use of expertise—Use qualified instead
  - a. Expertise is not defined in this regulation and difficult to define in any circumstance
  - b. Qualified is defined in the regulation and should be used instead of expertise throughout entire document
  
4. (1)(f)(iii) “The PHA team’s recommendations, including **potential** additional safeguards to address any deficiencies identified by the SPA”
  - a. Not all safeguards recommended by the PHA team are used to reduce risk.
    - i. Alternative safeguards are often identified that are more appropriate, higher on the hierarchy of controls, ect.
  
5. (1)(g) “The employer must make the report available...”
  - a. Remove this item because it is duplicative of (1)(e) which requires the report to “be available in the respective work area for review by any affected employees working in that area.”
  
6. (2)(b) “All independent protection layers for each failure scenario must be independent of each other and independent of initiating causes.”
  - a. Remove this item-It is duplicative of the definition and it is commonly accepted in industry that this is a base requirement of an IPL
  - b. It doesn’t add anything to the SPA section
  
7. (2)(d) Use of expertise—Use qualified instead
  - a. Expertise is not defined in this regulation and difficult to define in any circumstance
  - b. Qualified is defined in the regulation and should be used instead of expertise throughout entire document
  
8. (3)(b)(iii) “as part of ~~managing changes~~ **MOC** or **Management of Change.**”
  - a. Use “as part of MOC” or “as part of Management of Change” because it is accepted industry terminology for the specific practice you want included in HCA.
    - i. MOOC is a subcategory to MOC, so using MOC will not exclude MOOC.
  
9. (3)(c) “...at least one operating employee who ~~currently operates~~ **is qualified to operate** the process and has ~~expertise and~~ experience specific to the process being evaluated.”
  - a. At some facilities operators leaving their operating role to support process safety or occupational safety effort for their operating unit. They remain and hourly employee and a member of the USW, if applicable, but they take on a different role for their unit
    - i. Semantically, they could be said to not “currently operate” the unit. However, they remain qualified and maintain the necessary experience to perform the duties in Hazard analyses.
    - ii. Many of the USW stakeholders who attended the L&I meetings are employed in this type of role also.
  - b. This entire section covering the makeup of an HCA team should be replaced with the text from (1)(d) which cover the makeup of a PHA team.
    - i. The text would need to be revised to remove the term “expertise” and to replace PHA with HCA
  
10. (3)(c) Repeated use of expertise—Use qualified instead
  - a. Expertise is not defined in this regulation and difficult to define in any circumstance

- b. Qualified is defined in the regulation and should be used instead of expertise throughout entire document

### Operating Procedures

1. (1)(a)(viii) "Non-Routine work"
  - a. Need a definition or some sort of guidance.
  - b. Will companies have freedom to set this definition themselves?
2. (1)(b) **Safe** operating Limits
  - a. Add the qualifier of "safe" to differentiate from non-safety-related operating limits
3. (1)(c)(vii) ~~"The minimum number of employees required to safely execute the procedure."~~
  - a. Emergency response is a dynamic part of Operating a unit, and to specifically state the minimum number of operators required to safely perform a procedure adds no value.
    - i. The fact is that Operators will perform the procedure safely, while assessing the risks throughout the task, using the resources they have available.
  - b. The "Human Factors" consideration required in (1)(c)(viii) will include an assessment of procedural complexity and how realistic it would be to execute the procedure. When you identify cases where more than one outside operator and one board operator are required you would specifically identify this unique requirement
    - i. Adding the number required to ALL procedures would devalue the information when it is included on procedures that really are complex enough to require more operators. Operators would begin to breeze right over than information and potentially miss it when the headcount is actually critical.
4. (2) ~~"Written operating procedures must be readily accessible to all affected employees, including the employees of contractors, and any other affected employee who works in or near the process."~~
  - a. This is duplicative of the definition of affected employee.
  - b. The item already requires that they are readily accessible to all affected employees.
    - i. Stating that again is unnecessary and creates the confusion that, somehow, these are two different types of "affected employees"
5. (6) "These written operating procedures must provide that only qualified operators may initiate these operations, and that prior to allowing employees in the vicinity of the leak..."
  - a. Although this idea is well-intentioned, considerations must be made for emergency response and different structures of Emergency Response Teams (ERTs).
    - i. Not all ERTs are staffed by solely by qualified operators.
    - ii. Often emergency response personnel are necessary in order to control exposures while a unit is being shut down, depressured and/or isolated.

### Training

1. (1)(a) "Each affected employee involved in the operation of a process, and each employee prior to ~~working in~~ **operating** a newly assigned process..."
  - a. Use the word operating instead of working in to be clear that this is the requirement for operators operating process units, not any employee working in a process area.  
"...must be trained in an overview of the process and in the **relevant** operating procedures **and safe work practices**..."

- b. The addition of the word relevant appropriately narrows the scope of training to only the necessary procedures.
    - i. Example: A contractor is involved in a Coker unit operation and is responsible for un-heading Coke drums. They need to be trained in procedures for un-heading coke drums, but they do not need training in the Ops procedures for loss of reflux pumps, emergency shutdown, loss of heater coil flow, ect.
    - ii. The qualifier “relevant” is used in Training (1)(b) pertaining to maintenance employees. This qualifier is appropriately used here and supports the idea of using it in Training (1)(a) for Operators.
  - c. Adding Safe Work practices makes it clear that operators need to be trained in safe work practices like LO/TO, Confined Space Entry, ect.
2. (3)(b) “The employer, after the initial or refresher training, must prepare a ~~certification~~ record...”
- a. The term certification alludes to an actual certificate, but requiring a record is sufficient.
  - b. Definition of certification: the action or process of providing someone or something with an official document attesting to a status or level of achievement.
    - i. The training record does not need to be “an official document” that we provide someone. It needs to be a record of the training that can be kept in the training department, operations training records, ect.
      - 1. Operators don’t want to receive certificates for all training.
3. (5) “...all affected employees are aware of ~~and understand~~ all PSM elements described in this chapter.”
- a. The definition of affected employees includes a very large demographic of refinery employees and contractors.
  - b. This large demographic DO NOT need to “understand” all the PSM elements
    - i. Some elements are complex and building a training program so that, essentially, every employee “understands” all the PSM elements is impossible.
  - c. Awareness level training of all the elements is appropriate for this large “affected employee” demographic.
  - d. The last sentence in (5) covers the training requirements for employees participating in a PSM element team.
    - i. This is the team that needs to “understand” the element, and it’s only the element relevant to their team, not all the elements.

### Contractors

- 1. (3)(c) “The contractor must advise the refinery employer of any ~~specific~~ **unique** hazards presented by the contractors work.”
  - a. The word unique is more appropriate for this requirement.
  - b. There are a multitude of specific hazards associated with a contractor’s work that aren’t differential from the general hazards of construction & maintenance work or work within industrial facilities.
    - i. Unique hazards are the ones that you should require the contractor advise the employer of.
      - 1. Example: inert entry, or pressure-wave cleaning, ect.
  - c. Operating Procedures (c)(vi) is a good example of the use of “unique”

### Pre-Startup Safety Review

1. (1) Inclusion of PSSR for partial and unplanned shutdowns, as well as for all turnaround work performed on a process, significantly expands the scope of PSSR.
    - a. The elements of PSSR were designed for use in MOC and are not applicable to all start-up activities.
    - b. Example: (e) "Training of all affected employees has been completed."
      - i. What does this refer to for a start-up after an unplanned shutdown when no MOC was executed?
        1. Would we confirm the entirety of an affected employee's qualification training?
        2. What about affected employees in the middle of their qualification training?
        3. Who qualifies as an affected employee when we are talking about a start-up after an unplanned shutdown when no MOC was executed. Anyone who works in or around that unit?
          - a. What would we train that large group of people?
          - b. If it were an MOC we would define who is affected by the change and train them in how that change impacts them and their work.
      - c. I understand the need for a start-up readiness review of some form (we call them Operational Readiness Review Checklists ORRC), but PSSR requirements aren't applicable as a requirement for all start-ups.
2. (3) Repeated use of expertise—Use qualified instead
  - a. Expertise is not defined in this regulation and difficult to define in any circumstance
  - b. Qualified is defined in the regulation and should be used instead of expertise throughout entire document.

### **Mechanical Integrity**

1. (3)(b)(i)—(iv) This list of inspection frequency is linked by the word "and" which means that the inspection frequency but be consistent with all of the items listed.
  - a. Applicable manufacturer's recommendations are often outdated and internal practices that are more protective are used:
    - i. The word "and" indicates that you would have to use both
    - ii. The intention should be to replace manufacturer's recommendation with internal practices that are more protective
  - b. Does not allow for optimization of inspections based on the implementation of new technology. Why would we inspect equipment today the same as we did in 1974? We're better than that.
2. (3)(d) "The documentation must identify the date of the inspection or test, ~~the name of the person who performed the inspection or test...~~"
  - a. The name of the person has no clear significant purpose
3. (4)(a) "'safe and timely' is defined as the first outage after the deficiency is detected."
  - a. If an employer can ensure safe operation there must be an allowance to go beyond the first outage after the deficiency is detected.
    - i. Appropriate repairs often take time to plan, procure, and execute
    - ii. The requirement to make the repair at the next outage with lead to "Band-Aid" repairs when the most inherently safe repair cannot be executed prior to the next outage.

1. Example: Discovery of thinning in a tower 6 months prior to a TAR. There isn't enough time to procure a new tower before TAR so this "safe and timely" definition could force a weld overlay as the only viable repair plan, when full replacement could be a better and the preferred choice. Measures could be taken to ensure safe operation until a new tower could be procured and installed.
- b. Corrective Action Program section allows the site to demonstrate in writing that a completion of corrective actions from PHA, SPA, DMR, HCA, Investigations, and audits is infeasible by the next shutdown. Corrective Action Program (12)
  - i. Mechanical Integrity should be treated the same and included in the Corrective Action Program scope.

### Damage Mechanism Review

1. (4) "A DMR must be conducted prior to ~~approval~~ **execution** of the change."
  - a. Approval is the wrong word here. DMR is part of the MOC risk assessment process and must be conducted prior to executing the change.
  - b. There are many approval gates in an MOC process and it is not clear which approval the DMR must precede.
    - i. It is very clear, and accurate, that the DMR must be conducted before you execute a change.
2. (6) "The DMR for a process unit must be available to the team performing the PHA for that process unit, **in accordance with the implementation schedule outlined in this part** "
  - i. We will have PHAs due prior to completing the implementation schedule for this part, so no DMR will exist to give to the PHA team
    1. We will be in compliance with the implementation schedule for DMRs but out of compliance because we didn't provide one to the PHA team.
3. (7) Repeated use of expertise—Use qualified instead
  - a. Expertise is not defined in this regulation and difficult to define in any circumstance
  - b. Qualified is defined in the regulation and should be used instead of expertise throughout entire document.
4. (8)(a) "Assessment of process **flow** diagrams"
  - a. Process flow diagram is the industry accepted term and is used in the PSI section. Process diagram is a vague term that doesn't have a specific meaning in industry.

### Hot Work

1. (2) "The permit must document that fire prevention and protection requirements found in WAC 296-24-695 have been implemented prior to beginning the hot work operations."
  - a. Hot Work, as defined in the definitions section broadens the scope outside industry recognized hot work activities
    - i. Remove non-intrinsically-safe equipment from the Hot work definition
  - b. WAC 296-24-695 covers the fire prevention and protection requirements for welding and cutting and is not applicable to non-intrinsically-safe equipment.
  - c. Many of the requirements of 296-24-695 are inappropriate for use of non-intrinsically-safe equipment and not applicable.

2. (4) “Hot Work Permits must be kept on file for ~~one year~~ **30 days**”
  - a. There has still been no evidence that this requirement will provide any value.
  - b. If a Hot Work activity is executed without incident, there is no need to retain that permit for investigative purposes.
    - i. Hot Work permitting and fire prevention controls only prevent Hot Work from causing a fire or explosion. So at the end of the Hot Work task and subsequent ½ hour Fire Watch monitoring period, if there has not been a fire or explosion, then there is nothing the Hot Work permit will add to an investigation.
      1. Example: If the weld fails and causes a release the Hot Work permit will not add any value to that investigation.
    - ii. Retaining the permit for 30 days provides adequate time for the investigation team to collect the document if there had been a hot work related incident.
  - c. WAC 296-99-035 Requires Hot Work permits to be on file until the work is complete, indicating that there is no investigative purpose to retain the permit once the work is complete.
  - d. 30 days-worth of Hot Work permits is adequate for auditing the Hot Work program effectiveness
  
3. (5) “The employer must provide for employee collaboration ***in the development of hot work procedures or in the development of the hot work program.***”
  - a. Defines the scope and nature of employee collaboration to prevent confusion on which Hot Work practices require a collaborative team and which do not.
    - i. Does an operator need an employee representative’s input to issue a hot work permit?
    - ii. Does a maintenance technician need a team of people involved in establishing the required Hot Work controls?

#### **Management of Organizational Change**

1. (2) “The employer must designate a team to conduct a MOOC assessment prior to reducing ***minimum required*** staffing levels...”
  - a. Adding minimum required defines the scope of the MOOC employee collaboration.
    - i. Firing one employee could be considered reducing staffing levels, and should not require formal employee collaboration.

“...reducing classification levels of employees,”

  - b. What is this?
    - i. Would we need a MOOC with formal employee collaboration to demote an employee?
  - c. MOOC employee collaboration requirements must be very clearly defined due to the sensitive nature of some organizational changes.

#### **Incident Investigation—Root Cause Analysis**

1. (3) Repeated use of expertise—Use qualified instead
  - c. Expertise is not defined in this regulation and difficult to define in any circumstance
  - d. Qualified is defined in the regulation and should be used instead of expertise throughout entire document.
  
2. (3) “If the incident involved ~~the work of~~ a contractor, a representative of the contractor’s employees must be included on the investigation team.”

- a. It can be said that all incidents involve the work of a contractor because contractors have built and maintained our facilities.
    - i. The scope should be limited to if a contractor was directly involved in the incident
    - ii. Example: High temp Sulfidation corrosion causes a release.
      - 1. A contractor fabricated that pipe and, most likely, installed that pipe so it involves the work of a contractor.
      - 2. The contractor likely would add little value to this investigation though, because they were not directly involved in the incident.
        - a. There are possible cases where a contractor would be beneficial to this investigation, and the site would determine that and include them,
- 3. (5) “The recommendations must include **any** interim measures ~~that will~~ **determined to be necessary to prevent a recurrence or similar incident...**”
    - a. Not all investigations will have recommended interim measures. The way this sentence is currently written in Draft 2 makes interim measures a requirement
      - i. Re-writing it as outlined above creates the appropriate requirement that, if interim measures are necessary, the investigation report must include them.
  - 4. (6) “The team must prepare the final investigation report within ~~four~~ **five** months of the incident.”
    - a. CAL-OSHA set the timeframe to 5 months
      - i. If we are striving for consistency, as indicated when draft 2 was rolled out, we should remain consistent with CAL-OSHA here.
  - 5. (8) “The employer must ~~implement~~ **address** all recommendations in accordance with section XXX.”
    - a. I am assuming the section XXX is the corrective action program
      - i. If so, not all recommendations are implemented but all recommendations must be addressed.
  - 6. (11) “~~Any draft of~~ **The** final report required in subsection 6 and related documentation must be provided immediately to the department upon written request.”
    - a. As with any document, the report will go through many reviews and revisions for accuracy and completeness. Requiring all of these drafts to be available is an unnecessary administrative exercise which provides no value.
    - b. If L&I wants to be able to request the interim report, required within 90 days by subsection (6), then that should be written more clearly
      - i. “Any draft” would include the entirety of revision drafts and creates unnecessary document control burden on the investigation team.

### Compliance Audits

- 1. (2) Repeated use of expertise—Use qualified instead
  - a. Expertise is not defined in this regulation and difficult to define in any circumstance
  - b. Qualified is defined in the regulation and should be used instead of expertise throughout entire document.
- 2. (4) “The employer must ~~implement~~ **address** all recommendations in accordance with section XXX.”
  - a. I am assuming the section XXX is the corrective action program
    - i. If so, not all recommendations are implemented but all recommendations must be addressed.

## Process Safety Culture Assessment

1. (3) Repeated use of expertise—Use qualified instead
  - a. Expertise is not defined in this regulation and difficult to define in any circumstance
  - b. Qualified is defined in the regulation and should be used instead of expertise throughout entire document.
  
2. (6) “The employer, in consultation with the PSCA team, must prioritize recommendations and implement corrective actions, **in accordance with section XXX** (Corrective Action Plan), within twenty-four months...”
  - a. Recommendations from the PSCA must be handled the same way as recommendations for hazard analyses.
    - i. Must have a formal way to reject recommendations
    - ii. Must have a formal way to change a recommendation
  - b. Include PSCA in the Corrective action Program scope and outline the timing requirements there.
  
3. (7) “The PSCA team must conduct a written interim assessment...”
  - a. Conducting a PSCA every 5 years is adequate to assess process safety culture
    - i. An interim assessment of the corrective action program for the PSCA is overly burdensome
    - ii. Interim assessment likely will provide no benefit, because culture can take time to change
      1. Changing course mid-term often creates distrust of the program, leadership, and will jeopardize the organizations culture.

**Human Factors** (These notes are developed in consultation with a Human Factors expert, who studied developed, and applied Human Factors programs as an employee of the British Health and Safety Executive and in industry)

1. Human Factors as a stand-alone element does not make sense and becomes a cumbersome task that overreaches in its scope.
  - a. Human Factors analyses should be interwoven into the applicable elements as a consideration in each specific element
  
2. There appears to be no consideration for capability in the requirements of the regulations
  - a. Human factors analysis is a complex discipline that requires a large amount of expertise and capability
    - i. In some cases a company may have one person, not one person per site but one total, with the capability to develop a HF program of this scope.
  - b. Some facilities may not have the capability to deliver an effective program with such a large scope of HF in 18 months
    - i. This will lead to a poorly executed HF program and have a negative impact on the safety culture.
  - c. Adding the application of Human Factors analysis into the applicable process safety elements serves to prioritize the scope of the Human factors analysis with a focus on the process safety element improvements
    - i. If you do not interweave the HF analysis into each element, consider a staggered implementation where a site could identify their most critical human factors activities and prioritize the initial implementation toward those activities

- ii. The remaining implementation could be staggered farther out than 18 months to help ensure proper time and resources to develop an effective program.

### **Corrective Action Plan**

1. (1) Corrective Action Program scope should include:
  - a. Mechanical Integrity-Equipment defects
    - i. Including requirements for assurance of safe operations like in Mechanical Integrity(4)(a)
  - b. Process Safety Culture Assessment
    - i. Include specific timeline for PSCA corrective actions in the Corrective Action Program section
      1. Treat PSCA items the same as audit and investigation items with a 18 month timeline for implementation
      2. Less confusing than having multiple different timelines as it is currently written: (outline below highlights draft two corrective action timelines)
        - a. 30 months for non-shutdown items
        - b. 24 months for PSCA
        - c. 18 months for Audits and Investigations
        - d. Next regularly scheduled turnaround for shutdown items
2. (15) ~~“The employer must track and document the completion of each corrective action. and must append the documentation to the applicable PHA, SPA, DMR, HCA, incident investigation, or compliance audit.”~~
  - a. This is unnecessary administrative specificity.
  - b. Create the requirement that the corrective actions are tracked and documented, but do not specify where they must be stored.
    - i. This adds unnecessary burden to process safety departments with no value.
    - ii. We all track completion of corrective actions already, do not require sites to change their practice to meet this specific appending practice.