UNITED STATES COAST GUARD

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING

THE SINKING AND TOTAL LOSS OF THE ALASKA JURIS (O.N. 569276)

ON 07/26/2016

MISLE ACTIVITY NUMBER: 5959979

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

Commandant
United States Coast Guard

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16732/IIA #5959979
12 Aug 2022

SINKING AND TOTAL LOSS OF THE COMMERCIAL FISHING VESSEL ALASKA JURIS 45 NM NORTHEAST OF KISKA ISLAND, AK ON JULY 26, 2016

ACTION BY THE COMMANDANT

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. This marine casualty investigation is closed.

ACTION ON RECOMMENDATIONS

Recommendations 1-11, 13, 14, 16, 19, and 27-31 were recommended to Coast Guard Districts or individual units and final actions are discussed in the endorsements to the report of investigation.

Recommendation 12: Recommend the Commandant of the Coast Guard amend CG-CVC Policy Letter 11-11 CH 1, ENGINEER OFFICER ENDORSEMENTS ON UNINSPECTED FISHING INDUSTRY VESSELS which allowed Officers in Charge of Marine Inspection (OCMIs) to delay enforcement of licensing requirements "for a reasonable period." The complexity of the systems, the age of these vessels and the number of persons who sail on them demand close and competent oversight from experienced and credentialed engineering officers.

> **Action:** I concur with the intent of this recommendation. At the time of the incident, the ALASKA JURIS failed to follow an existing standard for the number of qualified personnel onboard. When applied as intended, the Coast Guard Headquarters Office of Commercial Vessel Compliance (CG-CVC) Policy Letter 11-11, CH 1 presents options under Coast Guard oversight that can aid industry compliance with certain engineer credentialing requirements. As of 2019, the Coast Guard considered that the "reasonable period" for delayed enforcement of the Alternate Compliance and Safety Agreement (ACSA) engineering officer credentialing requirements had elapsed. Thus, enforcement actions are now recommended for ACSA vessels that fail to meet minimum standards for credentialed engineers.

Recommendation 15: Recommend the Commandant of the Coast Guard conduct a review of the current stability and trim requirements for credentialed Masters and Mates working on Uninspected Fishing Industry Vessels (UFIV) over 1,600 gross tons. Currently, stability and trim

training standards for these credentials requires minimal knowledge of the stability and trim characteristics and does not require any performance based demonstration. Enhancing these standards would ensure Masters and Mates are able to utilize the stability information available to them. The operational environment and dynamic loads these vessels experience require deck officers to have the ability to correctly utilize the stability and trim resources.

Action: I concur with the intent of the recommendation. The Coast Guard considers the existing stability requirements in 46 Code of Federal Regulations (CFR) Parts 11 and 28 to be sufficient. Specifically, 46 CFR Part 11 requires trim and stability examination topics and 46 CFR 28.530 states, "Masters and individuals in charge of vessels are to be provided with enough stability information to allow them to maintain their vessel in a satisfactory stability condition; stability instructions must be developed by a qualified individual; stability instructions must be in a format easily understood by the master or individual in charge of the vessel."

Credentialed masters or persons in charge of their vessels should be cognizant of and be able to maintain a safe stability condition of their vessels and incorporate corrective actions as may be necessary during an emergency. Under the CG-CVC sponsored Fishing Vessel National Communication Plan campaign, a broad range of training tools and curricula are already in place to aid and educate maritime professionals on the safe stability conditions of their vessels and appropriate application of intended stability standards. CG-CVC will continue to coordinate the outreach and education initiatives outlined in the campaign to fulfill the intent of this recommendation.

Recommendation 17: Recommend the Commandant of the Coast Guard establish additional guidance for the issuance and clearing of deficiencies for vessel enrolled in the ACSA. This doctrine should aim to harmonize ACSA with other inspection programs, to include deficiency due dates, no-sail deficiencies, and the use of work-lists in lieu of deficiencies. This would allow ACSA administrators, inspectors and industry stakeholders to clear up the misperception by some that ACSA is voluntary and clarify uncertainty regarding enforcement authority. Recommend this doctrine be instituted by December 31, 2018.

Action: I partially concur with this recommendation. A comprehensive internal review of ACSA administrative and inspection practices has been initiated by an ACSA Task Force that was jointly chartered by the Coast Guard District 13 and District 17 Commanders on December 11, 2020.

The following improvements have already been implemented:

1. Commenced use of inspected vessel deficiency codes, worklist items, and self-reporting of deficiencies.
2. Established a Monthly Deficiency Tracker.
3. Enhanced communications with the Owners/Operators to emphasize their responsibility to contact the Coast Guard to clear deficiencies.

Coast Guard Pacific Area (PACAREA) will conduct an assessment of the ACSA Charter Task Force internal review once completed. I will direct the Office of Commercial Vessel Compliance (CG-CVC) to conduct a follow-up assessment of the ACSA Charter Task Force findings and recommendations when the PACAREA review is complete.

Recommendation 18: Recommend the Commandant of the Coast Guard, District 13 and District 17 Commanders chair a working group comprised of Coast Guard and industry stakeholders to develop policies and procedures for the disenrollment of a vessel from the ACSA program. Currently there are no guidelines for Coast Guard administrators to follow and operators to adhere to should a vessel be considered for disenrollment due to its deficiency history or overall material condition. Established policies and procedures would provide the necessary administrative guidelines to ensure all ACSA program participants are aware of the standards they need to maintain for continuous enrollment in the program.

> **Action:** I concur with this recommendation. The ACSA Task Force referenced in the response to Recommendation 17 has been tasked to develop policies and procedures to disenroll vessels from the ACSA program. Once completed, the Task Force recommendation along with PACAREA's endorsement regarding ACSA program disenrollment procedures will be reviewed by CG-CVC for potential action.

Recommendation 20: Recommend the Commandant of Coast Guard establish a new regulatory definition for determining when a commercial fishing vessel meets the threshold of a fish processing vessel. The product codes currently used in 50 CFR, Part 679, Table 1a by National Marine Fisheries Service (NMFS) were developed to define processing levels and were never intended to be used as a standard to establish safety requirements for fishing/processing vessels. This determination should be based on factors related to risk rather than how a fish is processed.

> **Action:** I do not concur with the recommendation. Regulatory definitions are clearly outlined in 50 CFR Part 679 to determine if a vessel is a fish processing vessel and those definitions are considered adequate for regulatory purposes. Therefore, the Coast Guard will not pursue new federal regulations to define fish processing vessels at this time.

Recommendation 21: Recommend the Commandant of the Coast Guard, District 13 and District 17 Commanders conduct a comprehensive internal review of the ACSA program to include Sector Puget Sound's and Sector Anchorage's administrative and inspection practices, billeted and non-billeted ACSA inspection personnel resources and the training and qualification standards for current and future ACSA inspectors. This review should also focus on revitalizing the cooperative relationships between the Coast Guard ACSA program administrators, inspectors and industry stakeholders and focus on fostering continuous improvements to the program.

> **Action:** I concur with this recommendation. I support a comprehensive internal review of the ACSA Program and the joint District 13 and District 17 Task Force referenced in the response to Recommendation 17 is currently conducting the recommended assessment. The ACSA Task Force currently plans to deliver its report to PACREA by the fall of 2022. PACAREA will conduct the first review of the ACSA Charter assessment once completed. CG-CVC will then review the final report and PACAREA's endorsement and implement any necessary changes to the ACSA program.

Recommendation 22: Recommend the Commandant of the Coast Guard conduct an audit of the ACSA program workload and reassign billets based on findings. As part of the audit process, recommend the current ACSA program coordinator billet in District 13 be reprogrammed. Though valuable when originally established, this billet is now redundant and the actual ACSA duties required by D13 can be handled more effectively at the Sector level. The ACSA program would be better served with an additional ACSA inspector at Sector Puget Sound.

Action: I partially concur with this recommendation. A review of the current ACSA program billet structure is included in the charter for the joint District 13 and District 17 Task Force referenced in my response to Recommendation 17. I will take action on any needed ACSA program staffing adjustments upon review of the Task Force's final report and PACAREA's endorsement.

Recommendation 23: Recommend the Commandant of the Coast Guard change ACSA inspectors' position descriptions (PDs) to reflect ACSA as a primary duty. Although D13 has used the fishing vessel examiner PD as a way to attract an adequate number of inspectors for ACSA inspections, it is counterproductive to the advanced training and qualification of inspectors required for the ACSA program. Recommend ACSA inspector PDs be changed to reflect their primary duty by July 31, 2018.

Action: I concur with the recommendation and action has already been taken. The ACSA Inspector primary duty should be conducting CG Sector ACSA Inspections and Fishing Vessel Examinations. ACSA Inspector Position Descriptions should reflect required core-competencies and skill sets needed to fulfill duties as described in the Position Description for the Fishing Vessel Safety Examiner/Marine Inspector GS-1801-12 Sector Puget Sound. ACSA billets should not be used to fulfill other Sector marine inspector duties such as barge inspections, small passenger vessel inspections, or Port State Control Examinations on a routine basis.

Recommendation 24: Recommend Commandant of the Coast Guard establish a Performance Qualification Standard (PQS), training program, and recency requirements for ACSA inspectors. This would clear up any ambiguity that ACSA inspectors and administrators have regarding the required qualifications to conduct ACSA inspections and would legitimize ACSA inspections as being equivalent to objectives in other PQS.

Action: I partially concur with this recommendation. A separate PQS for ACSA inspectors is not needed. Starting in 2019, the Position Description requirements for ACSA billets was updated to include the requisite Hull, Machinery, and Fishing Vessel Examiner qualifications to ensure the competencies required to conduct ACSA inspections. All ACSA billets are expected to focus primarily on ACSA inspections and a new policy related to recency is not deemed necessary at this time.

Recommendation 25: Recommend the Commandant of the Coast Guard conduct an independent audit on the ACSA program to ensure it is equivalent to applicable Class Society Rules and Load Line Regulations. Though an analysis was conducted in 2009, this investigation identified additional gaps that should be addressed. Recommend this be performed by July 31, 2018.

Action: I do not concur with this recommendation. Though the ACSA Program contains provisions similar to Class Society Rules and Load Line Regulations, the Coast Guard does not consider it to be fully equivalent to the Class rules and standards. As such, the ACSA program is recognized by the Coast Guard as an alternative for regulatory compliance.

Recommendation 26: Recommend the Commandant of the Coast Guard, District 13 and District 17 Commanders require any additional vessels entering the ACSA program, which were built

before July 27, 1990, to have an authorized classification society conduct a load line survey. This will be to either issue a load line certificate or identify the particular gap(s) preventing the issuance of a load line certificate. This would provide Coast Guard ACSA program administrators the opportunity to weigh risk and to work with the vessel owners and operators to identify individual equivalences and/or exemptions on a case by case basis.

Action: I concur with the intent of this recommendation. Mandating that all new additions to the ACSA Program built before July 27, 1990 have an authorized Classification Society conduct a Load Line survey is not considered appropriate for all situations. However, CG-CVC will review new applicants to the ACSA Program on a case-by-case basis in order to determine the level of risk and the potential need for a Load Line survey.

[redacted]

W. R. ARGUIN
Rear Admiral, U.S. Coast Guard
Assistant Commandant for Prevention Policy

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16732
27 DEC 17

MEMORANDUM

From: M. F. McAllister, RADM
CGD SEVENTEEN (d)

To: COMDT (CG-INV)

Subj: ENDORSEMENT OF SAFETY RECOMMENDATIONS REGARDING THE SINKING OF THE ALASKA JURIS (O.N. 569276)

Ref:
(a) Title 46 United States Code Chapter 63
(b) Title 46 Code of Federal Regulations Subpart 4.07
(c) Marine Safety Manual, Volume V, Part A, Chap 6.B.4
(d) My memo 16731, Convening Order issued 4 Aug 2016

1. Pursuant to references (a) through (c), I convened a three person formal investigation into subject casualty as detailed in reference (d). The investigation and corresponding MISLE Activity 5959979 are forwarded for final review. I approve the findings of the investigation and recommend that the investigation be officially closed. I concur with the majority of the conclusions as discussed below and indicate my action on those recommendations that are actionable at the District level.

2. The sinking of the ALASKA JURIS was a preventable accident. Fortunately a rare, calm day in the Bering Sea allowed the 46-member crew to abandon ship and be safely recovered by good Samaritans with no serious injuries or loss of life. This investigation revealed significant material failures that likely led to the loss, compounded by a variety of manning, training and operating shortfalls. The investigation also revealed shortfalls in Alternative Compliance and Safety Agreement (ACSA) program guidance and oversight. The Coast Guard and its stakeholders will need a focused effort to refine the inspection regime and prevent future mishaps among these unique fish processing vessels that operate in Alaska's harsh environment.

3. Safety Recommendations:

   a. Recommendation #1 (7.1.1): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book to incorporate procedures for verifying adequacy of manufacturer's specifications on dewatering equipment.

   b. Recommendation #2 (7.1.2) Concur. I agree with the requirement for mandatory dewatering drills and also recommend that vessels have a designated crewmember on station bill to rig and run portable dewatering equipment. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book with the requirement to conduct mandatory dewatering drills and designate a crewmember on the station bill to operate dewatering equipment. Additionally, I recommend that Commandant,

Office of Commercial Vessel Compliance (CG-CVC-3) consider a regulatory change to 46 CFR Part 28 to mandate dewatering drills and a designate a dewatering station bill position for all applicable commercial fishing industry vessels.

c. Recommendation #3 (7.1.3): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book with a requirement to verify the operation of fixed bilge pump(s) to ensure they are capable of self priming and taking suction from the furthest spaces from where the pumps are installed. I recommend that Commandant, Office of Commercial Vessel Compliance (CG-CVC-3) consider a regulatory change to 46 CFR Part 28.255 to require inspection of fixed bilge pump(s) to ensure they are capable of self priming and taking suction from all spaces for all applicable commercial fishing industry vessels.

d. Recommendation #4 (7.1.4): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book with a requirement for lowering and inspecting each embarkation ladder at annual ACSA inspections.

e. Recommendation #5 (7.1.5): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book with a requirement to require all embarkation areas identified on an ACSA vessel's safety plan to be provided with a means to affix an embarkation ladder to a welded pad eye or other suitable structurally sound device. Multiple embarkation locations should be identified in the event the emergency/event makes primary embarkation station unsafe.

f. Recommendation #6 (7.1.6): Concur. Emergency lighting, although not required in regulation, is currently installed aboard all ACSA vessels. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book to establish standards for emergency lighting requirements for egress and adequate reserve power capability no later than the next scheduled ACSA dry dock inspection.

g. Recommendation #7 (7.1.7): Concur. I have directed my staff to collaborate with the North Pacific Regional Fisheries Training Center (NPRFTC) in Kodiak to develop training and doctrine for Coast Guard boarding officers that conduct boardings on ACSA vessels and request ACSA personnel assist the NPRFTC with content of the curriculum.

h. Recommendation #8 (7.1.8): Concur. I have directed my staff to work with District 13 to review and amend information on exemption letters to reflect ACSA vessel program requirements similar to the information found on a Certificate of Inspection. A locally generated version of this letter will suffice in the interim, but to ensure consistency, I recommend CG-CVC-3 support a MISLE enhancement request for ACSA letters to be generated by the MISLE program.

i. Recommendation #9 (7.1.9): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book with a requirement that all ACSA vessels carry and maintain an official log (CG-706B) and develop a list of mandatory entry items.

j. Recommendation #10 (7.1.10): Concur in part. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book with a

requirement to test all high-level bilge alarms weekly and log results in the vessels official logbook. Recommend amending the original recommendation to allow tests to be conducted/verified and logged by a master of uninspected commercial fishing vessels since not all ACSA vessels are required to have credentialed officers. I recommend that Commandant, Office of Commercial Vessel Compliance (CG-CVC-3) consider a regulatory change to 46 CFR Part 28.255 to include the requirement to test high-level bilge alarms and log the tests for all applicable commercial fishing industry vessels.

k. Recommendation #11 (7.1.11): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book with a requirement that all sea chest valves must be able to be secured from the lower engine room deck plates or grating as prescribed in 46 CFR Part 56.50-95(d)-(e) and ABS Rules for the Building and Classing of Steel Vessels under 90 meters, Part 4, Chapter 4, Section 2 – 21.3 at the next required dry dock inspection after July 31, 2018.

l. Recommendation #12 (7.1.12): Concur. I recommend the Commandant amend CG-CVC Policy Letter 11-11 CH 1 to clarify that no new waivers deferring enforcement of licensing regulations should be issued by OCMI's and any waivers issued under this policy letter are issued to individual mariners and not a blanket waiver for the company to operate indefinitely without proper manning.

m. Recommendation #13 (7.1.13): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book to review and amend manning requirements on ACSA vessels to ensure there are sufficient credentialed mariners onboard vessels to address emergency situations and reduce the use of non-maritime trained personnel to perform safety sensitive functions on these vessels.

n. Recommendation #14 (7.1.14): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book to mandate stability training for all credentialed deck officers serving on ACSA vessels. Additionally, I have directed my staff to collaborate with District 13 and ACSA stakeholders to develop a list of approved pre-existing stability training options.

o. Recommendation #15 (7.1.15): Concur. Recommend the Commandant review stability and trim requirements for credentialed Masters and Mates working on Uninspected Fishing Industry Vessels over 1,600 gross tons to ensure deck officers have the ability to correctly utilize trim and stability resources.

p. Recommendation #16 (7.1.16): Concur in part. I agree that there needs to be a notification system to indicate the status of watertight doors, and I have directed my staff to collaborate with District 13, ACSA stakeholders, and NIOSH to research and determine whether a light panel, alarm system, or combination will work best to achieve the intent of this recommendation.

q. Recommendation #17 (7.1.17): Concur. I recommend that Commandant work closely with ACSA administrators to harmonize procedures for the issuance and clearing of deficiencies for vessels enrolled in the ACSA with existing Coast Guard Marine Inspection Tactics, Techniques, and Procedures (TTP) and mirror policy applicable to other classes of vessels.

r. Recommendation #18 (7.1.18): Concur. Although these policies and procedures are already covered in the ACSA program guide and policy letter, I will direct my staff participate in a workgroup to ensure clarity and consistency in the ACSA program.

s. Recommendation #19 (7.1.19): Concur. I have directed my staff to collaborate with District 13 and ACSA stakeholders to amend the ACSA program guide and 840 book to incorporate notification and repair procedures and ensure Coast Guard inspectors review repair proposals and witness repairs (and testing as appropriate) to vital systems defined in ACSA guidance.

t. Recommendation #20 (7.1.20): Concur. To determine when a commercial fishing vessel meets the threshold of a fish processing vessel, I recommend considering the area of operation, persons on board, and environmental factors.

u. Recommendation #21 (7.1.21): Concur. I have directed my staff collaborate with Commandant and District 13 to conduct a comprehensive internal review of the ACSA program to include administrative and inspection practices, ACSA personnel resources and training and qualification standards.

v. Recommendation #22 (7.1.22): Concur in part. Concur with the recommendation for the Commandant, working in conjunction with the Pacific Area Commander, to conduct an audit to ensure limited personnel are optimized in support of the ACSA program. Without an independent audit, I cannot fully concur with a specific conclusion of where to allocate ACSA billets.

w. Recommendation #23 (7.1.23): Concur. Recommend the Commandant, working with Districts 13 and 17, amend ACSA inspector's position descriptions to reflect ACSA as a primary duty to highlight the specialty knowledge required of the program.

x. Recommendation #24 (7.1.24): Concur. Recommend the Commandant establish a Performance Qualification Standard (PQS) training program and recency requirements to ensure standardization of the ACSA program.

y. Recommendation #25 (7.1.25): Concur. Recommend the Commandant conduct an audit of the ACSA program to ensure equivalency to applicable Class Society Rules and Load Line Regulations and outline any gaps that need to be addressed.

z. Recommendation #26 (7.1.26): Concur in part. I have directed my staff to work with Commandant and District 13 to consider amending the ACSA program guide and 840 book to require any additional vessels entering the ACSA program, built before July 27, 1990, to have an authorized classification society conduct a load line survey and submit a gap analysis to identify specific equivalencies or exemptions on a case-by-case basis.

4. Enforcement Recommendations:

a. (7.1.27) I concur with the recommendation that Sector Anchorage should investigate potential suspension and revocation action against credentialed officers on the ALASKA JURIS who were aware of the unauthorized high bilge alarm silencing device on ALASKA JURIS's bilge alarm panel. The ability of this device to prevent the high bilge alarm from sounding put the lives of the ALASKA JURIS crew at risk.

b. (7.1.28) I concur with the recommendation that Sector Anchorage should investigate potential suspension and revocation action against the Captain of the ALASKA JURIS for manning violations by sailing without an assistant engineer and an unlicensed assistant engineer not named on the Sector Puget Sound-approved list of Engineers-in-Training submitted by the Fishing Company of Alaska.

c. (7.1.29 and 7.1.30) I concur with the recommendation that Sector Anchorage should investigate potential suspension and revocation action against credentialed officers on the ALASKA JURIS who failed to report marine casualties. I also concur with the recommendation that Sector Anchorage investigate potential suspension and revocation action against credentialed officers on the ALASKA JURIS who violated a regulation by failing to address watertight doors left open at sea.

d. (7.1.31) I concur with the recommendation Sector Anchorage investigate potential suspension and revocation action against credentialed officers on the ALASKA JURIS who failed to operate the vessel in accordance with its approved stability booklet. The loading of fuel oil in void spaces that were not authorized by the approved stability booklet is a violation of 46 CFR Part 28, Subpart E and ACSA program requirements.

5. Administrative Recommendations:

a. I concur with all administrative recommendations and have directed my staff to provide appropriate recognition to the parties that assisted with the ALASKA JURIS response and the investigation.

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Enclosure: (1) REPORT OF INVESTIGATION (ROI) INTO THE CIRCUMSTANCES SURROUNDING THE SINKING OF THE ALASKA JURIS (O.N. 569276) DATED 29 SEP 2017

Copy: CG-CVC-3
CG PACAREA (PAC-54)
CGD THIRTEEN
CG SECTOR PUGET SOUND
CG SECTOR ANCHORAGE
CG SECTOR JUNEAU
CG MSU VALDEZ

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16731

MEMORANDUM

From: [redacted]
M. F. McAllister, RADM
CGD Seventeen (d)

To: M. E. DeLury, CDR
CGD Seventeen (dpi)

Subj: FORMAL MARINE CASUALTY INVESTIGATION CONCERNING SINKING OF *F/V ALASKA JURIS* ON 26 JULY 2016

1. Pursuant to the authority contained in Title 46 U.S.C. § 6301 and the regulations promulgated under Title 46, Code of Federal Regulations (CFR), Part 4, you shall commence, as soon as practicable, a formal marine casualty investigation and inquire into all aspects of the sinking of *F/V Alaska Juris* in the Bering Sea on or about 26 July 2016.

2. Other personnel assigned to this investigation include: Mr. [redacted] TRACEN Yorktown – Assistant Investigating Officer; LCDR [redacted] D17 Legal– Legal Advisor; LT [redacted] Sector Anchorage – Recorder. This memorandum replaces the message traffic noted in Marine Safety Manual vol. V, COMDTINST M16000310A, para. A5.G.4.b.

3. You will thoroughly investigate the matter in accordance with the provisions found at 46 CFR Part 4, and specifically determine the following:

a. The cause of the casualty.

b. Whether there is evidence that any failure of material (either physical or design) was involved or contributed to the casualties, so that proper recommendations for the prevention of the recurrence of similar casualties may be made.

c. Whether there is evidence that any act of misconduct, inattention to duty, negligence or willful violation of the law on the part of any person holding a Coast Guard credential contributed to the casualties, so that appropriate proceedings against the credential of such person may be recommended.

d. Whether there is evidence that any Coast Guard personnel or any representative or employee of any other government agency or any other person caused or contributed to the cause of the casualty.

e. Whether the present regulatory framework, to include the Alternate Compliance Safety Agreement (ACSA) program, as applied to this and similar vessels, provides an adequate measure of safety.

4. Upon completion of the investigation, you shall submit a report to me with the collected evidence, established facts, and your conclusions and recommendations. You shall submit this report within 12 months of the convening date. If you cannot meet the deadline, submit to me a

written explanation for the delay and the expected completion date. You are encouraged to submit interim recommendations intended to prevent similar casualties, if appropriate, during the course of your investigation. You may share preliminary factual information with the National Transportation Safety Board upon their request.

5. The Seventeenth District will furnish such funding, technical assistance, and administrative support as may be required and within the scope of this investigation.

6. When deemed appropriate for the proper and orderly functioning of this formal investigation, the District Commander is authorized to negotiate for commercial court reporting services pursuant to 10 USC 2304(a)(4). This authorization satisfies the requirements of USCG Procurement Regulations 11-3.204(b)(1) for Commandant (CG-85) approval prior to negotiation of contracts for personal and professional services. If district funds are not available, comply with the Manual of Budgetary Administration, COMDTINST M7100.3.

#

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CG Sector Anchorage

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16732
29 Sep 2017

MEMORANDUM

From: M. E. DeLury, CDR
Investigating Officer

To: M. F. McAllister, RADM

Subj: REPORT OF INVESTIGATION INTO THE SINKING AND TOTAL LOSS OF THE ALASKA JURIS, O.N. 569276

Ref: (a) Letter of Designation as Lead Investigating Officer dated 03 Aug 2016
(b) Marine Safety Manual, Volume V, Investigations and Enforcement, COMDTINST M1600.10A
(c) Marine Investigations Management and Documentation Requirements, CG-INV Policy Letter 3-15

1. In reference (a), you directed me to lead a formal investigation into the sinking and loss of the Fish Processing Vessel ALASKA JURIS in the Bering Sea on July 26th, 2016. This incident was classified as a Major Marine Casualty in accordance with 46 CFR 4.40-5(d). The National Transportation Safety Board also participated in the investigation. Other personnel assigned to this investigation were: Mr. [redacted] TRACEN Yorktown – Assistant Investigation Officer; [redacted] D17 Legal – Legal Advisor and [redacted] Sector Anchorage – Recorder. Numerous in-person interviews were conducted throughout Alaska (Juneau, Anchorage, Ketchikan, and Dutch Harbor) and Seattle, WA. Every member of the ALASKA JURIS crew and two NOAA observers were interviewed either in person or telephonically. The investigation team visited several fish processing vessels for familiarization. Additionally, 10 days of public hearings were conducted in Seattle, WA between December 5th and December 16th, 2016. Throughout these numerous interviews and the public hearing, we were able to gather facts, conduct analysis, draw conclusions and make recommendations regarding this marine casualty. All evidence, correspondence and testimony gathered during the investigation and used to create this report are included in the Coast Guard's Marine Information System for Law Enforcement (MISLE) electronic database under **Incident Investigation Activity Number 5959979.**

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SINKING AND TOTAL LOSS OF THE ALASKA JURIS (O.N. 569276) IN THE BERING SEA ON 26 JULY 2016
INVESTIGATING OFFICER'S REPORT

EXECUTIVE SUMMARY

The ALASKA JURIS was a 41 year old commercial fishing vessel and fish processer inspected by the Coast Guard, as part of the Coast Guard's Alternate Compliance and Safety Agreement (ACSA) program, which regulates certain fish processing vessels that operate in Alaska.

On July 26, 2016, the ALASKA JURIS was transiting the Bering Sea westbound; en route Petrel Bank with approximately 87,000 gallons of diesel fuel and other lubricants. There were 46 persons onboard, consisting of four crewmembers (a credentialed Captain, Mate, and Chief Engineer and an unlicensed Assistant Engineer), five Japanese nationals (a Fish Master and four hydraulic/refrigeration technicians), two observers required by the National Oceanic and Atmospheric Administration (NOAA) and 35 factory/processer workers. At approximately 11:20 am, the ALASKA JURIS was 45 nautical miles northeast of Kiska Island, AK. On-scene weather conditions were seas 3 to 4 feet, winds 10 knots and fog with a mile or less visibility. While making his normal watch-standing round, a Japanese technician was walking through the upper engine room space and saw steam coming from the lower engine room near the main engine exhaust stack. When he went below to investigate the source of the steam, he discovered sea water rapidly filling the bilge on the starboard side of the main engine. At the time, the water level was approximately one foot above the deck plates in the aft engine room. The deck plates are five feet above the bilge in this area. The Japanese technician left the engine room to notify the Chief Engineer and led him to the lower engineer room. Once there, the Chief Engineer determined the flooding was out of control and left the engine room to notify the Captain, who was on the bridge, of the situation. After the Captain observed the flooding, he returned to the bridge and activated the Emergency Position Indicating Radio Beacon (EPIRB). At approximately 11:45 am, the ALASKA JURIS lost electrical power and propulsion. The dewatering team attempted to set up the portable dewatering pump but that effort was stopped by the Captain, who then gave the order to abandon ship.

Though the general alarm was never sounded, all hands mustered on the embarkation deck, donned survival suits and launched three life rafts (two on the port side and one on the starboard side) and all persons entered the life rafts. The Captain then ordered the starboard side life raft be disconnected from the ALASKA JURIS, so its occupants could paddle around the bow and link up with the rafts on the port side.

However, due to the current, they were unable to paddle around, drifted away and were rescued by a Good Samaritan vessel several hours later. The two port side rafts were later released from the ALASKA JURIS and were rescued by a second Good Samaritan vessel.

All personnel were recovered, placed on two U.S. flagged fishing vessels and transported to Adak, Alaska where they arrived on July 27, 2016 with no reported injuries. The ALASKA JURIS sank at approximately 8:00 pm on July 26, 2016 with approximately 87,000 gallons of fuel and lubricants onboard. The ALASKA JURIS was declared a total loss on July 28, 2016 with an estimated value of $4.3 million.

The investigation revealed that the initiating event was the material failure of a sea water pipe or piping system component (such as a valve or strainer) near the starboard sea chest. That material failure allowed for uncontrolled flooding into the engine room. This resulted in the loss of ship's propulsion and power, which prevented the use of the installed electric bilge pumps. Once the decision was made not to use the gasoline powered portable fire/dewatering pump to combat the flooding, the Captain made the decision to abandon the vessel. During the abandonment, the majority of the crew climbed down Jacob's ladders into the rafts, though several personnel fell or jumped into the water to reach the life rafts. The abandonment of the vessel allowed the flooding to continue unabated and to progress into other spaces, causing the vessel to sink and allowed for the release of oil pollution into the environment.

Several causal factors combined to make it possible for the pipe or piping system component to deteriorate to the point of material failure. These include a regulatory framework that was imperfect for the fish processing fleet, shortcomings in the design and implementation of the Alternate Compliance and Safety Agreement (ACSA) program, and a corporate structure and safety culture at Fishing Company of Alaska that did not proactively address maintenance problems. These factors were:

- Oversight by classification societies and third parties
- Timeframe for development and implementation of ACSA program requirements and inspection standards
- Organizational structure and management philosophy at the Fishing Company of Alaska
- Role of Fishing Company of Alaska port engineers
- ACSA policy for reporting and inspecting repairs to vital piping systems
- Material condition of sea water, bilge and fuel system piping
- Number of credentialed engineering officers onboard

Once the pipe or piping system failed, several factors led to the subsequent events that caused the sinking: initial flooding, failure of generators and loss of power, progressive flooding, vessel sinking and pollution, including: failure of bilge alarms, initial response by the Chief Engineer, open watertight doors, inaccessibility of sea water valves, substandard bilge pumps, and lack of emergency power and redundant dewatering system components. These causal factors included:

- Fixed bilge pumps' capabilities
- Fixed high level bilge alarm indicators in engine room
- Bilge alarm panel bypass device
- Access to sea chest valves from lower level engine room deck plates
- Chief Engineer's response to initial engine room flooding

- Watertight doors and watertight integrity at sea
- Number of credentialed deck officers onboard
- Dewatering team training
- Portable dewatering pump capabilities
- Emergency power source for bilge pumps

Two groups of factors created difficulties during the evacuation of the ship: problems with the maintenance, suitability and storage of the Jacob's ladders, and lack of familiarity with the ship's stability profile. These factors could have been disastrous had the Bering Sea's weather conditions not been so forgiving on the day of the sinking.

- Stability and trim training for licensed captains and mates of Uninspected Fishing Industry Vessels (UFIV)
- Stability management practices
- Suitability, arrangement, storage and maintenance of Jacob’s ladders

This investigation also identified a number of factors that were ultimately determined not to have contributed to the cause of the casualty. However, these factors are included in this report as they may identify areas of concern or underlying problems not directly related to the casualty.

Section 1- Preliminary Statement

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

1.1. National Transportation Safety Board (NTSB) investigator, Mr. [redacted] was present at the hearings and assisted in this investigation.

1.2. Fishing Company of Alaska as owners, Captain [redacted] Chief Engineer [redacted] and Mate [redacted] were designated as parties-in-interest at their request in accordance with 46 CFR Subsection 4.03-10.

1.3. Although some of the events took place within the Aleutian time zone (one hour behind the rest of Alaska), all times listed in this report are in Alaska Daylight Time. The Incident Investigation Activity Number for this investigation is 5959979.

Section 2 – Vessel Involved in the Incident

Figure 2.A. Photo of the ALASKA JURIS in Dutch Harbor, Alaska taken on June 25, 2008

Official Name:	ALASKA JURIS
Vessel Identification Number:	569276
Flag:	U.S.
Vessel Class/Type/Sub-Type:	Commercial Fish Catching/Processor
Build Year:	1975
Gross Tons:	1658 GT ITC
Length:	218.2 ft
Breadth:	42.0 ft
Depth:	25.9 ft
Main/Primary Propulsion:	Medium Speed Diesel Reduction, 3500 Horse Power
Owner/Operator	Fishing Company of Alaska Seattle, WA USA

Section 3 – Record of Deceased, Missing, and Injured

3.1 There were no deceased, missing, or injured personnel as a result of this marine casualty.

Section 4 – Findings of Fact

4.1 The Incident

On 07/26/16 the ALASKA JURIS was trawling in the Bering Sea just north of the Aleutian Islands with 46 persons on board.

4.1.1 At approximately 12:00 am, Mr. [redacted] a Japanese technician, assumed the watch that the technicians stood overseeing the operation of the factory processing equipment and refrigeration systems.

4.1.2 At approximately 5:00 am, the ALASKA JURIS hauled back approximately 65 tons of mackerel, commenced processing and headed towards Petrel Bank.

4.1.3 At approximately 6:00 am, Captain [redacted] relieved Mate [redacted] and assumed the navigational watch. Chief Engineer [redacted] relieved unlicensed Assistant Engineer [redacted] and assumed the engine room watch.

4.1.4 At approximately 6:30 am, Chief [redacted] and unlicensed Assistant Engineer [redacted] repaired a wasted sea water evaporator discharge pipe in the upper engine room.

4.1.5 At approximately 9:45 am, Chief [redacted] installed a soft patch on a piece of bilge suction piping in the engine room bilge. There was water in the engine room bilge at the time according to the engineering log.

4.1.6 At approximately10:00 am, the #4 fish hold, which was being used for sea water ballast, was being filled by Chief [redacted] Fish processing workers notified him that water was overflowing from the unsecured hatch cover of the #4 fish hold located in the factory space at which time Chief [redacted] stopped the transfer.

4.1.7 At approximately 10:15 am, the observed weather conditions were: fog, air temperature of 51 degrees, winds 10-15 knots out of the north, and 2 to 4 foot seas.

4.1.8 At approximately 10:30 am, the watertight doors leading to the aft alley space and forward alley space from the lower engine room and between the upper engine room and factory space were latched or tied open.

4.1.9 At approximately 10:30 am, Chief [redacted] was servicing the Chloropak system (a system designed to reduce marine growth in sea water systems) located in the lower engine room.

4.1.10 At approximately 11:00 am, the ALASKA JURIS was located at 52° 32’N by 178°41’E along Bower’s Ridge, north of the Aleutian Chain.

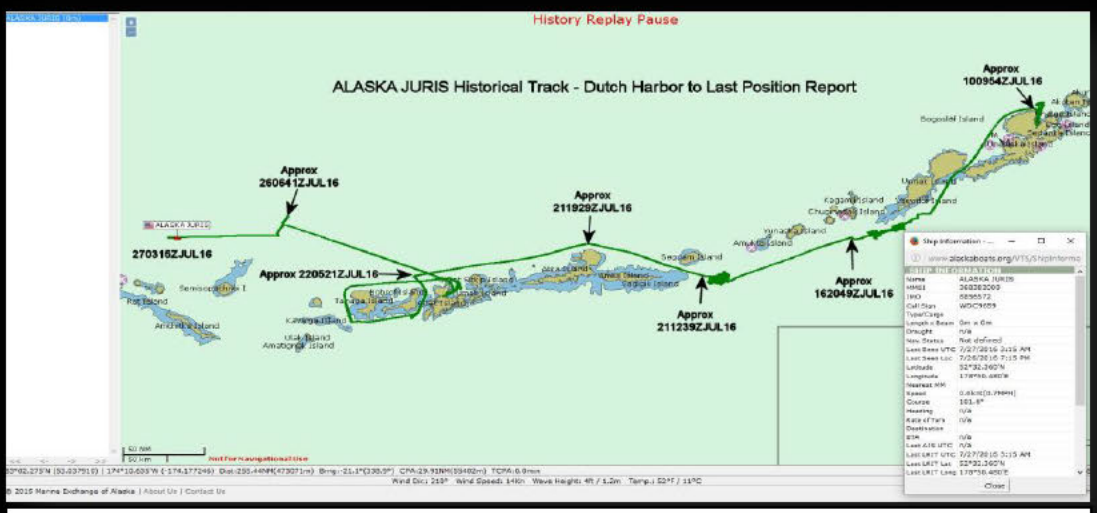

Figure 4. A. ALASKA JURIS's track line prior to the sinking on July 26, 2016 provided by the Marine Exchange of Alaska

4.1.11 At approximately 11:00 am, a piece of piping or piping system component (strainer, valve, or fitting) just aft of starboard sea chest in the engine room failed, allowing seawater to enter the engine room bilge and begin flooding the space.

4.1.12 At approximately 11:10 am, Mr. [redacted] was conducting a round in the upper engine room (compressor space) and observed steam coming from an area around the main engine exhaust stack. Investigating the steam source in the lower engine room, he discovered approximately one foot of water above the deck plates in the aft section of the starboard engine room near the reduction gear. The deck plates in this area are approximately five feet above the bilge. He also witnessed a sheet of water approximately 4-5 feet wide shooting up from the deck plate level to the engine room overhead and at no time, did he hear any bilge alarms.

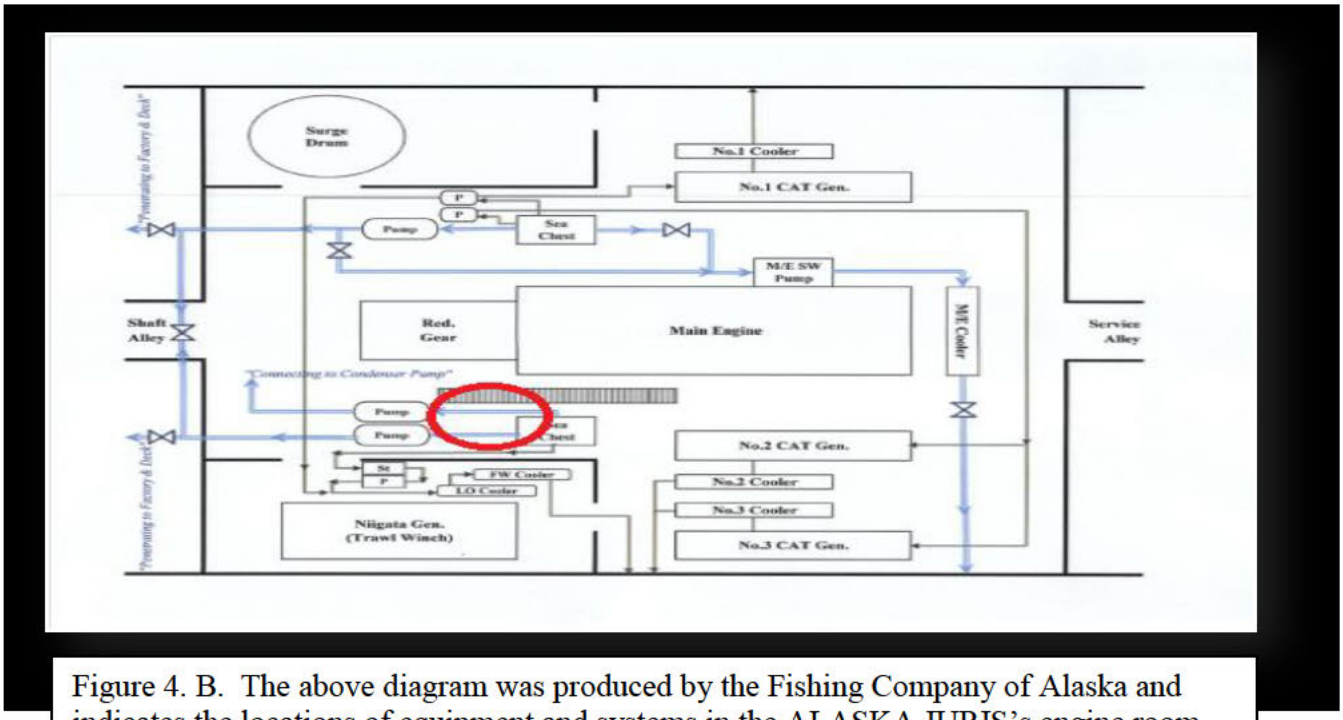

Figure 4. B. The above diagram was produced by the Fishing Company of Alaska and indicates the locations of equipment and systems in the ALASKA JURIS's engine room. The red circle indicates the general area where eyewitnesses saw water "billowing" or "boiling" from the engine room bilge.

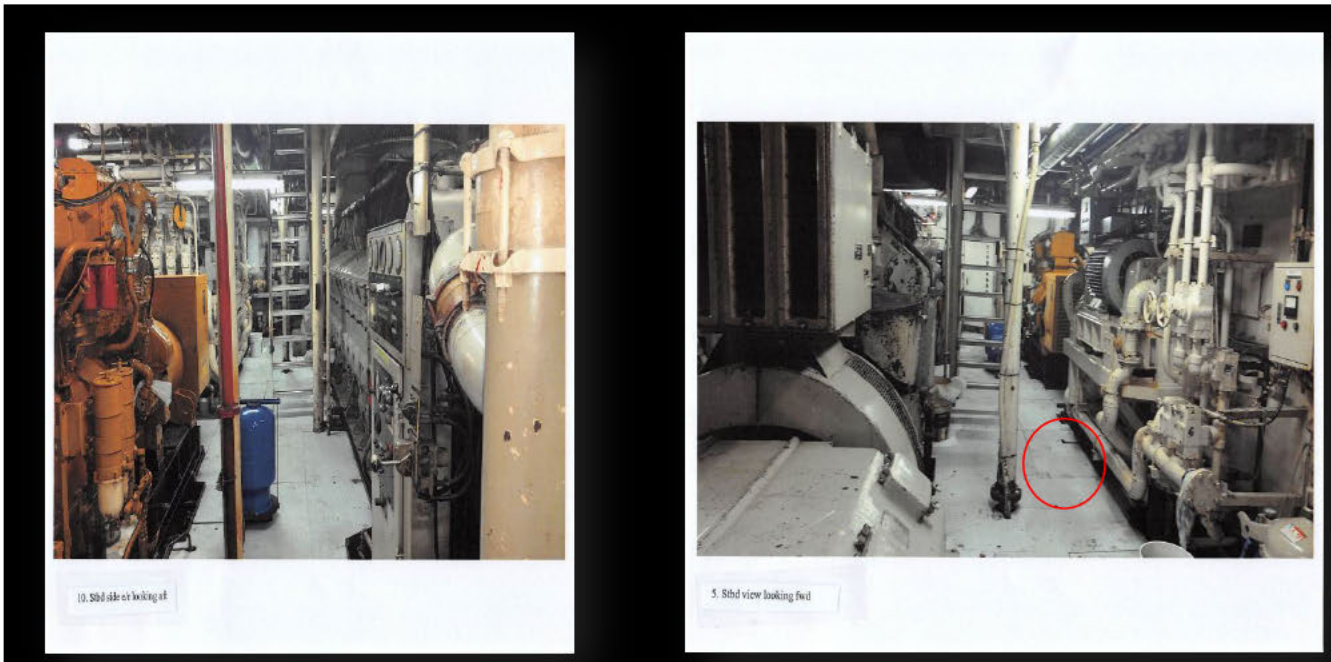

Figure 4. C. The above photos are of the lower engine room of the ALASKA JURIS. The photo on the left is of the starboard side looking aft. The photo on the right is the starboard side lower engine room looking forward. The red circle on the right photo indicates the approximate location where eyewitnesses testified they saw water billowing," or "boiling" from the engine room bilge.

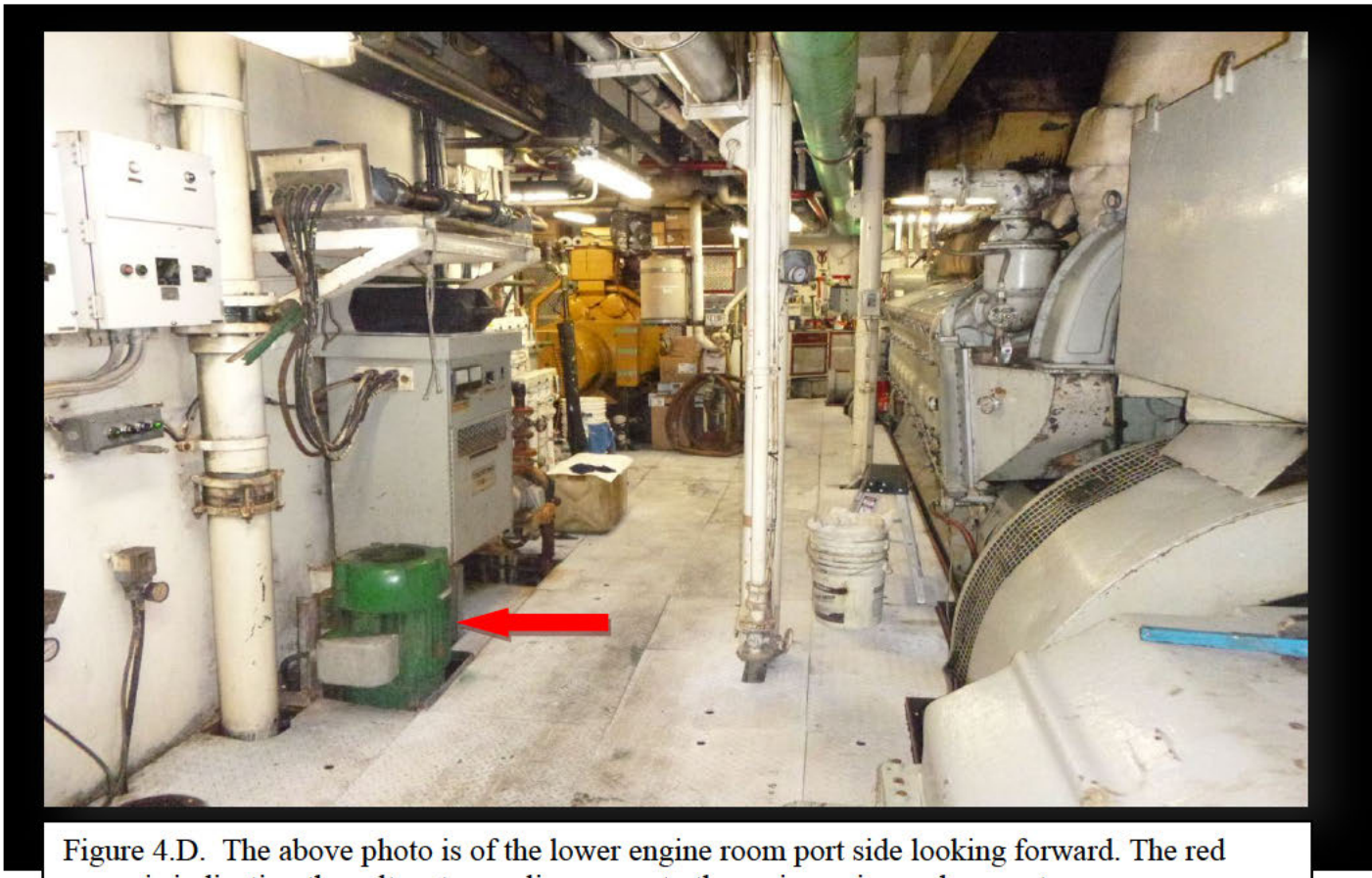

Figure 4.D. The above photo is of the lower engine room port side looking forward. The red arrow is indicating the salt water cooling pump to the main engine and generators.

4.1.13 At approximately 11:11 am, Mr. [redacted] went to notify Chief [redacted] of the flooding. Though Chief [redacted] was on watch, Mr. [redacted] was initially unable to find him in the Engine Control Room (ECR). After looking for him elsewhere on the vessel, he found him approximately five minutes later in the ECR.

4.1.14 At approximately 11:16 am, Chief [redacted] called the bridge using the ship's phone in the ECR and notified Captain [redacted] of the flooding. No bilge alarms were sounding from the bilge alarm panel on the bridge.

4.1.15 At approximately 11:17 am, Captain [redacted] went to the engine room. There he observed the water level approximately 1 foot over the lower engine room deck plates and water pouring down from the overhead where it was being slung up from the bilge by the main engine shaft coupling. Captain [redacted] ordered the watertight doors to the forward and aft alleys in the lower engine room be closed.

Figure 4.E. The above photo is of the watertight door access to the aft (shaft) alley from the lower engine room located amidships on the ALASKA JURIS. Photo taken on 10/15/2012.

Figure 4.F. The above photo is of the two fixed bilge pumps located on the aft bulkhead of the lower engine room on the ALASKA JURIS. Date photo taken unknown.

4.1.16 At approximately 11:18 am, unlicensed Assistant Engineer [redacted] awoke after hearing alarms coming from the engine room and went to investigate. Factory Shift Leader and former ALASKA JURIS unlicensed Assistant Engineer Mr. [redacted] also arrived to help. Both were told not to enter the lower engine room by Chief [redacted] and departed.

4.1.17 At approximately 11:19 am, Mr. [redacted] saw Chief [redacted] in the aft section of the engine room in the vicinity of the bilge pumps as Mr. [redacted] was crawling/climbing on the hydraulic piping on the starboard side of the main engine to shut down the prime mover and hydraulic pump. This pump was referred to as the Niigata engine, which powered equipment on the trawl deck.

4.1.18 At approximately 11:19 am, Captain [redacted] returned to the pilothouse to take pitch off the propellers in an effort to slow the speed of the vessel and, thus, slow the rate of flooding, believing there may have been a breach in the hull.

4.1.19 At approximately 11:20 am, the main engine and generators, having been reached by the flooding, shut down, causing a loss of electrical power and propulsion.

4.1.20 At approximately 11:21 am, Chief [redacted] noticed that with the main engine shut down he saw what looked like a continuous boil or billow of water coming up from the starboard bilge above where the sea chest was located. Chief [redacted] ordered Mr. [redacted] to report to his muster station.

4.1.21 At approximately 11:23 am, Captain [redacted] and other crewmembers started going around the ALASKA JURIS to awaken/alert people of the flooding and advise them to prepare to abandon ship. No general alarm was sounded.

4.1.22 At approximately 11:25 am, the dewatering team began setting up the portable dewatering pump and associated equipment.

4.1.23 At approximately 11:25 am, Captain [redacted] made a second trip to the engine room. Chief [redacted] informed him that the flooding was out of control.

4.1.24 At approximately 11:26 am, Captain [redacted] did another round of the berthing areas alerting crew to muster for an abandon ship.

4.1.25 At approximately 11:26 am, a dewatering team member, Mr. [redacted] arrived at the entry way to the lower engine room with the discharge (incorrect) hose for the dewatering pump. Chief [redacted] told him it would do no good and to leave the area.

4.1.26 At approximately 11:28 am, Captain [redacted] ordered the dewatering team to stop setting up equipment and told them to join the crew mustering on the upper deck behind the pilothouse in preparation to abandon ship.

4.1.27 At approximately 11:29 am, abandon ship preparations began with crew members taking muster, moving the Jacob's ladders from the embarkation deck located behind the bridge down to the upper deck (also called the Texas deck), and launching the vessel's three life rafts over the side (two on the port side and one on the starboard).

4.1.28 Crew life raft assignment sheets located at the muster station had not been updated to reflect the crew change in Adak, AK on July 25, 2016.

4.1.29 At approximately 11:29 am, the crew donned survival suits, which were sorted by size according to the color of the storage bag. No survival suits were individually assigned.

4.1.30 At approximately 11:30 am, the ALASKA JURIS rolled approximately five degrees to the port side, prompting Captain [redacted] to give the abandon ship order. He ordered the starboard life raft to be launched from the port side, but his order was not followed, and the raft was launched from the starboard side.

4.1.31 At approximately 11:30 am, one of two National Marine Fisheries Service (NMFS) observers, Mr. [redacted] turned on his Personal Locator Beacon (PLB), as he prepared to abandon ship.

4.1.32 At approximately 11:30 am, Captain [redacted] engaged the Global Marine Distress Safety System (GMDSS) emergency button, initiating an INMARSAT distress beacon. He also turned on the vessel's Emergency Position Indicating Response Beacon (EPIRB).

4.1.33 At approximately 11:32 am, having been made aware of the apparent distress by the EPIRB alert, the Coast Guard attempted to contact the ALASKA JURIS via telephone, but the International Maritime Satellite Organization (INMARSAT) number listed for the ALASKA JURIS was incorrect, so Coast Guard personnel made the first unsuccessful attempt to contact Fishing Company of Alaska personnel to get the correct number for the vessel.

4.1.34 At approximately 11:40 am, the two port side life rafts were launched off the embarkation deck behind the pilothouse on the port side, and the starboard side life raft was launched from the starboard side.

4.1.35 At approximately 11:43 am, a representative of Fishing Company of Alaska called the Coast Guard and gave the correct INMARSAT number for the ALASKA JURIS.

4.1.36 At approximately 11:44 am, the Coast Guard made contact with the ALASKA JURIS. In the phone call, Captain [redacted] stated that the vessel was taking on water and that 47 crew members were abandoning ship. He later corrected his report to the Coast Guard, clarifying to on-scene rescuers that there were only 46 persons on board.

4.1.37 At approximately 11:49 am, the Coast Guard received a notification that the PLB distress signal initiated at 11:30 am was associated with a beacon assigned to one of the NMFS observers aboard ALASKA JURIS.

4.1.38 At approximately 11:50 am, Captain [redacted] returned to the engine room for a third time. He told Chief [redacted] to come out of the space.

Figure 4.G. Above are photos of the ALASKA JURIS after abandonment on July 26, 2016 by a Coast Guard C-130 aircraft. The green circles indicate positions where the crew mustered and where life rafts were stowed and launched from. The yellow circle indicates the position of the Boatswain's locker where the dewatering pump and hoses were located. The red circle on the inset shows the missing rung on the port Jacob's ladder. The blue circle on the inset shows the Jacob's ladder's spreader bar floating in the water. Photo taken on July 26, 2016.

4.1.39 At approximately 11:50 am, the port Jacob's ladder was discovered to be missing a rung.

4.1.40 Beginning at approximately 12:00 pm, five crewmembers fell into the water while going down the Jacob's ladders. Two of those crewmembers fell from the port side ladder. On the starboard side, three fell including the first two crewmembers to use the ladder.

4.1.41 At approximately 12:10 pm, the crew, with the exception of Captain [redacted] and Chief [redacted] had entered the three life rafts. Several crewmembers, including the Japanese fish master and Japanese technicians, were not in the life rafts assigned to them. Chief [redacted] jumped into the water because of a

preexisting shoulder injury that hampered his ability to use the ladder. Each life raft had a portable radio and all of the vessel's officers were in port # 2 life raft.

4.1.42 At approximately 12:15 pm, Captain [redacted] while still aboard the ALASKA JURIS, cut the starboard life raft painter from the ALASKA JURIS so crewmembers could paddle around the bow of the vessel and join with the port life rafts.

4.1.43 At approximately 12:20 pm, the crewmembers on board the starboard life raft were unable to overcome the current while paddling and the life raft drifted away from the ALASKA JURIS.

4.1.44 At approximately 12:25 pm, the ALASKA JURIS was abandoned.

4.1.45 At approximately 12:30 pm, flooding from the engine room progressed into the other spaces below the water line and the vessel continued sinking.

4.1.46 At approximately 3:00 pm, Captain [redacted] ordered the two port side life raft painters to be cut to allow the Norwegian-flagged Good Samaritan cargo vessel M/V SPAR CANIS to recover them. M/V SPAR CANIS was not able to recover the life raft so the crew tied the two rafts together and began drifting.

4.1.47 At approximately 6:00 pm, the crews from the two port life rafts were recovered by the Good Samaritan fishing vessel OCEAN PEACE.

4.1.48 At approximately 6:30 pm, the crew from the ALASKA JURIS's starboard life raft was recovered by the German-flagged Good Samaritan vessel, M/V VIENNA EXPRESS.

4.1.49 At approximately 7:30 pm, the ALASKA JURIS crewmembers on the M/V VIENNA EXPRESS were transferred to the Good Samaritan fishing vessel SEA FISHER. Both the OCEAN PEACE and SEAFISHER transported the survivors to Adak, AK.

4.1.50 At approximately 8:00 pm, the ALASKA JURIS sank.

Figure 4.H. This is a photo taken approximately 7 hours after the crew abandoned ship on July 26, 2016

4.1.51 On 07/29/16 at approximately 6:00 am, the salvage vessel RESOLVE PIONEER detected and filmed an oil sheen in the location were the ALASKA JURIS was suspected of sinking. The Coast Guard determined that no pollution recovery efforts were possible.

4.2 Additional/Supporting Information

4.2.1 Vessel History and Manning

4.2.1.1 The ALASKA JURIS (Hull #202) was originally built as a "super tuna" seiner in 1975 by Martinac Shipbuilding Company in Tacoma, Washington. In 1987, it was converted to a stern trawler/factory processor vessel by Murakami Zosensho Shipyard in Ishinomaki, Japan. The conversion involved reconfiguring new 6 inch valves on the two sea chests to support the 6 inch sea water piping systems necessary for processing equipment and operations. It also involved space reconfiguration to incorporate factory processing equipment and related piping and electrical systems. The processing space was located aft of the upper engine room space. The vessel had eight double bottom tanks used for fuel, lubricants, and ballast water running the entire length of the vessel, a void below the stern ramp divided into three (port, starboard, and centerline) spaces, and seven fish holds. The engine room consisted of one main engine, two main generators, a hydraulic pump engine, and multiple refrigeration compressors. Equipment neither required for, nor interfering with, the installation of the new factory equipment (such as pumps, piping systems and valves) were left in place, the majority of which was still on board at the time of the sinking.

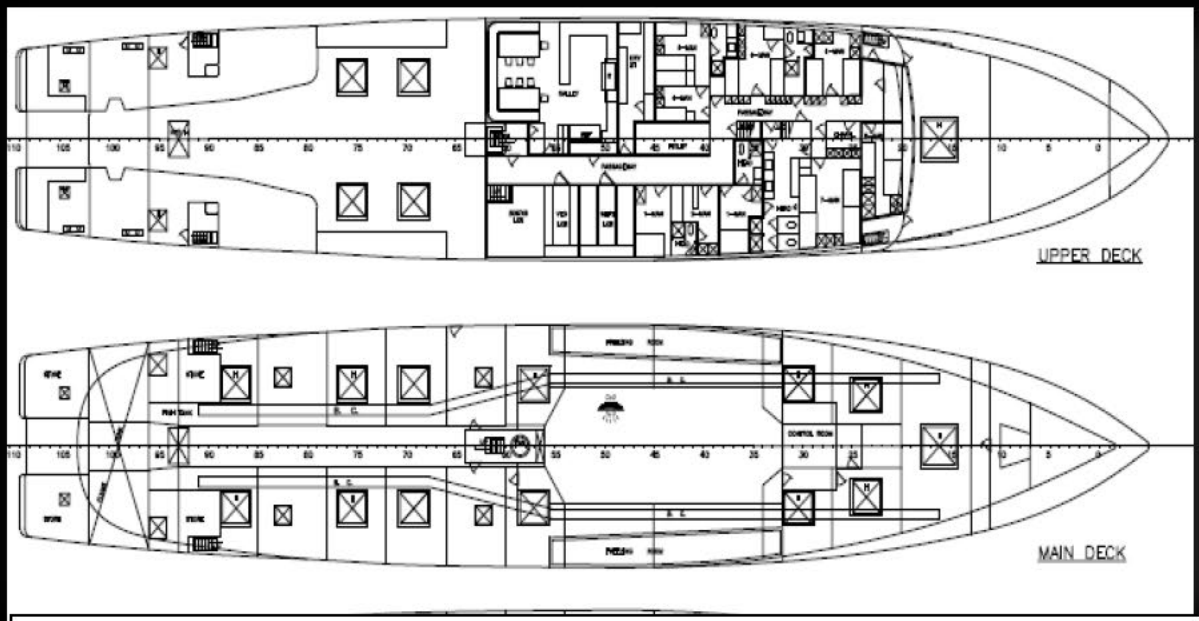

Figure 4.I. Layout of ALASKA JURIS's upper and main decks.

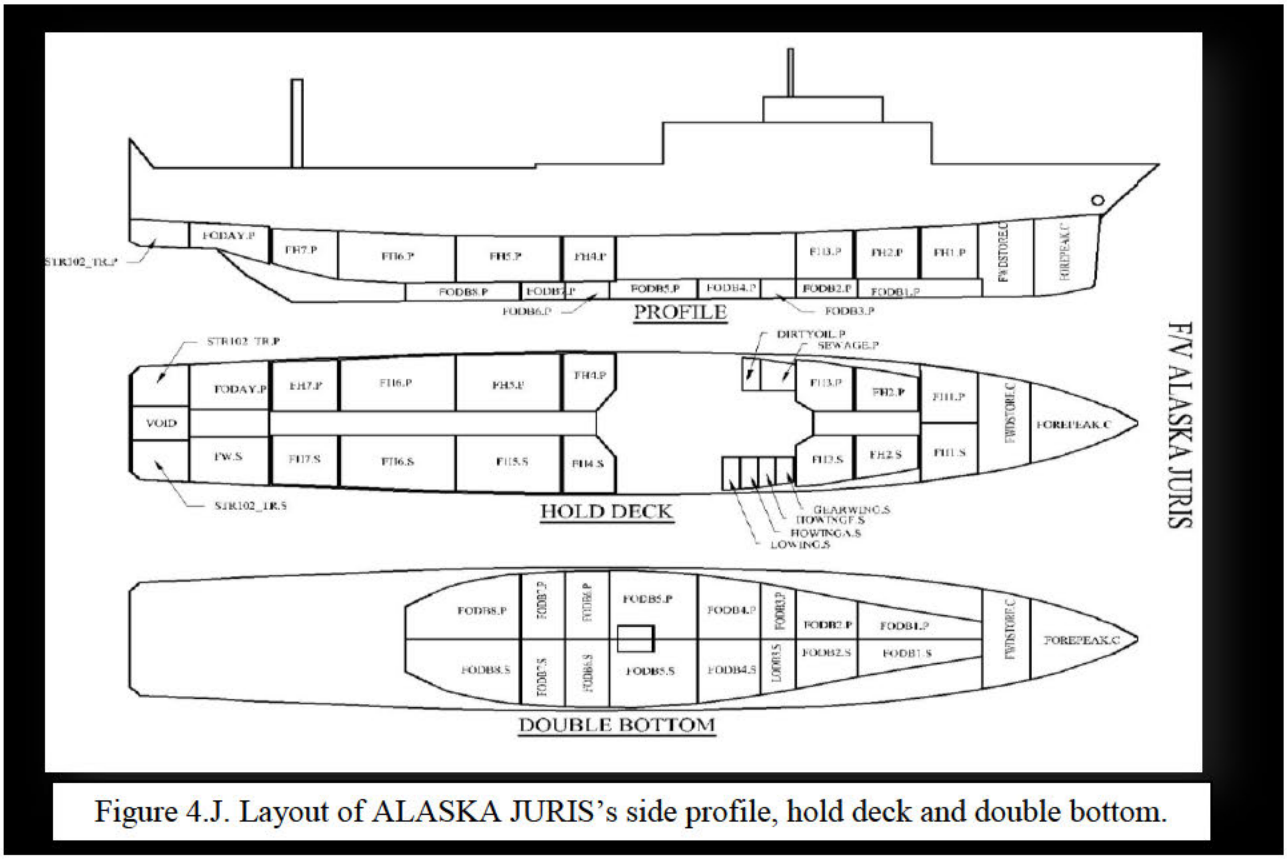

Figure 4.J. Layout of ALASKA JURIS's side profile, hold deck and double bottom.

4.2.1.2 Between 01/17/92 and 07/26/16, the ALASKA JURIS operated 10 to 11 months a year in the Gulf of Alaska and the Bering Sea.

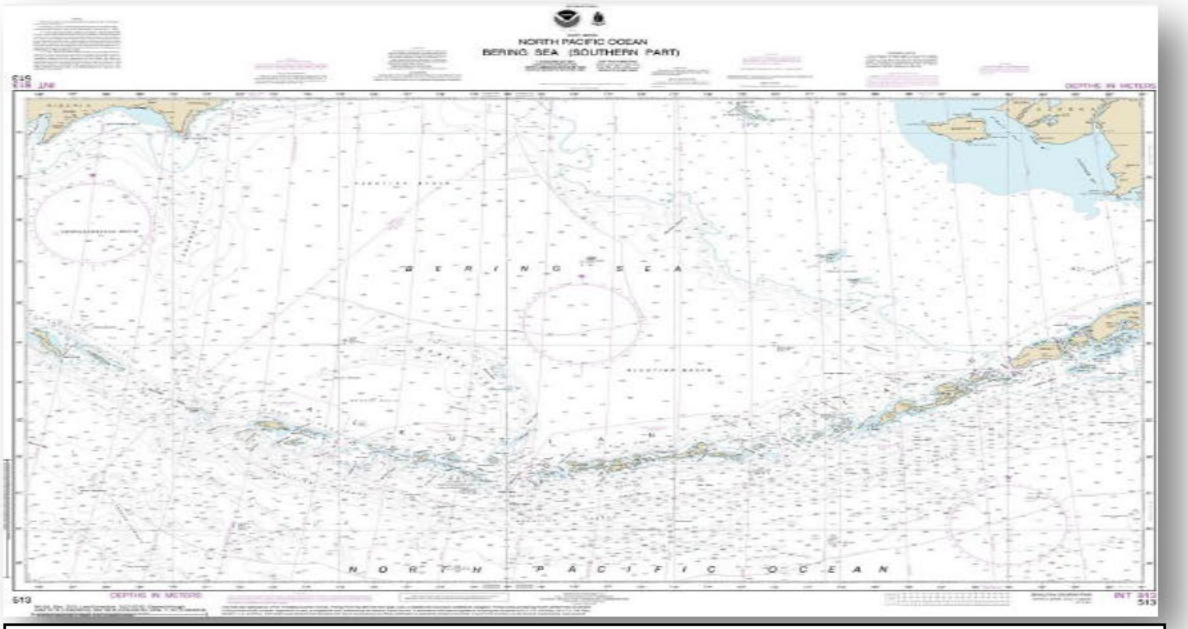

Figure 4.K. Chart showing ALASKA JURIS's operating area

4.2.1.3 On 03/06/16, Chief Engineer [redacted] was hired and reported aboard the ALASKA JURIS.

4.2.1.4 By 03/0916, Fishing Company of Alaska engineering and operations management was aware of personality conflicts onboard the ALASKA JURIS between Chief Engineers [redacted] his replacement Chief [redacted] and Captain [redacted] and chose not to intervene in the situation.

4.2.1.5 On 03/21/16, Chief Engineer [redacted] departed the ALASKA JURIS for the final time and Chief [redacted] assumed the duties of Chief Engineer.

4.2.1.6 On 03/22/16, fuel leaking from the #3 port and starboard fish holds was contaminating fish product in fish holds #1 and #2 port and starboard.

4.2.1.7 On 04/01/16, the two ventilation motors providing fixed supply and exhaust ventilation to crew and factory personnel staterooms were not in working order. For ventilation in these spaces crews and factory workers routinely left the watertight doors leading to the main deck and factory space open. These doors were required to be closed while underway in accordance with the ACSA and placards installed on each door.

Figure 4.L. Photo of the ALASKA JURIS with has a red arrow pointing to a watertight door that was routinely left open by crew to provide ventilation to the living quarters in the house. Photo was taken from the SEAFISHER approximately 7 hours after the abandonment on July 26, 2016.

4.2.1.8 On 04/01/16, the machinery and bilge alarm panel located in the Engine Control Room, located on the upper deck of the engine room, was powered by a 24 volt battery system. On the panel's face, an individual had installed an "L" shaped, metal, jury-rigged device that when moved over the silence

button on the panel would keep any alarms from sounding. The device had been in place for at least five years prior to this date.

4.2.1.9 On 04/01/16, bilge alarm float switches were present in the aft steering space, the aft alley space, two locations in the engine room (aft bilge well and forward bilge near the forward bulkheads), the forward alley space between#2 and #3 port and starboard fish holds, and the bow thruster room. These devices were not tested on a routine basis.

Figure 4.M. Photo of the type of high bilge alarm float switches installed on the ALASKA JURIS.

4.2.1.10 On 07/14/16, Mr. [redacted] was working on the ALASKA JURIS as an unlicensed assistant engineer and was not authorized to do so based on the Sector Puget Sound approved assistant engineer compliance plan submitted by Fishing Company of Alaska on 10/16/15.

4.2.1.11 On 07/14/16, unlicensed Assistant Engineer [redacted] discovered a leak on fire main piping in the engine room and installed a soft patch consisting of a piece of rubber and hose clamps.

4.2.1.12 On 07/25/16, there was no record of either Coast Guard inspectors or Fishing Company of Alaska vessel representatives ever verifying that the dewatering pump onboard the ALASKA JURIS had the necessary lengths of suction hose, pump lift and discharge capabilities to dewater the engine room space in case of an emergency. The portable dewatering pump pumped an estimated 150 gallons per minute. There were two lengths of 20 to 25 feet of suction hose and numerous discharge hoses (fire hoses) approximately 50 feet in length aboard the vessel.

4.2.1.13 As of 07/25/16, dewatering drills witnessed by Coast Guard inspectors and performed by Fishing Company of Alaska crews on the ALASKA JURIS during required annual inspections did not include dewatering teams to

demonstrate how they could dewater the engine room space, nor was the closure of watertight doors part of any dewatering drills.

4.2.1.14 On 07/25/16, the ALASKA JURIS sea chest valves and controls on the port and starboard sea chests were approximately four to five feet below the engine room deck plates. As there were no reach-rods or means available to operate the valves from the engine room deck plates, the engineers had to enter the bilge to open or close them.

4.2.1.15 On 07/25/16, the ALASKA JURIS's crew watch schedule was a two-watch rotation lasting 12 hours each. The Captain and Chief Engineer normally stood the 6:00 am to 6:00 pm watch and the Mate and Assistant Engineer the 6:00 pm to 6:00 am watch.

4.2.1.16 On 07/25/16, at 12:00 pm the ALASKA JURIS departed Adak, AK with four crewmembers, five Japanese nationals (one Fish master and four technicians), two observers required by the National Marine Fisheries Service and 35 factory workers. The vessel had 87,000 gallons of diesel fuel and lubricants onboard en-route to the fishing grounds at Petrel Bank in the Bering Sea.

4.2.1.17 On 07/25/16, at approximately 6:00 pm, unlicensed Assistant Engineer [redacted] assumed the engine room watch.

4.2.1.18 On 07/25/16, at approximately 9:00 pm the ALASKA JURIS set its nets and began trawling.

4.2.1.19 On 07/25/16, embarkation ladders (Jacob's ladders) that had been retired due to damage were still used by the ALASKA JURIS's crew for occasional work projects. They were stored on the upper (Texas) deck near the embarkation area used on the day of the sinking and were not labeled or otherwise identified as damaged.

4.2.1.20 On 07/25/16, the spreader steps on the Jacob's ladders (port and starboard) were not properly positioned to rest against the hull when in use to prevent the ladder from spinning when personnel were climbing up or down the ladders.

4.2.2 Vessel Ownership

4.2.2.1 On 01/17/92, Fishing Company of Alaska became the owner/operator of the ALASKA JURIS. Mrs. [redacted] a U.S. citizen, was documented as the owner. She was married to Mr. [redacted] a Japanese citizen and owner of Yamada Industries, a Japanese conglomerate. One of the subsidiaries of Yamada Industries is Anyo Fisheries, a Japanese fish broker that received all of Fishing Company of Alaska's product. Prior to the sinking, Fishing Company of Alaska owned and operated three other factory trawler processers and two long-liners. All Fishing Company of Alaska vessels operate out of Dutch Harbor, Alaska. The two long-liners are no longer used for fishing and are moored in Dutch Harbor.

4.2.2.2 On 01/17/92, Northwest Pacific Resources, a subsidiary of Anyo Fisheries, provided Japanese nationals to work on the ALASKA JURIS and other Fishing Company of Alaska vessels. They were employed as the Japanese fish masters and hydraulic/refrigeration technicians. The Japanese nationals are not considered crew and are not required to speak English.

4.2.2.3 On 01/01/16, Mrs. [redacted] passed away and the ownership of Fishing Company of Alaska was transferred to her son, [redacted] whose father is Mr. [redacted] The below organizational chart depicts the Fishing Company of Alaska operational structure following Ms. Adler's death.

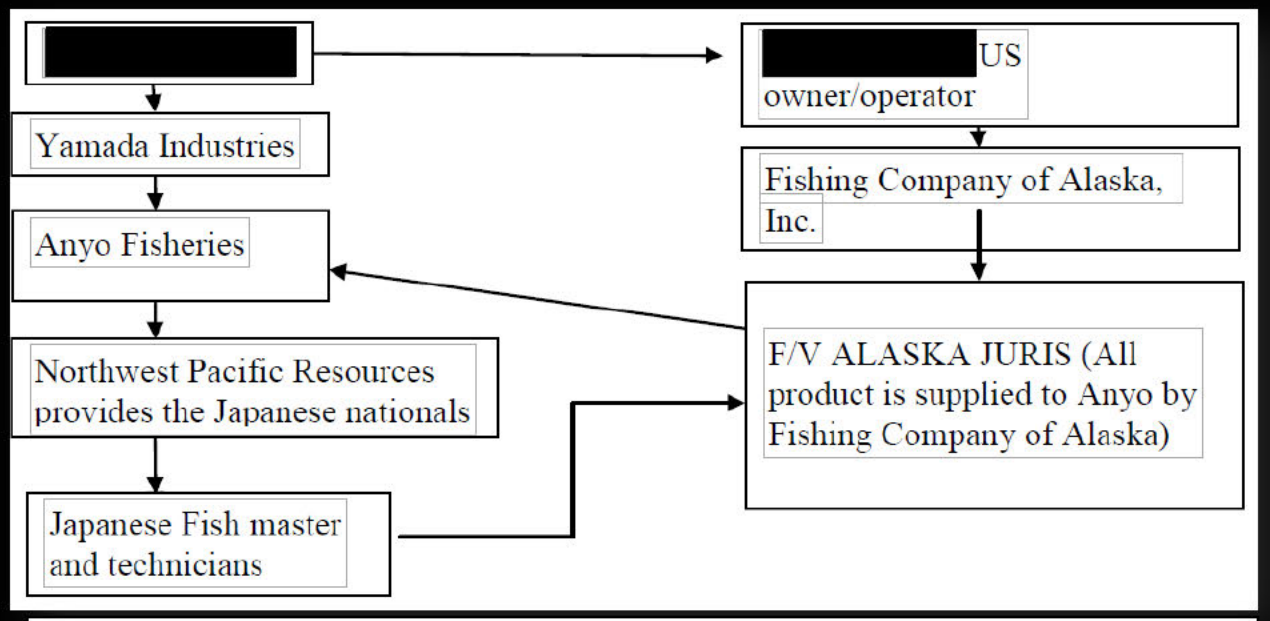

Figure 4.N. Fishing Company of Alaska Organizational Chart as of January 2016

4.2.3 Vessel Deficiency History

4.2.3.1 Between 02/28/08 and 12/22/08, Coast Guard District 13 issued four letters granting the ALASKA JURIS more time to comply with the ACSA requirements prior to enrollment. Officers in Charge Marine Inspection (OCMIs) and inspectors exercised considerable flexibility in allowing vessels into the program and to continue fish processing without meeting all of the ACSA requirements.

4.2.3.2 On 01/01/09, Coast Guard District 17 issued a letter disenrolling the ALASKA JURIS from the ACSA program for failure to comply with ACSA requirements in accordance with established timelines.

4.2.3.3 On 05/07/09, Coast Guard District 13 issued the ALASKA JURIS a letter of acceptance into the ACSA program and authorized it to carry up to 49 individuals.

4.2.3.4 On 11/06/12, a dry-dock examination that ran through 02/21/13 was conducted on the ALASKA JURIS at Alaska Ship & Drydock in Ketchikan, AK. Inspectors issued 77 deficiencies, 65 of which were cleared, and 12 remained outstanding at the completion of the ACSA credit dry-dock and commercial fishing vessel safety examination. Two of the 12 outstanding deficiencies involved the discovery of PVC piping. One PVC pipe was found coming out the starboard sea chest going to the Chloropak system and was cleared on 03/26/14. The other deficiency required the removal of all PVC piping "in critical piping systems in the engine room, forward compressor alley and shaft alley to include bilge, ballast and raw water (salt water) piping systems." This deficiency was not cleared until 01/14/14. This PVC piping had been in place since original ACSA enrollment in 2006.

4.2.3.5 On 01/08/14, the Coast Guard conducted a dockside annual examination in Dutch Harbor, AK and identified 54 new deficiencies, 38 of which were cleared while 18 deficiencies remained outstanding at the conclusion of the exam.

4.2.3.6 On 02/23/14, a deficiency check was conducted in Dutch Harbor to clear outstanding deficiencies from the 01/08/14 inspection. One new deficiency was issued to address "several mechanical couplings" found during the inspection of the bilge system.

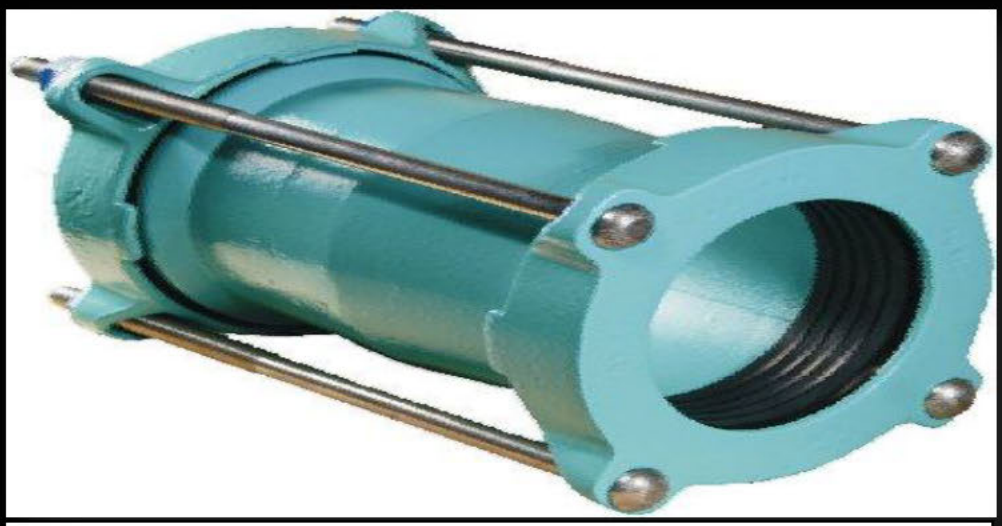

Figure 4.O. This is an example of what a mechanical coupling on the ALASKA JURIS looked like. Note: Mechanical couplings are used to join pieces of pipe in lieu or welding or bolting flanged joints. Once installed on a pipe, the bolts on the mechanical coupling are tightened and the gasket material on either end of the coupling is compressed onto the pipe to create a seal. They are sometimes used in lieu of repairing wasted pipe or to join misaligned pipe.

4.2.3.7 On 11/28/14, the Coast Guard conducted a dry-dock inspection at Alaska Ship & Drydock in Ketchikan, AK. Fourteen deficiencies were issued and eight remained outstanding at the conclusion of the dry-dock exam. More than 50

mechanical couplings were found on vital systems in the engine room and aft alleyway. The vessel was given a due date of 08/31/15 for their replacement and was allowed to continue to operate.

4.2.3.8 On 01/10/15, during a dockside annual examination conducted in Dutch Harbor, AK 25 deficiencies were identified. All 25 deficiencies and 7 of the 8 deficiencies issued at the 11/28/14 dry-dock were cleared at the conclusion of this annual examination. The only remaining deficiency was the mechanical coupling deficiencies issued on 11/28/14.

4.2.3.9 On 08/31/15, Fishing Company of Alaska requested to extend the deficiency due date for the mechanical coupling deficiencies issued on 11/28/14. The OCMI for Sector Anchorage authorized an extension until November 2015.

4.2.3.10 On 12/30/15, Vigor Alaska Shipyard (formerly known as Alaska Ship & Drydock) in Ketchikan, AK removed 53 mechanical couplings and renewed piping to address the mechanical coupling deficiencies identified during the 11/28/14 dry-dock. These deficiencies were never cleared administratively in the Coast Guard Marine Information for Safety and Law Enforcement (MISLE) database.

4.2.4 Vessel Stability

4.2.4.1 There is no regulatory requirement for Damage Trim and Stability calculations to be conducted for fishing vessels or fish processing vessels like the ALASKA JURIS. There is no regulatory requirement that licensed officers who operate Fishing Industry Vessels understand Damage Trim and Stability calculations.

4.2.4.2 On 09/18/08, Elliot Bay Design Group created a Progressive Flooding Analysis booklet that provided Damage Trim Stability information for the ALASKA JURIS. The Fishing Company of Alaska had this booklet produced following the sinking of the ALASKA RANGER in 2008.

4.2.4.3 On 12/12/10, Elliot Bay Design Group conducted an inclining experiment on the ALASKA JURIS at Tohoku Shipyard, Shiogama, Japan. The Coast Guard Marine Safety Center (MSC) reviewed the ALASKA JURIS Stability Booklet and OCMI Sector Puget Sound authorized its use on board the vessel on 02/17/11.

4.2.4.4 On 12/16/15, Elliot Bay Design Group conducted an inclining experiment on the ALASKA JURIS at Vigor Alaska Shipyard, Ketchikan, AK. The results of this inclining experiment never received a final review by MSC or approval by the Sector Puget Sound OCMI.

4.2.4.5 Between 02/18/16 and 05/27/16 fuel oil stored in the #3 port and starboard fish holds leaked into the #1 centerline, and #2 port and starboard fish holds, contaminating over 100 cases of fish product.

4.2.4.6 On 07/01/16, the ALASKA JURIS was using the center, port and starboard aft voids located just below the stern ramp as fuel tanks. The current approved stability booklet did not authorize the use of the aft voids for any storage of ballast or fuel.

4.2.4.7 On 07/25/16, the Captain, Mate, Chief Engineer and Assistant Engineer had received no training by Fishing Company of Alaska and did not use the vessel's stability and trim or damage trim stability booklets to manage stability issues arising during fishing operations (such as freezer breaks or haul backs).

4.2.5 Fishing Company of Alaska Maintenance Program

4.2.5.1 From 05/08/09, until the sinking of the ALASKA JURIS, Fishing Company of Alaska did not have any written policies and/or procedures related to the acquisition, tracking or ordering of parts or supplies.

4.2.5.2 On 01/01/13, Fishing Company of Alaska's three port engineers had not been assigned to manage individual vessels. Thus, the Chief Engineers on Fishing Company of Alaska vessels did not have a single point of contact to work with on engineering issues.

4.2.5.3 Between 01/01/13 and 07/01/2016, Fishing Company of Alaska spent over $331,000 on piping system repairs on the ALASKA JURIS in Dutch Harbor, Alaska. This work consisted of welding and fabrication on multiple piping systems, including vital systems. Much of the work was performed offshore and was not reported to, or inspected by, the Coast Guard.

4.2.5.4 On 01/15/16, the ALASKA JURIS had self-contained emergency battery lighting installed on the vessel. The location for each lighting unit was determined by Fishing Company of Alaska port engineers. There are no requirements in the ACSA program addressing the installation of emergency lighting.

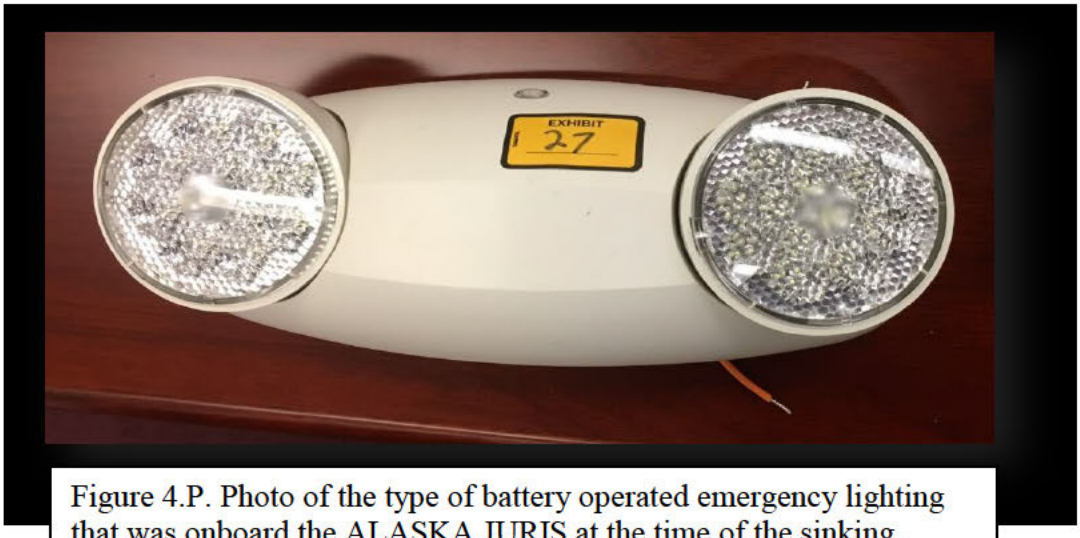

Figure 4.P. Photo of the type of battery operated emergency lighting that was onboard the ALASKA JURIS at the time of the sinking.

4.2.5.5 On 07/25/16, the ALASKA JURIS had battery operated emergency lighting fixtures installed in various locations below decks near exits. The devices would automatically activate when the vessel lost power.

4.2.5.6 On 07/25/16, the two electric powered self-priming bilge pumps on the ALASKA JURIS were not operating as designed and needed to be primed manually to gain suction which could take up to five minutes to complete.

4.2.5.7 On 07/25/16, Fishing Company of Alaska had no written policies or procedures for the testing and logging of bilge alarms.

4.2.6 Regulatory Background

4.2.6.1 There are currently no regulatory requirements for the inspection, including dry-docking, of commercial fishing vessels by the Coast Guard.

4.2.6.2 The ALASKA JURIS was a fish processing vessel and required to meet the Commercial Fishing Industry Vessel regulatory standards in 46 CFR Part 28, Subparts A, B, C, and F as well as the Load Line standards in 46 CFR Subpart 42.

4.2.6.3 In 2006, the Coast Guard decided to utilize the product code standards developed by National Marine Fisheries Service (NMFS) contained in 50 CFR, Part 679, Table 1.a., to determine whether a commercial fishing vessel would be regulated as a Head and Gut, Beyond Minimal Processing or Extensive Processing vessel.

4.2.6.4 On 10/19/15, OCMI Sector Puget Sound issued assistant engineer licensing letters to Fishing Company of Alaska that outlined compliance standards for Commandant Instruction (CG-CVC) Policy Letter 11-11, CH 1, Enclosure 2, titled "Implementation Guidance for Owner/Operators and Companies with Mariners in Approved Training Programs."

4.2.6.5 On 10/16/15, Sector Puget Sound approved a proposed assistant engineer compliance plan for Fishing Company of Alaska vessels. This included an approved list of personnel to fill the assistant engineer position onboard Fishing Company of Alaska's vessels without having to hold an engineering credential until April 15, 2017.

4.2.6.6 On 03/02/16, the Coast Guard Cutter MUNRO conducted a law enforcement boarding on the ALASKA JURIS. One violation was issued for a non-functional NOAA Vessel Monitoring System and a warning for failing to remove unusable fire extinguishers. The Coast Guard Boarding Officer was unaware of the ACSA program or that the vessel was enrolled in it.

4.2.7 Alternate Compliance and Safety Agreement

4.2.7.1 On 06/15/06, Coast Guard District 13 and District 17 established the Alternate Compliance and Safety Agreement (ACSA) program. The ACSA program was designed to provide exemptions from classification society requirements

under 46 United States Code (USC) §4506 and load line requirements under 46 USC §5108(a)(2). This allowed certain fish processing vessels operating in Alaskan waters and engaging in beyond minimal processing to be in compliance with an alternate regulatory standard.

4.2.7.2 In 2006, ACSA Guidelines in Section J. required all ACSA vessels to be equipped with an independently powered (independent of the ship's auxiliary power system) portable fire/dewatering pump. The portable pump and hoses must be stowed outside the engine room. Each pump will be provided with suction hose and strainer adequate to reach water sources for either service and must be capable of picking up suction for the highest lift. The discharge hose must be readily available for each service. The pump shall be capable of producing two effective 40 foot streams, each from a standard 1.5 inches diameter lined commercial fitted with a corrosion resistant dual purpose nozzle capable of providing a solid or straight stream and a spray pattern.

4.2.7.3 On 01/01/08, all vessels enrolled in the ACSA program were expected to meet program compliance requirements.

4.2.7.4 On 01/01/09, Coast Guard Headquarters (G-MOC-3) funded the creation of three ACSA billets. One inspector billet was assigned to Sector Puget Sound, one at Sector Anchorage, and an ACSA Coordinator billet was established at District 13.

4.2.7.5 On 07/01/09, Coast Guard Headquarters conducted a gap analysis comparing the existing ASCA program guidelines against the load line and class standards applicable for these types of vessel. However, none of the individual ACSA vessels were evaluated against the actual classification society standards or load line requirements they were required to meet.

4.2.7.6 On 08/22/12, the last ACSA stakeholder meeting was held by the District 13 ACSA coordinator.

4.2.7.7 On 12/15/15, the District 13 ACSA Program Coordinator published the latest update to the ACSA guideline booklet.

4.2.8 Violation of laws or regulations by credential mariners

4.2.8.1 On 07/26/16, the ALASKA JURIS did not have a credentialed assistant engineer or unlicensed individual meeting the assistant engineer requirements outlined in the plan approved by Sector Puget Sound on 10/16/15. Therefore, the ALASKA JURIS was operating without meeting the regulatory manning requirements outlined in 46 CFR Part 15.705(e)(2)(ii).

4.2.8.2 On 07/26/16, the ALASKA JURIS was operating in violation of its approved 02/17/11stability booklet which does not authorize the use of the number 9 voids to store fuel oil and requires watertight doors be closed while at sea.

4.2.8.3 On 07/26/16, the ALASKA JURIS was operating with a unauthorized device on the bilge alarm panel designed to prevent the audible alarm from sounding

on the bridge when a high bilge alarm float switch was activated in violation of 46 CFR 28.250.

4.2.8.4 On three occasions between 03/14/16 and 07/18/16 the ALASKA JURIS failed to notify the Coast Guard, as required in 46 CFR Part 4.05-1, reportable marine casualties involving the loss of propulsion and the discharge of hydraulic fluid into the water.

4.2.9 Drug and Alcohol testing

4.2.9.1 On 07/27/16, The Fishing Company of Alaska determined that four crewmembers were "directly involved" in accordance with 46 CFR 4.06-3 in the casualty and ordered them to be drug and alcohol tested. Upon their arrival in Adak, AK all four crewmembers, still within the 32 hour testing window in accordance with 46 CFR 46 CFR 4.06-15(b)(2), submitted samples to a Department of Transportation (DOT) approved collector. [redacted]. However, testing was not conducted in accordance with the DOT standards in 49 CFR Part 40. No alcohol testing was conducted on any of the crewmembers.

Section 5 – Analysis and Opinions

5.1 Material condition of sea water, bilge and fuel system piping: The material condition of the engine room piping systems on the ALASKA JURIS was substandard. During the conversion in 1992, when the processing equipment was installed, additional sea water systems were added, including piping and valves, increasing the complexity of the system.

When the vessel operated as a tuna seiner, much of the piping used on the vessel's sea water systems was PVC. During the conversion, some of that PVC piping was left in place in vital and non-vital sea water systems. There was no record of the schedule (wall thickness) or type of materials used on the new sea water systems. From the time the ALASKA JURIS entered the ACSA, Fishing Company of Alaska struggled with maintaining the piping systems. Chief [redacted] testified that from 2011 to March 2016 he routinely made temporary pipe repairs using a variety of materials and techniques, including welding, mechanical couplings, "splash zone" (an epoxy compound) and "soft patches" (rubber gasket material and multiple hose clamps) throughout the engine room. Although the Coast Guard ACSA inspectors stated that they cleared all mechanical coupling deficiencies in 2015, all of the ALASKA JURIS's engineers testified that many piping systems in the engine room still had soft patches and mechanical couplings on them when the vessel sank.

During a dry-dock inspection in November 2014, a marine inspector discovered PVC piping which had been installed prior to ACSA enrollment, below the waterline, in the engine room that was being used in sea water service. He also found over 50 mechanical couplings on vital fuel, bilge, and sea water piping systems put in place by ALASKA JURIS personnel during repairs. While mechanical couplings are acceptable in certain applications and their use for temporary repairs is not uncommon, the amount of mechanical couplings and how they were used was highly irregular and concerning to

the marine inspector. Testimony revealed that the use of mechanical couplings in lieu of pipe replacement was a routine practice on the ALASKA JURIS in an effort to keep the vessel operating.

Between 2013 and 2016, Fishing Company of Alaska spent over $331,000 on piping repairs on the vessel in Dutch Harbor alone. The determination of when the repairs were made and how much piping was to be replaced was made by the Chief Engineer in consultation with port engineers and based on how much time was available. Chief [redacted] stated: *"I would say 90% [of the time] I do make the decision…sometimes they don't have the materials in town to do the job. So it's just like whatever that's really, really bad, they change the really, really bad ones."* Chief [redacted] also testified: *"I believe it was a combination of them doing the work, them looking at it and me looking at it saying it's bad right here. Just go back to the flange…I just took it upon myself, you know, try to do it the best way I could, make it right as much as possible…If it was a section of pipe we could take out while we're offloading, it wouldn't affect anything else, we would take it out and replace the whole thing. There have been times they would cut the pipe and weld it in place, so it was a combination of both."*

Mr. [redacted] Chief Port Engineer for Fishing Company of Alaska, testified the piping onboard had a tendency to corrode faster than would be expected because of the amount of salt water being used. The assistant engineer on board at the time of the sinking testified that during the few months he had been on board, he witnessed two potentially catastrophic piping failures, both in the vicinity of sea strainers. He also said the vessel had numerous piping leaks and none were reported to the Coast Guard. Testimony provided by Mr. [redacted] a prospective Chief Engineer on the vessel, reiterated the poor material condition of the piping systems. When he attended the vessel in Dutch Harbor, he left the boat after the first day of work because he considered the conditions on board, especially the condition of the piping, to be unseaworthy. Chief [redacted] testified: *"There was a whole bunch of brand new pipe with the sewage system. The other systems were just really corroded. I mean, you can't really tell the condition of a pipe without ultrasounding. When you see heavy scale and weeping and repairs and things repetitively, it just didn't look well maintained."*

The vessel's piping had reached this point of corrosion because the normal processes that should have identified and reversed the deterioration were absent. Fishing Company of Alaska was not proactive in their approach to identify and replace wasted piping. They had a "fix it as you find it" mentality that triaged repairs in order to maximize time on the fishing grounds. The Coast Guard/ACSA enabled this mentality by not following through on deficiencies as would have been done on statutorily inspected vessels. Based on interviews and testimony, they were hesitant to do so because of the underlying perceptions by some that ACSA was a somewhat voluntary, phased-in, incremental approach to improving vessels that were previously unregulated. When deficiencies were identified, operators were given excessive time to correct them, as opposed to putting the vessel temporarily out of service for immediate correction because of the possibility that the operators might with to withdraw their vessel from the ACSA.

5.2 Fixed high level bilge alarm indicators in engine room: Chief [redacted] and Mr. [redacted] both witnessed water billowing into the vessel from the engine room bilge. Any sort of hull failure or breach was ruled out, as the entire engine room and bilge is above double bottom fuel tanks and voids. The engine room bilge alarm failed to alarm on the day of the sinking. The ALASKA JURIS was equipped with a bilge alarm system as required by 46 CFR 28.250. There were two high bilge alarm sensors located in the engine room, one in each alley, the steering gear room, and bow thruster compartment, all of which were wired into alarm panels in both the lower engine room and in the Engine Control Room (ECR). There was also an alarm repeater panel on the bridge. According to testimony provided by Mr. [redacted] an electrical contractor who worked on the ALASKA JURIS's bilge alarm system, the bilge alarm panel was powered by 24 volt batteries located in the ECR on the second deck of the engine room. He could not recall whether the batteries were connected to a charging system. Mr. [redacted] testified that once the high bilge indicting switch was activated in the bilge, both engine room and ECR alarm panels would alarm, along with a repeater panel on the bridge. The only way the alarm could be silenced was by someone in the engine room pressing the "silence button" located on either the lower engine room or ECR panel. The alarm would silence for a short period of time before sounding again. The engine room panels were also utilized to monitor the main engine and generator alarms and conditions.

Testimony varied on how long the high bilge alarm would stay silenced once the "silence" button was pushed. Mr. [redacted] testified *"the only thing to my knowledge is that silence button in the control room. And again with the bilge alarms, if you were to hold that button down or stick a toothpick in or whatever scenario may be, the audio and the visual will come back on. I don't know exactly how long it was for that control room station, but I know up in the pilothouse there were red lights for each bilge and it was a designated bilge panel, and those dial – that silence button [on the bridge panel] if you were to stick a toothpick in it or whatever else after about three seconds it would come back on."* On the bridge panel: *"It was programmed into the smart relay that if you were to hit that silence button for more than two to three seconds the alarm would come back on, so there was no way to bypass it."* Mr. [redacted] also verified that the panel on the bridge was not capable of silencing the alarm; therefore a crew member would have to go the engine room to silence the alarm and investigate.

He described the alarm as a siren that "*could wake the dead."* Additionally, there was a strobe light that would activate in both the engine room and on the mess deck. Mr. [redacted] also testified that the panel would light the bilge alarm indicating display; however, it would not indicate specifically which alarm sensor tripped, so a crew member would have to go visually inspect each high bilge alarm sensor to determine which one was activated.

Mr. [redacted] testified that no alarms were sounding when he discovered the flooding in the engine room. He estimated that approximately 10 minutes after discovering the flooding, he found Chief [redacted] in the ECR. Chief [redacted] testified that he did not hear any alarm either, and was unaware of a problem until Mr. [redacted] told him. Captain [redacted] also testified that his first indication of a problem was when Chief [redacted] called him on the bridge using the ship's phone. Based on crew members' testimony, it is clear the bilge alarms did not activate. Mr. [redacted] the unlicensed

assistant engineer, did testify that "engine room alarms" woke him up and he noticed the power was out. However, based on Mr. [redacted] testimony regarding the timeline of the sinking it is believed that the alarms he was referring to were the main engine and generator alarms that would have activated when that equipment shut down.

Based on the fact that the ALASKA JURIS did not conduct regular testing of its high bilge alarms, it cannot be determined how long the alarms may not have been working. The failure of the high bilge alarm sensors to activate allowed the water to fill the engine room for an unknown amount of time before the crew realized what was happening. By the time Mr. [redacted] alerted Chief [redacted] the water level was at or above the aft engine room deck plates, approximately five to six feet above the bottom of the bilge. Minutes later it reached the pumps and machinery, causing the main engine and generators to shut down, leaving the vessel without propulsion or electrical power. Had the bilge alarms activated as designed, they would have alerted the crew to the flooding when there was approximately one foot of water in the bilge, as the sensors were mounted approximately that high above the lower bilge. That early notification would have provided the crew the time necessary to investigate the source of the flooding, secure the necessary piping systems/equipment, close sea chest valves, if necessary, and engage the bilge pumps to begin combating the flooding.

5.3 Access to sea chest valves from lower level engine room deck plates: The sea chest valves on the ALASKA JURIS were not accessible from the lower engine room deck plates. The port and starboard sea chests' piping and valves ranged from 1 ½ to 6 inches in diameter. The 6 inch valves were lugged butterfly valves, allowed by the ACSA program. The smaller valves were globe valves. The sea chest and valves were located deep in the engine room bilge, approximately 4 to 5 feet below the deck plates. Based on this configuration, the only way the valves could be closed in a flooding situation was for a crew member to physically enter the bilge and manually close them.

On the day of the sinking, the water level was up to the lower deck plates in the engine room by the time it was discovered, making it impossible for someone to close the valves and stop the flooding. American Bureau of Shipping (ABS) Rules for the Building and Classing of Steel Vessels under 90 meters, Part 4, Chapter 4, Section 2 – 21.3 and 46 CFR Part 56.50-95(d) & (e) require that sea chest valves be unobstructed and readily accessible from the floor plates/gratings of a space. Meeting this requirement can be as simple as providing a reach rod to operate these valves from the deckplates. However, the use of lugged butterfly valves would complicate or negate the vessel's ability to design a fixed or manual reach rod device. The ACSA program does not require vessels to meet either the 46 CFR Part 56 or the ABS Rules.

5.4 Fixed bilge pumps' capabilities: The fixed bilge pumps, which could have been used to control the flooding, were inadequate. The ALASKA JURIS had two fixed electric bilge pumps located in the engine room. Both pumps were designed to be self priming; once the valves to a particular bilge space were aligned, turning on power to the pump would begin pumping operations. However, during testimony by Chief [redacted] and unlicensed Assistant Engineer [redacted] they stated that this was not the case. Both testified that the bilge pumps needed to be primed because of the poor condition of the pump. Chief [redacted] testified *"I would have to prime it up. It depends, four or five minutes sometimes…these should be self priming, because there's a flapper…but*

sometimes you had a hard time getting suction. The bilge pumps were in very poor shape and I ordered parts for those. Sometimes you have a hard time getting suction out of them."

Mr. [redacted] testified that he taught Chief [redacted] how to use the bilge pumps, indicating that the pumps had not been operating properly for a long time. Mr. [redacted] went on to say that the bilge pump priming process involved opening between three and six valves in a specific order to draw suction, which could take up to five minutes. He also stated that they routinely used both pumps, even though one pump should have been sufficient, due to their poor condition. While Chief [redacted] testimony confirmed the poor condition of the bilge pumps, he could not produce any records requesting that the pumps be replaced or repaired. The fixed bilge pump and suction lines were the vessel's primary means to control flooding. The care and maintenance of that system should have been a top priority for Chief [redacted] and the vessel's operators.

The requirements for pumps and suctions lines are outlined in 46 CFR 28.255(a), including a requirement that the pumps be self priming. Currently, there is no requirement in the ACSA program for inspectors to verify or witness the operation of fixed bilge pumps to ensure they are operating within standards. Had the operational test of the pumps been part of the ACSA inspection process, a marine inspector may have discovered that the bilge pumps were not able to self-prime. A marine inspector witnessing this would have required the Fishing Company of Alaska to make repairs prior to getting underway. Based on the poor condition of the bilge pumps, it is questionable whether the pumps could have kept up with the flooding had the vessel not lost power and was able to use them.

5.5 Emergency power source for bilge pumps: In September 2004, additional regulatory requirements were promulgated in 46 CFR subpart D requiring vessels which had their keel laid or a undergo a major conversion on or after September 15, 1991, and that operate with more than 16 individuals to have an emergency source of power for bilge pumps. However, Subpart D was not applicable to the ALASKA JURIS due to her build date. Had it been, the ALASKA JURIS would have been required to have an emergency source of electrical power capable of supplying all connected loads for at least three hours in accordance with 46 CFR 28.375. Among other things, bilge pumps/fire pumps would have been required to be supplied by emergency power. It is thought that the Coast Guard required the portable firefighting/dewatering pump as a partial equivalency to having emergency power. While the ACSA does not explicitly require an emergency source of power for the bilge pumps, ACSA does require a portable fire fighting/dewatering pump. In the case of the ALASKA JURIS, either emergency power or appropriate dewatering equipment may have allowed the salvage of the vessel, eliminated the pollution impact and more importantly prevented 46 individuals from abandoning the vessel into the Bering Sea.

During interviews, the crew seemed to think of this pump as more for fighting fires than for dewatering, though some of the crew did attempt to rig the pump on the day of the sinking. The majority of the crew also reported that there was not enough hose to reach the bottom of the engine room. They went on to say that had there been enough hose, it

was doubtful that the pump would have had enough lift to pump from the engine room. The investigation also revealed that the crew had never conducted any dewatering drills simulating engine room flooding. In reviewing the damage & trim stability modeling for the ALASKA JURIS, the engine room was certainly the most critical space on the vessel.

5.6 Portable dewatering pump capabilities: The ALASKA JURIS was required to be equipped with a portable fire/dewatering pump meeting the standards outlined in the ACSA Guide under Section J. As the ALASKA JURIS was not required to have emergency power to operate its fire and bilge pumps, the portable pump was critical to ensure the crew would have these capabilities in the event of a power failure. However, when reviewing the pump requirement standards, it is clear that they were formulated with the pump's firefighting capabilities in mind and do not establish appropriate dewatering capability standards. The analysis supporting Section J in Enclosure 3 to the ACSA Implementing Document stated:

"Analysis: These standards seek to increase a vessels firefighting (and de-watering) capabilities by requiring portable firefighting capability, fireman's outfits, and firefighting plans. These standards meet or exceed classification requirements."

The ACSA guide does not establish appropriate requirements for the pump's dewatering capabilities. During interviews with Fishing Company of Alaska port engineers and Coast Guard inspectors, all stated that they were unaware of anyone from Fishing Company of Alaska or the Coast Guard ever confirming whether the dewatering pump was capable of taking suction and lifting water from the lower engine room. Testimony provided by dewatering team members varied greatly when asked how many suction hoses were onboard and whether there was enough to reach the lower engine room. Captain [redacted] testified that the same dewatering pump was used during a flooding incident on the ALASKA JURIS in 2010 in the engine room. He stated it was unable to take suction when staged on the upper deck of the engine room and had to be brought to the lower engine room to achieve suction. He further testified that the crew was fortunate at that time to have power so the engine room's ventilation system could clear the pump's exhaust gases. When asked whether he expressed concerns about that the situation to Fishing Company of Alaska or the Coast Guard, he testified "*Certainly the Coast Guard in Dutch Harbor, they're on board. We do these drills with the safety stickers in the winters. I kind of thought maybe they knew the same thing I did. These things don't have that great of pull, anyhow…I probably should have said something. I will certainly from this experience be a little more vocal with concerns. Coast Guard is very easy to communicate with*."

Based on testimony and documentary evidence, the primary emphasis of the portable pump onboard the ALASKA JURIS was firefighting operations. While it is possible that the pump could have been utilized in some fashion to combat the engine room flooding, the fact it lacked the necessary suction/lift and exhaust gas management capability it would have made such an operation hazardous to the vessel's dewatering team. Section J of the ACSA guide titled "fire/dewatering pump" is misleading because it provides the false impression that the pump was capable of providing the dewatering capabilities necessary during a flooding event. Had the pump been rated and evaluated

by the ACSA program for its dewatering capabilities, it may have given the crew the ability to combat the flooding and stay onboard the ALASKA JURIS until help arrived.

5.7 Emergency lighting: Some areas of the ALASKA JURIS lacked sufficient emergency lighting available to egress interior spaces of the vessel. The ACSA program guidance nor 46 CFR Part 28 require emergency lighting. The ALASKA JURIS did not have an emergency generator or centralized battery backup system for emergency lighting. Fishing Company of Alaska voluntarily installed self-contained, individually-powered emergency lighting that would automatically turn on when they detected a loss of electrical power. The Coast Guard had no involvement in determining the number or placement of the lights. The electrical contractor who installed the devices testified they were installed at emergency egress points. ALASKA JURIS crew members acknowledged that the lights did activate when the vessel lost power but crewmembers testified that the lighting was insufficient in some areas and it was necessary for them to use flashlights (and in some cases lighters) to find their way out of the vessel. Crew members stated that the situation would have been much worse if the abandonment had occurred at night. Based on the investigation, there is no evidence to suggest that insufficient emergency lighting was a causal factor in any events related to the sinking.

5.8 Watertight doors and watertight integrity at sea: The officers and crew on the ALASKA JURIS routinely ignored ACSA watertight integrity requirements, which fostered a culture of non-compliance among the processors. Of the 46 individuals on the ALASKA JURIS on the day of the sinking, only three were licensed mariners, with the vast majority of personnel having little to no shipboard experience or training in the importance of maintaining watertight integrity at sea. Throughout the formal hearing, the officers and crew testified that watertight doors, along with other watertight fittings, were routinely left open or not properly secured when operating at sea.

The ACSA program requires all watertight doors identified in the stability instruction addendum to be closed at sea in accordance with Section F, paragraph 1 in enclosure 3 of the Original ACSA Implementing Document. It states "*All watertight doors through which the vessel crew may pass that are listed in the Stability Instruction Addendum shall be fitted with a sign on both sides reading 'Opening authorized for transit only – keep closed at sea.' Similar signs shall be posted at all weather-tight doors to buoyant volume spaces (as identified by Naval Architect).*" Testimony verified that the doors had the required signage as dictated by Section F, paragraph 1. During a preliminary interview with Chief Warrant Officer [redacted] an ACSA inspector, when asked whether he thought the watertight doors on the ALASKA JURIS were kept closed at sea, he stated that he knew they were not, as the doors hinges were so stiff it was clear they were not being exercised for long periods of time.

Section F. paragraph 2 also states *"Administrative controls shall be prepared to manage the status of watertight and weather-tight closures listed in the Stability Instruction Addendum."* These administrative controls, such as watertight door maintenance logs, were to be reviewed by ACSA inspectors at annual inspections. These logs were lost with the vessel and Coast Guard deficiency records do not indicate any issues with the maintenance logs. However, testimony from multiple ACSA inspectors indicated that despite maintenance logs being kept, they would still routinely find substandard

watertight doors and fittings, mainly due to the fact the doors and fitting were not being exercised or maintained by the crew.

The ALASKA JURIS engineers also testified that the watertight doors located in the lower engine room leading to the forward and aft alleyways were "always open" despite the required signage being posted. When the engineers were asked why they kept them open, they stated they did so in order to see into the alley spaces without having to open the doors. They felt that if there was a flooding situation, they would have enough time to close the doors.

Testimony also revealed that the ALASKA JURIS's fixed ventilation for the crew quarters and work spaces had not been working for more than a year. The motors were of Japanese origin and getting replacement parts was difficult. Captain [redacted] testified *"the only ventilation we pulled was to the engine room and that was right back behind my room. …. So there were two motors, and I was told – I wanted them replaced, because that would add some ventilation to the upper house, and they told me they were ordered from Japan. [That was a problem as long as] I was on the boat. There was a couple times there was an electrician that fixed them, and they would work for a month or two, and then I had an electrician look at them again. So that was three or four or five times [over the course of three years], and then they said let's just get new motors."* The poor air circulation led to the widespread growth of mold throughout the crew quarters. To combat this, as well as the uncomfortable heat, crewmembers routinely left watertight doors to the main deck open, compromising the watertight integrity of the vessel. Despite repeated requests to fix the fans by the vessel's Chief Engineers, the repairs were never made and keeping the watertight doors open became routine for the crew.

In addition to the watertight doors, testimony revealed that watertight hatches between fish holds and the hatches used to enter the fish holds from the deck were routinely left unsecured. Just hours before the sinking, crewmembers testified that the #4 fish hold, which at the time was holding sea water for ballast, overflowed through the unsecured hatch. Crewmembers testified this occurred often.

The failure of the licensed officers and Fishing Company of Alaska representatives to address engineering issues affecting watertight integrity, as well as their failure to articulate the importance of this to the crew and enforce watertight integrity requirements on the ALASKA JURIS, was inexcusable. While watertight integrity on any vessel is important, the extreme environmental conditions and remote locations that the ALASKA JURIS operated in made the need for strict adherence to the stability booklet imperative. This lackadaisical mentality towards watertight integrity culminated on the day of the sinking. Watertight doors in the lower engine room leading to the forward and aft alleyways were open when the flooding began. This allowed an unknown amount of water to progress into those spaces before the flooding was discovered.

5.9 Bilge alarm panel bypass device*:* The bilge alarm panel in the ECR had a jury-rigged "L" shaped device installed on it. No witnesses admitted to when it was installed or by whom, but it was thought to have been in place for at least five years. The device would

hold the alarm reset button in the depressed position, which would prevent the alarm panel from activating the visual and audible bilge alarms. During testimony by Chief [redacted] who served as Chief Engineer for five years, he stated that he did not install the device but was aware of it on the ECR control panel. Mr. [redacted] an unlicensed assistant engineer who worked as Chief [redacted] assistant engineer, also testified to the presence of a device on the ECR panel but also claimed never to have used it. Chief [redacted] and Mr. [redacted] both testified that they never attempted to remove the device. Mr. [redacted] the unlicensed engineer onboard working with Chief [redacted] also testified that the device was on the panel, and that the Japanese technicians often used it to silence nuisance alarms. However, he stated *"I removed it two or three weeks before the sinking and did not tell Chief* [redacted] Chief [redacted] testified: *"I didn't really pay attention to that as far as – I never used it. I think I used it one time. It wasn't something that I really cared about, but I didn't make it a priority to remove it. If [Mr.* [redacted] *removed it, he didn't let me know."*

An electrical contractor with close personal knowledge of the bilge alarm system and panel testified *"I know of a silence button on the control room alarm panel, but not an actual maintained switch that would kill all bilge alarms, no, I did not know, I did not see that switch."* Coast Guard marine inspectors also testified that they did not recall seeing a device either. Coast Guard ACSA inspector Ms. [redacted] [redacted] testified how during an inspection in January 2015, she discovered wires leading to the bilge alarm panel on the bridge of a vessel whose name she could not recall and said they appeared to have been purposely cut, making the alarm inoperable on the bridge. Review of MISLE casework and testimony from Captain [redacted] confirmed that the vessel she was referring to was the ALASKA JURIS. She went on to say that crews consider these alarms as "nuisance" alarms and on other occasions she has seen the alarms "*covered over*" to reduce the sound. While no enforcement actions were taken on the cut wire incident, Ms. [redacted] testified that the inspection team spoke to the captain about the situation and expressed their "*disappointment.*"

Based on the licensed and unlicensed engineers' testimony, there was a device installed on the ECR panel designed to keep the bilge alarm reset button depressed to prevent the alarm from sounding. This, along with the discovery of bilge alarm wiring purposely being cut to prevent an alarm from sounding, suggests that the alarms on the ALASKA JURIS were often activating for one reason or another and those alarms were treated like "nuisance alarms" instead of the important piece of safety equipment they were.

Based on Chief [redacted] and Mr. [redacted] conflicting testimony regarding whether the device was removed, it cannot be confirmed whether the device was present on the day of the sinking. An engineering log entry at 0945 on the day of the sinking by Chief [redacted] stated that there was water in the bilge and that he patched a bilge suction line. Chief [redacted] testified *"there was water in the bilge and that [he] could not recall how much."* If the device was still in place and being used to silence bilge alarms at the time Chief [redacted] was working in the bilge, this might explain why the bilge alarm did not activate. Without knowing for sure whether the device was there or not at the time of the sinking, it cannot be ruled out that it was being used to silence the bilge alarms the day of the sinking.

5.10 Stability management practices: There was pervasive stability management risk-taking and an overall lack of awareness by the captain, mate and engineers on the ALASKA JURIS. The routine operations of processing vessels like the ALASKA JURIS feature the movement of massive weights/loads of frozen fish, gear, and processing water. These movements demand continuous stability monitoring, which is the responsibility of the licensed deck officers.

5.10.1 **Engineers managing stability:** On the ALASKA JURIS, the day-to-day management of stability was delegated to the engineering watch, which consisted of a licensed Chief Engineer or an unlicensed assistant engineer, neither of whom had any formal stability training. This unwritten delegation authorized the engineers to transfer ballast as necessary without asking or informing the captain/mate or consulting the vessel's stability booklet. Chief [redacted] testified: *"[ballasting] was all manual operation. It was a series of valves. There's two pumps, one on port, one on starboard. What would happen is if I was getting the …freezer hold number fours, port and starboard, 50 percent, I would probably eyeball it and go from there, so I know two halves makes one full, fill it about half full and trim the vessel from there."* He verified that no calculations were performed during these ballasting evolutions. While the engineers have the capabilities to manage a vessel's stability, they were not trained in managing stability and trim, were not aware of planned changes in course, weather, or fishing gear configurations that might affect stability.

5.10.2 **Freezer breaks causing lists:** An operation of particular concern was an operation known as "freezer breaks." Freezer breaks involved the moving of hundreds of cases of frozen fish on pallets from the flash freezers to various cargo holds throughout the vessel. Chief [redacted] testified and engineering log entries confirmed that on many occasions this operation was uncoordinated between the factory manager and the licensed officers. The movement of the frozen fish would cause the vessel to list substantially without warning and cause the engineers to rapidly transfer ballast to overcome the list. While this operation was routine, the failure to coordinate it with the bridge and engine room was problematic.

5.10.3 **Unauthorized use of fuel tanks:** Another area of concern was the management of the ALASKA JURIS fuel and ballast. The most recent "approved" stability booklet authorized the use of #2 and #3 port and starboard fish holds to store fuel oil and identified voids under the stern ramp, known as the # 9s, that were not authorized to be used for fuel or ballast. Seven months prior to the sinking, the #9 voids were converted to fuel tanks so the vessel could stop using the fish holds as fuel tanks due to leaks and problems with fuel oil contaminating fish. After this conversion, an inclining experiment was completed eliminating the fish holds as fuel tanks and adding the #9s as fuel tanks. The results were under review by the Coast Guard Marine Safety Center (MSC) at the time of the sinking. Despite not having an approved stability booklet authorizing the changes, the ALASKA JURIS starting using the #9s while continuing to use the #3 fish holds. Neither the approved stability booklet nor the new booklet under review by MSC would have authorized the use of both the #9s and the #2 and # 3 fish holds for the

carriage of fuel at the same time. Captains and mates are required to operate their vessels in accordance with the stability booklet, which was clearly not the case with regard to the storage of fuel.

5.10.4 **Progressive flooding analysis booklet availability**: After the ALASKA RANGER sinking in 2008, Fishing Company of Alaska commissioned the Elliot Bay Design Group to develop damage trim stability calculations booklets on its remaining vessels, including the ALASKA JURIS. The booklet was called "Progressive Flooding Analysis for the ALASKA JURIS." This booklet provided easy to understand color coded (red and green) graphics identifying numerous conditions and the resulting impact (remain afloat or capsize) depending on which tanks were compromised or flooded. Captain [redacted] testified that he was aware of the book but had never used it. During the hearing, Captain [redacted] and Mate [redacted] were shown the booklet and both stated that this information would have been very helpful on the day of the sinking.

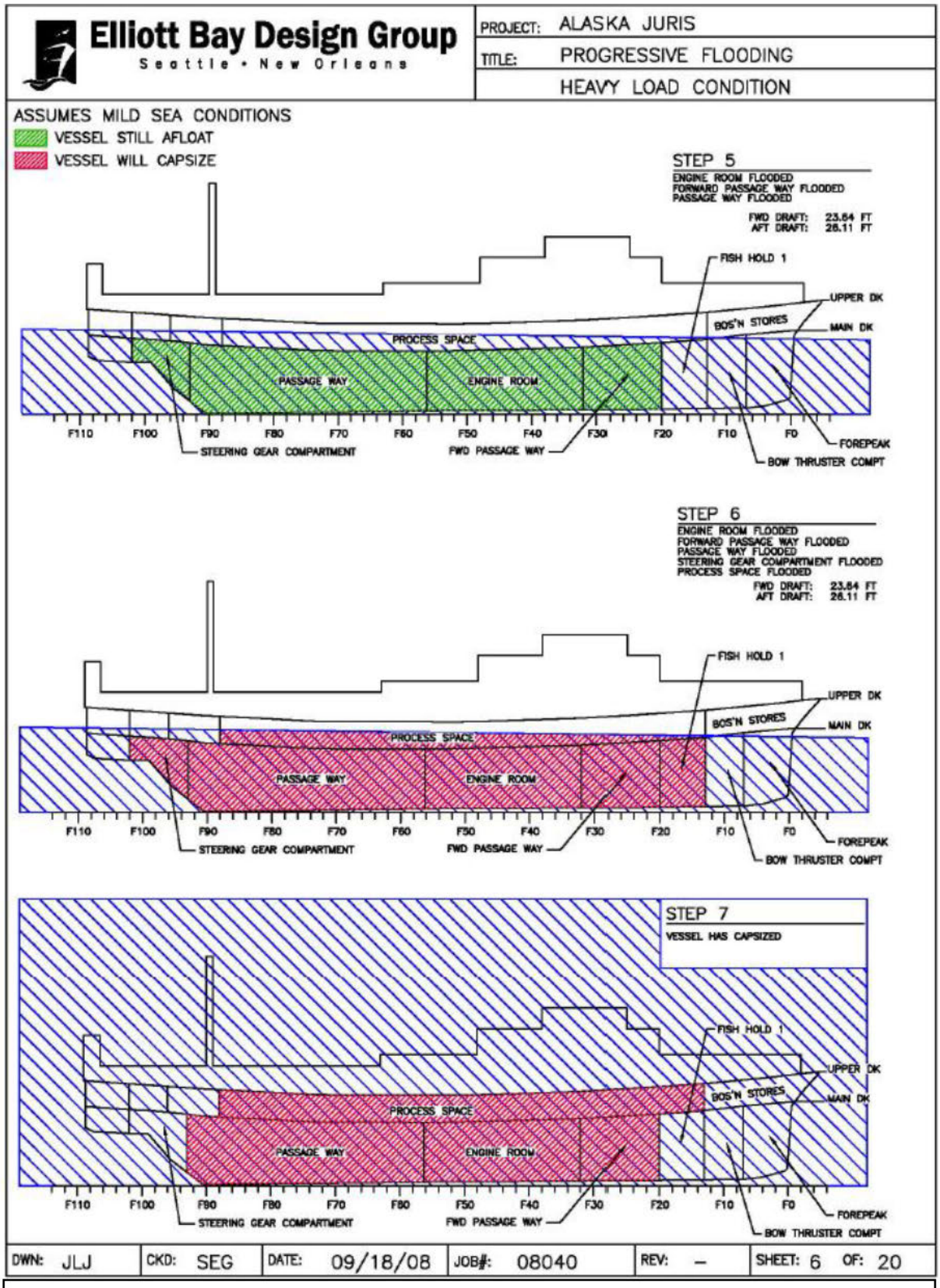

Figure 5.A. Example of a page from the ALASKA JURIS's Progressive Flooding booklet produced by the Elliot Bay Design Group for the Fishing Company of Alaska.

5.10.5 **Concerns about the ALASKA JURIS being a "tender" vessel:** During testimony, Captain [redacted] and Mate [redacted] described the ALASKA JURIS as "tender," meaning the vessel verged on instability in certain loading and sea state conditions. When asked to explain why he thought the ALASKA JURIS was "tender," Captain [redacted] testified: *"She was tender…she just liked to be heavy, she liked to weigh – everything about the boat liked weight. It rode very well when it was – when it was heavy. When it was light and we're towing and come on one side, it would set us over four or five degrees, that was pretty standard…so she was pretty tender."* That determination was not based on stability calculations but rather personal impressions. During testimony, both the captain and mate stated that they did not reach out to Fishing Company of Alaska or the Elliot Bay Design Group to discuss their concerns about the vessel being tender, but instead continued operating under the impression that the ALASKA JURIS was tender. Mr. [redacted] Naval Architect, from the Elliot Bay Design Group, who conducted the most recent stability test, testified: *"She's got a round bilge, so she will roll more, much like an icebreaker will roll more than a standard vessel…This vessel actually had a good margin of stability, but with a round bilge, and medium sized bilge, she would roll more from side to side."*

The above topics highlight the lack of attention the captain and mate paid to managing the stability conditions they were responsible for. When the flooding began, they found themselves caught off guard and not as familiar as they should have been with the information they had available to them to address the situation. According to the analysis contained in the Progressive Flooding Booklet, the vessel should have stayed afloat with the engine room and forward and aft alleyways flooded.

5.11 Life raft assignments*:* The life raft assignment cards at the embarkation station were not updated to reflect a crew change in Adak (though they had been updated on the mess deck copy) and the starboard life raft was deployed with no credentialed officers onboard. During the hearing, multiple crewmembers testified that they were not in their assigned life rafts because the muster cards located at the embarkation station were not updated with their names. However, this did not prove to be a problem initially because the rafts were not filled to capacity. After Captain [redacted] issued the order to deploy the life rafts, each life raft was launched on the side of the vessel where it was stowed, two on the port and one on the starboard. When asked why the starboard life raft was not launched from the port side along with the other two life rafts, Captain [redacted] testified that he had ordered the crew to launch all life rafts on the port side but in the confusion, the crew launched the starboard raft on the starboard side while his attention was elsewhere.

All three life rafts were launched without incident and were initially tied to the railing by their painters (lines that keep the life rafts attached to the ship until the crew is ready to release them.) Captain [redacted] cut the painter and ordered the crewmembers in the starboard raft to paddle around the bow of the ALASKA JURIS to meet up with and tie off to the port rafts. As the starboard life raft crew began to paddle and got close to the bow, it got caught in the current and began drifting away. Despite the crew's best efforts using the small, flimsy paddles contained in the life rafts and plastic shovels

dropped to them by Captain [redacted] they were not able to make way against the current and drifted off. Though assigned, there were no credentialed officers in the starboard life raft, leaving the factory workers to fend for themselves. The training and knowledge that a licensed officer has regarding the use of the survival equipment may have been critical had they been stranded for a longer period of time or been caught in bad weather. All of the crew members on the starboard life raft were safely rescued later that afternoon. There is no evidence to suggest that the failure to have licensed officers in the starboard life raft contributed to any causal factors in the sinking.

5.12 General alarm: The captain failed to activate the general alarm to alert the crew of the flooding and the decision to abandon ship. The regulations in 46 CFR 28.240 require that the ALASKA JURIS have a general alarm, which must be tested prior to the operation of the vessel and at least once a week thereafter. However, there is no requirement that the alarm tests be logged. The concept behind using the general alarm during drills is to instill an instinctive reaction in the crew members. Captain [redacted] and Chief [redacted] testified that the vessel routinely used the general alarm when conducting drills, including following the crew change in Adak prior to the final voyage. When asked why he did not use the general alarm during the sinking, Captain [redacted] testified: *It's the same thing with the man overboard deal, I wanted to physically go get these guys. At that time I knew we had a blackout boat and a lot of water in the engine room. I ran down there to get* [redacted] */* [redacted] *up, because I knew there was some boat from the AIS about 35, 40 miles [from us]. So you know those guys do 14, 15 knots. That was our first warning to get help considering where we were at. I grabbed some flashlights and I run to the cook. I said, get people up, I want to muster, because, that's what we're going to do. I went back down there [to the engine room] and I was like, whoa, because I was shining the light down. I went down there three or four times and the cook was going to go around. He was a pretty responsible guy, get everybody up. I did not sound the general alarm. I actually one time went around to every rack. I reached my hand in there, got the curtains. …. I pulled them back and I reached around to every rack. At that time, I didn't think to sound the alarm until later on when* [redacted] *was up there. But by that time, I was pretty convinced me and the cook and three or four other guys had gotten everybody out of their racks. To sound the thing was to get them to muster and they were up there.*

Testimony from crewmembers indicated initial confusion after the lights went out because they did not hear the general alarm and wrongly assumed that it was just a temporary power failure, as happened occasionally on the ALASKA JURIS. The general alarm system is powered by a 24 volt battery system and should have been operational after the loss of power. The failure of Captain [redacted] to activate the general alarm was a serious mistake that could have resulted in personnel not being alerted in a timely manner had the situation changed rapidly. There is no evidence to suggest that the failure of Captain [redacted] to activate the general alarm contributed to any causal factors in the sinking.

5.13 Suitability, arrangement, storage and maintenance of Jacob's ladders: The Jacob's ladders dedicated for emergency embarkation were not rigged in the location designated for abandoning ship. The designated life raft embarkation deck on the ALASKA JURIS was the pilothouse/navigation deck, where three life rafts were mounted, two on the port

side and one on the starboard. Captain [redacted] testified that there were Jacob's ladders on the port and starboard sides that were not secured to the vessel. Rather, they were stowed rolled up so that they could be easily moved to a point closer to the water and tied off with a clove hitch. Once the decision was made to abandon ship, the crew, at the direction of Captain [redacted] moved the Jacob's ladders to the Texas deck, just below the pilothouse deck, because it would be a shorter climb down to the life rafts.

The relocation of the ladders to the Texas deck placed the spreader step into the water, where it was ineffective. The spreader step is an elongated version of a standard step that extends beyond the width of the ladder on both sides. It is designed to ride against the hull to prevent the Jacob's ladder from twisting when persons are climbing down. With the spreader floating free in the water it did not stop the ladder from twisting, causing crew members to struggle while climbing down, with several falling into the water. The port side Jacob's ladder was also missing a rung, approximately five rungs from the top, which also created problems for those using that ladder and led to crew members falling into the water. The ALASKA JURIS had also retained old Jacob's ladders removed from service and repurposed them as work ladders. Captain [redacted] testified that he thought that a crew member may have used a Jacob's ladder during the abandonment that they normally used as a "work ladder," which he acknowledged may have been stored on the Texas deck and was not marked to indicate it was not the primary embarkation ladder. *We order a lot of these [Jacob's ladders], because they get damaged. I ordered several in the last couple years …. it doesn't seem like it took much to damage a rung. That was my opinion. We had a couple other ones we used [for purposes other than emergency disembarkation]. We spent a lot of time offloading in Dutch Harbor, so as these -- we ordered new ones and set them aside, I told the crew they were supposed to keep these next to the life rafts and not use [them for routine work]. We have other ones we used for tug and things. So if they were damaged in that aspect, they wouldn't be -- we need them in a dangerous situation. So the ones we had up there [on the pilothouse deck] were supposed to be just used for that purpose. If they had more on board, they were down aft.*

5.14 Chief Engineer's response to initial engine room flooding: Chief [redacted] was on watch at the time of the initial flooding. Once the flooding started, he never energized either of the two fixed electric bilge pumps even though the vessel still had power. This allowed the water level to reach the cooling pumps for the ship's generators, which caused them to short out, causing the generators to overheat and shut down. It was never established exactly why the bilge pumps were not brought on line, however, their condition, the number and placement of valves required to be operated and the fact that the pump was not self priming likely affected Chief [redacted] decision. It is thought that the time between when Chief [redacted] was notified of the flooding and the ship lost electrical power was approximately five to ten minutes. There was testimony by Mr. [redacted] that it would take upwards of five minutes to bring a bilge pump online if they had tried to do so. In addition to not using the fixed bilge pump, Chief [redacted] ordered the dewatering team to stop their efforts in rigging the portable dewatering pump. Based on testimony and interviews, it is likely that the basis for this decision was that the team had rigged the pump incorrectly, (the discharge hose and suction hose were rigged backwards) there was not enough suction hose to reach the lower engine room and that the pump was not capable of pumping the required lift to

make a difference. Nevertheless, the vessel remained afloat for approximately eight more hours after abandonment.

While it is understood that responding to a shipboard emergency can be overwhelming to any mariner regardless of position or experience, there is an expectation that the vessel's credentialed mariners should have experience and training to respond appropriately. Based on eyewitness testimony, there is no doubt that Chief [redacted] was shocked to see the extent of the flooding, especially when there had never been any indication or alarm. Had Chief [redacted] sent Mr. [redacted] to notify the bridge, gone straight below to energize the pumps and secure the watertight doors, it is plausible that dewatering operations may have prevented the water from reaching the cooling pumps for the generator and kept the power on.

5.15 Stability and trim training for licensed captains and mates of Uninspected Fishing Industry Vessels (UFIV)*:* The stability and trim training for captains/mates of an UFIV is insufficient for them to properly utilize the stability booklet information required by the Coast Guard and ACSA program.

5.15.1 **Training**: The Coast Guard National Maritime Center (NMC) stability and trim performance standards for licensed captains/mates of UFIV are defined in 46 CFR Part 11, Subpart C. Currently, to determine whether an individual has met the minimum stability and trim knowledge requirements for the deck officer endorsement, they must satisfactorily complete a written examination. That exam requirement is the same regardless of the tonnage they will be operating. NMC does not issue a separate endorsement for stability and trim training.

NMC provided written testimony to confirm that there is no correlation between the stability and trim training standards and the stability booklets operators may find themselves using on UFIV. NMC testified that captains/mates of UFIV over 1,600 gross tons are not required to demonstrate their ability to utilize information in a stability booklet or stability computer program to assess stability issues related to a vessel's list and trim during at sea operations. NMC's written testimony said *"there is only the exam requirement at present; however, the regulations in 46 CFR 15.405 require that the credentialed officers on a vessel must be familiar with the vessel characteristics, including stability and loading characteristics, and their emergency duties before assuming their assigned duties.* This is a broad standard that encompasses all the duties a credentialed crewmember would have to perform on a particular vessel. It places the onus squarely on credentialed mariners to ensure they are knowledgeable in all aspects of their duties for the safe operation of their vessel. Based on this investigation, there is no evidence to suggest that the captain and mate expressed any concerns about their own abilities to utilize the ALASKA JURIS's stability booklets to Fishing Company of Alaska management, nor did Fishing Company of Alaska verify their abilities to use the booklets. There appears to be a misconception in the commercial fishing industry fleet and ACSA program with regard to the level of stability and trim training licensed captains/mates of UFIV have and their ability to understand and utilize the current ACSA required stability booklets.

5.15.2 **Stability booklets**: The ACSA program requires the stability booklets to meet the standards in 46 CFR 28.530, which state *The intent of this section is to ensure that vessel captains and individuals in charge of vessels are provided with enough stability information to allow them to maintain their vessel in a satisfactory stability condition. The rules provide maximum flexibility for owners and qualified individuals to determine how this information is conveyed, taking into consideration decisions by operating personnel must be made quickly and that few operating personnel in the commercial fishing industry have had specialized training in stability. Therefore, stability instructions should take into account the conditions a vessel may reasonably be expected to encounter and provide simple guidance for the operating personnel to deal with these situations.* Testimony by Captain [redacted] and the Mate, Mr. [redacted] indicated that neither felt comfortable with utilizing the ALASKA JURIS's stability booklet during emergencies. They routinely relied on a computer program to manage day-to-day stability issues or concerns.

When asked whether he would have trusted the stability booklet had he been aware of it on the day of the sinking, Captain [redacted] testified: "*To stay on the boat with that crew, no, no way. I would have got on the life raft that would be safer. I wouldn't trust it at all."*

Mate [redacted] who occasionally sailed as relief captain, when asked if he was comfortable with the stability computer program answered*: "No, I wasn't really comfortable with anything. It was more of a learning process. I was in constant training on that boat….I wasn't really comfortable with anything. I could do it, but it wasn't easy and it would have taken probably another year for me to be comfortable with everything."*

The difficulty of Captain [redacted] and Mate [redacted] to understand and utilize the information in the stability booklet suggests that the training they received through the Coast Guard licensing process and the information in the booklets is not meeting the intent of 46 CFR 28.530. The size of fish processing vessels like the ALASKA JURIS, combined with their operating area, uniqueness of equipment configurations and the processing operations done onboard each vessel (which features significant water flows, shifting loads, and heavy trawling gear) demands that captains/mates have a solid understanding of the parameters they are able to work in for the safety of the vessel. These vessels are required to conduct inclining experiments that are the basis for the content of the stability booklet information. For the captains/mates to then disregard the booklets renders those experiments wasteful. This booklet is critical to providing captains/mates with the vital information they need to conduct day-to-day operations, as well to address emergency stability situations like a flooding event.

While the Coast Guard is not questioning the decision made by Captain [redacted] to abandon the ALASKA JURIS when he did, it is reasonable to suggest that if Captain [redacted] had been better trained to utilize the information in the ALASKA JURIS's stability booklet, he may have been more comfortable with attempting to combat the

flooding and/or with keeping the crewmembers on the vessel to await rescue, instead of risking the dangers associated with abandoning ship in the Bering Sea.

5.16 Dewatering team training*:* The crew members and factory workers on the ALASKA JURIS had inadequate training regarding dewatering operations. The ALASKA JURIS was only required to have four licensed officers and no deckhands. Therefore, the firefighting and dewatering teams consisted of factory workers. The vast majority of the factory workers have no shipboard firefighting or dewatering experience, so the importance of ensuring these men and women on the teams are properly trained is critical. As stated above, the ALASKA JURIS was not required to have emergency power for its fixed bilge pumps, so should power be lost, the only dewatering capability was the portable pump. It is clear that drills had been conducted and were witnessed by the Coast Guard and found to be satisfactory. However, during testimony, members of the dewatering team struggled with answering basic questions regarding the pump's operation, capabilities and the amount of suction hose that was onboard.

Testimony conflicted as to whether the pump was ever started on the day of the sinking and based on the majority of testimony it was determined that it was never started. It was also apparent that the crew's training on the use of the portable pump was more focused on its use for fighting fires. During testimony, Captain [redacted] and Chief [redacted] were asked why they did not attempt to use the portable pump to begin dewatering operations. Chief [redacted] testified *"At one point I seen…. I don't know who the person was, but coming through the factory hatch with a hose, which I'm pretty sure now -- I read some testimony that it was from the emergency bilge pump -- dewatering pump. What was a little ….comical about that was, it was an inch-and-a-half fire hose. I told the guy…. what you are doing with that? …. I believe he was going to the engine room. I told him 'get that thing out of here. There's nothing you can do with that.' I don't know what their intention was. You're not going to pump anything with collapsible hose. On the other hand, I don't know where the pump was. But anyway, he brought what I assume was the wrong end down: fire hose."*

Captain [redacted] testified *"I listened to [Mr. [redacted] (dewatering team member)] testimony -- and I'm not -- it's not in my nature to go back and try to belittle the guy, but I believe they set the pump up backwards and clearly indicated, if you go back and listen, they had the suction. Now, hey, I make mistakes all the time and it could have been just me there. I was scared. I'll admit it. I use that word 'panic' too loosely, but I'm overdriven, we had purpose, and I thought we did good getting people together and stuff, but I'm pretty convinced that they had the pump set up backwards."*

Based on what Chief [redacted] and Captain [redacted] described, it was clear that the dewatering teams were not properly trained to rig or use the portable pump for dewatering operations. Coast Guard inspectors did not witness drills involving the dewatering of the engine room spaces on ACSA vessels due to safety reasons, including ventilation concerns. Mr. [redacted] testified "*I'm not aware of doing [fire/dewatering] drills out to the farthest reaches of the engine room…then it's a lot of [mock drills] because they might not have an exhaust [hose] and they don't want to run a pump, so it's a lot of walkthrough."* Captain [redacted] also confirmed that the crew did not train for dewatering the engine room. Setting of watertight boundaries was not part

of the vessel's internal drills, nor of the Coast Guard dewatering exercises. The engine room was by far the largest and most vulnerable space to be impacted by flooding due to its size and vast amount of the sea water piping systems in it. Based on those factors and the lack of emergency power resources onboard, protecting this space should have been a training priority for the ALASKA JURIS's dewatering team. Had the dewatering team had the appropriate training to properly configure and rig the dewatering pump, set watertight boundaries around the engine room and other spaces on the vessel, it may have provided Captain [redacted] the time to manage the flooding without having to abandon ship.

5.17 Number of credentialed deck officers onboard*:* There were not enough credentialed deck officers to manage emergency situations on the ALASKA JURIS. The ALASKA JURIS, by regulation, is required to have a credentialed Captain and Mate. Each stands 12 straight hours of navigation watch daily. During an officer's contract period, which generally ranged from 60 to 90 days, the vessel would operate continuously, leaving little time for general maintenance or training.

Regulations call for only four credentialed individuals on vessels like the ALASKA JURIS, which only had three at the time of the sinking. In addition to their primary duties, they were responsible for the safety of 42 other individuals onboard. Many of the processors had little, if any, shipboard experience but were routinely utilized for shipboard operations, such as fire fighting and dewatering teams. During testimony by factory workers who were assigned to the dewatering team, it was obvious that they were not proficient in the use of the dewatering equipment or operations. That sentiment was confirmed by Captain [redacted] and Chief [redacted] when they testified that the team had rigged the dewatering pump incorrectly, putting the discharge hoses into the engine room space that was flooding. Captain [redacted] felt he had too much going on to address the situation and seeing the improperly rigged pump likely expedited his decision to abandon the vessel. This particular event highlights the advantages of having a third credentialed mariner onboard ACSA vessels who could focus on maintenance, training and coordinating and responding to emergency situations. While having competent and capable individuals onboard any vessel who can conduct fire fighting and dewatering operations is critical, the amount of people onboard and the remote and harsh environment ACSA vessels operate in, makes this need all the more important.

5.18 Number of credentialed engineering officers onboard*:* There were an inadequate number of credentialed engineers onboard the ALASKA JURIS to comply with regulations or properly address routine maintenance or emergencies. The ALASKA JURIS, by regulation, is required to have a credentialed Chief Engineer and credentialed Assistant Engineer. Each stands 12 straight hours of engineering watches daily. During an officer's contract period, which generally ranged from 60 to 90 days, the vessel usually operated continuously, leaving little time for preventative maintenance or training. The ALASKA JURIS was a 40-year old vessel and because of its demanding operational schedule, required a lot of attention to maintain and repair equipment onboard. While finding engineers was previously a challenge, testimony from personnel responsible for hiring engineers stated that since the recent downturn in Gulf of Mexico oil production, credentialed engineers are readily available.

During interviews with other fish processing operators not in the ACSA program, they stated that they generally do not have a problem finding assistant engineers. They suggested the pay, material and working conditions on the older ACSA vessels were the primary reason for not attracting licensed personnel. The age, material condition, and complexity of the ALASKA JURIS engineering plant demanded a minimum of two fully licensed individuals, per the regulations, and possibly a third credentialed assistant engineer to better manage the extensive workload of these vessels. An individual with no formal engineering training, as was the case on the ALASKA JURIS, was insufficient.

5.19 Applicability standards for determining whether a fishing vessel is a fish processor: The longline and trawl fleets that fish in Alaska operate in one of three categories: Head and Gut, Beyond Minimal Processing or Extensive Processing. The differences between these processing methods are very subtle. A fishing vessel (Head and Gut) may remove the head, organs, gills and skin and not be considered a "processor." But if this same vessel was to remove the tail, cut fillets or keep the roe, it would be a *de facto* fish processor and would be required to be Classed and Load lined (unless grandfathered by age). While a vessel in the ACSA may conduct Beyond Minimal Processing, including cutting fish into steaks, removing cheeks and roe, they are not allowed to conduct Extensive Processing, such as cutting fillets, or butterflying the fish. Vessels engaged in Extensive Processing are not allowed to participate in the ACSA and must be fully classed and load-lined in accordance with 46 CFR 28.720 and 46 CFR Part 42. The determining factor for which of these processing categories a vessel falls into is what product codes established by (NMFS) the vessel generates.

During testimony, Captain [redacted] USCG (ret.), used two examples to explain the inconsistencies and flaws with using the NMFS product codes as a standard to determine which safety regulations apply to these vessels. Referring to fishing for Arrowtooth Flounder, he stated *"if you cut off the head and remove the guts, that's not processing. If you spin the fish around and with the same way cut off the tail, now that's a processing vessel."* Likewise, in referring to processing Cod, Mr. [redacted] stated *"another example would…if you retain roe. So if you retain it, you're a processor. So you're not doing anything different to it, it's just whether or not you keep it. If you keep it, you're a processor for all purposes."*

As evidenced above, the differences in operations between a "Head and Gut" vessel and a "Beyond Minimal Processing" vessel can seem negligible in terms of processing operations themselves. However, that delineation has a significant impact on which safety standards are required by the Coast Guard. The NMFS product codes were never intended to be used by the Coast Guard to determine a vessel's regulatory safety compliance applicability. The processing activities on the vessels themselves are not logically related to the implementation of Coast Guard safety standards in 46 CFR Part 28. Using product codes as a standard is a radical departure from the regulatory thresholds used for other regulatory requirements, which are generally founded on the number of personnel, passengers, cargo, operations, route, etc.

The regulatory safety and operational standards between a fishing vessel and a fish processing vessel are significant. A fishing vessel regulated as a Head and Gut vessel, is only required to have a voluntarily annual dockside fishing vessel safety examination,

in accordance with the standards in 46 CFR Part 28. Fish processing vessels have stricter requirements, determined by their build or conversion date. In the case of fish processing vessels built or converted prior to July 27, 1990, they are required, in accordance with 46 CFR 28.710 to receive third party examinations to ensure they are in compliance with the regulations contained in 46 CFR Part 28. Vessels built or converted after July 27, 1990 are required to meet classification society rules, in accordance with 46 CFR 28.720. Additionally, all fish processing vessels, (with the exception of a handful of much older vessels which were grandfathered), are required to meet load line standards, which include dry-docking examinations and annual structural and operational equipment surveys, in accordance with 46 USC §5201.

Based on the product codes of the activities it conducted, the ALASKA JURIS was designated by the Coast Guard as engaged in "Beyond Minimal Processing" and was therefore classified as a fish processing vessel and enrolled in ACSA. The Fishing Company of Alaska operations officer, Mr. [redacted] testified that Fishing Company of Alaska felt that the ALASKA JURIS's products did not really meet the "Beyond Minimal Processing" standard and therefore it should not have been considered a fish processing vessel. Mr. [redacted] among others in Fishing Company of Alaska management, stated that the company voluntarily stayed in the ACSA to enhance the safety of their personnel and vessels.

Whether the ALASKA JURIS was or was not a fish processing vessel under the product code standards was an ongoing topic throughout the investigation. However, based on the processing operations they were conducting at the time of the sinking, it was determined they were operating as a fish processing vessel conducting "Beyond Minimal Processing." This highlights the fact that, based on current applicability standards, the Coast Guard is forced to use a standard to determine the safety compliance of a class of vessels, impacting more than 1,000 fishermen and factory workers operating in one of the most environmentally challenging and isolated waters of the United States, solely based on how its catch is being processed.

5.20 Timeframe for development and implementation of Alternate Compliance and Safety Agreement (ACSA) program inspection standards: The initial timeframe for the implementation of the ACSA program was inadequate for Coast Guard program administrators and vessel operators to meet the equivalent of class and load line standards. The challenges the Coast Guard and industry faced in implementing this program were enormous. For starters, once the determination was made that these vessels were indeed fish processing vessels and unable to get classed and load lined, the Coast Guard was obligated to either rovide exemptions or require them to stop processing operations. The Coast Guard decided to develop and implement the ACSA with a very ambitious completion timeline of 18 months. This was not an adequate amount of time for the Coast Guard or industry to conduct both dockside and dry-dock inspections, allow the industry to make necessary repairs/changes and to comply with all program requirements.

The major hurdles the Coast Guard faced during this process were:

5.20.1 The majority of the fleet had never been held to any regulatory inspection standards, other than the few vessels which had previously held Load Line Certificates prior to being converted to fishing/processing vessels. In most cases, all of the requirements of the ACSA had to be identified by Coast Guard inspectors in lieu of third party surveyors or self-inspections by the industry. Unfortunately, at least in the case of Fishing Company of Alaska, this reliance on the Coast Guard to act as quality control for their vessels was the norm. This investigation revealed that in some cases, Coast Guard inspectors were essentially writing work lists for shipyard packages. In many cases, the vessel operators were reliant on what inspectors found during their preliminary inspection process to identify what repairs and improvements were required for compliance. This proved to be a continuous pattern of "business as usual" by many of the vessel operators throughout the ACSA program, as there was no expectation that they would conduct self-inspections of their vessels.

5.20.2 The majority of these vessels were not originally built as processers and underwent extensive modifications prior to becoming catcher/processors. The lack of written historical records regarding the vessels' hull and machinery, to include original vessel scantlings, piping system drawings and hull damage and/or repairs, greatly impacted the complexity of the preliminary ACSA inspections.

Not having these historical records was a huge barrier in establishing a baseline standard on which ACSA regulatory standards could be developed. The Coast Guard did not require vessel operators to provide reports or documentation, such as insurance surveys or classification survey reports (if available) or require operators to hire third-party surveyors to assist the Coast Guard inspectors as part of the program's vetting and enrollment process. These outside sources of information could have been helpful in giving the Coast Guard a snapshot of the vessels' condition and history.

Due to the expedited nature of the ACSA program's development, there was not an initial gap analysis conducted to identify shortfalls the program would have to overcome to ensure the standards would be equivalent to classification society and load line surveys. A gap analysis would also have been an important tool to help identify and justify inspection standards and focus on those critical/gapped areas during the initial vessel vetting process. The gap analysis also would have been helpful in supporting the formulation of safety standard equivalencies that would have ensured any standards not achievable on a particular vessel due to design, were addressed early in the process.

During the ACSA program development phase, the Coast Guard never developed policy that would have established disenrollment thresholds for vessels not meeting program requirements. District 13 Fishing Vessel Coordinator Mr. [redacted] stated:

"Now, if the OCMI had decided that the condition of the vessel was such that the work can't get done and the vessel's not safe, then certainly the vessel should be disenrolled from the program and I wouldn't mind if at that point they were to say 'you can get all this stuff fixed and you could come back in the program and be allowed again to produce those products, but while you were disenrolled you would not be able to produce those products'."

ACSA program policy does state that once a vessel is disenrolled from the program the vessel could not reenroll. Over the years, a number of vessel operators self-disenrolled from the program for various reasons. However, since the program's inception in 2006, the Coast Guard only removed one vessel from the program: the ALASKA JURIS, which was reenrolled four months later.

The Coast Guard's expedited timeframe for the development and implementation of the ACSA program was instrumental in allowing the ALASKA JURIS to enter the ACSA program without the benefit of conducting a thorough inspection of the vessel's systems and remain enrolled with constant deficiencies. In fact, that posture allowed the ALASKA JURIS to operate below minimum ACSA program standards throughout its entire time in the program. The Fishing Company of Alaska clearly treated the ACSA inspection program and its need to comply with its requirements as a "war of attrition." That mentality was fostered by the Coast Guard's willingness to allow the vessel to operate with significant deficiencies, such as the improper installation of mechanical couplings on fuel and sea water systems and unauthorized use of PVC piping in vital systems. In some cases, these significant deficiencies had their due dates extended to avoid interfering with the vessel's operations. The Coast Guard's relaxed enforcement posture could explain why it took approximately 3 ½ years for the ALASKA JURIS to complete the minimum enrollment standards for the ACSA program. During that period, the ALASKA JURIS was given three extensions after the required enrollment date. At no time during the ALASKA JURIS's six years in the program was it ever taken out of service for not meeting an ACSA program requirement, including the four months between when it was disenrolled and reenrolled.

Multiple witnesses testified that the ACSA program made noteworthy improvements in the overall condition of the fleet and the quality of training for crewmembers and factory workers. Several witnesses were of the opinion that improvements by ACSA likely saved lives during the sinking of the ALASKA JURIS.

5.21 Coast Guard inspections personnel resources necessary to manage the ACSA program**:** The Coast Guard did not provide the ACSA program with the necessary personnel resources to allow for the inspection of these aging vessels. In 2006, when the Coast Guard developed this program, the inspection resources necessary to conduct the initial inspections of the vessels were taken from Sector Puget Sound's Inspections Division. Due to the age and overall condition of these 60+ vessels, including ALASKA JURIS, and the ambitious 18-month timeframe placed on getting them enrolled in the ACSA program, marine inspectors assigned to conduct these inspections were quickly overwhelmed. This forced them to prioritize their inspection work to enable the vessels the best opportunity to meet the timeframe with the staffing resources they had.

Mr. [redacted] (a retired USCG inspector) testified that *"initially when we started the program, we did it in a triage fashion, because there was no way we could go on -- it was evident when we first walked on the first boat, there was no way you could go top to bottom and walk off that boat and not put each individual owner out of business. So we started with the envelope of the ships, the hull, and worked our way up from there as the program progressed. We would need 42 bodies just to manage and operate the*

program…What we learned out of the extent and time involved with dry-docks and everything else involved with these boats, it was going to take an exorbitant amount of time…That wasn't something we pulled out of the air. It was based on actual time and resources that we already put forth that was initially when I started doing the ACSA boats, nobody knew what to do with all the extra time I was putting in, and they told me just put in comp time…When the district had to pay out 370-plus hours of comp time, because [I] physically couldn't take the comp time in a year, that's when Mr. [redacted] *said, 'okay, we've got to stop the comp time, because they're not going to pay that'…so we went and used the policy for overtime."*

Captain [redacted] also expressed his concerns with the timeframe and limited inspectors saying *"We had 18 months to bring the boats up to speed…. I was very concerned from the very start that that was way too aggressive, just given the availability of shipyards here in Puget Sound and the amount of work that was probably going to need to happen on these boats that that was an unlikely outcome."*

Once the vessels entered the program, District 13 and District 17 assumed the annual inspection and biennial dry-dock inspection of these vessels. Sector Puget Sound, in additional to their normal inspected fleet responsibilities, picked up the brunt of the work, since the vast majority of the vessels were home-ported in or around Seattle. Further limiting Coast Guard resources (and rightly so) was the determination that due to the overall age, size, and complexities of this fleet, these inspections could only be conducted by qualified marine inspectors who possessed Hull, Machinery and Drydock qualifications.

In January 2009, in response to the ALASKA RANGER sinking and the Marine Board of Investigation that followed, Coast Guard Headquarters created three billets to support the ACSA program. One billet was an administrative position at District 13 to manage the program. The other two were inspector positions, one at Sector Puget Sound and one at Sector Anchorage.

Another area of concern regarding the administration of the ACSA program was the apparent lack of involvement by active duty marine inspectors. Most of the ACSA inspection workload is carried by civilian inspectors in the Sector Puget Sound fishing vessel safety section. Several ACSA inspectors expressed concern and frustration that no uniformed personnel were involved in the daily inspections or management of this program and perceived this as an indicator that the program was marginalized. They felt that the commercial fishing vessel safety program generally, and the ACSA program specifically, was not regarded with the same importance as other inspections programs.

The ACSA program is in serious need of additional inspection personnel in order to successfully manage the ACSA fleet to prevent additional incidents. There is insufficient evidence to conclude that a lack of Coast Guard inspection personnel resources directly impacted the sinking of the ALASKA JURIS.

5.22 Oversight by classification societies and third parties: The lack of classification society participation in the early stages of the ACSA program's development resulted in an enormous oversight burden on the Coast Guard, which the ACSA program still

struggles with to this day. Fish processing vessels are required in 46 CFR Part 28.710 to be examined by the American Bureau of Shipping or a similarly qualified organization. However, the vessels determined to be fish processing vessels in 2006 were old and were built without regulatory or class standards. Most had never had a classification society or load line survey examination, or were converted into fish processing vessels at some period in their service lives. As a result of a combination of some or all of these factors, the classification societies, due to their own policies, declined to issue class or load line certificates to these vessels. This left the Coast Guard and industry with two options: 1) require vessel operators to limit their processing activities to Head and Gut, or; 2) exercise the Coast Guard's regulatory authority to exempt the vessels from classification under 46 CFR 28.60 and load line requirements under 46 CFR 42.03-30 if the vessels complied with the ACSA. At the time, senior Coast Guard leadership at District 13 were aware of how flawed the product code-based regulatory standards were for ensuring the safe operation of these vessels but were motivated to get these vessels into a regulatory regime. As far back as the early 1990s, the fish processing fleet had suffered a series of major marine casualties involving the deaths of vessel crews and factory workers (March 22, 1990 - ALEUTIAN ENTERPRISE: 9 dead. April 2, 2001 - ARCTIC ROSE: 15 dead. October 20, 2002 - GALAXY: 3 dead.)

5.23 Qualifications and training required for ACSA vessel inspections*:* Since the creation of the ACSA program, the Coast Guard has used insufficiently qualified and trained Coast Guard marine inspectors to complete annual inspections. Since 2010, the ACSA vessel guidelines require that ACSA inspectors possess marine inspector qualifications consisting of Machinery, Hull and Drydock, depending on the type of inspection being conducted. ACSA vessels are also required to undergo a "Dockside Safety Examination" in addition to the ACSA program inspection requirements. These examinations, also known as "Part 28 exams," are conducted by Coast Guard personnel who possess Commercial Fishing Vessel Examiner qualifications and do not always hold marine inspector qualifications. Current and past Coast Guard marine inspectors testified that while many had the required inspection qualifications needed to conduct ACSA inspections, they were unfamiliar with how to inspect ACSA vessels because of the unique standards.

The Fishing Company of Alaska was the only company operating ACSA vessels which did not periodically bring their vessels to Seattle for maintenance and repairs. Instead, they operated out of Dutch Harbor, Alaska and conducted all required inspections other than dry-dock there. Sectors Anchorage and Puget Sound sent ACSA inspectors to Dutch Harbor from time to time to assist the local unit with ACSA vessel inspections, but their time there was generally limited due to costs and logistics.

Marine Safety Detachment Unalaska, located in Dutch Harbor, is what the Coast Guard considers an "isolated duty station" where personnel serve one year tours. There are two billeted marine inspectors there, a Lieutenant (Detachment Supervisor) and Chief Warrant Officer. The Coast Guard struggles with getting inspectors with the necessary Hull and Machinery qualifications assigned there due to its isolated duty designation. There is supposed to be a "pipeline training" program in which marine inspectors, prior to reporting to Dutch Harbor, spend a period of time at Sector Puget Sound conducting ACSA inspections and working with full-time ACSA inspectors and learning about the program. Over the years, this training program has not be consistently implemented or

enforced by Sector Anchorage for various reasons. It is unfortunately normal for Dutch Harbor inspectors to lack ACSA program experience or the required qualifications to conduct all ACSA program inspections.

Numerous ACSA inspectors, supervisors and administrators were unaware of the requirements regarding minimum qualifications for ACSA inspections. During testimony by Mr [redacted] Chief of Inspections, Sector Puget Sound, he testified that he used Commercial Fishing Vessel Examiners to conduct the Hull exam portion of the ACSA inspections despite program guidance and the fact the Commercial Fishing Vessel Examiners do not have the same level of marine inspection experience. When asked what qualifications he required inspectors to have to perform an ACSA inspection he testified: *[for the Part 28 examination] they have to have that experience as a fishing vessel examiner. The machinery inspector is one of qualifications required, there's also dry dock inspector. [As for hull inspector], if you look at the ACSA checklist, the great majority of those hull-type requirements are Part 28 examination requirements, so those are equivalent to fishing vessel examiner. [A hull qualification is not required] but we have had supervision and oversight of Mr.* [redacted] *who had all those qualifications and performed those exams with the rest of the ACSA inspectors.*

A review of the four current Position Descriptions (PDs) of ACSA inspectors at Sector Puget Sound (2) and Sector Anchorage and District 13 showed that only two of the four PDs mentioned the ACSA program and outlined the inspection requirements necessary to conduct ACSA inspections. Testimony from numerous Coast Guard witnesses revealed that based on the ACSA fleet age, lack of regulatory oversight and vessel construction details, these vessels will always present a challenge for even the most seasoned marine inspectors. Therefore, the ACSA program having a robust and competent cadre of seasoned inspectors is of the utmost importance. This investigation found no evidence that unqualified Coast Guard marine inspectors led inspections on the ALASKA JURIS.

5.24 ACSA policy for reporting and inspecting of repairs to vital piping systems: There is no policy guidance in the ACSA program for the reporting and inspection of vital piping systems. The ACSA program guidance identifies vital piping systems in Section G. Machinery Systems and uses references in 46 CFR Part 56 as the standard the individual piping systems must meet. However, there is no ACSA program guidance directing vessels operators on when they must inform the Coast Guard about the failure of a vital piping system that falls below the marine casualty reporting threshold in 46 CFR Part 4.

Vital system piping is identified in the ASCA Guide as fuel oil for main propulsion and emergency generators, lubricating oil systems, cooling water for main propulsion and emergency generators, bilge and ballast systems, starting and control air systems and fire main and firefighting systems. The regulations in 46 CFR Part 56.97-40 include the testing requirements for the different piping systems, as well as the requirement that these systems be "tested in the presence of a marine inspector." The failure to articulate the reporting and testing standards in the ACSA guidance has led to confusion among ACSA inspectors and vessel operators. When Mr. [redacted] an ACSA inspector from Sector Anchorage, was asked if ACSA vessels are required to report failures of vital piping he testified: *"It does not say all piping repairs. It discusses vital piping*

systems and vital systems. Whether it's clearly spelled out they need to be advised, I don't know."

As evidenced by testimony and work orders, the ALASKA JURIS experienced many failures of vital piping systems ranging from fuel oil, sea-water cooling systems, bilge and fire main over the 3-year period prior to the sinking. Rarely, if ever, were any of these failures reported to the Coast Guard. While many of these systems were repaired, the type of repair and standard it was repaired to is unknown, as the Coast Guard did not review repair proposals or testing. In cases where the Coast Guard issued deficiencies related to vital piping, many of these repairs were carried out in Dutch Harbor without any Coast Guard oversight. Had the ACSA program implemented a requirement that all vital piping system failures be reported to the Coast Guard and those repairs be inspected and tested to the satisfaction of a Marine Inspector in accordance with 56.97-40, the vital piping issues which plagued the ALASKA JURIS could have been identified and rectified.

5.25 Diesel fuel in the #2 and #3 port and starboard fish holds*:* Fishing Company of Alaska was aware of numerous fuel leaks coming from both the # 2 and #3 port and starboard fish holds into the #1 fish hold, where fish product was stored and subsequently contaminated. The reason behind carrying extra fuel in those tanks was to allow the vessel to stay at sea longer. The vessel would burn fuel in the fish holds first and then manually clean the tanks before loading fish product in them. It was never clearly or consistently explained how the resulting oily water mixture was disposed of. The fish holds on the ALASKA JURIS were never designed to hold fuel, were not pressure tested and had no baffling installed to minimize the free surface effect. Without baffling, the fuel was allowed to continuously splash and slam against the tank bulkheads, eventually causing them to crack and leak. Mr. [redacted] testified: *They hadn't put fuel in the number twos in a long time, so it has to be coming from number three because that was the only fish hold that they ever put fuel in. …. the metal liner is not watertight, because these [former] tuna vessels when they're constructed, they're constructed with primarily longitudinal stanchions, very few vertical stanchions on those vessels. So when they go through a separating bulkhead, they back, so anything that goes in behind that liner will slowly leak down to number one….The liner gets a hairline crack in it sometimes. And then over time, it soaks into that foam and then after - when it gets really soaked, it will (inaudible) out until it's dried up again. We tried – we continuously pressure tested the liner to find the crack. We can't weld on them unless we take out the entire liner, so we have to wait until we can cut out section of the liner and take three feet of foam on each section of cutout before we can even put in a new piece. Number two was done a few -- three years ago. A lot of that liner was replaced, too."*

Mr. [redacted] also testified*:"one of the Coast Guard's concerns is why they wanted us to get rid of them because there was quite a bit of free surface in there but…they were on the stability booklet for us to use….Their concerns were primarily that it's – the free surface – they weren't baffled properly."*

According to Chief [redacted] engineering log book, Fishing Company of Alaska continued the practice of loading fuel in those holds from when they converted the

ALASKA JURIS to a fish processing vessel until at least June 24, 2016, when he made this entry: "start loading fuel #3 P/S FH". When asked why they stopped, Chief [redacted] testified: *"There was two reasons – actually there's multiple reasons. We started using the number nines and even though the number nines weren't on the stability sheet, I wasn't aware that the number threes and number nines together. And another reason was fuel leaking into number three – I mean, to the freezer holds."*

Based on testimony by Captain [redacted] when the ALASKA JURIS entered the ACSA program they continued to use the #2 and #3 port and starboard fish holds as fuel tanks but never stored product in them. The February 2011 stability booklet, reviewed and authorized by the OCMI Puget Sound, allowed for the use of the #2 and #3 port and starboard fish holds for the storage of fuel. The fuel burn tables in the stability booklet also required that the fuel in these tanks be burned first. Over the previous two years before the sinking, they continued to struggle with identifying the source of the fuel leaking into the #1 fish hold. Despite numerous attempts at fixing the problem, it continued up until the sinking.

Testimony by Fishing Company of Alaska's port engineers revealed that recent leaks were not reported to the Coast Guard. Coast Guard inspector Mr. [redacted] testified that he was aware of the fuel leaking problems in the past. *Q: As a Coast Guard inspector, you had no concerns about that migration? A: You always have concerns. There's nothing you can do except rip the entire liner off the boat, stem to stern, rebuild the bulkheads so the fuel wouldn't migrate. It was just the initial design was inherently wrong for what they were trying to do putting fuel in there. They put fuel in there when it was a tuna boat a long, long time ago. They also filled that boat just like a crab boat, top to bottom with brine until – Q: The Coast Guard should had stopped them from using the number three fish hold for safety reasons, because of the fuel in the insulation. A: Explain to me where the danger is and I would say yes. But it's not migrating to an area that was (inaudible). It's typically sealed into an environment that's minus 20 degrees. We attempted to and fixed a lot of leaks from mitigation of fuel when we docked. But to fix it, you would have to tear that entire liner off and rebuild every bulkhead to our standards. Q: To mitigate the leak we know fuel is leaking from a tank, (inaudible)? A: Yes, when we did the inspections with the fuel in there, we found broken welds, they were being welded, and did everything we could to mitigate fuel migrating.*

For years, the ALASKA JURIS operated while carrying fuel in fish holds which were not designed or appropriate for its carriage. Not surprisingly, this practice resulted in damage to the tanks/holds and caused leaks which plagued the vessel for years. These cracks allowed fuel to leak into the insulated barrier space where it migrated to other holds.

Several crewmembers and numerous processors testified that fish was occasionally contaminated and that on more than one occasion fish was returned from the tramper due to fuel contamination. E-mails from the captain to Fishing Company of Alaska indicated that in one ten day period, 60 cases of fish product were contaminated with diesel fuel and had to be disposed of. Additionally, an engineering log entry dated July 7, 2016, described removing over 1,000 gallons of fuel oil from the #1 centerline and #2

port and starboard fish holds. While not applicable to the ALASKA JURIS due its keel laid date, 46 CFR Part 28.335 requires that fuel tanks meet the construction standards in 46 CFR Part 58.50-10. The fact the Coast Guard has standards to which diesel fuel tanks must be built to highlights the emphasis the Coast Guard has on ensuring fuel tanks and systems are sound. Restricting the vessel from carrying fuel in the fish holds would have been the proper and simplest means to mitigate and resolve this problem until proper repairs were done. There is no evidence to suggest that fuel leaking between fish holds was a causal factor in any event related to the sinking.

5.26 District 13 ACSA program coordinator: The District 13 program coordinator position is no longer serving its intended function of support and management of the ACSA program. In January 2009, one of the three billets created for the ACSA program by Coast Guard Headquarters was an ACSA program coordinator position, located at District 13. At the time of its creation, that position was responsible for coordinating annual stakeholder meetings, reviewing and preparing exemption letters for the District 13 Commander's signature and managing updates to the program, including publishing of the ACSA Guidelines. Testimony provided by previous and current personnel involved in the ACSA program suggested that the District 13 ACSA administrator position is no longer required for the program and adds little value. The administrative functions carried out by this billet could be performed by Sector Puget Sound's Chief of Inspections, who is already drafting exemption letters for the District Commander to sign. Since the annual stakeholder's meetings were discontinued in 2012, the program coordinator has not been conducting outreach to the industry or to the Sectors involved in the program.

During testimony, Mr. [redacted] stated *"the reason we stopped [the stakeholder meeting] in 2012 was twofold. People weren't coming, nothing was changing, they were taking a lot of time out of their day to come and have coffee and have donuts and listen to us talk about the same stuff again…the program was solidified…the stakeholder meetings were no longer necessary."* ACSA program leadership expressed a consensus that the plan all along had been to end the stakeholder meetings once the program was well established and that they routinely met with operators during other functions anyhow. Current and former ACSA program inspectors and managers felt that the billet should be transferred to Sector Puget Sound and converted into an ACSA inspector billet. When asked why the ACSA coordinator was not more engaged in the program over the past couple of years, Mr. [redacted] testified that the District 13 ACSA Program Coordinator, has been doing a lot of work since 2010 with Coast Guard Headquarters, CG-CVC-3 on the development of the new Alternate Safety Compliance Program, which is unrelated to his ACSA work. *"What [he has] been doing since 2010 is going around the country with different fishing vessel safety coordinators, district coordinators around the country, to develop the Alternate Safety Compliance Program…So he has been as busy as any marine inspector or Coast Guard fishing vessel dockside examiner at doing that task. So he's been extremely busy working for the program manager… back at headquarters."*

The role of the District 13 ACSA program coordinator did not contribute to the sinking of the ALASKA JURIS.

5.27 ACSA vessel familiarization training for Coast Guard Boarding Officers conducting law enforcement operations in District 17*:* The training for Boarding Officers operating in Western Alaska does not involve the ACSA program. ACSA vessels are routinely boarded by Coast Guard cutters conducting law enforcement and safety boardings in the Bering Sea. However, Boarding Officers are not provided with any information about the program when they are briefed by D17 staff and are unaware of the additional requirements that ACSA vessels are required to meet.

The ALASKA JURIS was boarded on March 2, 2016 by the Coast Guard Cutter (CGC) MUNRO. During the course of that boarding, had the Boarding Officer been aware that the ALASKA JURIS was in the ACSA program, he may have identified that the vessel was not in compliance with the ACSA program's manning requirements, since their unlicensed assistant engineer was not authorized by Sector Puget Sound. Other routine checks, such as ensuring watertight doors were closed and operational and checking the ACSA required Loading Mark would have made the cutter an excellent force multiplier to ensure the vessels were operating in accordance with ACSA standards while at sea. There is no evidence to suggest that any actions by the CGC MUNRO boarding team contributed to the sinking of the ALASKA JURIS.

5.28 ACSA vessel exemption letter: The information on the current ACSA program exemption letter is insufficient to ensure that the owners, licensed officers and Coast Guard boarding officers understand the operational parameters these vessels must operate within. The current exemption letter template, as outlined in Annex 5 of the ACSA guidance, only discusses the basis for the exemption, the expiration date for the exemption letter, and next dry dock dates. While the information in the exemption letter meets the Coast Guard requirement in 46 CFR Part 28.60, it does not provide enough information regarding the program's parameters for vessels crew or Coast Guard boarding officers. For comparison, Coast Guard boarding officers examining an inspected passenger vessel, for example, have all of the information they need on the Certificate of Inspection, which also instructs the crew on their vessel's operating parameters.

It was clear that the licensed officers on the ALASKA JURIS knew little about ACSA's standards or requirements. Furthermore, they testified that they were normally not present during the ACSA inspections. This lack of understanding concerning the ACSA program led to a cavalier attitude amongst the crew toward the program's requirements. They seemingly relied on company management and port engineers for guidance. This environment fostered a responsibility void between Fishing Company of Alaska management and the crew that negatively impacted the safety of the vessel. There is no evidence to suggest that the lack of information provided on the ALASKA JURIS's exemption letter was a causal factor in the sinking.

5.29 Role of Fishing Company of Alaska port engineers: Fishing Company of Alaska's port engineers failed to adequately ensure the ALASKA JURIS received the engineering support necessary for safe operations. While there is no universal definition of a port engineer's duties, they are generally responsible for the maintenance and repair of vessels in a company's fleet and for the supervision of its engineering personnel. Port engineers are usually licensed Chief Engineers with years of shipboard experience.

Fishing Company of Alaska had employed three port engineers to manage their fleet. All three individuals were previous employees of Mr. [redacted] who owned and operated Trans Marine Propulsion Systems, Inc. in Seattle, WA. Trans Marine Propulsion Systems was contracted by Fishing Company of Alaska between 1990 and 2011 and supervised all port engineering operations. Mr. [redacted] whose relationship started in 1990 as a Trans Marine contractor, became a full time employee with Fishing Company of Alaska in January of 2012; Mr. [redacted] was a licensed Professional Mechanical Engineer who started working for Fishing Company of Alaska in 2013 but had worked with them prior to 2001, when he was employed with Trans Marine; and Mr. [redacted] who started full time with Fishing Company of Alaska in 2013 but worked with them as a mechanic with Trans Marine from 1989 to 2013. When Fishing Company of Alaska stopped using Trans Marine's services, all three individuals left Trans Marine and worked directly for Fishing Company of Alaska with Mr. [redacted] designated as the senior engineer.

Mr. [redacted] provided testimony related to the period of time when Trans Marine was acting as the *de facto* port engineer, overseeing all repair work on Fishing Company of Alaska's vessels. He testified: *Q: So what, in your opinion, was the overall material condition of the Alaska Juris? A: She was in very poor shape… Q: [D]o you remember the condition of the piping on board the Juris? A: Yeah. Q: How was it? A: Very poor. We had a lot of problems with that boat, the cargo holds and piping and – Q: In 2011 [the last time Mr.* [redacted] *was on board] was the piping in bad shape? A: Yeah. Q: You said that you tried to fix the piping? A: Yeah, many times. I mean, we -- a lot of patching up, but not the whole pipe system, no. Q: Why not? A: I couldn't answer that question to be honest with you, because at that time. Q: Was the piping on the Juris bad before you left? A: I would say so. I would -- yeah, would say so. It was a bad system, I mean...Q: But you don't remember ever making an attempt to replace the whole piping system? A: No, we never -- he never did that.*

In 2011, Mr. [redacted] hired Chief [redacted] as the Chief Engineer on the ALASKA JURIS, a position he would hold for five years until March 2016. During the hearing, all three port engineers described Chief [redacted] as a good Chief Engineer. However, that description is questionable based on other testimony. During the course of the investigation, when the Coast Guard asked for engineering records and documents regarding the ALASKA JURIS, Mr. [redacted] testified: *"We got very little feedback from* [redacted] *He's a very difficult person to work with."* Chief [redacted] routinely failed to maintain or supply Fishing Company of Alaska with any records related to the maintenance of the ALASKA JURIS's engineering equipment despite being told to do so. When Mr. [redacted] was asked about what actions he took to address the problems, he testified*: [although he possessed the power to fire Chief* [redacted] *Well, I didn't fire him, because one of the big problems we have, at that particular time, is finding another chief engineer. Now there's quite a lot of chief engineers [available in 2016], because of the oil problem. Back then, boy, you would have to turn over every rock to find a chief engineer, and you didn't even know what you were getting either. So, you know --* [redacted] *overall wasn't a bad chief engineer, (inaudible). But other than that, he was fairly good mechanical engineer."*

When Chief [redacted] joined the ALASKA JURIS as the relief Chief Engineer, he immediately started sending e-mails to all three of Fishing Company of Alaska's Port Engineers expressing his concerns about the material condition of the ALASKA JURIS's engineering systems and the lack of replacement parts. Captain [redacted] echoed Chief [redacted] concerns. None of the three port engineers took any action. Chief [redacted] testified: *"I don't think they took it serious. I would say 'out of sight, out of mind' kind of thing. I felt like I was always in a hurry to get back out to go fishing, 'leave, go away, because you're a pain in our butt' kind of attitude. We have port engineers who don't have any engineering experience and I get 'I can't wait until you guys leave, so I can go home' kind of thing. You're here to support us. It just wasn't that cohesiveness or working together kind of thing."*

When asked if he felt the port engineers were competent in their jobs, he testified *"No, sir…their lack of knowledge of the vessel, or any vessel, including our vessel. I don't seem to get a response, sometimes it's nothing at all. Like I said, I don't think they took it serious. I'd send an email, make phone calls, and nobody answers, nobody gets back to me, so I went right to the man [Mr. [redacted] the CFO] and said 'what's going on here, I need parts, I need this.'"*

Mr. [redacted] a licensed Chief Engineer with more than thirty years of engineering experience, was initially hired by Fishing Company of Alaska to be a relief engineer. He traveled to Dutch Harbor and met with Chief [redacted] aboard the ALASKA JURIS. He quit the following day after considering the condition of the vessel. He testified: *"I told [Chief [redacted] in my opinion the JURIS needed six or eight months in the shipyard. At best on a scale of one to ten, it was a three in my opinion…I sat in the hotel room fighting myself over taking the job or not and was talking to an old friend, who is also a mariner, and told him my biggest thing that's bugging me is if I take this job, I'm going to have to lie to my wife and kids about the condition. I couldn't tell them the condition of this boat and have them feel like I should be on it and I was safe at sea."*

Throughout 2015-2016 the vast majority of the port engineering oversight was being done by Mr. [redacted] and Mr. [redacted] due to Mr. [redacted] illness. When Mr. [redacted] and Mr. [redacted] were questioned regarding testimony and e-mails describing engineering problems on the ALASKA JURIS, they both denied knowing anything about it, despite their e-mail addresses being on the "To" lines. They testified that neither of them was assigned to manage a particular vessel, so there could have been internal miscommunications with one thinking the other was handling the issue. This would also explain the lack of e-mail responses to the requests. None of the port engineers ever conducted an inspection of the ALASKA JURIS engineering spaces or investigated the problems being brought to their attention, despite knowing that Chief [redacted] was not providing the required reports and that a newly hired Chief Engineer was reporting serious issues to them.

Concerns about the ALASKA JURIS's engine room piping came to light during the November 2014 dry-dock exam in Ketchikan AK. There, a Coast Guard Marine Inspector found over 50 mechanical couplings on fuel and sea water piping systems. The couplings appeared to the marine inspector to have been installed on those systems

to facilitate repairs. When asked who put them on, Mr. [redacted] testified: *"To be honest with you, nobody would -- we never found out who put them on. We do have a few chief engineers that rotate out, but primarily [redacted] was on there most of the time. So I can't say who put them on. They certainly did not come, from my knowledge, through Seattle. There's no reason for a Dresser coupling [a common trade name for a mechanical coupling], other than an emergency repair and if you have a pipe that's going to a solid piece of machinery, you can put a Dresser coupling in there as an anti-vibration so the pipe doesn't break. That's the only reason I know of a Dresser coupling being in place."*

When asked who paid for the couplings he testified: *"I never saw any requisitions coming through purchasing department for 50 Dresser couplings. I mean, that would send a red flag right away. Now, they could purchase them themselves from petty cash, because the boats carry a few thousand dollars worth of petty cash."*

Fishing Company of Alaska spent approximately $331,000 between 2013 and 2016 on piping replacements projects on the ALASKA JURIS just in Dutch Harbor, AK. The work was done entirely by one vendor, either while the vessel was in port or offshore while unloading their catch to "fish trampers". Despite this enormous amount of money being spent on piping projects alone, it does not appear that any of Fishing Company of Alaska's port engineers were concerned about the piping conditions on the ALASKA JURIS, nor did they consistently supervise or inspect the work. Mr. [redacted] testified that the Chief Engineers essentially had complete discretion to identify which lengths of pipe were in need of replacement and how best to repair or replace them.

While the material condition of a vessel's engineering spaces and equipment is first and foremost the responsibility of the Chief Engineer, the lack of experience, involvement and oversight by the Fishing Company of Alaska's port engineers proved instrumental in allowing the material condition of the ALASKA JURIS to deteriorate. Because the port engineers worked with the ALASKA JURIS even prior to working for Fishing Company of Alaska, the reports they were receiving from Chief [redacted] should not have been a surprise, or at a minimum, should have caused the port engineers to investigate the problems thoroughly.

5.30 Organizational structure and management philosophy at the Fishing Company of Alaska: The organizational structure and management of Fishing Company of Alaska was flawed when it came to ensuring the safe operation of the ALASKA JURIS. After his mother's death in January 2016, Mr. [redacted] assumed the responsibility as the owner and manager of Fishing Company of Alaska with his sister, Ms. [redacted] who assumed the position of secretary. Through an affidavit provided by Fishing Company of Alaska's attorneys, Mr. [redacted] and Ms. [redacted] attested that neither had any involvement in the day-to-day operations of Fishing Company of Alaska and identified Mr [redacted] Mr. [redacted] and Mr. [redacted] as the company's managers. Fishing Company of Alaska employees indicated that Mr. [redacted] was the Chief Financial Officer and the person ultimately in charge of Fishing Company of Alaska's management. When Mr. [redacted] was asked who he worked for, he testified: *"My boss has to be [redacted] the president of the company."*

Mr. [redacted] testified that his position was Operations: *"I wear a lot of hats in the office. The boats talk to me on a day-to-day basis about areas that they're going to be in. They check with me on regulations. Basically I do the best I can to see that they're legal in all respects and safe and productive.*

Mr. [redacted] testified that he was the Senior Port Engineer, but had been sick over the past two years and had not spent much time interacting with the boats. When Mr. [redacted] was asked about the Fishing Company of Alaska's organizational structure, he testified that the management style was a *"management group": "It's something that's only come about in the last couple of years really and it got less and less as the owner got sick. She used to be constantly in contact with the vessels and the office every day until she started -- her health started to go. Since then, this management sort came together."* When asked who makes the overall decisions he answered *"Well, depends on what -- depends on what department it is. If it's an engineering decision, then we will do that. We will make that decision. [Formulating company policy is] also done by operation committee. Lal, who is our controller and in charge of all the financing, he sort of takes a leadership role, but he doesn't -- he's not an engineer or a -- he's a CPA…. Like I said, when the owner was alive, she was she was the go-to person for everyone*.

Testimony by Captain [redacted] and Chief [redacted] confirmed that Fishing Company of Alaska management's team structure often made it difficult to get answers to questions and resolution of concerns the crews had. In an attempt to overcome this problem, they routinely added multiple addressees to e-mails and would make multiple phone calls to different people at Fishing Company of Alaska in the hope that someone would respond. On many occasions, they never received a reply and in some cases the issue would remain unresolved.

There was testimony and numerous e-mails involving dysfunctional management which routinely occurred on the ALASKA JURIS. For example, the captain had issues with the fish master who was storing fishing equipment where it was blocking emergency escapes, life raft access or watertight fittings or creating stability concerns. After failing to resolve this issue with the fish master, the captain had to contact Seattle, who then contacted Anyo in Japan who in turn communicated with the fish master. At one point the captain's frustration caused him to send an email to the company threatening to quit if these safety issues were not resolved. On other occasions, the captain emailed the Fishing Company of Alaska requesting them to pass direction and information to the Chief Engineer, rather than talking to him in person. This was due to their toxic relationship. The captain also relayed information to the company regarding the relationship between Chief Engineers [redacted] and [redacted] who had been bickering and were no longer talking with each other which was negatively impacting the management of the engine room. This issue also went unanswered by management at the company.

Chief [redacted] had been hired as a relief engineer for the ALASKA JURIS. The company had planned for him and Chief [redacted] to make several trips together in order for Chief [redacted] to familiarize himself with the vessel. However, on one of the port calls in Dutch Harbor, Chief [redacted] left the ship without warning anyone due to his

poor relationship with the company, the captain and Chief [redacted] His assistant, also not scheduled to depart, left with him. This resulted in Chief [redacted] assuming the duties of Chief earlier than planned. Though not licensed as required, the company also sent a new assistant engineer to the vessel.

When asked about whether he was aware of issues regarding Chief [redacted] Mr. [redacted] testified: *"I didn't hear much about [redacted] while he was on the boat. So all I knew then -- by the way, I've never spoken with [redacted] and I wouldn't be able to pick him out of a lineup. I know early on he and [redacted] had serious interpersonal issues. They didn't like each other worth a darn, and I guess there was no communication. But at that period of time, I was still under the impression that [redacted] was a competent engineer that was doing his job. Later on I heard conversations to the contrary, that was after he had walked off. And when that came out, we decided to just keep him off. We were lucky enough to have [redacted] up there we were going to be putting on the boat maybe toward the future, but that's all I know about [redacted]*

Though the Fishing Company of Alaska employed hundreds of persons who operated and worked on their vessels, they did not have any policies regarding procedures related to management, spare parts, supply ordering, testing requirements or Preventative Maintenance System (PMS). Fishing Company of Alaska did indicate that the Chief Engineer was supposed to provide a report related to engine maintenance and oil sample results. They went on to say that Chief [redacted] had not provided this for over 18 months. When asked, they indicated that there is no written policy for this and they did not act in any fashion when Chief [redacted] failed to submit these reports.

5.31 Involvement of Japanese nationals in Fishing Company of Alaska management and operations: The relationship between Fishing Company of Alaska and [redacted] Corporation of Japan caused confusion, resulted in conflict and negatively affected the management of Fishing Company of Alaska vessels. According to the Coast Guard Vessel Documentation Center, Ms. [redacted] was the owner of Fishing Company of Alaska and owner and operator of the ALASKA JURIS for over 20 years until her death on January 1, 2016, at which time ownership passed to her son, Mr. [redacted] Ms. [redacted] was divorced from Mr. [redacted] a Japanese national and the owner of [redacted] Corporation Ltd.

One of the [redacted] subsidiaries is Anyo Fisheries, which received all of Fishing Company of Alaska's product for sale and distribution throughout Asia. As part of that collaboration, Fishing Company of Alaska was obligated by Anyo Fisheries to hire Japanese nationals to serve on their vessels as fish masters and quality control technicians. On the ALASKA JURIS, this consisted of five individuals. The Japanese Fish Master assisted the vessel's American captain with fishing techniques and identifying fishing areas based on direction provided by Anyo Fisheries representatives in Japan. The fish master also supervised the fishing operations out on deck (such as working nets, operating equipment, etc.). The Japanese quality control technicians were responsible for maintaining the processing factory machinery, fish hold refrigeration system equipment, and hydraulic machinery related to fishing operations. Many of the technicians were licensed as Chief Engineers in Japan. The Japanese nationals were

employed and paid via Northwest Pacific Resources, which also was a subsidiary of [redacted] Corporation of Japan. When Fishing Company of Alaska representatives were asked why they used Japanese nationals, Mr. [redacted] testified: *"the primary reason is their knowledge of the Asian market and quality of product going into that market and to keep our buyers happy."* Some testimony indicated that there was a language barrier that existed between the Japanese nationals and the ALASKA JURIS crew. Testimony from crewmembers ranged from "[the] Japanese techs spoke good English" to "they could hardly speak any English." On the day of the sinking, Mr. [redacted] a Japanese technician, discovered the flooding and was able to communicate the situation to Chief [redacted]

Testimony by Fishing Company of Alaska representatives stated that the Japanese nationals were under the direct control of the Captain and Chief Engineer while onboard the ALASKA JURIS. Evidence and testimony by numerous witnesses from the vessel indicated that was not the case. The Japanese Fish Master, while not in operational control of the ALASKA JURIS, received orders from Anyo Fisheries and then instructed Captain [redacted] on where to go and when. Captain [redacted] testified that when he had a situation where the Fish Master placed additional nets onboard and stowed them up high on the Texas deck, or when he ordered the stacking of frozen fish in a space that hampered the closing of an escape door, Captain [redacted] had to reach out to Fishing Company of Alaska management to address the problem, who in turn had to reach out to an individual fluent in Japanese to get the situation corrected via e-mail. Captain [redacted] also testified that the Japanese nationals did not participate in required drills in the past. Once Anyo Fisheries in Japan was contacted for resolution, the Fish Master and technicians participated in future drills.

With regard to the Japanese technicians, Chief [redacted] testified: *[Regarding Mr. [redacted] prior testimony that he was working for the chief engineer] "No, sir. [The Japanese technicians] do their own thing. It doesn't matter what I say. They do what they want to do. That's a very -- misconception*." When asked who they do work for: *"That's a good question, other than the fish master. They sure as heck don't work for me. Because if they did, it would have been different than the way it was."*

The relationships between the crew and Japanese nationals were further complicated by the perception held by many in the crew that the Japanese were actually in control of the vessel's operations and that if Fishing Company of Alaska employees got on the wrong side of the Japanese technicians, they would be fired. Several crew testified that they had witnessed numerous employees being terminated on the ALASKA JURIS or other company vessels at the direction of the Japanese. They indicated that the fish master would contact Anyo in Japan, who in turn would notify Fishing Company of Alaska management, who would do the actual firing. While the status of Japanese nationals working onboard the ALASKA JURIS and Anyo Fisheries representatives' influence over Fishing Company of Alaska management was problematic and raised questions, there is no evidence to suggest that this had any direct impact on the causal factors that led to the sinking of the ALASKA JURIS.

5.32 Alcohol and drug testing: This investigation revealed that Fishing Company of Alaska failed to properly conduct the required drug testing of crew members deemed by Fishing Company of Alaska to be directly involved with the casualty. Due to the circumstances surrounding the recovery of the crewmembers, no alcohol testing was conducted because they were outside the 8 hour window, per 46 CFR Part 4.06-3(a)(iii). When the crewmembers arrived at Adak, AK the Department of Transportation (DOT) approved collector who worked for Beacon Occupational Health & Safety Services Inc. contacted Fishing Company of Alaska to verify what type of testing to conduct. A Fishing Company of Alaska representative incorrectly informed the collector that they wanted non-DOT testing conducted. The collection was completed as directed by the Fishing Company of Alaska representative and the results were [redacted]. However, because the test was a non-DOT test, they did not test for amphetamines, which are normally tested for in the required DOT 5-part panel test. [redacted]

Section 6 - Conclusions:

6.1. Cause of Casualty:

6.1.1. The initiating event for this casualty was a material failure of piping or a piping component located in the starboard side engine room bilge, just aft of the starboard sea chest. Causal factors contributing to the material failure event were:

6.1.1.1 **Poor material condition of sea water, bilge and fuel system piping.** Coast Guard inspection records, Fishing Company of Alaska maintenance records, and testimony by people who had worked on and inspected the piping systems in the ALASKA JURIS's engine room all indicated that the piping and piping components were in poor material condition. Due to the double hull design, there was no evidence to indicate a failure of hull plating or of an external force striking the vessel and damaging the hull. Eyewitness reports on the location and manner in which the water entered the vessel supports the conclusion that a catastrophic failure of a large sea water pipe or piping component caused the flooding. Had the material condition of the vessel sea water piping systems been properly maintained this could have prevented the material failure of the piping or piping component.

6.1.1.2 **Compressed timeframe for development and implementation of Alternate Compliance and Safety Agreement (ACSA) program inspection standards.** The 18 month timeline established for the enrollment of these vessels into the ACSA program was inadequate. The lack of information regarding initial construction, service life modifications, and the failure to perform a thorough gap analysis identifying critical inspection areas forced Coast Guard inspectors to conduct a form of "inspection triage" in lieu of a systematic evaluation to meet ACSA enrollment deadline. Had they been given more time, both the Coast Guard and vessel operators could have conducted a thorough gap analysis, which could have supported and validated the standards that the ACSA program would

be built upon. Armed with this information and given the necessary time to conduct comprehensive hull, deck and machinery inspections of the then-30-year-old ALASKA JURIS, Coast Guard inspectors working with the vessel operator could have identified vessel systems in need of repair, modifications or replacement and developed short and long term strategies to ensure continuous improvement at subsequent inspections, which could have prevented the sinking of the ALASKA JURIS.

6.1.1.3 **Inadequate Coast Guard inspections personnel resources necessary to manage the ACSA program.** The inability of the Coast Guard to effectively provide a cadre of qualified ACSA inspectors has put an enormous workload on the few fully qualified inspectors in the ACSA program. The inspection culture adopted by the Fishing Company of Alaska was to have the Coast Guard inspectors identify problems during their inspections that were needed to be fixed to keep the vessel operating. That inspection mentality was evidenced when Coast Guard inspector's found PVC piping on the vessel from before it entered the ACSA and over 50 mechanical couplings, many of which had been in place for some time. The limited amount of qualified and dedicated Coast Guard ACSA inspector resources combined with the limited timeframes the ALASKA JURIS was made available for required inspections, did not allow inspectors the time necessary to perform the detailed inspections required for a vessel in the ALASKA JURIS's material condition. Had the Coast Guard been staffed with a cadre of qualified inspectors to perform comprehensive inspections during dock side and dry-dock inspections on the ALASKA JURIS this could have prevented this material failure.

6.1.1.4 **Ineffective organizational structure and management philosophy at the Fishing Company of Alaska.** The Fishing Company of Alaska's organizational structure was ineffective at managing the engineering and maintenance needs of the ALASKA JURIS. The relationship between corporate officers and the Master and Chief Engineer was unclear, and became even murkier after the death of Mrs. [redacted] leaving no clear ultimate decision maker to address operational, personnel and engineering issues. Management was routinely unaware of maintenance and personnel issues on the ALASKA JURIS, despite numerous e-mails and phone calls that were routinely unanswered. This leadership vacuum allowed the engineering department to neglect preventative maintenance work, as well as allowing them not to report and properly repair vital system failures. The pressure to keep the vessel on the fishing grounds at all costs, resulted in the routine use of substandard piping repairs. All of this was compounded by the fact that many purchase orders were not filled at all, or in a timely manner. The inability, and in some cases the unwillingness, of Fishing Company of Alaska leadership to recognize and address the numerous engineering issues plaguing the ALASKA JURIS directly impacted the safe operation of the vessel. Had the Fishing Company of Alaska proactively engaged with the Coast Guard and Chief Engineer to address the well documented sea water system casualties, this could have prevented the material failure.

6.1.1.5 **Failure of Fishing Company of Alaska port engineers to oversee vessel maintenance.** The Fishing Company of Alaska's port engineers failed to

properly address the sea water piping system issues on the ALASKA JURIS despite numerous requests for repairs and replacement of sea water service and fire fighting system piping. During testimony, the port engineers stated they did not conduct inspections or witness repairs to piping systems leaving it instead to the Chief Engineer. Two of the three port engineers never held a license or worked on a fishing vessel and lacked experience with managing a vessel's engineering plant. The ALASKA JURIS dry-docks, overseen by the port engineers, were routinely unorganized and had a maintenance strategy of making repairs quickly with an emphasis on getting the vessel back to the fishing grounds. Had the port engineers had the training and experience, they would have been more proactive when Chief [redacted] failed to submit the required preventive maintenance reports. They should have also acted upon the concerns and reports of the newly assigned Chief. Had they done so, this may have prevented the material failure.

6.1.1.6 **Lack of ACSA policy for reporting and inspecting repairs to vital piping systems.** When repairs were made, whether in dry-dock, moored to a pier in Dutch Harbor, or secured alongside a fish tramper, the Coast Guard marine inspectors were rarely there to oversee the quality of the repair because ACSA did not have policy requiring that they be notified. Evidence indicated that hundreds of feet of piping had been replaced aboard the ALASKA JURIS outside the purview of Coast Guard marine inspectors. Had they been present, they would have been aware of the extent of repairs and ensured that appropriate repairs were carried out and tested. It is doubtful that the use of mechanical couplings or other substandard repair techniques would have been accepted. The ACSA program identifies what vital piping systems are but does not require the failure of vital piping to be reported to the Coast Guard. Had there been an ACSA requirement for the reporting and witnessing or repairs to all vital piping system casualties, it could have prevented the material failure.

6.1.1.7 **Insufficient number of credentialed engineering officers onboard.** The number of licensed engineers on board ALASKA JURIS was inadequate. Standing twelve hour watches on an old and complex vessel with many auxiliary systems necessary for fishing is difficult enough. The fact the Chief Engineer was not provided with the required credentialed assistant engineer further compounded the issue and required him to respond to most engineering issues regardless or whether he was on watch or not. The amount of maintenance, watchkeeping and repairs needed on the ALASKA JURIS warranted at least two licensed engineers. Had the ALASKA JURIS been required to employ two licensed engineers, their experience and knowledge should have better facilitated repairs and maintenance and added another resource on the day of the sinking.

6.1.2. The failure of the piping or piping component resulted in sea water rushing into the engine room and flooding the space. Causal factors contributing to the flooding event were:

6.1.2.1 **Failure of fixed high level bilge alarm indicators in engine room.** The fixed high level bilge alarms did not sound as they should have shortly after water began rushing through the broken pipe or piping component. The crew should

have been warned that there was a problem by sirens that could "wake the dead" after there was approximately a foot of water in the bilge. Instead, there was more than six times that much water before a single crewman was aware of the problem, which proved to be too daunting.

6.1.2.2 **Bilge alarm panel bypass device.** During interviews and testimony, the ALASKA JURIS's credentialed and uncredentialed engineers admitted that there was a jury-rigged device installed on the bilge alarm panel designed to silence the audible and visual bilge alarm. Though a member of the crew testified he had removed the device several weeks prior to the sinking, this was never substantiated. After exploring the system design and redundancies in the panel, it is thought that the bypass was still installed and engaged at the time of the sinking. It is reasonable to conclude that had this device never been installed, the bilge alarms would have activated properly and provided the crew adequate time to respond to the flooding.

6.1.2.3 **Access to sea chest valves from lower level engine room deck plates.** Initial action for any flooding event is obviously to secure the source as soon as possible. However, in the case of the ALASKA JURIS on the day of the sinking, once the flooding was discovered, the valve controls were already under several feet of water as there was no provision for shutting the valves remotely. Had the vessel been required to meet the 46 CFR Part 56 and/or ABS Rules, the crew may have been able to close the sea chest valves and stopped the flooding from the deck plates before the vessel lost power.

6.1.3 With no high bilge alarms alerting the crew to the flooding, the engine room bilge filled up and when sea water came in contact with the generator and prime mover, it caused the prime mover to shut down. Causal factors contributing to the generator failure event were:

6.1.3.1. **Inadequate fixed bilge pumps**. Belated notification of the flooding may not have been as grave of a problem had the ALASKA JURIS possessed adequate bilge pump capabilities. Instead, the fixed bilge pumps were unable to self prime as required by regulation. They were difficult and time consuming to bring online. Even if they had been started, their condition was poor and may not have had the desired effect

6.1.3.2. **Chief Engineer's response to initial engine room flooding.** Chief [redacted] did not take the initial actions one would expect upon discovering the vessel was flooding. Rather than sending Mr. [redacted] to notify the bridge, the Chief Engineer used valuable time to make the notification rather than energizing bilge pumps and securing watertight doors in the engine room. Had he taken this initial action (and the pumps had worked) it is possible that water would have been prevented water from reaching the main engine and generator cooling pumps and kept the power on.

6.1.4 The failure of the generator resulted in the loss of all electrical power. Causal factors contributing to the loss of power event were the same as those identified

above as permitting the flooding of the engine room and shut down of the generator.

6.1.5 The loss of electrical power resulted in the crew's inability to use its fixed bilge pumping system to dewater the vessel and resulted in the Captain ordering the vessel to be abandoned. Causal factors contributing to the abandonment event were:

6.1.5.1 **Stability and trim training for licensed captains and mates of Uninspected Fishing Industry Vessels (UFIV).** On board the ALASKA JURIS on the day of the sinking was a required Stability Booklet containing data and work sheets for the Captain to utilize to manage the flooding. He also had a Progressive Flooding Analysis booklet provided by the Fishing Company of Alaska that contained color coded diagrams identifying which spaces could flood before the vessel would become unstable. Neither one of these stability resources were utilized by Captain [redacted] on the day of the sinking. While the decision to abandon a vessel is solely up to the Captain, ideally it should have been made based on the use and understanding or all the decision tools he had available. It is worth noting that the weather the ALASKA JURIS experienced on that afternoon of the sinking only occurs 2.5% of the time in the Bering Sea during the month of July. Had Captain [redacted] had the proper training to utilize and trust his stability resources, he could have kept the crew safely onboard the vessel to continue dewatering and/or await rescue before abandoning the vessel.

6.1.5.2 **Emergency power source for bilge pumps**. The ALASKA JURIS was not required to have an emergency source of power to operate its fixed bilge pumps. The ACSA program does require that all vessels carry a portable dewatering pump in the event they lose power. On the day of the sinking the dewatering team was struggling with rigging the pump's suction and discharge hoses so badly that the Captain ordered them to stop the operation. Had the ALASKA JURIS been required to have an emergency source of power for the fixed bilge pumps, they could have continued dewatering operations after the loss of power by using fixed piping systems and allowed the crew to await rescue safely on the vessel before having to abandon into life rafts.

6.1.5.3 **Portable dewatering pump capabilities**. The portable dewatering pump on the ALASKA JURIS was not utilized on the day of the sinking. The pump was required by the ACSA to provide the vessel a means of fire fighting and dewatering capability in the event of a loss of power. Testimony revealed that neither the Coast Guard nor the Fishing Company of Alaska ever verified whether the pump had the dewatering capability necessary to dewater spaces below the main deck, to include the engine room. Testimony from Captain [redacted] revealed that this same pump was utilized during a previous flooding incident in the engine room in 2010 and it was not able to take suction from the lower engine room and discharge water over the side. This experience may have been a factor in the Captain's decision not to pursue dewatering operations. Had Captain [redacted] reported the failure of the pump to perform in 2010 to the Coast Guard, it may have resulted in requiring Fishing Company of Alaska to obtain a suitable pump which met the intent of the dewatering pump requirement. Had the ALASKA

JURIS had a capable dewatering pump with suitable suction/discharge hoses on the day of the sinking, it may have allowed the crew to combat the flooding instead of having to abandon the vessel.

6.1.5.4 **Dewatering team training**. The ALASKA JURIS had a designated dewatering team consisting of factory workers only. During testimony, members of the dewatering team struggled to answer basic questions regarding the operation of the pump and the equipment they had onboard for use in dewatering operations. The ALASKA JURIS's crew had been conducting required drills, but the vast majority of the drills were focused on firefighting operations with the pump. The Chief Engineer and Captain testified that the team had the pump rigged incorrectly. The dewatering team members were not credentialed mariners and had limited shipboard experience so exposure to routine dewatering training would be imperative. In emergency situations, people tend to rely heavily on their training, so it is reasonable to expect that because the training on the ALASKA JURIS was so focused on firefighting operations, that was their mindset when initially responding. If the ALASKA JURIS's dewatering team had conducted appropriate dewatering drills, to include the setting up of and how to best configure the pump, suction and discharge hoses, they could had started dewatering operations which may have prevented the crew from having to abandon the vessel.

6.1.5.5 **Stability management practices.** The Captain and Mate on the ALASKA JURIS were the only officers with basic stability and trim training. However, the day to day stability management on the ALASKA JURIS was overseen by the Chief and uncredentialed assistant engineer without the use of the stability booklet or input from the Master or Mate on watch. The delegation of this responsibility to the untrained engineers is evidence of the lack of emphasis placed on this critical vessel function. Had the Captain and Mate been routinely involved in the day to day stability management of the vessel, they would have been more familiar with the vessel's stability booklet and overall characteristics. This knowledge may have caused them to place greater emphasis on the securing of watertight fittings and may have made them more comfortable with combating flooding and awaiting rescue from the relative safety of the vessel.

6.1.5.6. **Number of credentialed deck officers onboard.** The ALASKA JURIS was not required to meet the regulatory standards in 46 CFR Part 28, Subpart D, which among other things contains requirements for emergency power to operate fixed firefighting and bilge (dewatering) equipment. Therefore, the ALASKA JURIS crew had to rely solely on the use of a portable firefighting and dewatering pump which required experienced personnel to rig and operate. These duties were generally assigned to the factory workers due to the limited credentialed mariners onboard. Captain [redacted] testified that when he saw the dewatering team hooking up the pump incorrectly, he stopped them and directed them to go to their emergency muster station. Had the ALASKA JURIS had another credentialed mariner to oversee emergency training and direct the set up and execution of dewatering operations, they may have been able to combat the flooding long enough to save the vessel or await rescue without abandoning to the life rafts.

6.1.6 During the abandon ship, some crew members fell into the water while using the Jacob's ladders on the port and starboard sides. Causal factors contributing to crewmembers falling into the water event were:

6.1.6.1 **Suitability, arrangement, storage and maintenance of Jacob's ladders.** It was not confirmed whether the Jacob's ladder used on the port side was a work ladder or one designated for evacuation. The stowage and continuous use this ladder onboard the ALASKA JURIS despite a missing rung was unacceptable, whether it is used for general shipboard work or as a piece of life saving equipment. Based on this investigation, the relocation and failure to adjust the length of the ladders and the use of a ladder missing a rung directly resulted in multiple crewmembers falling into the water on the day of the sinking.

6.1.7 With no actions taken to stop the flooding or the ability to dewater the lower engine room, the flooding was able to progress into spaces outside the engine room. Causal factors contributing to the progressive flooding event were:

6.1.7.1 **Watertight doors and watertight integrity at sea.** Because the ALASKA JURIS sank in deep water, it is impossible to verify how many interior watertight doors had been left open. However, on the day of the sinking the weather and sea conditions were very calm. Based on the ALASKA JURIS's damage trim and stability calculations outlined in the Progressive Flooding Booklet produced by Elliot Bay Design Group, it was calculated that the vessel (in both a heavy or light condition) would remain stable with the engine room and forward and aft alleys flooded. This supports the belief that the watertight integrity of the engine room space was compromised by watertight doors or other fittings being left open and/or compromises with the engine room's watertight bulkheads. Once the vessel was low enough in the water, sea water flooded the factory space which, according to the progressive flooding booklet, would have made the vessel unstable and caused it to capsize and sink.

6.1.8 The uncontrolled progressive flooding led to the vessel becoming unstable and sinking. The sinking led to the discharge of fuel and lubricants causing the pollution. No causal factors exist for these events. Once the decision was made to abandon the vessel and the flooding was allowed to progress unabated, there was nothing to prevent the sinking and subsequent pollution discharge.

6.2. Violations of Law by Credentialed Mariners: The following potential acts of misconduct, incompetence, negligence, unskillfullness, or willful violation of law committed by an individual credentialed under part E of Title 46, United States Code, were identified during this investigation:

6.2.1 The following potential act of misconduct was determined to be contributory to the cause of the casualty:

6.2.1.1 Failure of the Chief Engineers to remove bilge alarm override device

6.2.2 The following potential acts of misconduct or willful violation of law were determined not to be contributory to the cause of the casualty:

6.2.2.1 Failure of the Master to report previous marine casualties as required by Title 46, Code of Federal Regulations, §4.05-1.

6.2.2.2 Failure of the Master to ensure proper manning of the vessel as required by Title 46, Code of Federal Regulations, §15.705(e)(2)(ii).

6.2.2.3 Failure of the Master to operate the vessel in accordance with the approved stability booklet as required by Title 46, Code of Federal Regulations, §28.530.

6.3 Violations by Members of the Coast Guard: No acts of misconduct, incompetence, negligence, unskillfulness, or willful violation of law by a Coast Guard member contributed to the casualty.

6.4 Violations Subjecting Parties to a Civil Penalty:

6.4.1 Fishing Company of Alaska: There was an oil sheen witnessed in the location where the ALASKA JURIS sank with 87,000 gallons of oil on board.

6.4.2 Fishing Company of Alaska: Drug testing for the individuals identified as directly involved in the marine casualty was not performed in accordance with 46 CFR 4.06.

6.5 Violations of Criminal Law: No potential criminal acts were identified during this investigation.

6.6 Need for New or Amended Laws/Regulations: Because the Alternate Compliance and Safety Agreement can be amended without changing law or regulations, most of this investigation's recommendations can be implemented without amending laws or regulations. However, tying the applicability of safety regulations for fish processing vessels to something other than NMFS product codes will likely require amending 46 CFR 28.50 and 28.700.

6.7 Actions Taken Since the Incident:

6.7.1 In January 2017 Fishing Company of Alaska sold all its assets, including its vessels and fish quota, to two separate companies who operate out of Seattle, WA and is no longer an operating company.

6.7.2 In September 2017 the Coast Guard held an ACSA stakeholder meeting in Seattle.

Section 7 - Recommendations:

7 Recommendations

7.1 Safety Recommendations. The fleet of fish processing vessels is safer now than it was at the inception of the Alternate Compliance and Safety Agreement, due in no small part to the diligence of ACSA stakeholders. The following recommendations would further improve the level of safety and close gaps identified during this investigation:

7.1.1 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to ensure that the capabilities of all portable dewatering pumps are adequate. This review should ensure that pumps have adequate dewatering capacity based on gallons per minute, suction/lift capabilities and adequate suction/discharge hoses to reach the deepest areas on a vessel. The ACSA should require all vessels to demonstrate this capability. Recommend this be implemented by January 30, 2018.

7.1.2 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to require dewatering drill requirements in the ACSA. These drills should include team members demonstrating the ability to properly rig, operate and dewater the most critical spaces below the waterline, to include the engine room. This shall include the securing of all watertight fittings.

7.1.3 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to amend ACSA inspection requirements to verify the operation of fixed bilge pump(s) in accordance with regulatory requirements to ensure they are capable of self priming and taking suction from the furthest spaces from where the pumps are installed.

7.1.4 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to amend ACSA requirements to include a requirement for lowering and inspecting each embarkation ladder at annual ACSA inspections. This requirement is the only suitable way to properly inspect and verify the material condition and operational capability of the embarkation ladders.

7.1.5 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to require all embarkation areas identified on an ACSA vessel's safety plan to be provided with a means to affix an embarkation ladder to a welded pad eye or other suitable structurally sound device. This would eliminate the need for the crewmember to find a suitable area to secure the embarkation ladder to during an emergency.

7.1.6 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to incorporate emergency lighting requirements at the next scheduled ACSA dry dock inspection. Currently, there are no requirements for the installation of emergency lighting on ACSA vessels. The ALASKA JURIS did have emergency lighting voluntarily installed by the Fishing Company of Alaska and after the vessel's loss of power on the day of the sinking, that limited lighting played a crucial role in allowing crew members who were below decks the ability to see their way to safety.

7.1.7 Recommend the Coast Guard District 17 Commander implement training and doctrine for Coast Guard boarding officers who conduct boardings on ACSA vessels. Recommend boarding officer job aids include the examination of ACSA vessels' exemption letters (see 7.1.6) and ensure vessel compliance with unique ACSA requirements addressed therein, such as licensing requirements, watertight integrity, stability, etc. Recommend this occur by July 31, 2018.

7.1.8 Recommend Coast Guard District 13 and District 17 Commanders review and amend information on exemption letters to reflect other ACSA vessel program requirements. There is currently no document on ACSA vessels that explains to the vessel's crew, boarding officers or ACSA inspectors the vessel's requirements under ACSA. The document should include information similar to a Certificate of Inspection, such as manning, stability information, and watertight integrity requirements. Recommend this be completed at each vessel's next issuance of exemption letter after January 30, 2018.

7.1.9 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to incorporate a requirement that all ACSA vessels carry and maintain an official log (CG-706B) and develop a list of items required to be entered into it, including bilge alarm testing, drills, marine casualties and notifications, watertight door status and maintenance.

7.1.10 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to incorporate a requirement that all high-level bilge alarms be tested weekly by a licensed officer and the results be logged into the vessels official logbook.

7.1.11 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to incorporate a requirement that all sea chest valves must be able to be secured from the lower engine room deck plates or grating as prescribed in 46 CFR Part 56.50-95(d)-(e) and ABS Rules for the Building and Classing of Steel Vessels under 90 meters, Part 4, Chapter 4, Section 2 – 21.3 at the next required dry dock inspection after July 31, 2018. This will provide the ability of the crew to secure sea chest valves without crew members entering the bilge.

7.1.12 Recommend the Commandant of the Coast Guard amend CG-CVC Policy Letter 11-11 CH 1, ENGINEER OFFICER ENDORSEMENTS ON UNINSPECTED FISHING INDUSTRY VESSELS which allowed OCMIs to delay enforcement of licensing requirements "for a reasonable period." The complexity of the systems, the age of these vessels and the number of persons who sail on them demand close and competent oversight from experienced and credentialed engineering officers.

7.1.13 Recommend Coast Guard District 13 and District 17 Commanders review and amend manning requirements on ACSA vessels to ensure there are sufficient credentialed mariner's onboard vessels in both the deck and engineering departments to address emergency situations. This can be accomplished with additional officers and/or credentialed deck and engineering crewmembers. Safety sensitive duties should not fall primarily on uncredentialed and untrained fish processors.

7.1.14 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to develop and mandate stability training for all licensed deck officers serving on ACSA vessels. This training should emphasize the understanding and use of stability booklets and include familiarization on any

computer-based stability programs used for stability management. Records related to this training should be readily available to ACSA inspectors.

7.1.15 Recommend the Commandant of the Coast Guard conduct a review of the current stability and trim requirements for credentialed Masters and Mates working on Uninspected Fishing Industry Vessels (UFIV) over 1,600 gross tons. Currently, stability and trim training standards for these credentials requires minimal knowledge of the stability and trim characteristics and does not require any performance based demonstration. Enhancing these standards would ensure Masters and Mates are able to utilize the stability information available to them. The operational environment and dynamic loads these vessels experience require deck officers to have the ability to correctly utilize the stability and trim resources.

7.1.16 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to incorporate a requirement that all ACSA vessels be fitted with an alarm system (with suitable time delay) for all watertight doors. During this investigation it was noted that the ALASKA JURIS and other vessels enrolled in ACSA routinely left watertight doors open while at sea, despite program requirements.

7.1.17 Recommend the Commandant of the Coast Guard establish additional guidance for the issuance and clearing of deficiencies for vessel enrolled in the ACSA. This doctrine should aim to harmonize ACSA with other inspection programs, to include deficiency due dates, no-sail deficiencies, and the use of work-lists in lieu of deficiencies. This would allow ACSA administrators, inspectors and industry stakeholders to clear up the misperception by some that ACSA is voluntary and clarify uncertainty regarding enforcement authority. Recommend this doctrine be instituted by December 31, 2018.

7.1.18 Recommend the Commandant of the Coast Guard, District 13 and District 17 Commanders chair a working group comprised of Coast Guard and industry stakeholders to develop policies and procedures for the disenrollment of a vessel from the ACSA program. Currently there are no guidelines for Coast Guard administrators to follow and operators to adhere to should a vessel be considered for disenrollment due to its deficiency history or overall material condition. Established policies and procedures would provide the necessary administrative guidelines to ensure all ACSA program participants are aware of the standards they need to maintain for continuous enrollment in the program.

7.1.19 Recommend Coast Guard District 13 and District 17 Commanders work with ACSA stakeholders to incorporate notification and repair procedures to ensure Coast Guard inspectors review repair proposals and witness repairs (and testing as appropriate) to vital systems defined in ACSA guidance. Recommend this be implemented by July 31, 2018.

7.1.20 Recommend the Commandant of Coast Guard establish a new regulatory definition for determining when a commercial fishing vessel meets the threshold of a fish processing vessel. The product codes currently used in 50 CFR, Part

679, Table 1a by National Marine Fisheries Service (NMFS) were developed to define processing levels and were never intended to be used as a standard to establish safety requirements for fishing/processing vessels. This determination should be based on factors related to risk rather than how a fish is processed.

7.1.21 Recommend the Commandant of the Coast Guard, District 13 and District 17 Commanders conduct a comprehensive internal review of the ACSA program to include Sector Puget Sound's and Sector Anchorage's administrative and inspection practices, billeted and non-billeted ACSA inspection personnel resources and the training and qualification standards for current and future ACSA inspectors. This review should also focus on revitalizing the cooperative relationships between the Coast Guard ACSA program administrators, inspectors and industry stakeholders and focus on fostering continuous improvements to the program.

7.1.22 Recommend the Commandant of the Coast Guard conduct an audit of the ACSA program workload and reassign billets based on findings. As part of the audit process, recommend the current ACSA program coordinator billet in District 13 be reprogrammed. Though valuable when originally established, this billet is now redundant and the actual ACSA duties required by D13 can be handled more effectively at the Sector level. The ACSA program would be better served with an additional ACSA inspector at Sector Puget Sound.

7.1.23 Recommend the Commandant of the Coast Guard change ACSA inspectors' position descriptions (PDs) to reflect ACSA as a primary duty. Although D13 has used the fishing vessel examiner PD as a way to attract an adequate number of inspectors for ACSA inspections, it is counterproductive to the advanced training and qualification of inspectors required for the ACSA program. Recommend ACSA inspector PDs be changed to reflect their primary duty by July 31, 2018.

7.1.24 Recommend Commandant of the Coast Guard establish a Performance Qualification Standard (PQS), training program, and recency requirements for ACSA inspectors. This would clear up any ambiguity that ACSA inspectors and administrators have regarding the required qualifications to conduct ACSA inspections and would legitimize ACSA inspections as being equivalent to objectives in other PQS.

7.1.25 Recommend the Commandant of the Coast Guard conduct an independent audit on the ACSA program to ensure it is equivalent to applicable Class Society Rules and Load Line Regulations. Though an analysis was conducted in 2009, this investigation identified additional gaps that should be addressed. Recommend this be performed by July 31, 2018.

7.1.26 Recommend the Commandant of the Coast Guard, District 13 and District 17 Commanders require any additional vessels entering the ACSA program, which were built before July 27, 1990, to have an authorized classification society conduct a load line survey. This will be to either issue a load line certificate or identify the particular gap(s) preventing the issuance of a load line certificate. This would provide Coast Guard ACSA program administrators the opportunity

to weigh risk and to work with the vessel owners and operators to identify individual equivalences and/or exemptions on a case by case basis.

7.1.27 Recommend Sector Anchorage investigate potential suspension and revocation action against credentialed officers on the ALASKA JURIS who were aware of the unauthorized high bilge alarm silencing device on ALASKA JURIS's bilge alarm panel. The ability of this device to prevent the high bilge alarm from sounding put the lives of the ALASKA JURIS crew at risk.

7.1.28 Recommend Sector Anchorage investigate potential suspension and revocation action against the captain of the ALASKA JURIS for manning violations by sailing without an assistant engineer and an unlicensed assistant engineer not named on the Sector Puget Sound-approved list of Engineers-in-Training submitted by the Fishing Company of Alaska.

7.1.29 Recommend Sector Anchorage investigate potential suspension and revocation action against credentialed officers on the ALASKA JURIS who failed to report marine casualties.

7.1.30 Recommend Sector Anchorage investigate potential suspension and revocation action against credentialed officers on the ALASKA JURIS who violated a regulation by failing to address watertight doors left open at sea.

7.1.31 Recommend Sector Anchorage investigate potential suspension and revocation action against credentialed officers on the ALASKA JURIS who failed to operate the vessel in accordance with its approved stability booklet. The loading of fuel oil in void spaces that were not authorized by the approved stability booklet is a violation of 46 CFR Part 28, Subpart E and ACSA program requirements.

7.2 Administrative Recommendations:

7.2.1 It is recommended that appropriate recognition be given to the officers and crew of the vessels OCEAN PEACE, SEAFISHER, SPAR CANIS, and VIENNA EXPRESS for their time, compassion, and seamanship during the search and rescue operation.

7.2.2. It is recommended that NMFS be recognized for its foresight in requiring the provision of Personal EPIRBs to fisheries observers which in this case provided redundant notification of an emergency.

7.2.3. It is recommended the Alaska Marine Exchange be recognized for its cooperation and technical assistance in the search and rescue operation and in the preparation of this investigation.

7.2.4 It is recommended that this casualty investigation be closed.

M. E. DeLury

CDR, USCG