OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PETITION FILE NO. 584

BOARD STAFF EVALUATION

Submitted by: Michael Nelmida, Senior Safety Engineer

February 1, 2021

OSHSB Petition File No. 584
Board Staff Evaluation,
February 1, 2021

INTRODUCTION

Petition 584 (Petition) was submitted on behalf of Western States Petroleum Association by Oyango A. Snell on May 22, 2020. The Petition seeks to change Section 5189.1 *Process Safety Management for Petroleum Refineries.*

REQUESTED ACTION

The applicant makes four requests:

1. Revise the definition of "major change" in Section 5189.1(c).

    1.1. Provide further clarity that "minor equipment changes" are not covered.

    1.2. Eliminate the reference to "worsens an existing process safety hazard."

    1.3. Provide consistency with the definition of "major change" to Title 19 Division 2, Chapter 4.5, Section 2735.3(hh).

2. Revise the definition of "employee representative" in Section 5189.1(c) and define "effective participation" where used in the context of Section 5189.1(q) *Employee Participation*.

    2.1. Revise the definition of employee representative to require that all employee representatives be employees of the refinery at issue.

    2.2. Revise the definition of employee representative to require that all employee representatives of the refinery at issue be qualified to participate in the relevant activities for which they will serve as employee representatives.

    2.3. Delete Section 5189.1(q)(2) and its language conferring rights on authorized collective bargaining agents.

    2.4. Define "effective participation" to mean "the timely invitation of designated employee representative to participate in the relevant process safety activity."

3. Revise Subsection 5189.1(*l*)(4)(D) and (E).

    3.1. Provide clear, specific criteria for performing the review referenced in Section 5189.1(*l*)(4)(D) including the meaning of the terms "achieved in practice" and "related industrial sectors."

3.2. Provide a reasonable and useful boundary on the geographic and technical scope of what publicly-available information on inherent safety measures and safeguards is required to be identified, analyzed and documented.

3.3. Provide guidance on resolving Hazard Control Analysis scenarios where an inherent safety measure or safeguard for one hazard adversely impacts the refinery's control of other hazards.

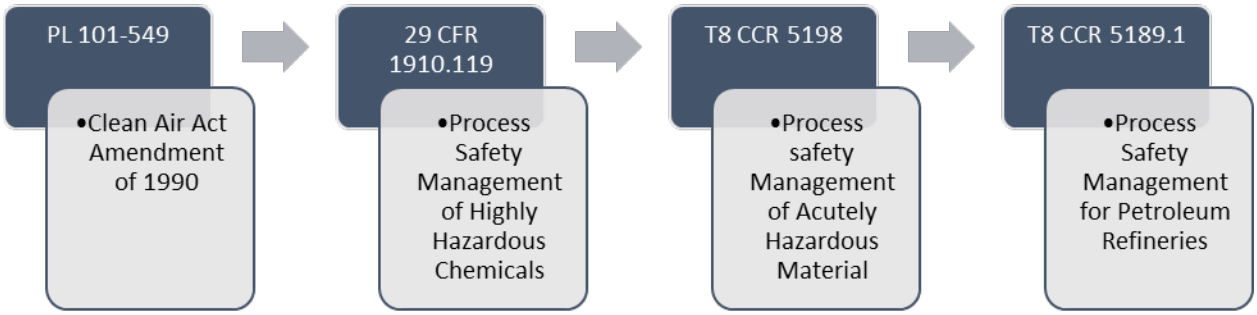
3.4. Eliminate the prescriptive order of priorities in 5189.1(*l*)(4)(E) for selecting recommended safety measures and safeguards.

4. Revise the definition of "highly hazardous material" in Section 5189.1(c).

4.1. The definition of "highly hazardous material" be revised to provide a clear and straightforward way for employers to understand what chemicals are subject to the regulation.

4.2. The definition of "highly hazardous material" be revised to include the associated threshold quantities within Section 5189.

BACKGROUND/HISTORY



On November 15, 1990, Public Law 101-549, Clean Air Act Amendment (CAAA) of 1990 was signed into law and required Federal OSHA to promulgate *a chemical process safety standard designed to protect employees from hazards associated with accidental releases of highly hazardous chemicals in the workplace.* These requirements were integrated into 42 United States Code (U.S.C.) Chapter 85, *Air Pollution Prevention and Control*. Further, the United States Environmental Protection Agency (EPA) adopted requirements under 40 Code of Federal Regulations (CFR) 300 et seq.

On June 1, 1992, pursuant to 29 U.S.C Section 655, Federal OSHA adopted 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals.

On May 28, 1992 the Occupational Safety and Health Standards Board (Board) adopted Title 8, Section 5189, Process Safety Management of Acutely Hazardous Materials.

On July 15, 2016, the Board proposed Title 8, Section 5189.1. The proposal was in parallel with the Governor's Office of Emergency Services (CalOES) proposal for Title 19, Article 6.5 of the California Accidental Release Prevention Program (CalARP). (Sections 2735.3 and 2762 through 2762.17, among others.)

On September 15, 2016 the Board adopted Title 8, Section 5189.1, Process Safety Management for Petroleum Refineries.

During the 2016 rulemaking process, Western States Petroleum Association and others filed comments to the Board and CalOES. CalOES and the Board amended their proposals independently as the Title 8 requirements protect employees and the Title 19 requirements protect the public at large. The Board proposal and the CalOES proposal were adopted with independent amendments. No subsequent effort was identified to reconcile the adopted regulations.

PETITIONER'S ASSERTIONS

Request 1.

Request 1.1

The Petitioner requests that "minor equipment changes" be specifically excluded from the definition of "major change."

The Petitioner describes the definition of "major change" as vague and overly broad when coupled with the definitions of "process equipment" and "highly hazardous materials." The Petitioner claims that the definition of "major changes" could apply to "minor changes/minor equipment changes" in addition to "critical changes." The Petitioner describes "critical changes" as those "appropriately considered major changes." Minor equipment changes, the Petitioner argues, in the absence of a stated exclusion from the definition of "major changes," could divert focus and resources away from "critical changes."

Request 1.2

The Petitioner also requests that the phrase "worsens an existing process safety hazard" be deleted from the third bulleted item within the definition of "major change".

> *Major Change. Any of the following:*
>
> *[…]*

> • *Any alteration that introduces a new process safety hazard ~~or worsens an existing process safety hazard~~.*

The Petitioner claims that the phrase does not put regulated community on notice of what constitutes a "major change."

Request 1.3

The Petitioner requests the Board provide consistency with the definition of "major change" with the CalARP regulations.

The Petitioner argues that the Title 8 definition of "major change" is different from the CalARP regulations enacted by the CalOES. The Petitioner asserts that there is uncertainty as to how the regulated community would comply with both regulations.

Request 2.

Request 2.1 and 2.2

The Petitioner requests that the definition of employee representative be revised to require all employee representatives be employees of the refinery. Second, the Petitioner requests that the employees be qualified to participate in the relevant activities for which they will serve as employee representatives.

The Petitioner argues that regulation has different requirements for unionized employees than non-unionized employees. The Petitioner postulates that those chosen to represent employees at unionized facilities might be "unqualified" or "unfamiliar" with the facility equipment, processes or lack the requisite experience for the task.

Request 2.3

The Petitioner requests the deletion of Section 5189.1(q)(2):

> *(q) Employee Participation.*
>
> *(1) In consultation with employees and employee representatives, the employer shall develop, implement and maintain a written plan to effectively provide for employee participation in all PSM elements, pursuant to this section. The plan shall include provisions that provide for the following:*
>
> *[…]*

> ~~*(2) Authorized collective bargaining agents may select (A) employee(s) to participate in overall PSM program development and implementation planning and (B) employee(s) to participate in PSM teams and other activities, pursuant to this section.*~~

The Petitioner claims that the requirement of Section 5189.1(q)(2) impermissibly interferes in the collective bargaining process. The Petitioner argues the interference stems from "specifying the rights of unions to appoint employee representatives and the terms for employee participation in safety programs in refineries with union-represented employees."

Request 2.4

The Petitioner requests that "effective[-]participation[1]" be established as defined terminology for the purposes of Section 5189.1. Moreover, the Petitioner requests that "effective-participation" be defined to mean "the timely invitation of designated employee representatives to participate in relevant process safety activity."

The Petitioner argues that the regulation does not define or provide criteria for what constitutes "effective-participation."

Request 3.

Request 3.1

The Petitioner requests the Board provide clear, specific criteria for performing the review referenced in Section (*l*)(4)(D), including the meaning of the terms "achieved in practice" and "related industrial sectors".

The Petitioner asserts that in the absence of guidance of the terms "inherently safe", "achieved in practice" and "related industries" seemingly establishes a burden of requiring petroleum refineries to conduct a worldwide review of publicly available information regarding safety measures and safeguards and assess those safe guards.

[1] The Petitioner requests "Effective participation" to be defined. Staff substitutes "Effective-participation" to delineate the Petitioner's requested term from the regulatory requirement that employee participation be "effective."

Request 3.2

The Petitioner requests the Board provide a reasonable and useful boundary on the geographic and technical scope of what publicly-available information on inherent safety measures and safeguards is required to be identified, analyzed, and documented.

The Petitioner claims Section 5189.1(*l*)(4)(D) requires refineries to conduct a worldwide review of publicly available information regarding safety measures and safeguards.

Request 3.3

The Petitioner requests the Board provide guidance on resolving Hazard Control Analysis scenarios where an inherent safety measure or safeguard for one hazard adversely impacts the refinery's control of other hazards.

The Petitioner claims Section 5189.1(*l*)(4)(E) fails to provide any guidance for how to resolve scenarios in which there is a conflict between inherent safety measures for different hazards. The Petitioner puts forth the possibility of mitigating one hazard that may exacerbate the hazard of another or create a new hazard.

Request 3.4

The Petitioner requests the Board eliminate the prescriptive order of priorities in 5189.1(*l*)(4)(E) for selecting recommended safety measures and safeguards.

The Petitioner claims that "Section 5189.1 (*l*)(4)(E) includes prescriptive requirements for adopting safety measures and safe guards that are contrary to the performance based goals of the enabling statutes and regulations themselves."

Request 4.

Request 4.1

The Petitioner traces the definition of "highly hazardous material", "flammable gas", "flammable liquid", "toxic substance" and "reactive substance" to Federal OSHA requirements within the hazard communication regulation. The Petitioner asserts that the tests within the federal hazard communication regulation are not intended for process safety management purposes and are highly complex.

Request 4.2

The Petitioner argues that excluding threshold quantities minimums referenced in Section 5189 could result in very small quantities triggering the requirements of Section 5189.1.

STAFF EVALUATION

Relevant Standards

Federal Standards

Federal regulations 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals applies to petroleum refineries.

In 2017, Federal OSHA issued OSHA 3918-08 2017 *Process Safety Management for Petroleum Refineries, Lessons Learned from the Petroleum Refinery Process Safety Management National Emphasis*. Within the publication, OSHA states:

> *Since the PSM standard was promulgated by OSHA in 1992, no other industry sector has had as many fatal or catastrophic incidents related to the release of highly hazardous chemicals (HHC) as the petroleum refining industry...*

Federal OSHA did not pursue promulgating a regulatory framework uniquely tailored to petroleum refineries.

Board staff is aware of the EPA's regulation under 40 CFR 300 et seq.:

> *40 CFR 300.3 Scope*
>
> *(a) The NCP [National Contingency Plan] applies to and is in effect for:*
>
> *[…]*
>
> *(2) Releases into the environment of hazardous substances, and pollutants or contaminants which may present an imminent and substantial danger to public health or welfare of the United States.*

The EPA regulations however, pertain to the response to release 'events' rather than release prevention efforts.

Also Staff is aware of 42 U.S.C. Chapter 85, *Air Pollution Prevention and Control*, which addresses similar issues to 40 CFR 300 regulations.

California Standards

Currently, there are at least two coincident regulations pertaining petroleum refineries.

Prior to the Board's adoption of Title 8, Section 5189.1, petroleum refineries were required to comply with Section 5189, *Process Safety Management of Acutely Hazardous Materials.* Since the adoption of *Process Safety Management for Petroleum Refineries* in 2017*,* only minor amendments have been adopted by the Board.

As stated previously, the CalOES Title 19, Division 2, Chapter 4.5 applies to petroleum refineries with particular requirements within Article 6.5, *Program 4 Prevention Program*.

Consensus Standards

The American Petroleum Institute (API) publishes international standards that pertain to refinery safety. Additionally, the American Society of Mechanical Engineers (ASME) and American Institute of Chemical Engineers (AIChE) publish international standards related to equipment used in refineries. AIChE's Center for Chemical Process Safety (CCPS) also provides guidelines and safety requirements relevant to process safety in petroleum refineries.

Other Standards, Guidelines, Codes

The European Union (EU), the United Kingdom (UK), China, and India all have adopted some version of the process safety management regulations. China's is based on the 29 CFR 1910.119, the EU adopted the Seveso III Directive which also serves as the basis in the UK. India's regulatory framework addresses process safety management through a series of adopted rules.

Staff Analysis

Division's Form 9 to the Board.

Board staff is aware of the Division request for change in regulations filed with the Board on April 9, 2020. Board staff is preparing an Advisory Committee to examine that proposal. This Petition analysis does not include any position, stated or implied, of the Division's April 9, 2020 request.

Title 8, Section 5189 and 29 CFR 1910.119.

Regarding references to Title 8, Section 5189 and 29 CFR 1910.119, Board staff includes rationale from the respective rulemakings as they may inform the rationale related to Title 8, Section 5189.1.

Request 1

Regarding Petitioner's Request 1, Board staff concludes the following:

- Request 1.1 – The definition of "major change" is not, in itself, vague and overbroad. The exclusion of "minor equipment changes" from "major change" without scrutiny does not improve safety.

- Request 1.2 – "Worsens" in the context of an "existing process safety hazard" is not an impediment to the determination of a "major change."

- Request 1.3 – The definition of "major change" does not require an identical definition to that included in Title 19.

Request 1.1

The definition of "major change" relies on three parts, the Petitioner's Request 1.1 focuses on the first bulleted part.

Title 8, Section 5189.1(c) defines "major change" as:

> *Major Change. Any of the following:*
>
> *• Introduction of a new process, new process equipment, or new highly hazardous material; [Emphasis added]*
>
> *[…]*

The Petitioner references from Section 5189.1(c):

> *Process Equipment. Equipment, including pressure vessels, rotating equipment, piping, instrumentation, process control, or appurtenance, related to a process.*
>
> *Highly Hazardous Material. A flammable liquid or flammable gas, or a toxic or reactive substance.*

Note: the Petitioner's request regarding the definition of "highly hazardous material" is the subject of "Request 4" and examined in Request 4.1.

Board staff references also from Section 5189.1(c):

> *Change. Any alteration in process chemicals, technology, procedures, process equipment, facilities or organization that could affect a process. A change does not include replacement-in-kind.*

> *Replacement-in-kind. A replacement that satisfies the design specifications.*

Absent any further context within the Petition, Board staff presumes that what the Petitioner calls a "minor equipment change" is a "new process equipment." Board staff must also assume a "minor equipment change" is not a "replacement-in-kind" otherwise, the "minor equipment change" would not be categorized as a "major change."

The distinction Board staff sees is that "major change" and "change" are materially different in one respect relevant to the Petitioner's request. Major change specifies for inclusion "new" (e.g. new process, new process equipment, and new highly hazardous materials).

One must presume a new process, new process equipment and new highly hazardous substance, have not been examined through a Process Hazard Analysis (PHA), Hierarchy of Hazard Controls Analysis (HCA), Damage Mechanism Review (DMR) and Human Factors analysis for the facility. Regardless of how 'minor' a "minor equipment change" may be, the necessity for scrutiny stems from a lack of prior examination.

The Petitioner essentially argues that not every new process equipment or new highly hazardous material necessitates a PHA, HCA, DMR and Human Factors analysis. To elaborate upon the analysis the Petitioner seeks to forego, major changes are considered, under the following:

5189.1(k)(4)

> *(4) A DMR shall be reviewed as part of a major change on a process for which a damage mechanism exists, prior to approval of the change. If a major change may introduce a damage mechanism, a DMR shall be conducted, prior to approval of the change. [Emphasis added]*

5189.1(*l*)(1)

> *(1) The employer shall conduct a Hierarchy of Hazard Controls Analysis (HCA) as a standalone analysis for all existing processes. For the HCA on existing processes, the team shall review the PHA while conducting the HCA. The HCA for existing processes shall be performed in accordance with the following schedule, and may be performed in conjunction with the PHA schedule:*
>
> *[…]*

5189.1(*l*)(2)(C)

> *(2) The employer shall also conduct an HCA in a timely manner as follows:*
>
> *[…]*

> *(C) As part of a MOC review, whenever a major change is proposed, pursuant to subsection (n); and, [Emphasis added]*

5189.1(n)(3)

> *(3) Prior to implementing a major change, the employer shall review or conduct a DMR pursuant to subsection (k) and perform an HCA pursuant to subsection (l). The findings of the DMR and recommendations of the HCA shall be included in the MOC documentation. [Emphasis added]*

5189.1(s)(2)

> *(2) The employer shall include a written analysis of Human Factors, where relevant, in major changes, incident investigations, PHAs, MOOCs and HCAs. The analysis shall include a description of the selected methodologies and criteria for their use. [Emphasis added]*

The Petitioner sets forth no criteria segregating "critical change" from "minor equipment change." Board staff does not agree with the Petitioner's assertion that new processes, new process equipment, and new highly hazardous materials which the Petitioner may claim as "minor" should, by definition (in this case, its amendment), be excluded as a "major change."

"Minor equipment change" and "critical change," as staff understands the Petitioner's request, is discerned through contextual scrutiny (as that required of a major change), not definition.

Request 1.2

The Petitioner also requests that the phrase "worsens an existing process safety hazard" be eliminated. The Petitioner claims that the phrase does not put the regulated community on notice of what constitutes a "major change."

Staff acknowledges that the word "worsens" could be revised but disagrees with the Petitioner that the regulated community does not have notice of what constitutes a "major change." In full context, the intent is clear. Grammatically, "worsen" modifies "an existing process safety hazard."

worsen verb

Save Word

wors·en | \ ˈwər-sᵊn \

worsened; **worsening** \ ˈwərs-niŋ, ˈwər-sᵊn-iŋ \

Definition of *worsen*

transitive verb

: to make worse

The language intends to include as a "major change," any alteration that 'makes worse,' 'the hazard.' How that manifests is through either increasing the severity of 'the hazard' or the increasing probability that the threat posed by 'the hazard' would be realized. Further, Board staff anticipates that the magnitude to which an alteration could exacerbate a hazard may also be raised as a concern for the definition. Whether incremental or substantial, the definition does not need to distinguish the extent at which an alteration exacerbates an existing hazard. Such appraisal is the function of the assessments required of a "major change" (e.g. PHA, DMR, etc.) rather than definitional exclusion.

Board staff sees no basis for the deletion of the phrase "worsens an existing process safety hazard." The deletion of the phrase (per the strikethrough below) limits the item to:

> • *Any alteration that introduces a new process safety hazard ~~or worsens an existing process safety hazard~~.*

The deletion eliminates from scrutiny changes that increase severity of 'the hazard' or increase the probability of the threat posed by 'the hazard.' Staff disagrees with the elimination of scrutiny characterized under this request.

Request 1.3

The Petitioner requests that the Title 8 definition match the Title 19 definition.

The Governor's report, *Improving Public and Worker Safety at Oil Refineries, Report of the Interagency Working Group on Refinery Safety*, posed the following:

> *The requirements of the Cal/OSHA PSM program and the CalARP program are very similar[…] The difference is in focus; Cal/OSHA's PSM program focuses on potential on-site chemical releases and processes that affect the health and safety of workers, while the CalARP RMP focuses on chemical releases with the potential for off-site impacts needing emergency response. [Emphasis added]*

WSPA posed similar concerns to CalOES and the Board, which have already received responses:

Final Statement of Reasons to CalARP regulation:

> *Cal OES agrees that the CalARP regulation and the PSM standard should be harmonized and consistent wherever appropriate. However, the mandates of the two programs differ: PSM is focused on protecting worker health and safety, whereas CalARP is focused on protecting communities. For this reason, there are some critical differences between the two regulations that are justified and necessary. In addition, consistent does not necessarily mean identical. If there are minor differences between the two regulations, but those differences do not lead to contradictory or significantly divergent requirements, then those differences would not render owners or operators "unable to…effectively comply with both regulatory schemes." Cal OES and DIR carefully evaluated the regulations and made a number of changes to enhance consistency where appropriate… [Emphasis added]*

The aim of Section 5189.1 is to protect those employees from catastrophic events. Such catastrophic events pose hazards that are greater in the immediate vicinity of the event than would be experienced outside the facility. To be clear, protection afforded to the public does not inherently establish protection of the employees, especially in releases contained within the confines of the facility. Conversely, it can be reasoned that preventative actions that protect employees, and in effect, prevent the migration of highly hazardous materials outside of the facilities perimeter, would protect the public. Presumably, where the regulations differ, and the CalARP requirements offers greater protection than the established Section 5189.1 requirements, Section 5189.1 should be bolstered through rulemaking.

Request 2

Regarding the Petitioner's Request 2, Board staff concludes the following:

- Request 2.1 – There is no occupational safety and health related basis to restrict the definition of "employee representative" to the employees of the refinery.

- Request 2.2 – The definition of "employee representative" does not need modification. "Employee representatives" are not to be conflated with "operating and maintenance employees." "Operating and maintenance employees," when part of teams, are required to have experience and expertise specific to the process analysis for which they participate. Employee representatives are required to be consulted as part of the PHA. Only when "employee representatives" function in the role of "operating and maintenance employees" as part of teams is their experience and expertise necessary.

- Request 2.3 – Section 5189.1(q)(2) to the extent that the language confers rights on authorized collective bargaining agents, cannot be reasonably assessed by Board staff.

- Request 2.4 – The Board did not create new terminology (i.e. "effective participation"), rather the Board called for employee participation to be "effective." Establishing a compound term "effective-participation" and inserting it into the context of Section 5189.1 undermines the aims of employee participation. Further, creating and defining "effective-participation" as merely the extension of an 'invitation' is inconsistent with the "consultation" aims of Section 5189.1 and its predecessors.

Employee representatives

The role of employee representatives and their participation in process safety management is codified in U.S.C., Title 29, and directs Federal OSHA to promulgate a safety standard which requires employers to "consult with employees and their representatives…"

Title 29, U.S.C. Section 655:

CHEMICAL PROCESS SAFETY MANAGEMENT

Pub. L. 101–549, title III, §304, Nov. 15, 1990, 104 Stat. 2576, provided that:

(a) CHEMICAL PROCESS SAFETY STANDARD.—The Secretary of Labor shall act under the Occupational Safety and Health Act of 1970 (29 U.S.C. 653) [29 U.S.C. 651 et seq.] to prevent accidental releases of chemicals which could pose a threat to employees.

[…]

"(c) ELEMENTS OF SAFETY STANDARD.—Such standard shall, at minimum, require employers to—

[…]

"(3) consult with employees and their representatives on the development and conduct of hazard assessments and the development of chemical accident prevention plans and provide access to these and other records required under the standard; [Emphasis added]

Employee participation was considered essential to 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals. Moreover, Federal OSHA expressed the following when adopting 29 CFR 1910.119(c):

> *…OSHA believes that employers must consult with employees and their representatives on the development and conduct of hazard assessments (OSHA's process hazard analyses) and consult with employees on the development of chemical accident prevention plans (the balance of the OSHA required elements in the process safety management standard)…*
>
> *…Therefore, as suggested by several rulemaking participants, OSHA has added language contained in the [Clean Air Act Amendments of 1990 (CAAA)] to the final rule in a new provision, paragraph (c). OSHA believes that this new provision, which requires broad and active employee participation in all elements of the process safety management program through consultation will enhance the overall program. OSHA also believes that the CAAA requirements demand that an employer carefully consider and structure the plant's approach to employee involvement in the process safety management program. [Emphasis added]*

Employee participation is a requirement under Section 5189(d) and 5189(p), which, prior to the adoption of Section 5189.1, applied to petroleum refineries.

Section 5189(d) states:

> *(d) Process Safety Information. The employer shall develop and maintain a compilation of written safety information to enable the employer and the employees operating the process to identify and understand the hazards posed by processes involving acutely hazardous, flammable and explosive material before conducting any process hazard analysis required by this regulation. The employer shall provide for employee participation in this process. Copies of this safety information shall be made accessible and communicated to employees involved in the processes, and include:[…] [Emphasis added]*

Section 5189(p) states:

> *(p) Employee Participation. The employer shall develop a written plan of action to ensure employee participation in process safety management which includes:*
>
> *(1) Employer consultation with employees and their representatives on the conduct and development of the elements of process safety management required by this section;[…] [Emphasis added]*

Under Title 8, Section 5189.1 Employee Representative is defined as:

> *Employee Representative. A union representative, where a union exists, or an employee-designated representative in the absence of a union that is on-site and qualified for the task. The term is to be construed broadly, and may include the*

> *local union, the international union, or a refinery or contract employee designated by these parties, such as the safety and health committee representative at the site.*

From the Final Statement of Reasons for Title 8, Section 5189.1 (pp.1):

> *[The proposed modification regarding non-union employee representatives] is necessary to clarify the definition. Employees are entitled to select representatives of their choosing where a union exists. In the absence of a union, employee-designated representatives must be onsite and qualified for the task. Employees and employee representatives must meet the qualifications provided for under the various subsections of the proposal. The proposed modification does not limit an employer's right and remedies to protect trade secrets. [Emphasis added]*

Request 2.1 & 2.2

The Petitioner requests that the Board limit "employee representatives" to solely personnel employed at the facility. Currently, the existing regulations defines in part:

> *Employee Representative. A union representative, where a union exists, or an employee-designated representative in the absence of a union that is on-site and qualified for the task[…] [Emphasis added]*

The phrase "that is on-site and qualified for the task" was added in response to comments. Regarding the Petitioner's request that employee representative be defined strictly as on-site employees of the refinery, the Board had already explained the rationale within the Final Statement of Reasons.

The Final Statement of Reasons for Title 8, Section 5189.1 (pp.1-2):

> *Collective bargaining agreements are between the union and the employer. For purposes of this subsection (q), employees are entitled to select representatives of their choosing, including experts who may be outside the refinery or with other unions who are not employed directly by the refinery. The proposed requirements ensure adequate employee participation for all refineries.*

The Petitioner also requests that the Board modify the definition to require the "employee representative" to be qualified to participate in the relevant activity(ies) for which they will serve as employee representatives.

The Petitioner states:

> *…employee representatives selected at unionized refineries may be unqualified for the task because they lack the requisite experience required for the task, and/or are unfamiliar with the refinery's equipment and processes if they are not employees at that facility. This provision would allow unqualified employee representatives to participate in safety programs, thereby jeopardizing refinery safety.*

It is important to note that Federal OSHA raised in their response to comments in the federal final rule regarding team approaches under 1910.119(e)(3):

> *[…]As discussed previously, a great number of participants objected to the inclusion of an employee representative (union representative) on these teams;[…], OSHA has decided not to specifically require an employee representative on the team. Instead, the Agency has chosen to include a {final paragraph (c)} addressing employee participation in the process safety management program, which would require employee participation in the process hazard analysis by requiring that employers consult with employees and their representatives on the conduct and development of process hazard analyses[…] However, OSHA continues to require that an employee who has experience and knowledge specific to the process being evaluated be included on the team. [Emphasis added]*

Though Federal OSHA did not choose to require employee representatives on the team in 29 CFR 1910.119, consultation with employee representatives remains important to the analysis and is consistent with the CAAA. Federal OSHA clearly delineates between "operating and maintenance employee" team members (selected to participate on teams) and "employee representatives." Section 5189.1 repeatedly draws a similar distinction by requiring provisions for employee participation pursuant to subsection (q):

> *(q) Employee Participation.*
>
> *(1) In consultation with employees and employee representatives, the employer shall develop, implement and maintain a written plan to effectively provide for employee participation in all PSM elements, pursuant to this section. The plan shall include provisions that provide for the following:*
>
> *(A) Effective participation by affected operating and maintenance employees and employee representatives, throughout all phases, in performing PHAs, DMRs, HCAs, MOCs, Management of Organizational Change assessments (MOOCs), Process Safety Culture Assessments (PSCAs), Incident Investigations, SPAs and PSSRs; [Emphasis added]*

> *(B) Effective participation by affected operating and maintenance employees and employee representatives, throughout all phases, in the development, training, implementation and maintenance of the PSM elements required by this section; and, […] [Emphasis added]*

Where refinery and process specific information is required, the regulations set forth requirements for the inclusion of "operating employees" in addition to providing for employee participation pursuant to subsection (q).

Section 5189.1(e)(4) requires:

> *(4) The PHA shall be performed by a team with expertise in engineering and process operations, and shall include at least one refinery operating employee who currently works in or provides training in the unit, and who has experience and knowledge specific to the process being evaluated. The team shall also include one member with expertise in the specific PHA methodology being used. The employer shall provide for employee participation pursuant to subsection (q). As necessary, the team shall consult with individuals with expertise in damage mechanisms, process chemistry, SPA and control systems. [Emphasis added]*

Section 5189.1(*l*)(3) requires:

> *(3) HCAs shall be documented, performed, updated and revalidated by a team with expertise in engineering and process operations. The team shall include one member knowledgeable in the HCA methodology being used and at least one operating employee who currently works on the process and has expertise and experience specific to the process being evaluated. The employer shall provide for employee participation pursuant to subsection (q). As necessary, the team shall consult with individuals with expertise in damage mechanisms, process chemistry and control systems. [Emphasis added]*

Section 5189.1(k)(7) requires:

> *(7) The DMR shall be performed by a team with expertise in engineering, equipment and pipe inspection, damage and failure mechanisms, and the operation of the process or processes under review. The team shall include one member knowledgeable in the specific DMR methodology being used. The employer shall provide for employee participation pursuant to subsection (q). [Emphasis added]*

Federal OSHA also notes in the Federal Final Rule for 29 CFR 1910.119:

> *Additionally, when more than one person is performing the analysis, different disciplines, opinions, and perspectives will be represented and additional knowledge and expertise will be contributed to the analysis. In fact, some companies even include an individual on the team who does not have any prior experience with the particular process being analyzed to help insure that a fresh view of the process is integrated into the analysis. [Emphasis added]*

Consultation with employee representatives does not require specific knowledge of the facility. Such refinery specific information may come from the represented employees themselves. For example, team members may provide the subject matter expertise from which employee representatives may rely. Operating and maintenance employees whose experience and expertise form the basis for their inclusion on the team may serve as subject matter experts to the employee representatives where specific gaps in knowledge may arise. Given the above requirements for experience and expertise, and Federal OSHA's guidance position related to the composition of teams in critical analyses, staff is unconvinced that employee representatives may 'jeopardize refinery safety' under the conditions the Petitioner theorizes.

Request 2.3

To the extent that the Petitioner charges that the requirement of Section 5189.1(q)(2) impermissibly interferes in the collective bargaining process, it is neither within the Board's staff capability nor expertise to evaluate. Board staff cannot provide an opinion related to matters outside of those pertaining to occupational safety and health.

Request 2.4

The Petitioner requests that "effective[-]participation" be defined. Moreover, the Petitioner requests that "effective-participation" be defined to mean "the timely invitation of designated employee representatives to participate in relevant process safety activity."

While the Board uses the phrase effective participation, it is not the intent of the Board to establish "effective-participation" as regulatory terminology as the Petitioner asserts. To Board staff's point, the regulation includes effective training, effective written procedures, and effective plan within Section 5189.1.

Rather, "effective" speaks to the nature and quality of "participation" as it does for "training," "procedures," and "plan."

"Effective" is defined as:


effective adjective

Save Word

ef·fec·tive | \ i-ˈfek-tiv, e-, ē-, ə- \

Definition of *effective* (Entry 1 of 2)

1 a : producing a decided, decisive, or desired effect
// an *effective* policy [2]

The 'desired effect' can be traced to Federal OSHA's reasoning related to 29 CFR 1910.119(c), employee participation, which served as the basis for Title 8, Section 5189(p), employee participation, (and staff presumes,) the inspiration for Section 5189.1(q). As stated previously, "*OSHA believes that this new provision [29 CFR 1910.119(c)], which requires broad and active employee participation in all elements of the process safety management program through consultation will enhance the overall program.*"

The Petitioner's recommendation to define "effective-participation" as "the timely invitation of designated employee representative to participate in the relevant process safety activity" is a miniscule fraction of what can be considered "broad and active employee participation in all elements of the process safety management program." Further, relegating "effective-participation" to merely the extension of an 'invitation' is inconsistent with the "consultation" aims of Section 5189.1 and its predecessors.

Request 3

Regarding Petitioner's Request 3, Board staff concludes the following:

- Request 3.1 – "Achieved in practice" is not defined in Title 8. However, "achieved in practice" is used in the CAAA where additional context may be derived. "Related industrial sector" is not defined and is not linked through regulation or common usage to provide guidance to its meaning within Title 8.

[2] Merriam-Webster. (n.d.). Effective. In *Merriam-Webster.com dictionary*. Retrieved December 10, 2020, from https://www.merriam-webster.com/dictionary/effective

- Request 3.2 – The 'geographical and technological' scope presented in the 5189.1(*l*)(4)(D) is not overbroad. Process safety management has been an adopted practice in many industrialized nations. Process safety management related to petroleum refineries has been implemented around the globe. The Petitioner's request for clarity regarding the technical scope may be addressed through further examination of "achieved in practice" and "related industrial sector."

- Request 3.3 – Sections 5189.1(x)(3), 5189.1(x)(4), 5189.1(x)(5) and 5189.1(x)(6) provide sufficient remedy in selecting and assessing a proper course of action including the Petitioner's posed scenario.

- Request 3.4 – Section 5189.1(x)(3), 5189.1(x)(4), 5189.1(x)(5) and 5189.1(x)(6) establish a performance-based criteria for the implementation of safeguards.

Hierarchy of Hazard Control is defined in Section 5189.1(c):

> *Hierarchy of Hazard Control. Hazard prevention and control measures, in priority order, to eliminate or minimize a hazard. Hazard prevention and control measures ranked from most effective to least effective are: First Order Inherent Safety, Second Order Inherent Safety, and passive, active and procedural protection layers.*

Board staff observes that HCA is not directly described within Section 5189.1.

The Board's Initial Statement of Reasons described the HCA as:

> *The employer is required to ensure the safety and integrity of refinery processes by applying inherent safety measures and safeguards in a specific sequence and priority order. The HCA includes:*
>
> *First-Order Inherent Safety Measure…*
>
> *Second-Order Inherent Safety Measure…*
>
> *Passive Safeguard…*
>
> *Active Safeguard...*
>
> *Procedural Safeguard…*
>
> *The HCA subsection requires that first- and second-order inherent safety measures be prioritized over passive or active safeguards, which must be prioritized over procedural safeguards.*

Request 3.1

Section 5189.1(*l*)(4)(D) states:

> *(l) Hierarchy of Hazard Controls Analysis.*
>
> *[…]*
>
> *(4) The HCA team shall:*
>
> *[…]*
>
> *(D) Identify, analyze, and document relevant, publically available information on inherent safety measures and safeguards. This information shall include inherent safety measures and safeguards that have been: 1. achieved in practice by the petroleum refining industry and related industrial sectors; and 2. required or recommended for the petroleum refining industry and related industrial sectors, by a federal or state agency, or local California agency, in a regulation or report; and[…] [Emphasis added]*

Title 19, Section 2762.13 states:

> *§ 2762.13. Hierarchy of Hazard Control Analysis.*
>
> *(a) The owner or operator shall conduct an HCA for all existing processes[…]*
>
> *(e) The HCA team shall:*
>
> *[…]*
>
> *(3) Identify, analyze, and document all inherent safety measures and safeguards (or where appropriate, combinations of measures and safeguards) in an iterative manner to reduce each hazard to the greatest extent feasible. Identify, analyze, and document relevant, publicly available information on inherent safety measures and safeguards. This information shall include inherent safety measures and safeguards that have been: (A) achieved in practice by for the petroleum refining industry and related industrial sectors; or, (B) required or recommended for the petroleum refining industry, and related industrial sectors, by a federal or state agency, or local California agency, in a regulation or report. [Emphasis added]*

The Petitioner requests Section 5189.1 (*l*)(4)(D) be revised. Specifically, the Petitioner requests clarification related to “achieved in practice” and “related industries.”

"Achieved in practice" is used within Title 42, U.S.C. Chapter 85, *Air Pollution Prevention and Control*, but is not defined. While the meaning and intent of "achieved in practice" may be teased from within the context of the code, such an interpretation would not, in the context of Title 8, Section 5189.1, be readily apparent to the regulated public.

Board staff believes "achieved in practice" should be reviewed and discussed to foster clarity of its usage in the context of Title 8, Section 5189.1 and Title 19, Section 2762.13.

Board staff has found that "related industrial sectors" does not have a specific context within Title 8, Section 5189, 29 CFR 1910.119, 42 U.S.C. Chapter 85, or 40 CFR 300 et seq.

Board staff believes "related industrial sectors" should be reviewed and discussed to further foster clarity of its usage in the context of Title 8, Section 5189.1 and Title 19, Section 2762.13.

Request 3.2

The Petitioner requests that the Board establish geographical and technical scope boundaries to what constitutes publically available information on inherent safety measures and safeguards. It is unclear based upon the Petition what constitutes a technical boundary. Board staff asserts that examining "achieved in practice" and "related industrial sectors" will address the Petitioner's concerns related to the "technical scope."

It is unclear how establishing a geographical boundary improves employee safety. Process Safety Management exists globally. As stated previously, the UK, EU, China, and India have established rules and practices related to process safety management. Accompanying those rules are the potential means to improve process safety and thus enhance protection of employees. Excluding potential sources for safeguards from consideration because of geographical boundaries is, in Board staff's opinion, arbitrary and without merit.

Request 3.3

The Petitioner requests the Board provide guidance on resolving HCA scenarios where an inherent safety measure or safeguard for one hazard adversely impacts the refinery's control of other hazards.

The Petitioner claims Section 5189.1(*l*)(4)(E) fails to provide any guidance for how to resolve scenarios in which there is a conflict between inherent safety measures for different hazards. The Petitioner puts forth the possibility of mitigating one hazard which may exacerbate the hazard of another or create a new hazard.

The Petitioner poses a scenario from which the Petitioner seeks a resolution through the application of Section 5189.1(*l*)(4)(E). The purpose of Section 5189.1(*l*)(4)(E) is to prepare recommendation from which Section 5189.1(x) provisions would be applied. The duty under Section 5189.1(*l*)(4)(E) would be to identify potential resolutions to hazards and as part of the recommendation, the shortcomings. Where shortcomings negatively impact the safety of a recommendation, it is under Section 5189.1(x) where the viability of a recommendation is accepted, rejected, or modified—specifically, Sections 5189.1(x)(3), 5189.1(x)(4), and the rationale be documented and communicated through 5189.1(x)(5) and 5189.1(x)(6):

> *(x) Implementation.*
>
> *[…]*
>
> *(3) The employer may reject a team recommendation if the employer can demonstrate in writing that the recommendation meets one of the following criteria: [Emphasis added]*
>
> *(A) The analysis upon which the recommendation is based contains material factual errors;*
>
> *(B) The recommendation is not relevant to process safety; or,*
>
> *(C) The recommendation is infeasible; however, a determination of infeasibility shall not be based solely on cost.*
>
> *(4) The employer may change a team recommendation if the employer can demonstrate in writing that an alternative measure would provide an equivalent or higher order of inherent safety. The employer may change a team recommendation for a safeguard if an alternative safeguard provides an equally or more effective level of protection. [Emphasis added]*

Request 3.4

Based upon the Petitioner's request, Board staff hypothesizes that the Petitioner requests the following change:

> *(4) The HCA team shall:*
>
> *[…]*
>
> *(E) For each process safety hazard identified in subsection (l)(4), develop written recommendations ~~in the following sequence and priority order:~~*
>
> *~~1. Eliminate hazards to the greatest extent feasible using first order inherent safety measures;~~*

> ~~*2. Reduce any remaining hazards to the greatest extent feasible using second order inherent safety measures;*~~
>
> ~~*3. Effectively reduce remaining risks using passive safeguards;*~~
>
> ~~*4. Effectively reduce remaining risks using active safeguards; and,*~~
>
> ~~*5. Effectively reduce remaining risks using procedural safeguards.*~~
>
> *[…]*

As stated previously, the duty under Section 5189.1(*l*)(4)(E) would be to identify potential resolutions to hazards, prepare recommendations, and as part of the recommendations, to identify shortcomings of those potential resolutions to hazards. Removing the sequence and priority order from the development of recommendations could result in examining solutions that could shy away from first and second order measures as sources of hazard elimination and mitigation.

First and second order inherent safety measures are explained in the definition of "inherent safety" under Section 5189.1(c).

> • *First Order Inherent Safety Measure. A measure that eliminates a hazard. Changes in the chemistry of a process that eliminate the hazards of a chemical are usually considered first order inherent safety measures; for example, by substituting a toxic chemical with an alternative chemical that can serve the same function but is non-toxic. [Emphasis added]*
>
> • *Second Order Inherent Safety Measure. A measure that effectively reduces a risk by reducing the severity of a hazard or the likelihood of a release, without the use of add-on safety devices. Changes in process variables to minimize, moderate and simplify a process are usually considered second order inherent safety measures; for example, by redesigning a high-pressure, high-temperature system to operate at ambient temperatures and pressures. [Emphasis added]*

It is important to note that Title 19 also requires the preparation of written recommendations:

> *Title 19, Section 2762.13*
>
> *Section 2762.13. Hierarchy of Hazard Control Analysis.*
>
> *[…]*
>
> *(f) For each process safety hazard identified using the analysis required by subdivision (e), the team shall develop written recommendations to eliminate hazards to the greatest extent feasible using first order inherent safety*

> *measures. The team shall develop written recommendations to reduce any remaining hazards to the greatest extent feasible using second order inherent safety measures. If necessary, the team shall also develop written recommendations to address any remaining risks in the following sequence and priority order: [Emphasis added]*
>
> *(1) Effectively reduce remaining risks using passive safeguards;*
>
> *(2) Effectively reduce remaining risks using active safeguards;*
>
> *(3) Effectively reduce remaining risks using procedural safeguards.*

Title 19 and Title 8 require essentially the same priority in preparing written recommendations (i.e. first order inherent safety measures, second order inherent safety measures, passive safeguards, active safeguards, and finally procedural safeguards). As stated in response to Request 3.3, the development of recommendations is separate and apart from selecting recommendations for implementation. Board staff views the deletion of the priority order would not improve occupational safety and health afforded employees under the existing standard.

Request 4

Regarding Petitioner's Request 4, Board staff concludes the following:

- Request 4.1 – The definition of highly hazardous material does not require revision. Only the definitions within 29 CFR 1910.1200 Appendix A and B are incorporated by reference in Section 5189.1. The tests referenced need only be performed under the requirements of the Hazard Communication standard, Section 5194(d)(1). Specifically, "*Employers are not required to classify chemicals unless they choose not to rely on the classification performed by the manufacturer or importer for the chemical to satisfy this requirement.*"

- Request 4.2 – The current schema reflects more contemporary implementation of process safety management and should be augmented with threshold quantity limits. Board staff references both Title 19, Section 2770.5, Title 8, Section 5189 Appendix A, and the Seveso III, Directive 2012/18/EU as a starting point to establish threshold quantities.

<u>Request 4.1</u>

The Petitioner requests that the definition of "highly hazardous material" in Section 5189.1(c) be revised to provide a clear and straightforward way for employers to understand what chemicals are subject to the regulation. (Board staff evaluation of the Petitioner's request pertaining to threshold quantities will be addressed in Request 4.2)

According to the Petitioner, the terms referenced in the definition involve specific tests which are included within each Federal OSHA referenced appendix section. Each of the definitions referenced describe, in detail, the criteria for discernment. For example, a *flammable liquid means a liquid having a flash point of not more than 93°C (199.4°F);* a *flammable gas means a gas having a flammable range with air at 20°C (68°F) and a standard pressure of 101.3 kPa (14.7 psi).*

For the purposes of Section 5189.1, "highly hazardous material" is used when delineating "major changes."

Section 5189.1(c) defines:

> *Highly Hazardous Material. A flammable liquid or flammable gas, or a toxic or reactive substance.*
>
> *Flammable Gas. As defined in CCR Title 8, Section 5194, Appendix B.*
>
> *Flammable Liquid. As defined in CCR Title 8, Section 5194, Appendix B.*
>
> *Reactive Substance. A self-reactive chemical, as defined in CCR Title 8, Section 5194, Appendix B.*
>
> *Toxic Substance. Acute toxicity, as defined in CCR Title 8, Section 5194, Appendix A.*

For reference:

Terminology	**29 CFR 1910.1200 Appendix A and B definitions.**
Flammable liquid	*B.6 FLAMMABLE LIQUIDS* *B.6.1 Definition* *Flammable liquid means a liquid having a flash point of not more than 93°C (199.4°F).*
Flammable gas	*B.2 FLAMMABLE GASES* *B.2.1 Definition* *Flammable gas means a gas having a flammable range with air at 20°C (68°F) and a standard pressure of 101.3 kPa (14.7 psi).*

Terminology	**29 CFR 1910.1200 Appendix A and B definitions.**
Toxic substance	*A.1 ACUTE TOXICITY* *A.1.1 Definition* *Acute toxicity refers to those adverse effects occurring following oral or dermal administration of a single dose of a substance, or multiple doses given within 24 hours, or an inhalation exposure of 4 hours.*
Reactive substance	*B.8 SELF-REACTIVE CHEMICALS* *B.8.1 Definitions* *Self-reactive chemicals are thermally unstable liquid or solid chemicals liable to undergo a strongly exothermic decomposition even without participation of oxygen (air). This definition excludes chemicals classified under this section as explosives, organic peroxides, oxidizing liquids or oxidizing solids.* *A self-reactive chemical is regarded as possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.*

It is unclear to Board staff, based upon the Petition, how "the definition creates significant uncertainty and risk of confusion or inconsistent application." First, the definitions are applicable to the Hazard Communication Standard (Title 8, Section 5194) which covers all General Industry employers. Second, the tests are not required to validate known substances to establish whether they are a "flammable liquid," "flammable gas," "toxic substance," or "reactive substance." The definitions under Section 5189.1(c), which pertain to "highly hazardous material," need only be tested where the employer chooses not to rely upon the classification performed by the manufacturer:

Section 5194(d)(1) allows:

> *(d) Hazard Classification.*
>
> *(1) Manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous and classify*

> *the chemicals in accordance with this section. For each chemical, the manufacturer or importer shall determine the hazard classes, and where appropriate, the category of each class that apply to the chemical being classified. Employers are not required to classify chemicals unless they choose not to rely on the classification performed by the manufacturer or importer for the chemical to satisfy this requirement. [Emphasis added]*

Where the substances cannot be readily classed as a flammable liquid or flammable gas, or a toxic or reactive substance, the hazards are required to be identified and communicated to employees under Title 8, Section 5194.

Board staff does find a disparity is the definition within Title 19, Section 2735.3. The Title 19 definition of "highly hazardous material" includes additional named substances (Table 1, 2, and 3) not included within Title 8, Section 5189.1.

Title 19, Section 2735.3:

> *(y) "Highly hazardous material" means a flammable liquid, flammable gas, toxic or reactive substance as those terms are defined: [¶]*
>
> *(1) flammable gas, as defined in California Code of Regulation (CCR) Title 8, §5194, Appendix B, [¶]*
>
> *(2) flammable liquid, as defined in CCR Title 8, §5194, Appendix B, [¶]*
>
> *(3) toxic substances as acute toxicity is defined in CCR Title 8, §5194, Appendix A, and [¶]*
>
> *(4) reactive substance as self-reactive chemical, as defined in CCR Title 8, §5194, Appendix B. [¶]*
>
> *Highly hazardous material includes all regulated substances listed in Tables 1, 2, and 3 [see Section 2770.5 List of Substances].*

Request 4.2

The threshold quantity limits established as part of the Federal OSHA PSM regulation were specifically adopted based upon identifying existing sources of hazardous substance lists:

> *The appendix A list has been drawn from a variety of relevant sources which include: The New Jersey "Toxic Catastrophe Prevention Act," the State of Delaware's "Extremely Hazardous Substances Risk Management Act," the World Bank's "Manual of Industrial Hazard Assessment Techniques," the Environmental Protection Agency's "Extremely Hazardous Substance List," the European Communities Directive on major accident hazards of certain industrial activities (82/501/EEC, sometimes called the Seveso Directive), the United Kingdom's "A Guide to the Control of Industrial Major Accident Hazards Regulations 1984," the American Petroleum Institute's RP 750, "Management of Process Hazards," the National Fire Protection Association's NFPA 49, "Hazardous Chemicals Data," and the Organization Resources Counselors, Inc.'s "Recommendations for Process Hazards Management of Substances with Catastrophic Potential."*

It is important to note that while Federal OSHA sourced appendix A from a number of different publications, many of those publications have since been revised, repealed, or augmented. Of note is the EU's (and UK's inclusion of) the Seveso III Directive Annex 1. Annex 1 includes both a list of "categories of dangerous substances" and "named dangerous substances." (see addendum 1). The "categories of dangerous substances" is an approach that Section 5189.1 utilizes, though the threshold limits within the EU directive are absent.

Including threshold quantity limits is reasonable to be consistent with the intent established within both 29 CFR 1910.119 and Title 8, Section 5189. Such limitations focus the requirements of Section 5189.1 on what Federal OSHA deemed as "those highly hazardous chemicals which present a potential catastrophic threat to employees." Board staff believes that the approach of identifying "categories of dangerous substances" and "named dangerous substances" with appropriate threshold quantity limits should be considered.

Conclusions

Regarding Petitioner's Request 1, Board staff concludes the following:

- Request 1.1 – The definition of "major change" is not, in itself, vague and overbroad. The exclusion of "minor equipment changes" from "major change" without scrutiny does not improve safety.

- Request 1.2 – "Worsens" in the context of an "existing process safety hazard" is not an impediment to the determination of a "major change."

- Request 1.3 – The definition of "major change" does not require an identical definition to that included in Title 19.

Regarding Petitioner's Request 2, Board staff concludes the following:

- Request 2.1 – There is no occupational safety and health related basis to restrict the definition of "employee representative" to the employees of the refinery.

- Request 2.2 – The definition of "employee representative" does not need to be modified. "Employee representatives" are not to be conflated with "operating and maintenance employees." "Operating and maintenance employees," when part of teams, are required to have experience and expertise specific to the process analysis for which they participate. Employee representatives are required to be consulted as part of the PHA. Only when "employee representatives" function in the role of "operating and maintenance employees" as part of teams is their experience and expertise necessary.

- Request 2.3 – Section 5189.1(q)(2) to the extent that the language confers rights on authorized collective bargaining agents, cannot be reasonably assessed by Board staff.

- Request 2.4 – The Board did not create new terminology (i.e. "effective-participation"), rather the Board called for employee participation to be "effective." Establishing a compound term "effective-participation" and inserting it into the context of Section 5189.1 undermines the aims of employee participation. Further, creating and defining "effective-participation" as merely the extension of an 'invitation' is inconsistent with the "consultation" aims of Section 5189.1 and its predecessors.

Regarding Petitioner's Request 3, Board staff concludes the following:

- Request 3.1 – "Achieved in practice" is not defined in Title 8. However, "achieved in practice" is used in the CAAA, where additional context may be derived. "Related industrial sector" is not defined and is not linked through regulation or common usage to provide guidance to its meaning within Title 8.

- Request 3.2 – The 'geographical and technological' scope presented in the 5189.1(*l*)(4)(D) is not overbroad. Process safety management has been an adopted practice in many industrialized nations. Process safety management related to petroleum refineries has been implemented around the globe. A geographical limitation regarding the sources of safeguards to protect employees does not further the aims of employee safety. The Petitioner's request for clarity regarding the technical scope may be addressed through further examination of "achieved in practice" and "related industrial sector."

- Request 3.3 – Sections 5189.1(x)(3), 5189.1(x)(4), 5189.1(x)(5) and 5189.1(x)(6) provide sufficient remedies in selecting and assessing a proper course of action, including the Petitioner's posed scenario.

- Request 3.4 – Section 5189.1(x)(3), 5189.1(x)(4), 5189.1(x)(5) and 5189.1(x)(6) establish a performance based criteria for the implementation of safeguards.

Regarding Petitioner's Request 4, Board staff concludes the following:

- Request 4.1 – The definition of "highly hazardous material" does not require revision. Extra-definitional portions of 29 CFR 1910.1200 Appendix A and B are not incorporated by reference in Section 5189.1. The tests referenced need only be performed under the requirements of Section 5194(d)(1). Specifically, "*Employers are not required to classify chemicals unless they choose not to rely on the classification performed by the manufacturer or importer for the chemical to satisfy this requirement.*"

- Request 4.2 – The current schema reflects more contemporary implementation of process safety management and should be augmented with threshold quantity limits. Board staff references both Title 19, Section 2770.5, Title 8, Section 5189 Appendix A, and the Seveso III, Directive 2012/18/EU as a starting point to establish threshold quantities.

STAFF RECOMMENDATION

Board staff recommends the following:

Request 1 should be DENIED

Request 2 should be DENIED

Request 3 should be GRANTED to the extent that an advisory committee consider amending or clarifying the phrases "achieved in practice" and "related industrial sector." Board staff references the CAAA of 1990 and subsequent state and federal codes including Title 19 to identify the intent of each phrase.

Request 4 should be GRANTED to the extent that an advisory committee consider amending Section 5189.1 to reflect a more contemporary scope of process safety management augmented with threshold quantity limits. Board staff references both Title 19, Section 2770.5 and Title 8, Section 5189 (including Appendix A), and the Seveso III, Directive 2012/18/EU as a starting point to establish threshold quantities.

Addendum 1: Directive 2012/18/EU (Seveso Directive III), Annex I, Part 1

PART 1

Categories of dangerous substances

This Part covers all dangerous substances falling under the hazard categories listed in Column 1:

Column 1	**Column 2**	**Column 3**
Hazard categories in accordance with Regulation (EC) No 1272/2008	**Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of**	
	Lower-tier requirements	**Upper-tier requirements**
Section 'H' – HEALTH HAZARDS		
H1 ACUTE TOXIC Category 1, all exposure routes	5	20
H2 ACUTE TOXIC – Category 2, all exposure routes – Category 3, inhalation exposure *route* (see note 7)	50	200
H3 STOT SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE STOT SE Category 1	50	200
Section 'P' – PHYSICAL HAZARDS		
P1a EXPLOSIVES (see note 8) – Unstable explosives or – Explosives, Division 1.1, 1.2, 1.3, 1.5 or 1.6, or Substances or mixtures having explosive properties according to method A.14 of Regulation (EC) No 440/2008 (see note 9) and do not belong to the hazard classes Organic peroxides or Self-reactive substances and mixtures	10	50
P1b EXPLOSIVES (see note 8) Explosives, Division 1.4 (see note 0)	50	200

Column 1	Column 2	Column 3
Hazard categories in accordance with Regulation (EC) No 1272/2008	**Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of**	
	Lower-tier requirements	**Upper-tier requirements**
P2 FLAMMABLE GASES Flammable gases, Category 1 or 2	10	50
P3a FLAMMABLE AEROSOLS (see note 11.1) 'Flammable' aerosols *Category 1 or 2*, containing flammable gases Category 1 or 2 or flammable liquids Category 1	150 *(net)*	500 *(net)*
P3b FLAMMABLE AEROSOLS (see note 11.1) 'Flammable' aerosols *Category 1 or 2*, not containing flammable gases Category 1 or 2 nor flammable liquids category 1 (see note 11.2)	5 000 *(net)*	50 000 *(net)*
P4 OXIDISING GASES Oxidizing gases, Category 1	50	200
P5a FLAMMABLE LIQUIDS — Flammable liquids, Category 1, or — Flammable liquids Category 2 or 3 maintained at a temperature above their boiling point, or — Other liquids with a flash point ≤ 60 °C, maintained at a temperature above their boiling point (see note 12)	10	50

Column 1	Column 2	Column 3
Hazard categories in accordance with Regulation (EC) No 1272/2008	**Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of**	
	Lower-tier requirements	**Upper-tier requirements**
P5b FLAMMABLE LIQUIDS – Flammable liquids Category 2 or 3 where particular processing conditions, such as high pressure or high temperature, may create major-accident hazards, or – Other liquids with a flash point ≤ 60 °C where particular processing conditions, such as high pressure or high temperature, may create major-accident hazards (see note 12)	50	200
P5c FLAMMABLE LIQUIDS Flammable liquids, Categories 2 or 3 not covered by P5a and P5b	5 000	50 000
P6a SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES Self-reactive substances and mixtures, Type A or B or organic peroxides, Type A or B	10	50
P6b SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES Self-reactive substances and mixtures, Type C, D, E or F or organic peroxides, Type C, D, E, or F	50	200
P7 PYROPHORIC LIQUIDS AND SOLIDS Pyrophoric liquids, Category 1 Pyrophoric solids, Category 1	50	200

Column 1	Column 2	Column 3
Hazard categories in accordance with Regulation (EC) No 1272/2008	**Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of**	
	Lower-tier requirements	**Upper-tier requirements**
P8 OXIDISING LIQUIDS AND SOLIDS Oxidizing Liquids, Category 1, 2 or 3, or Oxidizing Solids, Category 1, 2 or 3	50	200
Section 'E' – ENVIRONMENTAL HAZARDS		
E1 Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1	100	200
E2 Hazardous to the Aquatic Environment in Category Chronic 2	200	500
Section 'O' – OTHER HAZARDS		
O1 Substances or mixtures with hazard statement EUH014	100	500
O2 Substances and mixtures which in contact with water emit flammable gases, Category 1	100	500
O3 Substances or mixtures with hazard statement EUH029	50	200