UNITED STATES COAST GUARD

Report of the Investigation

into the

UNINSPECTED COMMERCIAL FISHING VESSEL (CFV) KIM THU (O.N. 917018), FUEL TANK EXPLOSION THAT RESULTED IN THREE CREWMEMBER INJURIES AND TWO FATALITIES WHILE MOORED AT PIER 36, HONOLULU, HI ON APRIL 26, 2024

MISLE Activity Number: 7902559

U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

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16732/IIA #7902559
16 June 2025

EXPLOSION RESULTING IN INJURIES AND THE LOSS OF TWO LIVES ONBOARD THE COMMERCIAL FISHING VESSEL KIM THU (O.N. 917018) WHILE MOORED AT PIER 23 IN HONOLULU, HAWAII ON APRIL 26, 2024

ACTION BY THE COMMANDANT

The record and the report of the investigation completed for the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendations are approved subject to the following comments. This marine casualty investigation is closed.

ACTION ON RECOMMENDATIONS

Administrative Recommendation 1: It is recommended that the Commandant of the Coast Guard provide a copy of this report to the Occupational Safety and Health Administration (OSHA), Region 9 to investigate the alleged violation(s) of Title 29 Code of Federal Regulations (CFR) Part 1915, Subpart B.

> **Action:** I concur with this recommendation. The Office of Investigations and Casualty Analysis (CG-INV) will forward the report of investigation to OSHA Region 9 for their consideration.

Administrative Recommendation 2: It is recommended that the Commandant of the Coast Guard provide widest dissemination of this report throughout the Commercial Fishing Vessel (CFV) industry community including Coast Guard District Fishing Vessel Coordinators, the Coast Guard Fishing Vessel Safety Division (CVC-3), the National Commercial Fishing Safety Advisory Committee (NCFSAC), the Hawaiian Longline Association (HLA), and the Coast Guard Investigations National Center of Expertise (INCOE).

> **Action:** I concur with this recommendation. CG-CVC-3 will coordinate with CG-INV to disseminate the report of investigation once cleared for public release. The report will be distributed to the public via Fishing Vessel District Coordinator/Fishing Vessel Examiner resources and via the Coast Guard Maritime Commons Blog.

Administrative Recommendation 3: It is recommended that the Commandant of the Coast Guard provide a copy of this report to the following government agencies: Honolulu Fire Department Fire Investigations Division, Hawaii Department of Transportation (DOT) Harbors Division (Oahu District), Department of Law Enforcement – Honolulu Sheriff Division, Hawaii

Occupational Safety and Health (HIOSH), the Nationl Oceanic and Atmospheric Administration Fisheries (Pacific Islands Region), and the National Transportation Safety Board.

Action: I concur with this recommendation. CG-INV will send this report of investigation to the National Transportation Safety Board's Office of Marine Safety and publish a copy of this report on the U.S. Coast Guard's marine casualty website (https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Office-of-Investigations-Casualty-Analysis/Marine-Casualty-Reports/), which is accessible to the recommended government agencies as well as the general public. Sector Honolulu is also encouraged to share the report of investigation with their local stakeholders as appropriate.

Administrative Recommendation 4: It is recommended that this report be released to the decedents' next of kin (NOK), while complying with the provisions of the Privacy Act, the Freedom of Information Act (FOIA), and associated federal regulations.

Action: I concur with this recommendation. CG-INV will coordinate with Sector Honolulu to ensure the appropriate next of kin notifications are completed in accordance with CG-INV Policy Letter 2-10.

[redacted]

R. C. COMPHER
Captain, U. S. Coast Guard
Director of Inspections & Compliance (CG-5PC)

U.S. Department of Homeland Security

United States Coast Guard

Commander
Fourteenth Coast Guard District

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16732
25 April 2025

UNINSPECTED COMMERCIAL FISHING VESSEL (CFV) KIM THU (O.N. 917018), FUEL TANK EXPLOSION THAT RESULTED IN THREE CREWMEMBER INJURIES AND TWO FATALITIES WHILE MOORED AT PIER 36, HONOLULU, HI ON APRIL 26, 2024

COMMENTS ON THE REPORT

This was a tragic, yet entirely avoidable casualty. The processes in place for hot work are typically known to professional welders and when those processes are disregarded, it results in casualties such as this. It is the hope of the U.S. Coast Guard that with the release of this report and the safety alert, we can prevent this from happening again.

ENDORSEMENT ON RECOMMENDATIONS

Administrative Recommendation 1. It is recommended that the Commandant of the Coast Guard provides a copy of this report to OSHA Region 9 to investigate the alleged violation(s) of 29 CFR 1915 Subpart B.

> **Endorsement:** Concur. Based on the findings of this investigation, there is sufficient evidence of an alleged violation of 29 CFR 1915 Subpart B for OSHA to pursue further actions under their statutory authority and jurisdiction.

Administrative Recommendations 2 & 3. It is recommended that the Commandant of the Coast Guard provide widest dissemination and a copy of this report to the CFV industry and federal, state, and local government agencies as listed on the Investigating Officer's report.

> **Endorsement:** Concur. This report provides important information and recommendations which could be used to prevent similar incidents in the future.

Administrative Recommendation 4. It is recommended that this report be released to the decedents' next of kin, while complying with the provisions of the Privacy Act, the Freedom of Information Act and associated federal regulations.

> **Endorsement:** Concur. This report may provide the decedents' family with closure.

[redacted]
Steven D. Stowers
Captain, U.S. Coast Guard
Fourteenth Coast Guard District
Chief of Prevention
By Direction

U.S. Department of Homeland Security

United States Coast Guard

Commander
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16732
31 March 2025

UNINSPECTED COMMERCIAL FISHING VESSEL (CFV) *KIM THU* (O.N. 917018), FUEL TANK EXPLOSION THAT RESULTED IN THREE CREWMEMBER INJURIES AND TWO FATALITIES WHILE MOORED AT PIER 36, HONOLULU, HI ON APRIL 26, 2024

ENDORSEMENT BY THE OFFICER IN CHARGE, MARINE INSPECTION

The record and the report of the investigation convened for the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendations are approved subject to the following comments. It is recommended that this marine casualty investigation be closed.

COMMENTS ON THE REPORT

Thank you to our State of Hawaii partners and first responders – Honolulu Fire Department, Honolulu Sheriff Division, and Emergency Medical Services for assisting the Investigating Officer during the initial marine casualty response, witness interviews, and fire investigation. This outstanding interagency collaboration highlights the vested interest in keeping the safety of the main Hawaiian Islands' maritime domain at the highest priority.

ENDORSEMENT ON RECOMMENDATIONS

Administrative Recommendation 1. It is recommended that the Commandant of the Coast Guard provide a copy of this report to OSHA Region 9 to investigate the alleged violation(s) of 29 CFR 1915 Subpart B.

> **Endorsement:** Concur. Based on the findings of this investigation, there is sufficient evidence of an alleged violation of 29 CFR 1915 Subpart B for OSHA to pursue further actions under their statutory authority and jurisdiction.

Administrative Recommendations 2 & 3. It is recommended that the Commandant of the Coast Guard provide widest dissemination and a copy of this report to the CFV industry and federal, state, and local government agencies as listed on the Investigating Officer's report.

> **Endorsement:** Concur. This report provides important information and recommendations which could be used to prevent similar incidents in the future.

Administrative Recommendation 4. It is recommended that this report be released to the decedents' next of kin, while complying with the provisions of the Privacy Act, the Freedom of Information Act, and associated federal regulations.

Endorsement: Concur. This report may provide the decedents' family with much needed closure.

[redacted]

Aja L. Kirksey
Captain, U.S. Coast Guard
Commander, Sector Honolulu

Enclosures: (1) Executive Summary
(2) Investigating Officer's Report

U.S. Department of Homeland Security
United States Coast Guard

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UNINSPECTED COMMERCIAL FISHING VESSEL (CFV) *KIM THU* (O.N. 917018), FUEL TANK EXPLOSION THAT RESULTED IN THREE CREWMEMBER INJURIES AND TWO FATALITIES WHILE MOORED AT PIER 36, HONOLULU, HI ON APRIL 26, 2024

EXECUTIVE SUMMARY

On April 26, 2024, the uninspected commercial fishing vessel (CFV) *Kim Thu* (O.N. 917018) was moored to Pier 36 in Honolulu Harbor, HI, undergoing a planned maintenance and repair period. Onboard were the owner, welder, eight crewmembers and a visiting crewmember from another CFV who had stopped by for a friendly visit with the owner.

Two days prior, on April 24, 2024, *Kim Thu* applied for a "shoreside and vessel work permit" through the State of Hawaii Department of Transportation (DOT) Harbors Division, which was approved. The work permit request authorized hot work (welding) on the water tank hatch, engine room stairs, and spotlights; however, it did not authorize welding on the port fuel tank vent pipe. On April 25, 2024, in preparation for the repairs, the owner transferred the remaining diesel fuel from the port fuel tank to the starboard fuel tank. On April 26, 2024, at approximately 1525 Hawaiian Standard Time (HST), the welder began fabrication on the port fuel tank gooseneck vent by fitting up and tack welding an inch and a half diameter steel pipe extension onto the 180° elbow. Meanwhile, the owner and visitor were in the engine room, three crewmembers were occupying the galley mess area, two were on the aft main deck, one was in the auxiliary room, one was in the berthing area, and one was pier side. At approximately 1530 HST, after the welder had shifted positions and was welding the root pass on the pipe extension, the fuel tank exploded, rupturing the inner bulkhead plating and releasing the explosive thermal energy into the engine room, out through the exhaust ventilation stack, up through the main deck, and into the atmosphere. As a result, the owner, visitor, and three crewmembers sustained burn-related injuries. At approximately 1540 HST, Honolulu Fire Department and Emergency Medical Services arrived on scene for emergency response and immediate triage. A total of five injured persons were transported to the hospital.

On April 29, 2024, at 2026 HST, the owner was pronounced deceased by the attending physician at Queens Medical Center. According to the Honolulu Medical Examiner, the cause of death was determined to be thermal injuries from the fuel tank explosion and the manner of death was deemed an accident. A toxicology analysis was performed and was positive for two prescription drugs administered during hospitalization post casualty. On June 9, 2024, at 1745 HST, the visitor was pronounced deceased by the attending physician at Straub Medical Center. According to the Honolulu Medical Examiner, the cause of death was determined to be thermal injuries from the fuel tank explosion and the manner of death was deemed an accident. A toxicology analysis was not performed. Following the explosion and the death of the owner, the Coast Guard determined the welder was directly involved and directed post casualty drug testing.

Although testing occurred three days after the incident, outside the 32-hour window, the results were positive for Methylenedioxymethamphetamine (MDMA).

Through its investigation, the Coast Guard determined the initiating event was the introduction of the ignition source (heat) into the port fuel tank which resulted in an explosion. The explosion caused the material failure of the port fuel tank plating, which subsequently released the explosive thermal heat and energy that injured three crewmembers and led to two fatalities. Causal factors contributing to this casualty were: 1) breach of the terms and conditions of the “Hot Works” permit, 2) inadequate supervision and personnel for hot work operations, 3) nonstandard procedures to ensure a gas free environment prior to conducting hot work operations, 4) failure to have the port fuel tank space tested and certified by a Marine Chemist as “Safe for Hot Work”, and 5) poor workplace safety practices.

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16732
01 March 2025

UNINSPECTED COMMERCIAL FISHING VESSEL (CFV) *KIM THU* (O.N. 917018), FUEL TANK EXPLOSION THAT RESULTED IN THREE CREWMEMBER INJURIES AND TWO FATALITIES WHILE MOORED AT PIER 36, HONOLULU, HI ON APRIL 26, 2024

INVESTIGATING OFFICER'S REPORT

1. Preliminary Statement

1.1. This marine casualty investigation was conducted, and this report was submitted in accordance with Title 46, Code of Federal Regulations (CFR), Subpart 4.07, and under the authority of Title 46, United States Code (USC) Chapter 63.

1.2. No individuals, organizations, or parties were designated a party-in-interest in accordance with 46 CFR Subsection 4.03-10.

1.3. The Coast Guard was the lead agency for all evidence collection activities involving this investigation. The Honolulu Fire Department (HFD), Fire Investigations 1 assisted the Coast Guard with determining the source of ignition onboard and provided a preliminary report of findings. No other persons or organizations assisted in this investigation.

1.4. All times listed in this report are in Hawaii Standard Time using a 24-hour format and are approximate.

2. Vessel Involved in the Incident

Figure 1. Photograph of the vessel, taken post casualty on April 26, 2024, by the Investigating Officer.

Official Name:	*Kim Thu*
Identification Number:	O.N. 917018
Flag:	US
Vessel Class/Type/Sub-Type	Fishing Vessel / Long-liner
Build Year:	1987
Gross Tonnage:	113 Gross Register Tonnage (GRT)
Length:	70 Feet (FT)
Beam/Width:	21 FT
Draft/Depth:	11.5 FT
Main/Primary Propulsion: (Configuration/System Type, Ahead Horsepower)	Caterpillar 3408, 450 HP, Diesel Internal Combustion Engine / Single, Fixed Propeller
Managing Owner/ Company:	TNL Fishery LLC

3. Deceased, Missing, and/or Injured Persons

Relationship to Vessel	Sex	Age	Status
Owner	Male	58	Deceased
Visitor	Male	53	Deceased
Crewmember (Crew) 1	Male	30	Injured
Crew 2	Male	39	Injured
Crew 3	Male	29	Injured

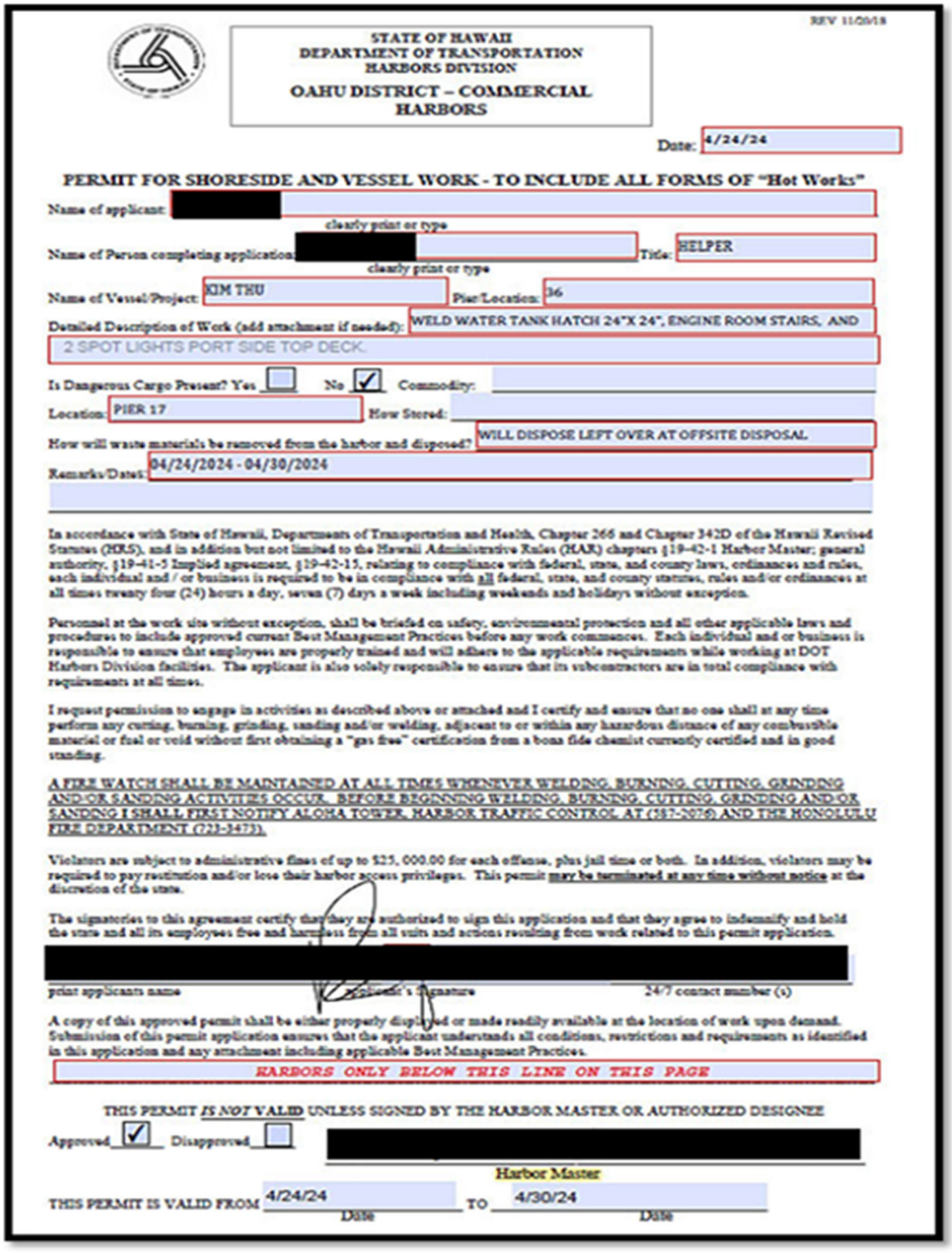
4. Findings of Fact

4.1. The Incident:

4.1.1. On or around April 9, 2024, the uninspected commercial fishing vessel (CFV) *Kim Thu* (O/N: 917018) arrived in Oahu, HI following the transit from New Orleans, Louisiana (LA).

4.1.2. Sometime after April 10, 2024, the owner of *Kim Thu* brought on a friend, hereafter referred to as the "welder", to assist with planned maintenance and repair efforts on the vessel while moored port side to Pier 36, Honolulu, HI. The welder completed most of all the metal (steel) fabrication work as directed by the owner and was tasked to make modifications on the port fuel tank's gooseneck vent piping.

4.1.3. On April 24, 2024, a third-party on behalf of *Kim Thu* applied for a "PERMIT FOR SHORESIDE AND VESSEL WORK – TO INCLUDE ALL FORMS OF "Hot Works" (Figure 2) through the State of Hawaii Department of Transportation (DOT) Harbors Division with the following detailed description of work: weld water tank hatch 24" X 24", engine room stairs, and two spotlights port side top deck. The State of Hawaii Commercial Harbor Manager approved and issued the permit which was valid from April 24 – 30, 2024. The original "Hot Works" permit was posted on the superstructure by the main deck door.



REV 11/20/18

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS DIVISION
OAHU DISTRICT – COMMERCIAL HARBORS

Date: 4/24/24

PERMIT FOR SHORESIDE AND VESSEL WORK - TO INCLUDE ALL FORMS OF "Hot Works"

Name of applicant: [redacted]
clearly print or type

Name of Person completing application: [redacted] Title: HELPER
clearly print or type

Name of Vessel/Project: KIM THU Pier/Location: 36

Detailed Description of Work (add attachment if needed): WELD WATER TANK HATCH 24"X 24", ENGINE ROOM STAIRS, AND 2 SPOT LIGHTS PORT SIDE TOP DECK.

Is Dangerous Cargo Present? Yes ☐ No ☑ Commodity:

Location: PIER 17 How Stored:

How will waste materials be removed from the harbor and disposed? WILL DISPOSE LEFT OVER AT OFFSITE DISPOSAL

Remarks/Date: 04/24/2024 - 04/30/2024

In accordance with State of Hawaii, Department of Transportation and Health, Chapter 266 and Chapter 342D of the Hawaii Revised Statutes (HRS), and in addition but not limited to the Hawaii Administrative Rules (HAR) chapters §19-42-1 Harbor Master; general authority, §19-41-5 Implied agreement, §19-42-15, relating to compliance with federal, state, and county laws, ordinances and rules, each individual and / or business is required to be in compliance with all federal, state, and county statutes, rules and/or ordinances at all times twenty four (24) hours a day, seven (7) days a week including weekends and holidays without exception.

Personnel at the work site without exception, shall be briefed on safety, environmental protection and all other applicable laws and procedures to include approved current Best Management Practices before any work commences. Each individual and or business is responsible to ensure that employees are properly trained and will adhere to the applicable requirements while working at DOT Harbors Division facilities. The applicant is also solely responsible to ensure that its subcontractors are in total compliance with requirements at all times.

I request permission to engage in activities as described above or attached and I certify and ensure that no one shall at any time perform any cutting, burning, grinding, sanding and/or welding, adjacent to or within any hazardous distance of any combustible material or fuel or void without first obtaining a "gas free" certification from a bona fide chemist currently certified and in good standing.

A FIRE WATCH SHALL BE MAINTAINED AT ALL TIMES WHENEVER WELDING, BURNING, CUTTING, GRINDING AND/OR SANDING ACTIVITIES OCCUR. BEFORE BEGINNING WELDING, BURNING, CUTTING, GRINDING AND/OR SANDING I SHALL FIRST NOTIFY ALOHA TOWER, HARBOR TRAFFIC CONTROL AT (587-2076) AND THE HONOLULU FIRE DEPARTMENT (723-3473).

Violators are subject to administrative fines of up to $25, 000.00 for each offense, plus jail time or both. In addition, violators may be required to pay restitution and/or lose their harbor access privileges. This permit may be terminated at any time without notice at the discretion of the state.

The signatories to this agreement certify that they are authorized to sign this application and that they agree to indemnify and hold the state and all its employees free and harmless from all suits and actions resulting from work related to this permit application.

[redacted]

print applicants name Applicant's Signature 24/7 contact number (s)

A copy of this approved permit shall be either properly displayed or made readily available at the location of work upon demand. Submission of this permit application ensures that the applicant understands all conditions, restrictions and requirements as identified in this application and any attachment including applicable Best Management Practices.

HARBORS ONLY BELOW THIS LINE ON THIS PAGE

THIS PERMIT *IS NOT* VALID UNLESS SIGNED BY THE HARBOR MASTER OR AUTHORIZED DESIGNEE

Approved ☑ Disapproved ☐

[redacted]

Harbor Master

THIS PERMIT IS VALID FROM 4/24/24 Date TO 4/30/24 Date

Figure 2. Screenshot of the Hot Works permit (pg. 1 of 3), electronic copy provided by the Harbor Master; redacted by the Investigating Officer.

4.1.4. On April 25, 2024, the remaining diesel fuel in *Kim Thu*'s port fuel tank was transferred to the starboard fuel tank in preparations for repairs the following day. The exact amount removed and transferred was not verified.

4.1.5. On the morning of April 26, 2024, the welder completed relocation of the hydraulic oil storage tank in the auxiliary (aux) room. The work project involved

shifting the tank from the port bulkhead to the starboard side of the compartment which included modifications, cutting and welding of various non-structural parts.

4.1.6. Between 1200 - 1500, the welder completed fabrication on the forward (fwd) fuel tank vent by extending/welding a new section of 1 ½ inch diameter steel piping above the main deck.

4.1.7. Sometime after 1500, an individual, hereafter referred to as the "visitor", was transiting the main deck of *Kim Thu* to board their vessel which was moored alongside. The visitor was met by the owner, and they carried on a conversation while making their way down below into *Kim Thu*'s engine room.

4.1.8. At 1520, the welder began fabrication to the port fuel tank vent by fitting up and tack welding (GMAW - gas metal arc welding) a 1 ½ inch diameter steel pipe extension on the 180° elbow (Figure 3.). Meanwhile, the crewmembers were located throughout the vessel; crew 1 and 2 roaming the main deck, crew 3 in the aux room, crew 4, 5, and 6 in the galley mess conducting fishing gear maintenance, crew 7 in the berthing area, and crew 8 shoreside.

Figure 3. Close up photograph of the tack-weld, taken by the Investigating Officer.

4.1.9. At 1528, the welder shifted position and began welding the initial root pass on the vent pipe extension. Two inspection covers on the longitudinal bulkhead of the port fuel tank remained bolted

4.1.10. At 1530, the port fuel tank exploded.

4.1.11. Concurrently, the port fuel tank top buckled and the inner bulkhead was compromised releasing the built-up gaseous pressure, heat, and smoke directly into the engine room, out the exhaust ventilation stack, and up through the vestibule out onto the main deck.

Figure 4. Left: Fuel tank vent pipe (soot residual from explosion), Center: Bulkhead between fuel tank and engine room (ballooned/ exploded), Right: Bulkhead penetrated (fractured from explosion); photographs taken by the Investigating Officer.

4.1.12. The owner and visitor, positioned in the engine room, took the brunt of the explosive force with direct exposure to the blast (overpressure/ heat/ smoke). Crew 1 and 2 were somewhere near the main deck door access; both were thrown across the aft deck from the explosive discharge. All sustained burn-related injuries. The welder avoided serious injury by positioning himself opposite the gooseneck extension while welding.

4.1.13. At 1531, the four crewmembers in the galley/ berthing area egressed up through the pilot house and out. Crew 3 egressed through the engine room and fell on the ladder sustaining burn-related injuries.

4.1.14. At 1533, all 10 individuals aboard *Kim Thu* made it pier side assisting one another with initial basic first aid care.

4.1.15. At 1534, a bystander called 911 to report the explosion.

4.1.16. At 1540, HFD and Emergency Medical Services (EMS) arrived on scene and triaged five personnel for burn-related injuries: owner, visitor, crew 1, 2, and 3. HFD reported no active fire.

4.1.17. At 1600, the five injured were transported by EMS to the hospital for further medical treatment. Three were in critical condition – owner, visitor, and crew 1. The other two were in stable condition.

4.1.18. On April 29, 2024, the Coast Guard deemed the welder to be directly involved in the marine casualty and directed completion of post casualty drug testing. Alcohol testing not conducted due to elapsed eight-hour timeframe as per 46 CFR 4.06-3.

4.1.19. On April 29, 2024, at 2026, the owner was pronounced deceased by the attending Physician at Queens Medical Center and was transported to the Honolulu Department of Medical Examiner for a postmortem examination.

4.1.20. On April 30, 2024, the welder submitted to post casualty drug testing at a Department of Transportation (DOT) approved collection site and provided a urine specimen; results were positive for Methylenedioxymethamphetamine (MDMA), confirmed by a Medical Review Officer (MRO) on May 13, 2024.

4.1.21. On May 1, 2024, the Honolulu Medical Examiner completed an autopsy on the decedent (owner) and determined the cause of death was thermal injuries due to fishing vessel fire and the manner of death was deemed an accident. A toxicology analysis was performed and was positive for two prescription drugs administered during hospitalization post casualty.

4.1.22. On May 8, 2024, USCG Sector Honolulu Captain of the Port (COTP) issued COTP 24-012 prohibiting *Kim Thu* from departing any port within the Sector Honolulu COTP Zone until satisfactory repair of the vessel was completed and examined by a marine surveyor. Additionally, required satisfactory completion of a USCG CFV Safety Examination.

4.1.23. On June 9, 2024, at 1745, the visitor was pronounced deceased by the attending physician at Straub Medical Center and was transported to the Honolulu Department of Medical Examiner for a postmortem examination.

4.1.24. On June 10, 2024, the Honolulu Medical Examiner completed an autopsy on the decedent (visitor) and determined the cause of death was thermal injuries due to fishing vessel fire and the manner of death was deemed an accident. A toxicology analysis was not performed.

4.1.25. On June 26, 2024, crew 1 was discharged from the hospital and thereafter, departed off island back to home of residency for continued medical care.

4.2. Additional/Supporting Information:

4.2.1. The company, TNL Fishery LLC, was established sometime in June 2022. Ownership of *Kim Thu* was acquired sometime around July 21, 2022, in New Orleans, LA. The company had not established formal policies or procedures, nor maintained any documentation files i.e., vessel drawings and schematics (not required by law or regulation). *Kim Thu*, formerly the *Captain Rick*, was built to a good marine standard as a trawler type fishing vessel. Following the transfer of ownership, the vessel underwent a conversion to a line type (longliner) fishing vessel. On or around June 11, 2023, *Kim Thu* departed the port of New Orleans, LA bound for her new homeport in Honolulu, HI. During the transit, the vessel suffered a casualty off Honduras and was hauled out in Panama to undergo unscheduled maintenance and repairs.

4.2.2. *Kim Thu* was an uninspected commercial fishing vessel regulated under 46 CFR Subchapter C and held a valid commercial fishing vessel safety decal that was issued on October 26, 2023. The vessel was last boarded by the Coast Guard on April 9, 2024, for a safety inspection and was issued a notice of violation for three discrepancies, an invalid personal floatation device, insufficient ring lifebuoys, and defective fire extinguisher. *Kim Thu* had three integral fuel oil service tanks –fwd, port, and starboard. The dimensions of the port and starboard fuel tanks were identical, approximately 17 ft x 4 ft x 7 ft (length x width x height) with an estimated hold capacity of 3,000 gallons each. The fwd fuel tank (compartment below aux room) was not in service and not captured in Figure 5.

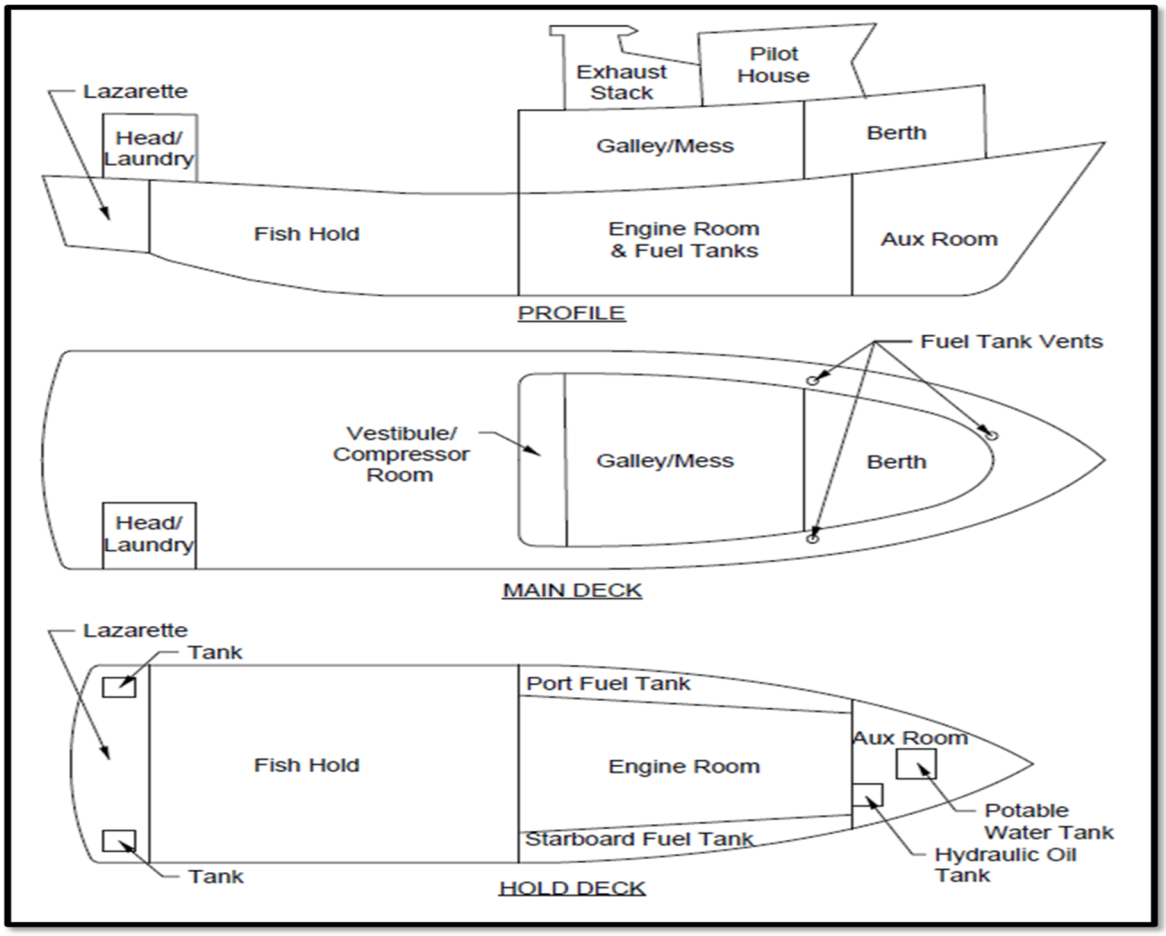


Figure 5. Generic layout of *Kim Thu*'s side profile, main deck, and hold deck; developed by USCG Marine Safety Center. (Not to scale)

4.2.3. Pier 36, Honolulu Harbor, HI was a State-regulated DOT Harbors facility. The general authority for vessel and harbor controls at these State-owned or State-controlled facilities fall under the discretion of the State harbor master. As such, any individual, business, or vessel desiring to conduct work located at these facilities must submit and obtain a shoreside and vessel work permit through DOT Harbors Division in accordance with the applicable rules under Hawaii Administrative Rules (HAR) Title 19 DOT Chapter 42. HAR chapters §19-42-151 through §19-42-160 prescribed the rules for "Welding and Burning Operations on Piers and Wharves and Aboard Vessels." Particularly, HAR §19-42-151 covered the rules for Welding and burning operations; permits, §19-42-153 Inspections; chemist's certificate, §19-42-154 Welding and burning; procedures, and §19-42-155 Welding and burning operations; fire prevention. The entire list of the HARs were accessible online via the hyperlink in this paragraph.

4.2.4. The Occupational Safety and Health Administration (OSHA) defined the term hot work as any activity involving riveting, welding, burning or other fire or spark producing operations. Authority over working conditions (hazards) on commercial uninspected fishing industry vessels was shared by the USCG and OSHA, with USCG being the lead agency (OSHA CPL 02-01-047). OSHA is precluded from enforcing requirements pertaining to working conditions regulated by another federal agency. Applicable USCG regulations that preempt OSHA authority for commercial uninspected fishing industry vessels are set forth in 46 CFR Part 28 (Subchapter C). Hot work operations were not specifically covered in that regulation within the geographical

limits. Accordingly, the regulations under OSHA 29 CFR 1915 Subpart B (Confined and Enclosed Space and Other Dangerous Atmospheres in Shipyard Employment) applied in this case and were enforceable. 29 CFR 1915.14 covered the standards for hot work and marine chemist requirements. The entire list of the CFRs (OSHA standards 1915) were easily accessible online via the hyperlink in this paragraph.

4.2.5. The National Fire Protection Association (NFPA), standard 51B (Standard for Fire Prevention During Welding, Cutting, and Other Hot Work) defined hot work as any activity involving burning, welding, or a similar operation that is capable of initiating fires or explosions. NFPA standards were not laws; they could be adopted into law, regulations, or policies as a standard by a government agency, private entity, or industry. The "Hot Works" permit incorporated the NFPA standards in that the language (see Figure 7, line 2.) stated, "shall follow the most current applicable codes set forth by the NFPA," hereby made the standards applicable in this case. NFPA guide, "All About Fire," identified that three components must be present to have a fire: fuel (something that will burn), heat (enough to make the fuel burn), and air (oxygen). More recently, it added a fourth component: the uninhibited chemical chain reaction, which was the feedback of heat to fuel to produce the gaseous fuel used in the flame. This was known as the "fire tetrahedron," previously the "fire triangle" without the fourth component. The NFPA standards were accessible online and available for purchase at NFPA.org.

4.2.6. The primary welding method utilized for hot work aboard *Kim Thu* was gas metal arc welding (GMAW), often referred to by its subtype metal inert gas (MIG). In electric arc welding, such as GMAW, the fusion temperature could reach upwards of 10,000° Fahrenheit (F), well above the boiling point of the workpiece base (metal) and filler materials. The power source was a Miller electric machine (XMT 350 CC/CV series) with CO2 used as shielding gas. According to Miller Electric Mfg. LLC, "MIG Welding (GMAW or Gas Metal Arc Welding), also referred to as solid wire welding was an arc welding process that joins metals by heating them with an arc. The arc is between a continuously fed filler metal (consumable) electrode and the workpiece. Externally supplied gas or gas mixtures provide shielding".

4.2.7. The last known or supposed product in the port fuel tank was No.2 diesel fuel oil. The specific type, grade, load port, manufacturer information, etc. were unknown. Diesel fuel oil could be classified as a flammable or a combustible liquid depending on the flash point of the product and what standard applied; NFPA and OSHA had different flash point thresholds for each. Flash point was the minimum temperature of a liquid at which sufficient vapor is given off to form an ignitable mixture with the air, near the surface of the liquid or within the vessel used. While there was a difference between the two classifications, both burned readily, posed a fire hazard and could be explosive under certain conditions. According to OSHA standards, No.2 diesel fuel oil was a flammable liquid with its physical properties included flash point 125° F, lower explosive limit (LEL) 1.3%, and upper explosive limit (UEL) 6%; flash point, LEL, and UEL values could differ greatly by manufacturer. LEL meant the minimum concentration of vapor in air below which propagation of a flame does not occur in the presence of an ignition source. UEL was the opposite; the maximum concentration of flammable vapor in air above which propagation of flame does not occur on contact with a source of ignition. The range between the LEL and UEL was known as the flammable range for that gas or vapor.

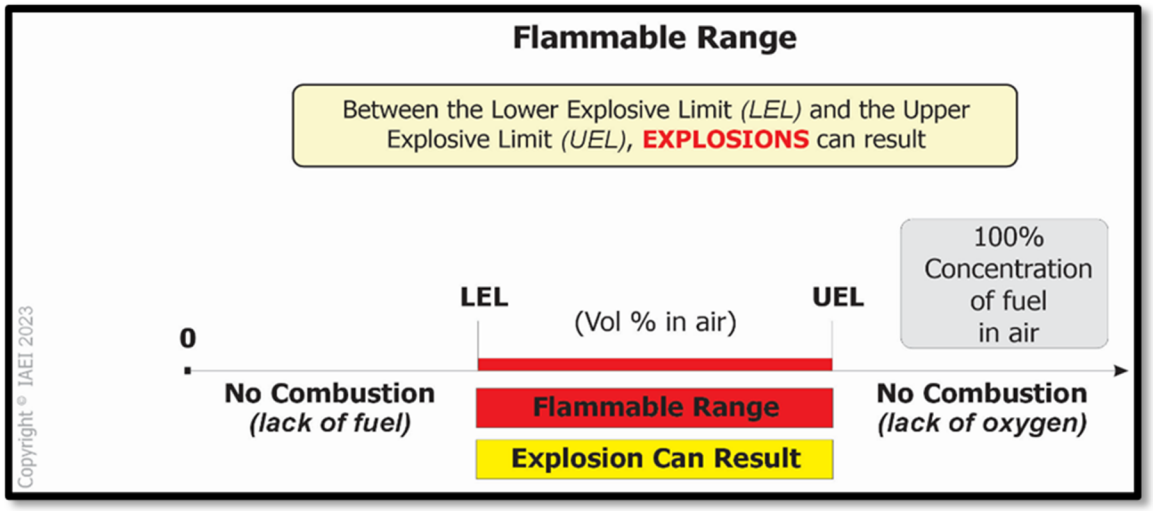


Figure 6. Flammability scale showing the range of flammability (LEL vs UEL); source: Independent Alliance of the Electrical Industry.

4.2.8. The decedent (owner) was the principal owner of the company, and the vessel. As a courtesy to the families affected and out of respect for the two fatalities, the Investigating officer did not conduct a deep probe into personal background information, well-being, livelihood, etc., after the initial inquiry was disregarded. The decedent and "responsible person" would be referred to as the same individual in section 5 (analysis) of this report and could be interchanged.

4.2.9. The welder had been an acquaintance of the decedent (owner) for over 20 years. He was not an employee of the company nor a crewmember aboard *Kim Thu*. The welder was neither certified nor qualified by an approved agency/ entity. He learned the trade through on the job training and knowledge passed down to him from predecessors in the Hawaii CFV industry and claimed to have over 20 years of welding experience. The welder was not a holder of a USCG merchant mariner's credential (MMC).

4.2.10. The eight crewmembers aboard *Kim Thu* were all foreign nationals. As per U.S. Customs and Border Protection regulations, foreign national fishermen were not required to obtain a U.S. Visa, rather, they were allowed to be employed aboard a U.S. registered CFV under certain conditions. Their working contracts ranged anywhere from one to three years. They were employed as fishermen and as such, can only support that occupation, i.e., string fishing lines, prep, load bait, fishing gear maintenance, etc. They were not allowed to perform shipboard related work, i.e., maintenance and repairs. Since there was not a classification of admission for the foreign fishermen, there was no specific regulation targeted for their requirements in the United States. They were "detained" on board upon arrival and at all U.S. ports but were given special parole types for different circumstances such as medical, transfers (both temporary and permanent), as well as departures. Witness interviews with crewmembers proved to be challenging due to the language barrier even with an interpreter; therefore, vital information may have been compromised or withheld. The medical diagnoses of the injured crewmembers were not disclosed to the Investigating Officer.

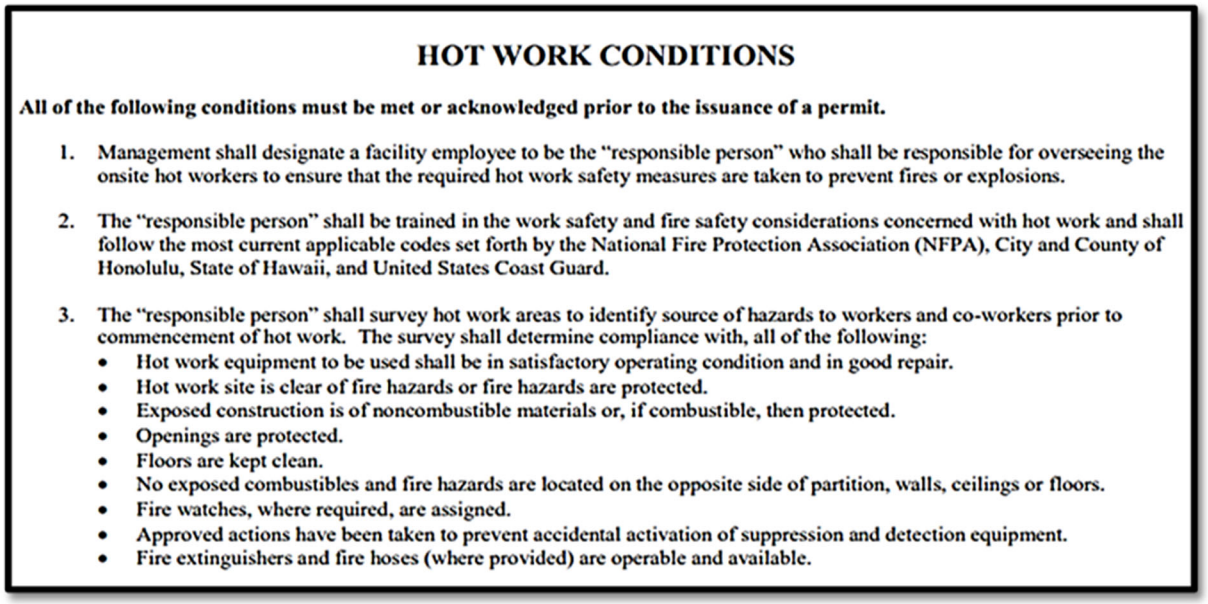
4.2.11. From April 27 - 29, 2024, HFD, Fire Investigations 1 attended the *Kim Thu* post-casualty to investigate the cause of the explosion. Their investigation report (Incident # 2024-0027743) concluded that: "Based on the physical examination of the fire scene,

witness statements, and analysis of the evidence and information revealed supports the cause of this fire as accidental. The Area of Origin was the port side fuel tank and the fire was initiated by sparks/embers or arcs due to welding operations on the fuel vent pipe for the port side fuel tank." Further captured in their report was the fuel source: "Examinations were conducted in an effort to identify the pre-fire available fuels within the general area of origin. These fuels included: vapors from diesel fuel remnants in the port side fuel tank. In field investigation and examination provided sufficient evidence of this fuel sources as having been the first material ignited. The probable first fuel ignited was diesel fuel vapors."

5. Analysis

5.1. *Breach of the Terms and Conditions of "Hot Works" Permit*. Hot work permits helped ensured that fire prevention and protection requirements were met before, during, and after hot work operations. They also provide a framework for identifying potential hazards, assessing risk, and implementing controls. The "Hot Works" permit, like a contract, is a formal agreement between an applicant and the governing authority. In this case the applicant was the *Kim Thu* and the governing authority was DOT Harbors. The applicant made a formal request to the governing authority for the desired scope of work. That request was reviewed and formally approved. Once the preconditions were met, the agreement was signed, and it became a living document; at which point, the applicant took full responsibility for the conduct of work and adherence to the requirements as listed on the permit. The "Hot Works" permit aboard *Kim Thu* clearly depicted the authorized scope of work which did not include hot work on the port fuel tank vent pipe. On the day of the casualty, there were three separate violations of the "Hot Works" permit (sections 4.1.5, 4.1.6, and 4.1.8). While three separate violations were identified during the investigation, it is important to note that there may have been additional violations that were not disclosed or documented particularly in the days leading up to the incident. Also covered in the "Hot Works" permit were procedures for initiating an add-on or change to the approved description of work, conditions that the responsible person must follow, conditions for conducting hot work on or adjacent to spaces containing flammable or combustible materials, and marine chemist requirements. No add-on changes had been initiated. Had the responsible person adhered to the terms and conditions of the "Hot Works" permit, and the applicable rules under HAR §19-42-154 (a), which stated that hot work shall be done only in locations and under the procedures as designated in writing on the permit and chemist's certificate, this casualty may have been avoided.

5.2. *Inadequate Supervision and Personnel for Hot Work Operations.* As per State rules under HAR §19-42-154 (b), welding and burning operations shall be under the supervision and control of a competent foreperson or supervisor who shall insure that all rules pertaining to welding and burning operations are complied with. The "Hot Works" permit clearly stated and listed the duties and responsibilities that the responsible person must adhere to as shown on Figure 7.



HOT WORK CONDITIONS

All of the following conditions must be met or acknowledged prior to the issuance of a permit.

1. Management shall designate a facility employee to be the "responsible person" who shall be responsible for overseeing the onsite hot workers to ensure that the required hot work safety measures are taken to prevent fires or explosions.

2. The "responsible person" shall be trained in the work safety and fire safety considerations concerned with hot work and shall follow the most current applicable codes set forth by the National Fire Protection Association (NFPA), City and County of Honolulu, State of Hawaii, and United States Coast Guard.

3. The "responsible person" shall survey hot work areas to identify source of hazards to workers and co-workers prior to commencement of hot work. The survey shall determine compliance with, all of the following:
   - Hot work equipment to be used shall be in satisfactory operating condition and in good repair.
   - Hot work site is clear of fire hazards or fire hazards are protected.
   - Exposed construction is of noncombustible materials or, if combustible, then protected.
   - Openings are protected.
   - Floors are kept clean.
   - No exposed combustibles and fire hazards are located on the opposite side of partition, walls, ceilings or floors.
   - Fire watches, where required, are assigned.
   - Approved actions have been taken to prevent accidental activation of suppression and detection equipment.
   - Fire extinguishers and fire hoses (where provided) are operable and available.

Figure 7. Screenshot of the Hot Works permit (pg. 2 of 3, top section), provided by the Harbor Master.

Furthermore, NFPA 51B Chapter 4 stated that management shall be responsible for the safe operations of hot work activity. Management, the decedent (owner), and the responsible person was the same individual in this case. The language in the rules referenced the term competent, which was having the necessary ability, knowledge, or skill to do something successful. As a result of this casualty, the responsible person's actions and/or inactions were ineffective. The responsible person and welder failed to implement necessary hot work safety measures to prevent fires or explosions, were unqualified for the task, and neglected to identify critical hazards by performing hot work in an unauthorized area without prior approval. The responsible person requested assistance from a third-party to submit the "Hot Works" permit which suggested he was unfamiliar with rules and regulations governing hot work and should have hired a competent person to oversee the welding projects. Although not legally required, employing a qualified and certified welder may have been a prudent choice in this case. Although the welder claimed to have many years of welding experience, his level of proficiency, knowledge, and credibility were questionable. He asserted knowledge of the 'Hot Works" permit, but claimed he was unable to read it proficiently due to a language barrier and claimed to not know what a marine chemist certificate was. A qualified or certified welder would likely have a better understanding of these requirements, including the ability to assess hazards associated with flammable and combustible atmospheres, as well as the knowledge to properly interpret and adhere to work permit requirements. With adequate personnel (hot work supervisor and operator), a reasonable assumption could be made that applicable rules and regulations were more likely to be followed with sufficient knowledge of the processes, which may have prevented catastrophic events, such as this, from occurring.

5.3. *Nonstandard Procedures to Ensure a Gas Free Environment prior to Conducting Hot Work Operations.* During an interview, the welder was asked to explain the procedures to prepare a fuel tank for welding based on his prior experience. His response was, in order: 1. take fuel out, 2. clean out everything, 3. chemical clean, 4. air it out (ventilate), 5. fill with water, 6. next day weld. Further went on to state that he had followed this procedure welding on many fuel tanks in the past. When asked how the port fuel tank on *Kim Thu* was prepared for welding, his response was, "Decedent (owner) told him that everything was done and that the fuel tank was cleaned, and all the fuel was transferred out." The welder later stated he did not verify the tank conditions before welding. Of note, during post casualty walkthrough of the vessel, the Investigating Officer identified two access, or inspection covers on the longitudinal bulkhead of the port fuel tank which could have provided additional ventilation; both covers remained bolted. However, diesel fuel vapors (presumably) primarily vented through the port fuel tank vent, the only open outlet where the welder was working when the explosion occurred. Based on interview testimony and the outcome of the event, it was possible that nothing beyond the removal of fuel was completed, and that the responsible person and the welder assumed that the port fuel tank was sufficiently "gas free" to conduct hot work on the vent pipe. Even if they had properly prepared for hot work and conducted their own atmospheric testing, the final required step, testing and certification by a certified chemist for the port fuel tank, was still necessary and mandated by industry standards, State rules, and federal regulations (discussed further in the next paragraph). Had the port fuel tank been properly prepared and made ready for inspection and testing prior to hot work, this casualty could have been avoided.

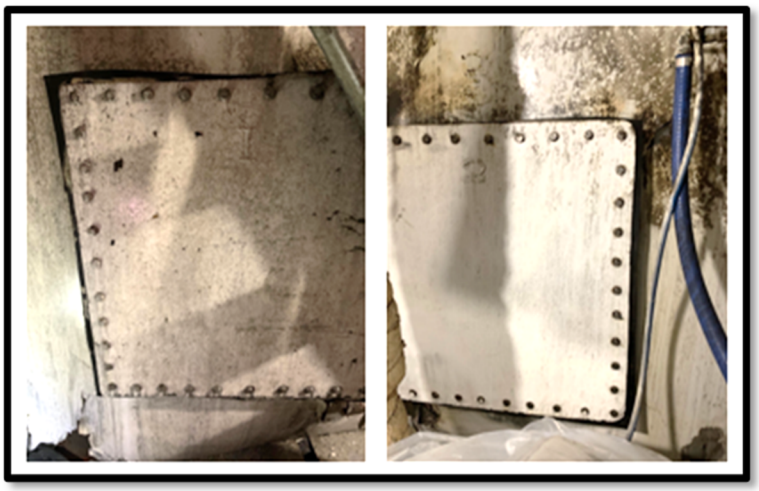


Figure 8. Port fuel tank access covers, photographs taken by the Investigating Officer.

5.4. *Failure to have the Port Fuel Tank Space Tested and Certified by a Marine Chemist as "Safe for Hot Work".* The last and undoubtedly the most crucial step with hot work operations, prior to issuance of a "Hot Works" permit, was atmospheric testing and inspection by a certified marine chemist in a space that previously contained flammable and combustible materials, i.e. the port fuel tank. This was a HAR requirement (also listed on the "Hot Works" permit) and part of OSHA and NFPA standards. The marine chemist sequence of atmospheric testing would be as follows, oxygen level → flammable/combustible concentration → toxic gas, followed by issuances of a certificate for hot work (which must be posted). The Marine Chemist Certificate would dictate "Safe for Hot Work" designation if the atmospheric conditions in a space were within the permissible limits; the oxygen content of the atmosphere shall not be greater than 22 percent by volume; the concentration of flammable materials in the atmosphere shall be less than 10 percent of the LEL; the residues or materials in the space are not capable of producing a higher concentration than permitted, under existing atmospheric conditions in the presence of hot work and while maintained as directed by the marine chemist; and all adjacent spaces were cleaned, inerted, or treated sufficiently to prevent the spread of fire (29 CFR 1915.11(b)). If atmospheric testing

indicated hazards in a space (likely the case in this casualty), this information would have been listed on the certificate; for example, "Not Safe for Workers" or "Not Safe for Hot Work." Therefore, without proper atmospheric testing and certification by a marine chemist, it was probable that the conditions in the tank formed the ideal mixture of diesel fuel oil vapor and air in that space within the flammable range (vapor and air between 1.3% and 6%) and when the welder introduced heat, the ignition source (welding arc) on the vent pipe, it initiated the uninhibited chemical chain reaction in the vapor space of the fuel tank which resulted in an explosive range of flammability (rapid increase of pressure and sudden release of energy caused by combustion of premixed fuel vapor and air); see Figures 6 and 9 for reference.

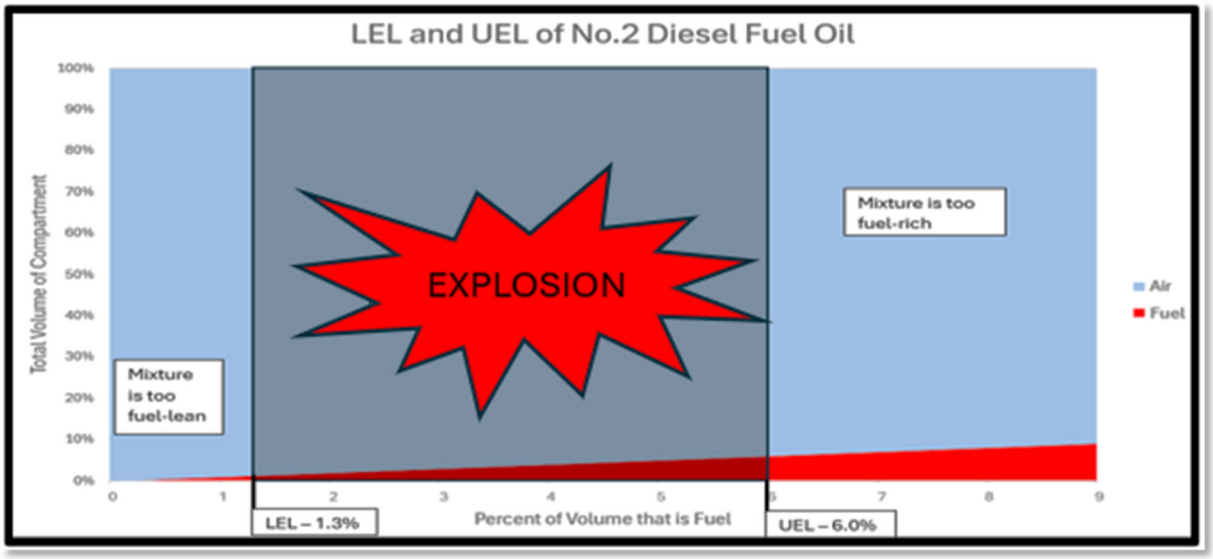


Figure 9. Flammability scale showing the general range of flammability for No.2 diesel fuel oil; developed by USCG Marine Safety Center; annotated by the Investigating Officer.

5.5. *Poor Workplace Safety Practices.* Uninspected CFVs, regulated under 46 CFR Subchapter C, are subject to limited oversight by the USCG or recognized class societies. Uninspected CFVs are not required to have welding work performed by certified welders, placing the responsibility on the owner to ensure safe marine practices are adhered to during repairs. In this case, with all things considered and identified in previous analysis contained in this Report of Investigation, the standard of care with respect to safety was overlooked. Attributed to the assumption that there were no previous negative impacts with this practice, the decedent presumably deemed it safe. In addition, there may have been potential loss of revenue due to the financial burdens of accommodating and preparing the vessel for service. These contributing factors likely shifted the focus away from safety and leveraged rash decisions towards getting the vessel ready and out fishing by ignoring most defense measures and safety precautions. In fact, the company representative stated it in an email to the Harbor Master following the completion of post casualty repairs, “I can assure you that TNL Fishery, after going so long without being able to earn any revenue, is desperate to get the boat out fishing.” Ultimately, by not having safety at the forefront, the responsible person was in complete violation of HAR “Welding and Burning Operations on Piers and Wharves and Aboard Vessels,” and OSHA and NFPA standards with respect to hot work operations, which proved to be more costly at the end of the day. Moreover, a review of the decedent’s activity history in the USCG MISLE database associated him with two alleged violations of law; one was a civil offense (proved) and the other was referred for judicial prosecution. On

that basis, it was possible that this may not have been a onetime lapse but more of a substandard practice that had become the standard of operations. The CFV industry was inherently risky and posed a high degree of danger. Not all, but many CFV marine casualties were self-inflicted and often stemmed from loss of situational awareness, poor workplace safety practices/culture, lack of risk management, drug and alcohol use, etc. With limited regulatory oversight, owners/operators must understand that they are ultimately responsible for the safe conduct and operations of their vessel, and protection of their crews and the marine environment. In general, workplace safety was often linked to an Organizational or Workplace factor (first elements in the "Model of Production"), see Figure 10. However, in this case, the fifth element of the Swiss Cheese Diagram (Dr. James Reason) represented the missing safety measure (defense factor) - workplace safety practices. Had the owner/operator cultivated safe marine practices as the standard working principle, it could have been the final barrier to prevent the unsafe conditions from occurring that resulted in an explosion.

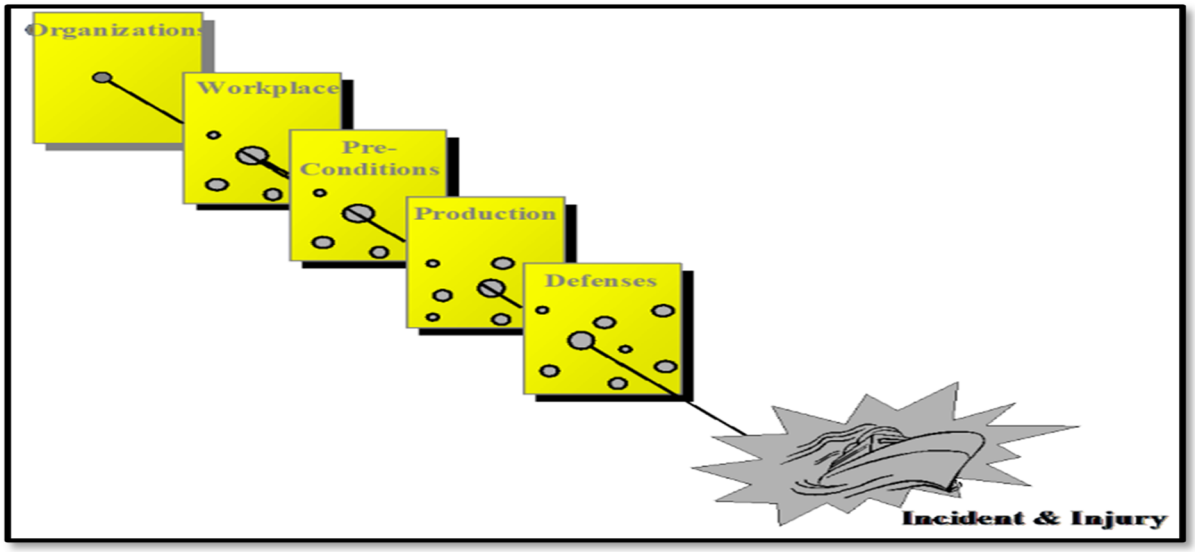


Figure 10. "Swiss Cheese Diagram" showing the five elements of the Model of Production; source: CG-INV (MCI-03B V2.0).

5.6. *No Reasonable Defense Exists to Prevent the Material Failure of the Port Fuel Tank Plating.* Standard marine grade metal plating used for ship construction, including fuel tank compartments were not designed nor rated to withstand the pressure associated with an explosion. They were built to specifications per application, considering the stresses, bending moments, and static and dynamic forces (environment, cargo, equipment, etc.) that acted upon a ship's hull structure. When pieced together to form a ship's structure, this metal plating flex, bend, and stretch to a certain degree while in operations to absorb or counteract these forces. Without knowing the blast force/energy of the explosion from within the confinement of the port fuel tank, it made it difficult to determine if the tank structure plating failed prematurely. It was worth noting that the tank's bulkhead (Figure 4) was penetrated/fractured in several sections because of the explosion, however, it remained intact to the tank structure. Nonetheless, the basic purpose of a fuel tank, space, or compartment, was to hold/store liquid(s) under normal atmospheric pressure (14.7 pounds per square inch). Thus, there were no reasonable defenses that existed to prevent the material failure of the port fuel tank plating.

5.7. *No Reasonable Defense Exists to Prevent Injuries and Loss of Lives.* Unfortunately, in this case, the injured crewmembers and two decedents were in an unfavorable location when

the explosion occurred. The welder, however, managed to avoid serious injuries and did not require professional medical treatment. Had the crewmembers not been where they were aboard the vessel during hot work operations, the results could have been different. In this instance, it would have been an unreasonable requirement for the crewmembers to don personal protective equipment (PPE) for protection against an explosion hazard during hot work operations. Video evidence pulled from the vessel's main deck closed-circuit television (CCTV), showed footage of the plume that threw the two crewmembers across the aft deck. That explosive thermal blast was strong enough to damage a metal structure and continued to release its remaining energy out the ventilation stack, and up through the vestibule out onto the main deck above, injuring everyone in its path of discharge. Figure 11 illustrated the explosion, path of discharge, and reported or last known locations of each persons aboard *Kim Thu* at the time of the casualty.

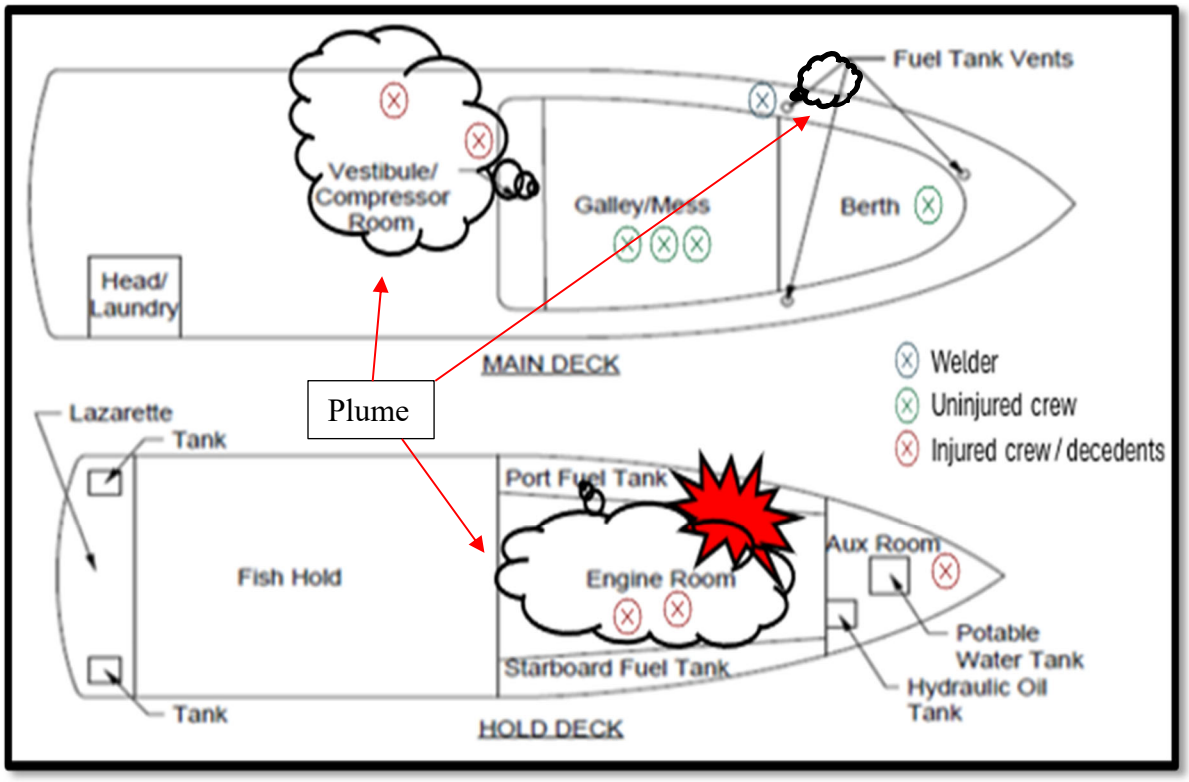


Figure 11. Cut out of Figure 5, plume out of exhaust stack not shown; annotated by the Investigating Officer.

6. Conclusions

6.1. Determination of Cause:

6.1.1. The initiating event for this casualty when the heat from welding, which served as the ignition source, was introduced into the hazardous atmosphere of the port fuel tank and resulted in the subsequent explosion. Causal factors leading to this event were:

6.1.1.1. Breach of the Terms and Conditions of "Hot Works" Permit.

6.1.1.2. Inadequate Supervision and Personnel for Hot Work Operations.

6.1.1.3. Nonstandard Procedures to Ensure a Gas Free Environment prior to Conducting Hot Work Operations.

6.1.1.4. Failure to have the Port Fuel Tank Space Tested and Certified by a Marine Chemist as “Safe for Hot Work”.

6.1.1.5. Poor Workplace Safety Practices.

6.1.2. The first subsequent event was the material failure of the port fuel tank plating due to the explosion. Based on section 5.6, nothing reasonable could have prevented the material failure as the port fuel tank was built to standard vessel construction.

6.1.3. The second subsequent event was the personnel injuries from exposure to thermal heat. Based on section 5.7, nothing could have prevented the injuries.

6.1.4. The final subsequent event was the loss of two lives due to thermal injuries from the explosion. Based on section 5.7, nothing practicable could have prevented their demise.

6.2. Evidence of Act(s) or Violation(s) of Law by any Coast Guard Credentialed Mariner Subject to Action Under 46 USC Chapter 77: There were no Coast Guard Credentialed Mariner involved in this casualty.

6.3. Evidence of Act(s) or Violation(s) of Law by U.S. Coast Guard Personnel, or any other person:

6.3.1. There was evidence of multiple alleged violations of HAR chapters §19-42-151 through §19-42-160, specifically noncompliance with the terms and conditions of the “PERMIT FOR SHORESIDE AND VESSEL WORK – TO INCLUDE ALL FORMS OF “Hot Works”. The state governing authority does not intend to pursue any criminal charges at this time.

6.3.2. There was evidence of an alleged violation of OSHA regulation 29 CFR 1915 Subpart B, in that hot work was conducted in/on a fuel tank appendage that was not gas freed, tested, nor certified by a marine chemist as “Safe for Hot Work”. See section 8.1.1 for administrative recommendation.

6.4. Evidence of Act(s) Subject to Civil Penalty: There were no acts that would warrant a civil penalty.

6.5. Evidence of Criminal Act(s): There were no criminal acts identified in this investigation.

6.6. Need for New or Amended U.S. Law or Regulation:

6.6.1. While it was tempting for an agency to create new regulations in response to a casualty- serious marine incident (SMI), specifically one that involved a loss of life, this incident does not escalate the need for a proposed recommendation to create new regulatory requirements or amend the existing framework. There were existing regulations outside of the USCG that were applicable in case and had they been followed; the outcome could have been different. Compliant owners and operators who regularly perform routine maintenance and repairs safely should not be further constrained or suffer the consequences of one’s judgment that was outside the standard realm of good/ safe marine practice; similar language stated on the CFV *Coastal Reign* Report of Investigation. This (*Kim Thu*) casualty brought to light that there may be quite

a few more CFV companies that were unaware of other regulations and standards beyond 46 CFR Subchapter C that are applicable to their vessel type and operations, not to mention the governing State authorities. The attention should be focused on bringing awareness and proper dissemination of this type of information at every available interaction with this industry. Placing emphasis on the importance of personal responsibility should be continuously stressed upon the CFV owners to follow good marine practices and be stewards of safety.

6.7. Unsafe Actions or Conditions that Were Not Causal Factors:

6.7.1. The post casualty DOT drug test for the welder was positive for MDMA (ecstasy). Although concerning, there was a lack of conclusive evidence that drug use was a contributing factor in this casualty as a positive test alone does not show that the welder was under the influence at the actual time of the incident. As per 46 CFR 4.06-1, it was the responsibility of the marine employer to have each individual who was directly involved in the incident chemically tested for evidence of drug and alcohol use when a casualty is, or is likely to become, a serious marine incident. Based on the totality of the circumstances, the marine employer (decedent) was unable to. However, three days after the casualty following witness interviews, the Coast Guard gained revealing information to make the determination that the welder was involved in the operation and directed post casualty drug testing. Therefore, due to the gap in timeframe, drug use was ruled out as a causal factor. USCG authority under 46 USC Chapter 77 to conduct an administrative proceeding (suspension and revocation) for dangerous drug law violations were not applicable to non-credentialed mariners or persons. However, the National Maritime Center (NMC) was notified of the failed post-casualty drug test for their recording keeping system (MMLD) for future reference.

7. Actions Taken Since the Incident

7.1. Following the casualty, Hawaii DOT Harbors Division immediately changed their policies and procedures for shoreside and vessel work permitting requirements which included greater detail of the scope of work and locations, marine chemist certificate requirements for all work associated in or around confined spaces, options to include photographs of the work area, and increased routine spot checks or inspection intervals to validate compliance with work permits and/or marine chemist certificates. These actions were enacted to alleviate some of the language barriers for the local CFV owners, which aims to clarify any misinterpretation of the requirements and ensure a mutual understanding.

7.2. On May 30, 2024, USCG Sector Honolulu released Marine Safety Information Bulletin (MSIB) 24-003 “Commercial Fishing Vessel Hot Work (Welding) Operations in Honolulu Harbor.” In summary, companies and owners were reminded that any activity involving hot work (welding, burning, or similar fire or spark producing operations) aboard their vessels shall be closely monitored to prevent a fire or an explosion from endangering personnel, the vessel, the marine environment, or the Port of Honolulu. At no point should hot work be authorized in spaces containing flammable or combustible gases without proper atmospheric testing by a marine chemist or competent person and the issuance of a “Gas Free” certificate certifying the space “Safe for Hot Work.”

7.3. On July 25, 2024, U.S. Customs and Border Protection hosted an in-person CFV owners meeting in Honolulu, HI. This was an annual occurrence in which federal and State agencies,

to include NOAA, State DOT Harbors, and the Hawaii Longliners Association (HLA), delivered pertinent information to the local fishing vessel community. The Investigating Officer was invited as a guest speaker to present the MSIB 24-003 to the audience. An open dialogue pursued regarding the unsafe practices associated with welding on diesel fuel tanks and the misconception of the hazards compared to gasoline systems. In the end, the message emphasized that compliance with the applicable rules, regulations, and standards pertaining to hot work operations were required at all times.

7.4. On August 26, 2024, USCG Office of Investigations & Analysis (CG-INV) released Marine Safety Alert 03-24 "WARNING: ENSURE A GAS-FREE ENVIRONMENT PRIOR TO CONDUCTING HOT WORK," authored by USCG Sector Honolulu. Like MSIB 24-003, this Safety Alert provided recommendations for the CFV industry to heed to industry standards and regulations critical for ensuring safety during hot work operations, i.e. OSHA regulation 29 CFR 1915 Subpart B and NFPA standard 51B. Further, it recommended the following actions: 1. fully comply with the "Hot Works" permit requirements and 2. employ welders qualified by entities such as the USCG, American Society of Mechanical Engineers (ASME), American Bureau of Shipping (ABS), or certified by the American Welding Society (AWS).

8. Recommendations

8.1. Administrative Recommendations:

8.1.1. It is recommended that the Commandant of the Coast Guard provide a copy of this report to OSHA Region 9 to investigate the alleged violation(s) of 29 CFR 1915 Subpart B.

8.1.2. It is recommended that the Commandant of the Coast Guard provide widest dissemination of this report throughout the CFV industry community including Coast Guard District Fishing Vessel Coordinators, Coast Guard Fishing Vessel Safety Division (CVC-3), National Commercial Fishing Safety Advisory Committee (NCFSAC), HLA, and the Coast Guard Investigations National Center of Expertise (INCOE).

8.1.3. It is recommended that the Commandant of the Coast Guard provide a copy of this report to the following government agencies: HFD Fire Investigations Division, Hawaii DOT Harbors Division (Oahu District), Department of Law Enforcement - Honolulu Sheriff Division, Hawaii Occupational Safety and Health (HIOSH), NOAA Fisheries (Pacific Islands Region), and the NTSB.

8.1.4. It is recommended that this report be released to the decedents' next of kin (NOK), while complying with the provisions of the Privacy Act, the Freedom of Information Act (FOIA), and associated federal regulations.

[redacted]
Chief Warrant Officer, U.S. Coast Guard
Investigating Officer