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**PROPOSED PETITION DECISION OF THE  
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD  
(PETITION FILE NO. 601)**

**I. INTRODUCTION**

The Occupational Safety and Health Standards Board (Board) received a petition on January 17, 2024, from Terry Scott, President of the United Steel Workers, Local 5 (Petitioner), who represents union employee members at the refinery plant in Martinez, California.

The Petitioner requests to expand the scope of title 8, section 5189.1, Process Safety Management (PSM) for Petroleum Refineries, to include refineries that are now processing renewable feedstocks in place of petroleum. The Petitioner notes that physical properties of petroleum crude oil versus renewable fats, oils and greases may be different, but those differences end at the point of delivery to the facility where the feedstock is processed into highly flammable gasoline, jet fuel, diesel and industrial chemicals. According to the Petitioner, an Emergency Temporary Standard (ETS) is necessary to correct this flaw in refinery safety regulations. This would prevent catastrophic incidents like the one where their member was critically burned over 90% of his body due to a loss of containment of flammable liquids.

Labor Code (LC) section 142.2 permits interested persons to propose new or revised regulations concerning occupational safety and health. It requires the Board to consider such proposals and render a decision no later than six months following receipt. Further, as required by LC section 147, any proposed occupational safety or health standard received by the Board from a source other than the Division of Occupational Safety and Health (Cal/OSHA) must be referred to Cal/OSHA for evaluation. Cal/OSHA has 60 days after receipt to submit an evaluation regarding the proposal.

**II. SUMMARY**

The Martinez Renewables facility, also known as the Marathon refinery, is the subject site of this petition. This facility previously operated as a petroleum refinery for over 100 years until 2020. In early 2023, it converted to a renewable fuels facility and began production using renewable feedstock with plans to ramp up production to full design capacity by the end of 2023.

The evening of November 18, 2023,<sup>1</sup> during the process of starting up a hydrodeoxygenation (HDO) unit, the operations crew encountered furnace temperature control issues. To reduce the temperature, which indicated excessive temperatures on the furnace tube surfaces, staff increased the flow of material through the furnace and directed a field operator to turn off two of the furnace burners. Just after the field operator completed this task, a tube ruptured from the furnace and ignited, starting a fire.<sup>2</sup> The field operator was Jerome Serrano.

According to the petitioner, Serrano suffered third degree burns over 80% of his body, second degree burns over 5% of his body and first degree burns over 5% of his body. Additionally, he received a tracheotomy because he suffered inhalation burns to his esophagus and trachea and could not speak. He had to relearn how to speak through a valve in his tracheotomy. He lost the soft tissue on his ears and eyelids, and he severely burned his hands from protecting his face and using them to find his way out of the epicenter during the loss of containment under the furnace. He also lost his pinky fingers on both hands and could potentially lose more of his fingers.

#### **A. Petitioner's Claims**

The Petitioner believes that facilities processing renewable fuels should be regulated under section 5189.1. This is because:

- The refinery in Martinez is using most of the same equipment it used when it processed petroleum feedstock, with the addition of some specialized equipment to process the renewable feedstock. All the equipment is still used to do the same thing, which is to change the physical properties of the feedstock by refining and processing of the fats, oils and greases to produce diesel, just like they did and could with petroleum feedstock.
- Both petroleum and renewable feedstocks are processed into highly flammable gasoline, jet fuel, diesel and industrial chemicals.

It is the petitioner's position that applying section 5189 to refineries which process renewable feedstock is unsafe and will lead to more severe injuries and catastrophes. This is because:

- Cal/OSHA adopted section 5189 from federal OSHA in 1992, and it has not been updated since. It does not provide enough safety protections for workers, such as those at the Martinez facility, who deal with hazardous material processes daily.

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<sup>1</sup> The fire did not start until the early morning of November 19, 2023, which is why this date is referenced as the incident date.

<sup>2</sup> U.S. Chemical Safety and Hazard Investigation Board: Furnace Tube Rupture and Fire at Marathon Martinez Renewables Facility. Investigation Update February 2024.  
[https://www.csb.gov/assets/1/20/marathon\\_martinez\\_inv\\_update\\_final\\_corrected.pdf?17004](https://www.csb.gov/assets/1/20/marathon_martinez_inv_update_final_corrected.pdf?17004) Pages 1-2.

- The Chevron Richmond refinery fire in 2012 showed weaknesses in section 5189, resulting in new regulation section 5189.1 which applies to petroleum refineries. However, this left a safety gap for refineries that are processing renewable fuels under similar conditions.

Lastly, Petitioner asserts that due to the safety gap left unaddressed by sections 5189 and 5189.1, more incidents involving a loss of containment of flammable liquids and similar catastrophes will continue.

The Petitioner attached a 2014 final report entitled “Improving Public and Worker Safety at Oil Refineries: Report of the Interagency Working Group on Refinery Safety” (IWG). This group was convened to provide a more comprehensive look at industry performance as well as agency oversight in the aftermath of the catastrophic August 6, 2012, Chevron accidental release. The IWG consisted of participants from 13 agencies and departments as well as the Governor’s Office. They met internally and with industry, labor, community, environment, academic, local emergency response and other stakeholders over an eight-month period to provide the findings and recommendations contained in the report.

The recommendations addressed chemical accidents or hazards at oil refineries – of which many were integrated into the new 5189.1 standard.

## **B. November 19, 2023 Incident and Investigation**

In February 2024, three months after the November 19, 2023 incident that injured Serrano, the U.S. Chemical Safety and Hazard Investigation Board (CSB) released an investigation update.<sup>3</sup>

### **1. CSB Update of the Ongoing Investigation.**

The investigation update described the incident as follows:

- On the night shift of November 18, 2023, Marathon was in the process of starting up the HDO unit. Personnel had established renewable diesel and hydrogen circulation in the unit and had begun using the furnace to heat up the process materials.
- During the hour leading up to the incident, Marathon operations staff were attending to furnace temperature control issues. Temperature instruments inside the furnace indicated excessive temperatures on the furnace tube surfaces, triggering audio and visual high temperature alarms at 1,100°F on computer control system screens inside the control room. Minutes before the rupture, all tube temperature indicators were in

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<sup>3</sup> U.S. Chemical Safety and Hazard Investigation Board: Furnace Tube Rupture and Fire at Marathon Martinez Renewables Facility. Investigation Update February 2024. Pages 2-3.  
[https://www.csb.gov/assets/1/20/marathon\\_martinez\\_inv\\_update\\_final\\_corrected.pdf?17004](https://www.csb.gov/assets/1/20/marathon_martinez_inv_update_final_corrected.pdf?17004)

excess of the high-temperature alarm setpoints, with 8 out of 10 instruments indicating temperatures ranging from approximately 1,490°F to 1,710°F.

- To reduce temperatures within the furnace, Marathon operations staff increased the flow of material through the furnace and directed a field operator to turn off two of the furnace burners. At the furnace, the field operator closed the manual fuel gas valves to turn off two of the four burners that were lit at the time. Around 12:21 a.m., just after the field operator had completed this action, a tube ruptured within the furnace, releasing hot renewable diesel and hydrogen. The materials released from the furnace ignited, causing a fire.
- The morning after the incident, Marathon employees discovered that a normally closed manual bypass valve upstream of the furnace was open (misaligned), which created a potential flow path around the furnace. The flowmeter intended to monitor diesel flow through the furnace was located upstream of the open bypass valve and had been indicating flow at the time of the incident. Although safety interlocks existed to automatically shut down the furnace during low renewable diesel flow to the furnace and high temperatures downstream of the furnace, none of these conditions were detected by the instrumentation, therefore, the interlocks did not activate. Any flow being bypassed around the furnace would have fed back into the process piping upstream of the high temperature safety interlock instrumentation.

The investigation is ongoing. Pending metallurgy testing of the furnace tube, which is expected to be completed in May 2024, a final report will be released.

## **2. Internal Investigative Findings of the 2 HDO Unit.**

The Marathon refinery did its own investigation into the November 19, 2023 incident pursuant to Contra Costa County Industrial Safety Order (ISO).

Marathon submitted a 72-hour follow-up notification report<sup>4</sup> to the Contra Costa Health Services Hazardous Materials Programs (CCHSHMP). The report stated that on November 19, 2023, a fire erupted from a furnace in the 2 HDO Unit. Operators shut down the furnace and depressurized the unit to the emergency flare system. Initial release estimates were approximately 207,300 pounds of renewable diesel and 2,200 pounds of hydrogen.

A 30-day follow-up notification report<sup>5</sup> indicated that a tap root investigation is still underway. The investigation was estimated to be completed on or before May 3, 2024, as third-party metallurgical testing and analysis is needed.

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<sup>4</sup> <https://www.cchealth.org/home/showpublisheddocument/28946/638362439614070000>

<sup>5</sup> <https://www.cchealth.org/home/showpublisheddocument/29285/638400445849870000>

Although the November 19, 2023 incident investigation is not complete, a review of a completed investigation of an incident days prior provides a glimpse into the ongoing temperature control issues occurring with the same 2 HDO Unit.

### **C. November 11, 2023 Incident and Investigation.**

On November 11, 2023, eight days before the incident where Serrano was injured, the same 2 HDO Unit experienced a fire on its feed. The 72-hour follow up notification report<sup>6</sup> stated that on November 11, 2023, a fire was discovered on a feed pump at the 2 HDO Unit. An estimate of approximately 4.8 barrels of renewable fuels feedstock was released. The 30-day follow-up notice report<sup>7</sup> indicated that a tap root investigation was underway to determine the root cause of the incident.

The final investigation report<sup>8</sup> stated that the # 2 HDO Unit at the facility experienced a fire at fresh feed pump P-3939. At the time of the incident, the unit was in the process of starting up and renewable diesel was being fed through the fresh feed loop. A leak occurred from a blind flange that was installed on October 28, 2023, on a line directly from the discharge of pump P-3939. The blind flange was installed because of a change in configuration.

Additionally, an issue with the controller for the feed preheater caused the renewable diesel temperature to rise. The continuous recirculation of pump discharge to suction added heat into the process. Ultimately, as the process temperature rose and the recirculation continued, the blind flange connection began to leak. The leak found an ignition source resulting in a localized fire in the area. Following the incident, the piping and equipment around the pump were inspected. No failure or leaks points could be identified on piping near the pump. The seal analysis indicated that the seal did not fail.

The report included a “Root Causes and Corrective Actions” section that summarized preventative measures to be taken to avoid recurrence. The root cause section found that equipment design accounted for three out of the four root causes leading to the incident. Of the three equipment design causes identified, two were the result of equipment design where the problem was not anticipated. The other was due to equipment design where the problem was due to the hazard analysis process. Human performance was the last reason given with “possible inadequate blind flange installation leading to nonparallel flange faces and insufficient gasket stress levels.” Among the corrective action items, it was noted that plans were already underway to rebuild the 2 HDO Unit.

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<sup>6</sup> <https://www.cchealth.org/home/showpublisheddocument/29014/638368671227330000>

<sup>7</sup> <https://www.cchealth.org/home/showpublisheddocument/29068/638379883999330000>

<sup>8</sup> This report was not required to be submitted to CCHSHMP under the ISO because the incident is classified as a level 1 event. However, Board legal staff requested and received the report directly from the Martinez Renewable Fuels facility.

### **III. RELEVANT STANDARDS**

#### **Federal Standards**

The federal counterpart for California process safety management standard 5189 is 29 CFR 1910.119. Process Safety Management of Highly Hazardous Chemicals.

Federal OSHA has not pursued promulgating a regulatory framework uniquely tailored to biofuel refineries.

#### **California Standards**

**Title 8, sections 5189 and 5189.1 – California process safety management standards.**

Section 5189. Process Safety Management of Acutely Hazardous Materials.

(b) Application:

- (1) A chemical at or above the specified threshold quantities listed in section 5189, Appendix A or a process which involves a Category 1 flammable gas (as defined in section 5194) or a flammable liquid with a flashpoint below 100 °F (37.8 °C) on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more.

#### **EXCEPTIONS:**

- (1) Flammable liquids with a flashpoint below 100 °F (37.8 °C) stored in atmospheric tanks or transferred which are kept below their normal boiling point without benefit of chilling or refrigeration.
- (2) Hydrocarbon fuels used solely for workplace consumption (e.g. comfort heating propane, gasoline for motor vehicle refueling) if such fuels are not part of a process containing another acutely hazardous chemical covered by section 5189.
- (3) These regulations do not apply to retail facilities, oil or gas well drilling or servicing operations or normally unoccupied remote facilities.

Section 5189.1. Process Safety Management for Petroleum Refineries.

(b) Application.

This section shall apply to processes within petroleum refineries. For petroleum refineries, this regulation supersedes California Code of Regulations (CCR) Title 8, Section 5189.

#### **Local Standards:**

**Contra Costa County Industry Safety Order (ISO)**

The ISO was adopted in December 1998.

County Ordinance Chapter 450-8<sup>9</sup> expands on the California Accidental Release Prevention (CalARP) Program. The facilities currently subject to the County's ISO include the Phillips 66 Rodeo Refinery and the Martinez Marathon facility.

#### IV. CAL/OSHA'S EVALUATION

In their evaluation of Petition 601, the Division of Occupational Safety and Health (Cal/OSHA) highlights the groundbreaking protections of section 5189.1. However, they also concede that this more protective standard only applies to petroleum refineries.

According to Cal/OSHA, the fact that renewable diesel is not currently covered by section 5189.1 is due to the use of the term "petroleum refinery." This definition can be found in the following subsections: Scope and Purpose (subsection a), Application (subsection b) and the narrow definition of "petroleum refinery" in subsection (c). These subsections define "petroleum refinery" as an "Industrial site engaged in activities set forth in North American Industry Classification System (NAICS) Code 324110." Facilities that refine nonpetroleum materials into fuel have different NAICS codes.

It is Cal/OSHA's position that although the drafters of section 5189.1 did not anticipate the emergence of a renewable refinery sector in California, they recognized that to protect worker safety and health, technical carveouts were needed. Under section 5189.1, any substance with a flashpoint lower than 199.4° F that is used in a process should be covered by the comprehensive requirements of section 5189.1<sup>10</sup>. For this reason, expanding the Scope and Application of section 5189.1 to include renewable refineries (renewable diesel has a flashpoint of 125° F) is consistent with the intent of section 5189.1 and all its technical elements.

Cal/OSHA agrees with the Petitioner, refineries that process renewable feedstock should be covered by section 5189.1 for the following reasons:

- The principal hazards of refining renewable feedstocks are nearly identical to those of refining petroleum, as both types of refineries contain large quantities of flammable liquids and gases at high temperatures and pressures that in the event of a release or incident can cause large-scale and disastrous fires and explosions.<sup>11 12</sup>

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<sup>9</sup> <https://www.cchealth.org/home/showpublisheddocument/1837/638241581987530000>

<sup>10</sup> Under section 5189.1(b), a "flammable liquid" is defined as listed under Appendix B of section 5194, which refers to Appendix B of CFR §1910.1200 - Physical Criteria (Mandatory), subsection B.6.1, where flammable liquid "means a liquid having a flash point of not more than 93°C (199.4°F)."

<sup>11</sup> Contra Costa County Department of Conservation and Development. Martinez Refinery Renewable Fuels Project Draft Environmental Impact Report. <https://www.contracosta>.

<sup>12</sup> The North American Industry Classification System (NAICS) is used by federal statistical agencies to classify business establishments. <https://www.census.gov/naics/>

- Petroleum diesel and renewable diesel are chemically equivalent, but only petroleum diesel is covered by section 5189.1.

The Cal/OSHA evaluation also concurred with the Petitioner that section 5189 does not adequately cover hazardous processes.

- Section 5189 contains substantial weaknesses and omissions, including omitting coverage of petroleum diesel and renewable diesel. Even for the substances covered, section 5189 does not provide adequate protection against uncontrolled releases of hazardous materials.

To maintain consistency with the intent and technical elements of section 5189.1, Cal/OSHA asserts that section 5189.1 should be immediately amended by:

- Removing the word “petroleum” from subsections 5189.1 (a) and (b)
- Amending the definition of “petroleum refinery” in subsection (c) to “fuel refinery” and adding the appropriate NAICS 38 identifiers to include renewable refineries
- Substituting “fuel refinery” for “petroleum refinery” in the definitions of “Process,” “Process Safety Management,” and “Turnaround” in subsection (c)
- Substituting “fuel refinery” for “petroleum refinery” in subsections (e)(3)(B) and (e)(9), which cover requirements for process hazard analyses

Cal/OSHA recommends the change to section 5189.1 be made through expedited normal rulemaking rather than through emergency rulemaking. Cal/OSHA believes the required change to section 5189.1 does not meet the definition of emergency in the Administrative Procedures Act (APA). However, the change can be made quickly through normal rulemaking, as the regulatory language change is minimal and clearly justifiable.

To conclude, Cal/OSHA recommends the Board grant the petition to the extent that it requests Cal/OSHA to expedite normal rulemaking to ensure renewable refineries are covered by section 5189.1.

## **V. STAFF’S EVALUATION**

The Board staff evaluation focuses on the start-up procedures by comparing the pre-start up procedures under both section 5189(i) and 5189.1(i). Most notably, section 5189.1 requires a more stringent showing of safety required procedures before introducing hazardous materials to a process.

Board staff indicated, with respect to Serrano’s injuries, sections 5189 and 5189.1 both have requirements for start-up procedures that are intended to prevent workplace incidents from



occurring. However, there currently is not enough information available to know which regulations the Marathon Refinery was or was not compliant with on November 19, 2023. Additionally, it is unknown whether the employer would have been compliant with additional regulations if they were applicable at that time.

According to Board staff, if the main culprit is determined to be the misaligned valve, it is something that should have been discovered by the person(s) responsible for making sure everything was within its design specifications pursuant to 5189(i)(2)(A) and 5189.1(i)(2)(A)-(B). Employers are also required by section 3203 to identify and correct all known workplace hazards.

Board staff noted that this investigation is ongoing. In addition to the employer and CSB, there are other agencies looking into this incident, including Cal/OSHA. Until the findings are published, it is impossible to know everything that led to this incident and what could have been done to prevent it. However, the fact that the incident occurred supports the Petitioner's allegations about hazards employees could be facing at these facilities.

The staff evaluation spotlighted that refineries are not regulated by section 5189 unless they (1) have processes which involve a chemical that is above the specified threshold quantities listed in section 5189, Appendix A, or (2) a process that involves a Category 1 flammable gas or (3) a flammable liquid with a flashpoint below 100° F on site in one location, in a quantity of 10,000 pounds or more. Since renewable diesel has a flashpoint of 125° F,<sup>13</sup> it would not warrant section 5189 coverage on its own. If there are refineries processing renewable fuels in ways similar to how petroleum is processed that do not fall under section 5189, this could be a regulatory gap that leaves employees exposed to occupational hazards.

In conclusion, given the limited information obtained from experts and the beginning stages of petroleum refineries being converted to process renewable feedstock, Board staff recommends an Advisory Committee be convened to discuss whether amendments to section 5189.1 or section 5189 are necessary.

## **VI. DISCUSSION**

The threshold issue is whether the current classification of refineries that process renewable fuels under section 5189 instead of section 5189.1 constitutes an emergency.

### **A. Petitioner Did Not Offer Substantial Evidence to Warrant an Emergency Regulation.**

Pursuant to Government Code (GC) section 11342.545, a state agency may adopt emergency regulations in response to a situation that calls for immediate action to avoid serious harm to

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<sup>13</sup> U.S. Department of Energy. Fuels Properties Comparison. Renewable Diesel. <https://afdc.energy.gov/fuels/properties?fuels=RD>. Accessed on April 19, 2024.

the public peace, health, safety, or general welfare, or if a statute deems a situation to be an emergency under the APA.

Any finding of emergency must include a description of the specific facts demonstrating the existence of an emergency and the need for immediate action, and demonstrating, by substantial evidence, the need for the proposed regulation to effectuate the statute being implemented, interpreted, or made specific and to address only the demonstrated emergency. The finding of emergency shall also identify each technical, theoretical, and empirical study, report, or similar document, if any, upon which the agency relies. A finding of emergency based only upon expediency, convenience, best interest, general public need, or speculation, shall not be adequate to demonstrate the existence of an emergency. (GC section 11346.1(b)(2).)

Both Board staff and Cal/OSHA are correct that, based on the information provided, there is no substantial evidence that an emergency exists. The IWG, while comprehensive, provided a framework for creating the section 5189.1 standard. There is not reference to the urgency of applying that standard to renewable facilities. Additionally, the CSB Investigative Report of the Chevron incident did not relate to immediate injuries due to renewable energy processes.

#### **B. Compelling Arguments Support Application of Section 5189.1 to Renewable Refinery Operations.**

Cal/OSHA and Board staff are in agreement that section 5189.1 process management for petroleum refineries does not cover renewable refineries. The issue for the Board to decide is whether it should.

According to Cal/OSHA, the reason renewable feedstock refineries are excluded from section 5189.1 is because the word "petroleum" within the text of the regulation limits applicability only to petroleum refineries. They agree with Petitioner's assessment that because the end product is the same, section 5189.1 should be expanded to cover refineries processing renewable fuels.

Cal/OSHA proposes that the intent of section 5189.1 was to ensure comprehensive protection of worker safety and health. Because renewable diesel shares the same flashpoint as petroleum diesel, the technical language in section 5189.1 regarding flammable liquids and their flash points would most certainly apply to renewable diesel fuel. Although the drafters of 5189.1 did not anticipate the emergence of a renewable refinery sector, renewable fuels are within the purview of section 5189.1.

Board staff performed the same analysis but concluded that renewable refineries may be unregulated currently. They assert that renewable refineries arguably are not covered by section 5189 because this section regulates flammable liquids with a flashpoint below 100° F. Since renewable diesel's flashpoint is 125° F, renewable diesel by itself would not qualify the facility to be covered by section 5189.

## **1. Legislative History Shows that Renewable Refinery Workers Were Intended to be Covered Under Section 5189.1**

Although Cal/OSHA looks to the intent of section 5189.1 regulation drafters to expand coverage to renewable refinery workers, this exercise may not be necessary. The plain language of Labor Code (LC) section 7856 permits regulation of renewable refineries under the more stringent 5189.1 standard.

LC section 7856 grants the authority for section 5189.1. It provides for the adoption of PSM standards for refineries, chemical plants, and other manufacturing facilities, as specified in Codes 28 (Chemical and Allied Products) and 29 (Petroleum Refining and Related Industries) of the Manual of Standard Industrial Classification Codes that handle regulated substances as defined in Health and Safety Code section 25532(i)<sup>14 15</sup> and pose a significant likelihood of accident risk, as determined by the board. Unfortunately, during the 5189.1 rulemaking process, only Code 29 relating to petroleum was addressed.

Within Major Group 28: Chemicals and Allied Products is Industry Group 286: Industrial Organic Chemicals. The description for 2869: Industrial Organic Chemicals, Not Elsewhere Classified includes fuel, high energy: organic.<sup>16</sup> This appears to apply to renewable fuels. The NAICS code of 286904 also refers to fuel, showing there are 1,402 total marketable US Businesses engaged in this field.<sup>17</sup> Thus, it appears that despite the ability for renewable processes to be part of the groundbreaking new standard, only petroleum refining and related industries were considered. This is an oversight that can be corrected pursuant to the LC.

It is possible that the categories for Group 28 were different in 2014, when the Legislature anticipated the new regulation to take effect. But the fact that organic fuel is presently within this category provides the authority to amend the section to close this safety gap now.

## **2. Current Proposed Legislation Redefines “Refinery” to Include Renewable Processes Making Them Subject to Section 5189.1.**

Proposed California Assembly Bill 3258 will allow the current petroleum refinery PSM regulations to apply to all refineries regardless of feedstock.<sup>18</sup> It would redefine the term

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<sup>14</sup> Health and Safety code section 25532(i) (ca.gov)

[https://leginfo.legislature.ca.gov/faces/codes\\_displaySection.xhtml?sectionNum=25532.&lawCode=HSC](https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=25532.&lawCode=HSC)

<sup>15</sup> eCFR :: 40 CFR Part 355 -- Emergency Planning and Notification <https://www.ecfr.gov/current/title-40/chapter-1/subchapter-J/part-355> (sulfuric acid is a regulated substance that is also used in biofuel processing)

<sup>16</sup> Description for 2869: Industrial Organic Chemicals, Not Elsewhere Classified | Occupational Safety and Health Administration (osha.gov) <https://www.osha.gov/sic-manual/2869>

<sup>17</sup> SIC Industry: 2869 Industrial Organic Chemicals, Not Elsewhere Classified | NAICS Association <https://www.naics.com/sic-industry-description/?code=2869>

<sup>18</sup> AB 3258 – Refinery Labor Protections Fact Sheet from the Office of Assembly Member, Isaac Bryan.

“refinery” by removing the word “petroleum” in “petroleum refinery” and explicitly include processes like alternative feedstock utilization.<sup>19</sup>

According to the author of the bill, Assembly Member Isaac Bryan, the PSM regulations were updated following the Richmond Chevron refinery. But a decade later, this framework has failed to keep up with the changing industrial landscape and the risks remain unchanged. Assembly Member Bryan specifically points out there are new processes that utilize the same machinery.

Assembly Member Bryan states “regardless of the specific products or methods involved, all refineries must adhere to existing PSM regulations. This crucial safeguard ensures the well-being of communities and every worker employed at refineries.”

He continues, “This bill will promote an equitable solution because it will protect all refinery workers that can be exposed to toxic materials and dangerous conditions. It will make sure that all refinery workers, regardless of the product or process, will be protected and not left vulnerable to the potential hazards of refineries.”

This proposed bill supports the Petitioner’s argument that regulations to ensure worker safety have not kept up with refineries utilizing the same machinery for new processes.

Further, the intent behind amending regulatory text to change “petroleum refinery” to “refinery” is similar to the solution offered by Cal/OSHA. In their evaluation, they suggested the language of section 5189.1 be amended to “fuel refinery” instead of “petroleum refinery.”

### **C. Section 5189 Does Not Provide Sufficient Safety Protections for Renewable Refinery Workers.**

The California refinery industry landscape has evolved since section 5189 was introduced via federal Horcher in 1992 and since section 5189.1 was promulgated in 2017 to apply only to petroleum refineries.

#### **1. California Anticipated Changes in Regulations Affecting Renewables Refineries Due to Safety Concerns.**

In a July 2021 draft report of the Interagency Refinery Safety Taskforce (IRTF), the taskforce recommended that regulations keep up with the changing landscape as petroleum refineries convert to refining renewables.

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<sup>19</sup> Bill Analysis - AB-3258 Refinery and chemical plants.  
[https://leginfo.ca.gov/faces/billAnalysisClient.xhtml?bill\\_id=202320240AB3258](https://leginfo.ca.gov/faces/billAnalysisClient.xhtml?bill_id=202320240AB3258)

The report identified specific refineries as having formally notified regulatory agencies that they are beginning the transition to renewable fuels, including the Marathon Martinez refinery and the Phillips 66 Rodeo Refinery.

As mentioned in Cal/OSHA's evaluation, the IRTF recommended that "when refineries convert from petroleum to renewable fuel production, it is important that they continue to be covered by the PSM and Cal/ARP regulations because the fuels they produce will continue to be flammable"<sup>20</sup> In this case, the IRTF is referring to Cal/OSHA'S section 5189.1 and the Cal/ARP program 4, which are specific to petroleum refineries and contain identical language.

Expanding the scope of section 5189.1 to encompass renewable facilities will implement the IRTF recommendations.

## **2. Section 5189 Lacks Expanded Methods for Identifying and Preventing Process Hazards.**

According to Cal/OSHA's graphic illustration of section 5189.1<sup>21</sup>, the process hazard analysis (PHA) that existed under section 5189 was expanded into a more effective vehicle for identifying and correcting process hazards. Although section 5189 requires the PHA, it does not require the preliminary and subsequent elements such as 1) Damage Mechanism Reviews: What are the physical hazards?; 2) Human Factors and Organizational Change: What are the human and organizational elements involved?; 3) Industry Analysis: What can other plants and incidents teach us about this problem?; 4) Hierarchy of Controls and Safeguard Analysis: What are the most effective and feasible solutions?; and 5) Implement inherent safety measures to the greatest extent possible.

In applying this analysis to the November 11, 2023 incident - the only completed investigation of a 2 HDO unit incident at the Marathon renewable refinery<sup>22</sup> - the omission of the section 5189.1 preliminary elements are glaringly obvious. The investigation found that equipment design accounted for three out of four causes of the incident. Human performance was the other cause given with "possible inadequate blind flange installation leading to nonparallel flange faces and insufficient gasket stress levels." These two omissions in section 5891 speak directly to the elements 1) Damage Mechanism Review; and 2) Human Factors and Organizational Change that Cal/OSHA mentioned above.

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<sup>20</sup> Petroleum Refinery Transition to Renewable Fuel Production: Draft Report on Regulatory Processes During Conversion of Petroleum Refining to Renewable Fuel Production (July 2021). Page 17  
<https://calepa.ca.gov/wp-content/uploads/sites/6/2021/07/Conversion-of-a-Petroleum-Refinery-to-a-Renewable-Fuels-Facility-7-1-21-DRAFT.pdf>

<sup>21</sup> Cal/OSHA Evaluation of Petition NO. 601. Page 8, Figure 1.

<sup>22</sup> This report was not required to be submitted to CCHSHMP under the ISO because the incident is classified as a level 1 event. However, Board legal staff requested and received the report directly from the Martinez Renewable Fuels facility.

Incidents like this support the Petitioner’s allegations about hazards employees face covered under the less protective 5189 standard.

**D. Immediate Action is Needed to Prevent Additional Incidents Involving Loss of Containment of Flammable Liquids and Similar Catastrophes.**

Warnings about catastrophes resulting from overheating processes leading to fires within converted renewables refineries are nothing new. This data was available as part of the final Environmental Impact Report (FEIR) when Contra Costa County evaluated the proposal to convert the Marathon refinery in Martinez from a petroleum refinery to one that processes renewable energy.<sup>23</sup>

**1. Renewable Facilities Are More Prone to Explosion and Fire Risks Due to the Chemical Makeup of the Feedstock Used.**

Appendix A of the FEIR explains that renewable feedstock is high in oxygen which boosts hydrogen consumption in hydro-conversion reactors dramatically. This creates more heat in reactors already prone to overheating in petroleum refining. The report goes on to state that conversions from petroleum machinery to ones that process renewables adds extra oxygen related hazards because exponential temperature rise can happen fast resulting in what are called runaway reactions or “runaways” for short. Runaways are extremely dangerous as they can melt holes in eight-inch-thick stainless steel. Additionally, “explosion and fire risks could increase because byproducts of refining the new feeds pose new equipment damage hazards, and the extra hydrogen reacted with biofeeds would increase the frequency and magnitude of dangerous runaway reactions in high-pressure reactors.”<sup>24</sup>

Among these reactions, exothermic reactions can also lead to runaway reactions in biorefinery hydro-conversion reactors. Even with safeguards in place, recurrent catastrophic explosions and fires can occur.<sup>25</sup> This information regarding exothermic reactions was also confirmed by Contra Costa Health.

Appendix A of the FEIR also focused on potential dangers due to conversion of the Marathon refinery and the Phillips refinery in Rodeo. Both refineries were the largest of their kind proposed to be built at the time.

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<sup>23</sup> Final Environmental Impact Report, Appendix A: Changing Hydrocarbons Midstream. August 2021. PDF page 188 (Abstract)

<https://www.contracosta.ca.gov/DocumentCenter/View/74460/Martinez-Refinery-Renewable-Fuels-Project-FEIR>

<sup>24</sup> Final Environmental Impact Report, Appendix A: Changing Hydrocarbons Midstream. August 2021. PDF page 187 and 216-218 (pages 4-5, 22-24 of Appendix A Report).

<https://www.contracosta.ca.gov/DocumentCenter/View/74460/Martinez-Refinery-Renewable-Fuels-Project-FEIR>

<sup>25</sup> Final Environmental Impact Report, Appendix A: Changing Hydrocarbons Midstream. August 2021. PDF page 191. <https://www.contracosta.ca.gov/DocumentCenter/View/74460/Martinez-Refinery-Renewable-Fuels-Project-FEIR>

## **2. The Redesign of a Petroleum Refinery to a Renewables Refinery Reveal the Inadequacies of Section 5189 as Applied to Renewable Facilities.**

According to the experts who Board staff spoke with, because the renewable refinery industry is beginning to emerge, many of the hazards are unknown due to each facility design being unique. To get a glimpse into the reconfiguration design of the Marathon refinery where Serrano was injured, we can look at documents submitted to Contra Costa County during the consideration phase of the project.

During preparations to convert the refinery, the existing equipment in the petroleum refinery that was repurposed/alterd included the No. 2 Hydrodesulfurization (HDS),<sup>26</sup> which was completely revamped to a renewable HDO Unit.<sup>27</sup> This was the same unit that experienced overheating issues leading to the small fire on November 11, 2023.

Additionally, Appendix A of the FEIR found that petroleum machinery repurposed for hydrogen-intensive deoxygenation could make this type of biorefining more carbon intensive than crude refining and could worsen refinery fire and explosion.<sup>28</sup>

It is interesting to note that although the 2 HDO Unit had previously been revamped, the November 11, 2023 internal investigation record noted that the plans were already in the works to rebuild the 2 HDO. The design and planned re-design of the 2 HDO at the Marathon facility points to the trial and error that can occur when renewable facilities are still ironing out their processes. The problem with this, however, is that operations continue and workers are exposed to dangerous hazards until the process is perfected.

According to Contra Costa Health, Phillips 66 is currently converting to a renewable fuels facility. They are in the process of completing the equipment modifications needed and are expected to be up and running soon.

Given a safety gap in section 5189 has already been identified, it is imperative that workers are protected under section 5189.1 immediately.

### **I. CONCLUSION AND ORDER**

The Occupational Safety and Health Standards Board has considered the petition of Tracy Scott.

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<sup>26</sup> Appendix HAZ: Hazards and Hazardous Materials Technical Analysis. Martinez Renewable Fuels Project Hazards and Hazardous Materials Technical Analysis, July 27, 2021. Page 28

<https://www.contracosta.ca.gov/DocumentCenter/View/72961/Appendix-HAZ>

<sup>27</sup> Martinez Renewable Fuels Project Draft Environmental Impact Report, October 2021.

<https://www.contracosta.ca.gov/DocumentCenter/View/72957/Martinez-Refinery-Renewable-Fuels-DEIR-Vol-1-Complete-DEIR>. Pages 2-6, 2-7.

<sup>28</sup> Final Environmental Impact Report, Appendix A: Changing Hydrocarbons Midstream. August 2021. PDF page 188.

For reasons stated in the preceding discussion and considering testimony received today, Petition 601 is hereby denied in part based on the request for an ETS, but granted to the extent that the Board requests Cal/OSHA expedite normal rulemaking to ensure renewable refineries are covered by section 5189.1.