

**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF MARINE SAFETY
WASHINGTON, D. C. 20594**

**February 20, 2001
(Revised September 24, 2001)**

SURVIVAL FACTORS FACTUAL REPORT

A. Accident

Location: Chatham Strait 30 miles SW of Juneau, Alaska
Date: June 6, 2000
Time: 1207
Vessel: Engine room Fire onboard the M/V *Columbia*
Operator: Alaska Marine Highway System
NTSB: DCA-00-MM-030

B. Survival Factors Group

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C. Summary

At 1207 on June 6, 2000, the Alaska State ferry, M/V *Columbia* had a fire in the main switchboard in the engine control room and lost power. The passengers were transferred to a second state ferry, M/V *Taku*. The fire was extinguished and the vessel was placed in tow to Juneau, Alaska.

D. Details of the Investigation

The Survival Factors investigation addressed passenger questionnaires, muster/evacuation, medical and pathological information, lifesaving equipment, firefighting/emergency procedures, emergency training/drills, passenger and crew accountability, fire response, emergency response and emergency preparedness.

1. Passenger Questionnaires

Three hundred and twenty-seven questionnaires were mailed to passengers who were onboard the M/V *Columbia* as indicated by company records. Eighty-one responses were received. The information from the questionnaires used in this factual report is not intended to represent a statistical sample of passengers' experiences; instead, it serves as a preliminary indicator of areas to be pursued in the investigation. A summary of the responses to several of the questions are as follows:

Overall, passengers stated that the evacuation went well and the transfer of passengers to the M/V *Taku* also went well. Fifty-three passengers stated that they heard the safety announcement describing what to do in an emergency but did not hear any specific procedures for a fire emergency. Twenty-four stated

that they did not hear the announcement. Some of them commented that they boarded around 0200 and were too tired to recall if there was an announcement or its contents. The majority of the passengers noticed the placards posted throughout the vessel providing safety information.

Fifty-two passengers stated that the vessel's crew was well trained, helpful, professional, easily identified, responsive to questions and gave directions during the emergency. Forty-two smelled an odor that seemed to be electrical, rubber, wires or smoke when in the dining room and on different decks. Passengers obtained life jackets from their staterooms, crewmembers or the storage bins. One passenger stated that there was no one without a life jacket. One passenger stated that there was some panic and confusion. One passenger stated that it took a while to get a few passengers in wheel chairs downstairs once the elevators could not be used.

Forty-three passengers stated that they had difficulty hearing once the public address became inoperable after losing power. The crew provided information as they walked around without megaphones or any other equipment that would allow them to be heard. The majority of the passengers complained about the lack of organization when they returned to Juneau after leaving the *M/V Taku*.

2. Muster/Evacuation

At 1207, the master was in the chief mate's stateroom when the lights began flickering. He and the chief mate ran to the bridge and heard and saw alarms lit on the panel on the bridge. One of the watch officers told the master that there was a fire in the engine control room. At 1210, the master stated a distress call was made to the *M/V Taku*. The master ordered the chief mate to sound the general alarm. The master silenced the alarms. The chief mate announced that it was not a drill and that passenger should muster at the upper decks and then went to the car deck with the fire team. The third mate was assisting the chief mate and kept notes and developed a time line of the fire fighting and evacuation procedures. There were three muster stations; the forward lounge, the snack bar and the dining room. Passengers were later allowed to go outside, still on the boat deck. The emergency squad was directed to muster at the emergency locker to obtain fire fighting equipment. The chief mate announced to the emergency squad that a fire was reported in the engine room.

The chief purser was in charge of mustering passengers. The chief steward directed the stewards to search passenger staterooms and put a towel on the door knob or at the bottom of the door to indicate that the staterooms had been searched. The chief steward then briefed the chief purser. The Chief purser told the master that the public address system was not working well.

Crew members walked around relaying information in a loud voice. No megaphones or other equipment was used. The chief steward did receive some complaints from passengers about not being able to hear. He recalled that some passengers were confused about what to do and asked could they go to their vehicles and staterooms. Other passengers were calm. The master tried to use the emergency loud speaker but it did not work. The master said that the public address system is tested during every drill and this was the first time it did not work. The master was in contact with the chief mate who was managing fire fighting operations on a VHF radio using a frequency for fire fighting and another frequency for the evacuation. The master stated that this was a new procedure to use separate frequencies and it worked well. The master directed the pilot to relay information through the VHF radio to the chief purser, chief steward and the second steward who were managing the muster and evacuation of passengers.

The master was in contact with the M/V *Taku*, the Coast Guard command center in Juneau and the Coast Guard Cutter (CGC) *Anacapa*. Because the master did not know the magnitude of the fire, he obtained permission on his cell phone from the general manager at AMHS who was at the AMHS command center, to bring the M/V *Taku* alongside the M/V *Columbia* to transfer passengers. The master stated that a ramp was constructed by using 4 by 8 sheet of plywood across pieces of aluminum staging. They used safety lines on both sides of the ramp. Passengers were allowed to go to their staterooms and their vehicles to obtain personal belongings and pets. The transfer of passengers began at 1419. Passengers were instructed to wear lifejackets. The master instructed passengers to walk down the forward stairwell. The chief purser directed passengers who needed assistance to go down the forward stairwell first which delayed the evacuation somewhat. The master said he should have evacuated the majority of the passengers first and then those that needed assistance to prevent delaying the evacuation. Crewmembers were positioned along the stairwell and on the M/V *Taku* to assist passengers.

2.1 Interview of the First Mate on the Taku

A crewmember knocked on the first mate's door yelling for him to get up. The first mate grabbed his clothes and went up to the bridge. By the time the first mate arrive on the bridge, arrangements had been made to transfer passengers. The first mate on the M/V *Taku* had been a deck officer on different ships in the Marine Highway System for 20 years. He stated that a Coast Guard cutter was in the vicinity and there were tugboats in the area. The weather was good and there was five or six miles on either side from shore. The first mate was In charge of the rescue boat. He said, the M/V *Taku* had never participated in the transfer of passengers from one ferry to another. He said that they were able to put a piece of aluminum scaffolding between the two ferries and cover it

with plywood and put a rope on the sides so passengers could walk from the Columbia to the M/V *Taku*. The first mate was in a rescue boat underneath the passengers to make sure they safely walked across to the M/V *Taku*.

3. Medical and Pathological Information

There were three passengers transported to the Bartlett Memorial Hospital. One passenger had chest pains as a result of a pre-existing illness and two passengers had medication replaced that was left on the Columbia.

A 73-year-old female received medication for a pre-existing illness.

A 45-year-old female received medication for a pre-existing illness.

An 80-year-old male had chest pains associated with a pre-existing illness and was admitted from 6/6/00 to 6/9/00.

3.1 Injury Table¹

	<u>Passengers</u>	<u>Crew</u>	<u>Total</u>
Fatal	0	0	0
Serious	1	0	1
Minor	0	0	0
None	2	0	2
	3	0	3

4. Lifesaving Equipment

¹ 49 CFR 830.2 defines a fatal injury as: any injury that results in death within 30 days of the accident. A serious injury as; an injury that requires hospitalization for more that 48 hours, commencing within seven days from the date the injury was received; results in a fracture of any bone (except simple fractures of fingers, toes, or nose); causes severe hemorrhages, nerve muscle, or tendon damage; involves any internal organ; or involves second or third degree burns, or any burn affecting more than 5 percent of the body surface.

According to the Coast Guard Certificate of Inspection dated May 22, 2000 to May 22, 2001, the M/V *Columbia* was equipped with 2 lifeboats, 20 inflatable rafts, 1,054 adult size life preservers, 98 child size life preservers, 12 ring buoys and was equipped with an EPIRB.

5. Fire fighting Equipment

According to the Coast Guard Certificate of Inspection dated May 22, 2000 to May 22, 2001, the M/V *Columbia* was equipped with fire hoses, 8 fire axes and 3 fire pumps and the following:

Fixed Extinguishing Systems

Space Protected	Agent	Capacity
Main Engine Room	CO2	3500 lbs.
Auxiliary Generator Room	CO2	2000 lbs.
Emergency Generator	CO2	100 lbs.
Paint Locker	CO2	150 lbs.
Car Deck	Water	800 gallons
Cafeteria	Dry Chemical	25 lbs.
Dining Saloon	Dry Chemical	25 lbs.

Fire Extinguishers—Hand Portable and Semi-Portable

36 A-II B-I 19 B-II 1 B-III B-IV 1 B-V 2 C-I 9 C-III

5.1 Firefighting Personal Protective Equipment (PPE)

According to an AMHS representative, there were seven fireman’s outfits onboard at the time of the fire. The sizes included: small, medium or large which consisted of pants, coat, boots, gloves, helmet and self-contained breathing apparatus (SCBA). The initial response to the fire was by the engineers. The engineers did not wear fireman’s outfits or SCBAs while responding to the electrical fire by securing and isolating vital machinery circuits and ventilation. Fireman’s suits were not used by the engine room personnel during their response. The firefighting team responded with firefighting gear and was comprised of two of the engineers. The representative also stated that the chief mate told crewmembers including engineers who were re-entering the engine

room that they needed the appropriate fire fighting gear. The chief mate did not “catch them all before some entered via another access to the engine room because the chief mate remained on the car deck.

6. Procedures for the M/V Columbia

Fire fighting Procedures

According the *Muster List* on the M/V *Columbia* the following procedures were in effect at the time of the fire:

Master--On Bridge—In command all operations. Coordinate w/E-squad on VHF Channel 17

Emergency Squad (location E-Squad unless otherwise noted)

Chief Mate—E-Squad—In charge of operation, VHF Channel 17

There is a designated backup for the Chief Mate if he is unavailable or incapacitated. The next senior officer would take over the chief mate’s duties. During firefighting, the next senior firefighting team member or boatswain would replace the chief mate if necessary.

Second Mate—Muster E-Squad. Assist Chief Mate on VHF Channel 17

Third Mate—Assist Chief Mate. Fire Boundaries. VHF Channel 17

Pilot—On bridge. Assist Master w/navigation & coordinate boat deck operations on VHF—State frequency

Boatswain—Direct the fire team. Provide foam and foam nozzle. VHF 17

Abled bodied Seaman—Provide Air Pack and Firesuit--#1 hose nozzleman

Abled bodied Seaman—Provide Air Pack and Firesuit --#2 hose nozzleman

Abled bodied Seaman—Provide Air Pack and Firesutie—hose team

Abled bodied Seaman—Provide extra hose and fire axe, suit-up in fire suit

Abled bodied Seaman—Provide Fog Applicator, Spanner and Fire Extinguisher

Ordinary Seaman—Provide Air Pack and Fire Suit--#1 hoseman

Ordinary Seaman—Provide Air Pack and Fire Suite--#2 hoseman

Ordinary Seaman —Clear foc’l deck then report to Chief Mate from Car Deck E-Locker, Watchman’s VHF 17

Watchman—Close watertight door 2, then report to Chief Mate from Car Deck E-Locker

Watchman—Close watertight doors 4 & 5 then report to Chief Mate from Car Deck E-Locker

Chief Purser—Purser's Counter—Passenger Manifest—In charge upper deck evacuation

Senior Purser—Provide Medical Kit and Oxygen Bottles

Jr. Purser—At Purser's Counter—Assist Chief Purser-Secure Passenger Elevator

Engineroom Department

Chief Engineer—In charge of engine department—provide VHF and supervise CO2 operations

First Engineer—In charge, Tend Fire and Bilge Pumps, Vents and Blowers

Second Engineer—In charge, Auxiliary Engine Room

Third Engineer—E-Squad. Provide Tool Bag—Assist as directed

Third Engineer—(on watch) Tend Sprinkler System (off watch) Auxiliary Engine Room. Assist as directed.

Third Engineer—(on watch) Tend Sprinkler System (off watch) Auxiliary Engine Room, Assist as directed.

Jr. Engineer—(on watch) Engine Control Room. Assist as directed. (off watch) report with tool bag to E-Locker.

Jr. Engineer—(on watch) Engine Control Room. Assist as directed. (off watch) report with tool bag to E-Locker.

Oiler—Auxiliary Room—Assist as directed.

Oiler—Engine Room. Assist as directed.

Wiper—Clear forward Crew Quarters, Report to Chief Engineer--Messenger

According to the chief engineer, the ad-hoc fire team consisted of the chief engineer, First engineer, Third assistant engineer and the Coast Guard fire team.

There was no preset, separate plan for fighting a fire in the engineering spaces. The E-squad was designated to respond to any shipboard fire.

Emergency Procedures

According to the muster list on the *M/V Columbia*, the master was in command of the evacuation. The chief purser was in charge of the upper deck evacuation, chief steward was in charge of the boat deck evacuation and second steward was in charge of evacuating the cabin deck. They were responsible for coordinating the muster and evacuation of passengers and crew and reporting to the master over the VHF radio using a dedicated frequency for the evacuation.

Placards that provided safety information were posted throughout the ship. Placards were posted in each stateroom that read:

Emergency Signals

Fire and emergency-- continuous blast of the ship's whistle for a period of not less than 10 seconds supplemented by the continuous ringing of the general alarm bells for a period of not less than 10 seconds.

Abandon ship (or boat stations). More than six short blasts and one long blast of the whistle supplemented by the same signal on the general alarm bells.

The occupants of this cabin are assigned to lifeboat station no. 1. All passengers are required to put on life preservers and go to their lifeboat stations whenever general alarm bells ring.

Children Lifejackets are stowed in boxes at the boat stations. A uniformed crew member will assist you with all emergency proceedings.

After passengers boarded the *Columbia* they were given a safety briefing instructing passengers what to do in case of an emergency. The safety briefing included the location and donning of the life jackets; how safety announcements would be provided over the public address system; and, the emergency signals.

6.2 Coast Guard Fire fighting Policy

The Coast Guard Marine Safety Manual has specific guidance regarding use of Coast Guard assets to fight fires on board vessels. An extract is included as appendix (1)

7. M/V Columbia Emergency Training and Drills

The chief mate was in charge of fire fighting operations on scene. This was the chief mate's first trip on the *M/V Columbia* and the chief mate had worked on other AMHS vessels as a chief mate. He participated in basic and advanced fire fighting training in 1986 while at Kings Point. This was the first actual fire the Chief Mate had experienced on board ship. The engineers and other licensed crew received formal fire fighting training. According to AMHS, weekly fire fighting drills were held. Fires were simulated in the engine room occasionally when they did not interfere with the vessel's operation. Besides the two engineers who were assigned to the emergency response team, engineers on watch were responsible for taking initial action, securing ventilation and keeping essential equipment on the line unless they must evacuate the machinery space. The fire team is designated to fight the fire in the engine room

spaces including the engine control room. Crewmembers are also tested on about information in a fire safety handbook. The fire team, responding to the fire, had not held a drill involving the engine control room and/or an electrical fire.

New crewmembers are provided familiarization training before sailing on their duties as specified on the Station Bill and Fire and Abandon Ship stations; the location of life jackets closest to the crewmember's cabins and work stations; and, the location of survival craft embarkation stations. After a new crewmember reports onboard the vessel, they have 48 hours to complete the following familiarization training:

- 1) The location of the Station Bill, Fire Control Plan if applicable, and safety signs and posters throughout the ship.
- 2) The location of the SMS and MSDS manuals
- 3) Primary and secondary escape routes and nearest fire fighting appliances in the crewmember's work place and quarters
- 4) A demonstration of equipment used in the course of the crewmember's normal duties, and the location of the instruction manuals regarding that equipment
- 5) The location of the standing orders relevant to the crewmember's normal work
- 6) The location of any hazardous areas (battery compartments, paint lockers, etc.)
- 7) The location of areas to which access is restricted (machinery spaces, enclosed spaces, cold rooms, etc.)
- 8) Relevant information concerning the crewmembers duties in support of the AMHS SMS.

AMHS provided fire safety training by having crewmembers read a handbook titled: "Fire Safety—There's No Second Chance." Crewmembers completed a quiz that consisted of 20 questions after reading the handbook. The chief mate completed the quiz on July 3, 1998. At the time of the fire, AMHS was not required to have crewmembers complete STCW training. The AMHS had a Coast Guard approved STCW computerized system and hands-on training. The training includes basic safety training, basic and advanced fire fighting training, crisis and crowd management courses. Crewmembers are allowed to take the training at their own pace depending on their work schedules.

8. Passenger and Crew Accountability

The master stated that while talking with AMHS at the command center, he had a poor signal from his cell phone and there was some confusion about the exact number of people onboard because it was difficult to hear. The master

told the AMHS command center that he had almost 500 or 490 passengers and crew onboard. The general manager at the AMHS command center thought the master said 590 people were onboard and conveyed the information to the Coast Guard command center. There was a discrepancy between the number of passengers listed on the manifest and the actual passenger count during the transfer. The manifest had 434 passengers and the crew counted 435 passengers. The master said there was a stowaway. A state trooper who was onboard worked with the chief purser and second mate to account for passengers while being transferred. The State Trooper was checking off the names of passengers as they left the *M/V Columbia* and there was a mix up in the numbers because some passengers may have been counted more than once. The second mate had a counter to help confirm the numbers. An accurate count, 435 passengers and 6 crewmembers that were transferred to the *M/V Taku*, was provided to the Coast Guard.

The chief mate stated that mustering passengers and accounting for them is difficult. Some passengers have reservations and other passengers buy tickets at the terminal similar to traveling on a commuter train. Passengers are accounted for by having the stewards search staterooms and areas for passengers. Master keys and flashlights were available to be used to search staterooms.

9. Fire Response

The oiler was sitting at the desk in the engine control room with the junior engineer nearest the port entrance door to the control room when he saw fire and smoke and heard a loud roar. The second panel did the same thing before the oiler could get out of the chair. The oiler and the junior engineer left the control room through the port door at the opposite end of the control room from the fire. The junior engineer asked "Where's Dan" (the third assistant engineer). The oiler said the third assistant engineer was somewhere doing his rounds in the engine room. The junior engineer told the oiler to call the bridge and went to find the third assistant engineer.

The third assistant engineer was checking the main generators in the auxiliary room, while waiting for the fire and boat drill, and noticed the number 2 generator acting "erratic." He went to the control booth and opened the door and saw fire coming out of the panel closest to the starboard door. He said "I would take off all of my essential breakers." He saw fire and heard a loud popping sound. He went to get CO2 extinguishers, ladder, hose, etc. The third assistant engineer then shut off the number 2 generator.

Meanwhile the chief engineer was in the mess having lunch discussing the upcoming fire and boat drill when the lights began flickering. He and other

engineers immediately left and heard the emergency generator start because the generator was on the same deck as the mess. The first assistant engineer went to make sure the emergency generator was on. The third engineer, second engineer and chief engineer went down the stairway to the main engine room to find out what was going on.

The chief engineer went into the engine room on the starboard side and saw the third assistant engineer, who was on watch, coming through the auxiliary room carrying a fire hose. The chief engineer said that the third assistant engineer had already obtained CO2 bottles. The third assistant engineer told the chief engineer that there was a fire in the control room and that no one was inside the room and that one generator was still on line but number two was shut down. . The chief engineer and first engineer told the third assistant engineer to leave the area. Before leaving, the third engineer looked for a pull down fire alarm but did not find one and there was no other sound powered phone in the engine room that could be used to notify the bridge. The chief engineer looked inside the auxiliary engine room and noticed that the number one generator was still on line and it looked as though it was shaking a little and it sounded as though it was overloading. He then went to the control room door but could not see inside. The chief engineer felt the top, sides and bottom of the door to see if the door to the control could be opened. The door seemed cool on the side bulkhead and door. He opened the control room door a little and still could not see anything because of smoke and, therefore, closed the door immediately.

The chief engineer told the first engineer to start lining up the fire pump in case they needed water. He told Stan Jones to go to the bridge and tell the captain about the fire and to sound the general alarm so they could get some help. According to the chief mate between 1115 --1130, he and the captain were in the chief mate's stateroom working on the computer and saw the lights dim and ran to the bridge. The chief mate was notified on the telephone on the bridge that there was a fire in the engine room and the chief mate sounded the general alarm as directed by the master to have the crew muster at the fire gear locker. The chief mate, who was in charge of fire fighting activities and was the on scene commander, grabbed three radios and ran to the fire gear locker.

While the fire team was preparing to respond to the car deck, the chief engineer looked for other crewmembers but did not see anyone inside the engine room. He then shut the fuel off. The chief engineer believed that the fire was contained in the control room and that he had time to check on the other things. He shut off the day tank overflow valve. He went back up to the control room door with the first and third engineers who had on breathing apparatus. The chief engineer said that he told them that everything looked pretty good. He was still concerned about getting the number one generator off line.

The fire team put on their personal protective equipment for fire fighting and brought fire extinguishers to the staging area on the car deck. The car

space was painted yellow, however, a car was parked in the space and the fire team had to assemble around the car. Since the accident, the car space has been designated a fire lane and cars are no longer allowed to park in the space. A similar problem existed on other AMHS vessels and the areas used by firefighters have also been designated as fire lanes. Because fire fighters were not familiar with the engine control room, the chief mate decided to let the engineers assess the fire rather than send the fire fighting team made up of the deck department. A fire fighter gave his self- contained breathing apparatus (SCBA) to one of the engineers and the fire team remained on the car deck, one deck above the engine room, and changed air bottles. The chief mate asked for input from the fire team and engineers to determine how to assess the fire, used the fire control plan and a crew list to keep track of the engineers and made sure ventilation was secured.

As the chief mate received information from engineers about the status of the fire, he reported to the bridge. The master stated that he received limited reports about the status of the fire. He said the chief mate was unable to get accurate information about the fire fighting activities because the engineers were the first on scene and immediately began fighting the fire. The master stated he was told that “when they surfaced for air they were gasping and sweating and couldn’t get time to get a report before they slapped on another bottle and ran back down there.” He said that he did not receive a detailed status of the fire for a while.

The chief engineer, first and third engineers opened the door to the control room a little. A fire fighter who was an abled-bodied seaman (AB) who was wearing a complete fire fighting protective equipment from the emergency squad was at the control door too. The first engineer said that he told the AB to leave the engine control room because he was not familiar with the control panel and it was an electrical fire. They could not enter because of the smoke and closed the door. The chief engineer obtained a radio to keep the bridge informed about what had been secured and the status of the engine room.

An AB reported a reflash and saw flames coming from the control panel. The chief engineer said to keep the door closed until the Coast Guard arrived. The chief engineer said that he saw the Coast Guard fire team and waved to them and told them that he needed their help to fight the fire. The chief engineer, first and third engineers returned to the control room and began discharging CO2 inside the control room. After the smoke had cleared, the chief engineer, first and third engineers discharged CO2 through vents at the bottom of the panel and on the sides of the panel. The chief engineer went to put on a breathing apparatus after they had begun using the CO2 because he said he could not stand in the area of the engine control room after the control room door had been opened because of the smoke. The chief engineer, first and third engineers went inside the control room to shut off the number one generator.

The chief engineer said that the three of them continued to fight the fire with assistance from the Coast Guard fire fighting team.

10. Coast Guard Response

At 1216, the CGC *Anacapa* overheard the M/V *Columbia* requesting assistance from the M/V *Taku* on channel 11. At 1230, the CGC *Anacapa* arrived on scene with the M/V *Columbia*. At 1241, the CGC *Anacapa* received a report of a re-flash in the engine room and notified the SAR controller at the Coast Guard District 17 Command Center who had also overheard the conversation. The CGC *Anacapa* which was 4-5 miles away to the scene, was sent by the CG command center to provide damage control and fire fighting assistance. The M/V *Taku* was also in the area and provided additional air packs to be used by fire fighters. At 1250, the CGC *Anacapa* transferred air packs from the M/V *Taku* to the M/V *Columbia*. During this time, the Search and Rescue (SAR) controller notified the Coast Guard Marine Safety Office (MSO) in Juneau, Alaska. At 1253, CG helicopter 6011 from Airstation Sitka was briefed and directed to carry two Sitka fire fighters to the scene. The SAR controller was in radio communication with the M/V *Columbia* and CGC *Anacapa* and monitored the response to the fire. .

At 1254, the CGC *Liberty* and CG 41328 were directed to get underway to provide assistance at the scene as needed. At 1257, the fire team from the CGC *Anacapa* boarded the M/V *Columbia*. At 1302, the CG 41328 was underway to assist as needed.

Four CG fire fighters in fire gear boarded the *Columbia* and met with the Chief Mate. The chief mate showed the Coast Guard personnel the fire plan and pointed out the location of fire extinguishers and went with the CG fire fighters down to the engine control room after the smoke had cleared. CG fire fighters first thought they needed charged fire hoses which had not been charged by the M/V *Columbia's* fire fighters then realized it was an electrical fire and fire hoses were not needed.

Engineers had discharged CO2 on the fire and CG fire fighters asked if any assistance would be provided by the *Columbia's* fire fighters and the chief mate said they would help on the car deck as needed. The senior CG fire fighter contacted the commander on the *Anacapa* and was told to evaluate the situation to determine if it was safe to enter the engine control room. A CG fire fighter stated that he assessed the space, opened the hatch of ventilation and stood by the door to the engine control room while two other CG fire fighters entered the space with CO2's extinguishers. A CG fire fighter asked the Chief Mate if the electrical power was isolated and the chief mate said he did not know. One of the engineers told the CG fire fighter that the power had been isolated but when

the CG fire fighters entered the engine control room they saw an orange glow coming from the control panels and said the electrical power had not been totally isolated. Four to 6 CO2 extinguishers were used in the vents leading to the panels. CG fire fighters stated that two engineers were in the engine control and helped them remove the panels.

A CG fire fighter stated that he did not want the *Columbia's* engineers in the engine room as they were not wearing fire fighting gear. Engineers had on white coveralls and the CG fire fighter told the rest of the CG fire fighters to keep the engineers out of the engine control room until they had the fire under control. The senior CG fire fighter said that he could have used more help if the engineers had personal protective equipment for fire fighting especially during the re-flash. Two CG fire fighters removed panels while the other two CG fire fighters stood near the door waiting to relieve the other CG fire fighters while they changed their breathing apparatus. The CG fire fighters continued to fight the fire until the fire was extinguished. The CG fire fighters stated that the chief mate seemed confused and not in charge of the fire fighting operation. CG fire fighters were asked by the master to stay onboard and the CG fire fighters requested assistance from the *M/V Columbia* to set a watch schedule and overhaul the engine control room. The senior CG fire fighter stated that CG fire fighters had spent five hours extinguishing the fire, overhaul what they could and set reflash watches. He further stated that the *Columbia's* crew could have put on fire fighting gear and helped more with reflash watches. The senior CG fire fighter stated, "it was a real fire, ... and they didn't know if they had electrical isolation and as far as their command structure, ...I think the chief engineer, maybe he needed assistance there. He was trying to do the best with what he had."

At 1325, the Coast Guard Command Center was notified by AMHS that tugs were en route from Juneau to assist the *M/V Columbia*. At 1400, CG 41328 returned to Station Juneau. At 1407, CG helicopter 6011 was on scene with 2 fire fighters to provide any medical assistance. At 1455, CG helicopter 6011 returned to the Juneau National Guard hangar. At 1515, a MSO investigator, a MSO inspector, a public safety fire fighter and an AMHS engineer were en route to the *M/V Columbia* on CG helicopter (HH-60) 6011. At 1610, AMHS notified the Coast Guard command center that passengers had been transferred to the *M/V Taku* and the *M/V Columbia* was in tow by the Tug Banner and the Tug Ardie escorting the *M/V Columbia*. At 2030, the *M/V Taku* moored at the Auke Bay Ferry terminal.

10.1 Alaska Marine Highway System Command Center

According to the safety officer for AMHS, he was called by the port captain to assist the emergency response team. The emergency response team

consisted of the General Manager, Safety Officer, Vessel Operations Officer, Port Captain, Assistant Port Captain, Marine Engineering Manager and Senior Port Engineer. The emergency response team assembled at a command center in the DOT building. The team provided assistance to the master throughout the emergency from the command center.

11. Emergency Preparedness

The Coast Guard in cooperation with the cruise ship industry, the State of Alaska, and local communities have sponsored cruise ship exercises in the past and sponsored an Alaskan Cruise Ship Exercise (AK Cruisex 98) on April 7-8, 1998. The AK Cruisex 98 exercise simulated a response to a cruise ship grounding at Jaw Point, Glacier Bay National Park. A seminar was also held to discuss lessons learned from past exercises through presentations and open discussions among participants. Over 90 representatives from 43 agencies/organizations participated in the exercise and seminar. The participants represented the Coast Guard, National Park Service, National Weather Service, U. S. Fish and Wildlife Service, Alaska Coastwise Pilots, Allen Marine, Carnival Cruise Lines, Celebrity Cruises. Alaska Marine Highway Systems was not represented according to the list of participants. The overall goal of the seminar was to create an understanding of the capabilities, perceived roles, and concerns of the response community at large.

The participants discussed several topic including vessel evacuations, shoreside support considerations and passenger/crew accountability. The participants generally agreed that the removal of large numbers of passengers and crew from a vessel should be considered a last resort. The Coast Guard expressed the concern that the decision to stay or evacuate should be made in a coordinated and timely fashion. The following scenario was discussed:

“Following the casualty the vessel’s condition would limit its ability to safety navigate and/or present onboard safety hazards for several days. The removal of passengers and crew would be necessary but not immediate. Injured personnel would be removed first by emergency responders (e.g. CG helicopters). The remaining passengers and crew would be removed in accordance with jointly coordinated timeline (i.e. based on the master’s recommendation, available resources, number of disembarkees, weather, distance to appropriate shoreside logistics sites, etc.). The decision process would not be clear-cut and the timing could become critical (e.g. anticipated arrival of bad weather). The determination would involve a coordinated effort between the master, the cruise line operator, and the CG Captain of the Port (COTP).

The master on the *M/V Columbia* coordinated the decision to transfer passengers and six crewmembers to the *M/V Taku* with the master of the *M/V Taku*, CG SAR controller at the CG command center, the General Manager at

AMHS. There was no contingency plan developed for transferring passenger and crew from one vessel to another vessel at sea.

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Appendix (1)

Extracts from Coast Guard Marine Safety Manual Volume VI, Ports and Waterways Activities, Chapter 8 Coast Guard Fire fighting Activities of the Commandant Instruction M16000.11.

B. Policy.

The Coast Guard has traditionally provided fire fighting equipment and training to protect its vessels and property. Commanding Officers of Coast Guard units (COTP's, Groups, Cutters, Stations) are routinely called upon to provide assistance at fires on board vessels and at waterfront facilities. Although the Coast Guard clearly has an interest in fires involving vessels or waterfront facilities, local authorities are principally responsible for maintaining the necessary fire fighting capabilities within U.S. ports and harbors. Additionally, a vessel/facility's owner and/or operator is ultimately responsible for the overall safety of vessels/facilities under their control, including ensuring adequate fire fighting protection.

The Coast Guard traditionally renders assistance as available, commensurate with each unit's level of training and the adequacy of equipment. The Commandant intends to maintain this traditional "assistance as available" posture without conveying the impression that the Coast Guard is prepared to relieve local fire departments of their responsibilities. Paramount in preparing for vessel or waterfront fires is the need to integrate Coast Guard planning and training efforts with those of other responsible agencies, particularly local fire departments and port authorities.

COTPs shall work closely with other Coast Guard units, municipal fire departments, vessel and facility owners and operators, mutual aid groups, and other interested organizations to ensure an integrated response plan is developed. The COTP shall incorporate fire fighting contingency planning in each port's Area Contingency Plan (ACP) for the COTP zone in accordance with this chapter.

C. Restrictions.

1. Operations. In developing a Coast Guard unit's assistance as available posture, consideration should be given to the fire threat level, the jurisdictions involved, the capabilities of local fire departments, the availability of Coast Guard equipment, and the level of Coast Guard training. The functions generally carried out by Coast Guard units in marine fire situations include:

- a. Participating in contingency planning for marine fire fighting;
- b. Conducting traditional Coast Guard response measures such as restricting access to the affected area and controlling marine traffic, conducting emergent

SAR activities, notifying affected parties, and coordinating with local emergency services [NOTE: while marine fire fighting is sometimes incidental to SAR activities it is not specifically SAR.];

- c. Conducting a preliminary assessment of the incident to:
 - 1) evaluate the magnitude of the threat to the public health and welfare and the environment,
 - 2) determine if response actions by the responsible party are adequate, and
 - 3) collecting information for the development of a response plan;
- d. Contacting the owner and/or operator to explain the Coast Guard's role and to gather information for response purposes;
- e. Based on the preliminary assessment, carrying out first aid mitigation actions commensurate with the level of personnel, equipment and training. First aid mitigation actions are those response actions taken by Coast Guard personnel necessary to address immediate concerns prior to the arrival of local fire services or actions by the responsible party;
- f. Monitoring response actions and providing assistance as available. Coast Guard personnel support may include supplying water and logistic support to fire fighting forces, cooling exterior bulkheads/walls with hose lines or monitors, or enforcing a safety or security zone at the scene. The program goal is that Commanding Officers of Coast Guard units shall be capable of performing those traditional response measures outlined above. Generally, Coast Guard personnel shall not directly engage in fire fighting activities on other than Coast Guard units except when necessary to save a life or when possible to avert a significant threat with minimal risk to Coast Guard personnel. During marine fire fighting situations involving vessels or waterfront facilities, Commanding Officers of Coast Guard units shall adopt a conservative response posture, and shall focus their actions on those traditional Coast Guard activities listed above not requiring unit personnel to enter into a hazardous environment or be unduly tasked. Any direct involvement by Coast Guard personnel in support of a regular fire fighting agency shall be under the supervision of the Incident Commander who shall be specifically briefed on the training and capabilities of the Coast Guard personnel. Coast Guard personnel shall not engage in independent fire fighting operations, except to save a life or in the early stages of a fire to avert a significant threat without undue risk...”

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