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From: CAPT Michael A. McCartney, U.S. Navy Party Representative
To: National Transportation Safety Board

Subj: U.S. NAVY PARTY SUBMISSION ON NATIONAL TRANSPORTATION SAFETY BOARD INVESTIGATION INTO THE COLLISION OF M/T ALNIC MC AND USS JOHN S MCCAIN (DDG-56) DCA17PM024

Ref: (a) 42 U.S.C. § 6308
(b) National Transportation Safety Board, Marine Accident Brief, Collision between U.S. Navy Destroyer John S McCain and Tanker Alnic MC
(c) Navy Collision Memorandum for Distribution of 23 Oct 17
(d) Comprehensive Review of Surface Fleet Incidents of 26 Oct 17
(e) Singapore Transport Safety Investigation Bureau Report of 8 Mar 18
(f) U.S.C.G. Preliminary Investigation Report of 9 Apr 18
(g) Liberian Maritime Authority Report of Investigation of 31 May 18
(h) Stealth Maritime GMS Manual M4, Navigation Procedures of July 2015

Encl: (1) Navy Readiness Reform Implementation Snapshot

1. We appreciate the opportunity to provide a party submission for the National Transportation Safety Board (NTSB) investigation conducted with the assistance of the United States Coast Guard (USCG) pursuant to reference (a) into the collision of M/T ALNIC MC ("ALNIC MC") and USS JOHN S. MCCAIN (DDG 56) ("MCCAIN") on 21 August 2017 in the Singapore Strait.[1] These comments on reference (b) are respectfully submitted to assist NTSB and USCG with its fact-finding mission to accurately reflect the events leading up to this collision.

2. Reference (c) is Navy's public assessment of U.S. Navy actions preceding the collision between MCCAIN and ALNIC MC. The report is specifically inward focused, describing the shortcomings of Navy protocols, manning, and ship handling that directly contributed to the collision. Reference (c) did not include a comprehensive sequence of events encompassing both ships or address external contributing factors. Reference (d) is the Navy's top-down comprehensive review of this incident and other recent incidents. The report made recommendations for changes based on lessons learned from this tragic collision. Enclosure (1) provides an update on implementation of those recommendations. Navy's paramount objectives are transparency and maximum effort to ensure this type of tragedy does not reoccur.

[1] The Coast Guard conducted its investigation on behalf of the National Transportation Safety Board under the Independent Safety Board Act of 1974, pursuant to the authority contained in 49 U.S.C. § 1131(c), and in accordance with 49 C.F.R. § 850.25 and 46 C.F.R. Part 4, promulgated under the authority of 46 U.S.C. Chapter 63.

3. While reference (b) is very detailed with regard to actions taken aboard MCCAIN prior to the collision, a complete account of the actions onboard ALNIC MC would allow for a complete account and analysis of the causes of the collision. The Singapore Transport Safety Investigation Bureau (TSIB) report, reference (e), the Commissioner of Liberia Maritime Authority (LMA) report, reference (f), and the USCG Preliminary Inquiry Report, reference (g), have all examined both vessels in detail. Based on our reviews of their reports, we would like to highlight three substantive areas which contributed to the collision that should be addressed in NTSB's final report: ALNIC MC's failure to adhere to Safety Management System (SMS) procedures, ALNIC MC's improper watch stationing reduced the Master's ability to maintain timely overall situational awareness, and ALNIC MC's failure to take action to avoid collision as required under the multilateral convention on the international regulations for preventing collisions at sea (COLREGs).

4. *ALNIC MC Was Not Operating In Accordance With Safety Procedures*

a. Reference (h) is the ALNIC MC Safety Management System (SMS) manual promulgated by its operator, Stealth Maritime Corporation and provides personnel, watch station and equipment lineup requirements for various sea conditions.

b. *ALNIC MC Required An Elevated Watch Condition In The Singapore Strait.* Reference (h) prescribes an elevated watch condition, Watch Condition 3, during periods of low visibility and heavy vessel traffic, when the vessel was in restricted waters, when entering or leaving port, or in certain geographic areas of the world, including the Singapore Strait. Watch Condition 3 required five watchstanders: a Master, two licensed watch officers, and two deck ratings—one duty watch Able Seafarer-Deck (AB) helmsman, and one extra AB or Ordinary Seaman (OS) to serve as lookout.

(1) Watch Condition 3 also prescribed specific roles to watchstanders, with an OS assigned as a dedicated lookout[2] and an AB assigned as a dedicated helmsman, each with no other duties but that of lookout and helm respectively.

(2) One of the two additional licensed officers required on the bridge for Watch Condition 3 is assigned to navigation and communication duties and is responsible for assisting the conning officer by monitoring navigation of the vessel, operating the Engine Order Telegraph (EOT), and coordinating bridge-to-bridge communication with other vessels.

(3) The second licensed officer required on the bridge for Watch Condition 3 is assigned as a dedicated anti-collision Officer. Anti-collision officers are specifically required during

[2] Specifically, § 2.3.7 of reference (h) requires that a "look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken or assigned which could interfere with that task. The duties of the look-out and helmsperson are separate and the helmsperson shall not be considered to be the look-out while steering."

transits of the Singapore Strait, where the collision occurred. The anti-collision officer must have no responsibilities other than to operate the vessel's Radar and automatic radar plotting aid (ARPA) to plot course, speed, and closest point of approach of all targets, and to report these to the conning officer.

c. *Safety Procedures Required Manual Steering In The Singapore Strait.* Reference (h) prescribes an elevated watch condition, Watch Condition 3, that ALNIC MC set specific equipment configurations. The propulsion plant was properly configured in the "maneuvering lineup." However steering was in auto-pilot up to the time of the collision which is contrary to the reference (h) requirement that steering be operated by a helmsman in a manual steering mode.

d. Although Watch Condition 3 was required, ALNIC MC's deck log entries and navigation chart annotations indicated that Watch Condition 2 was planned and stationed for the transit through the Singapore Strait. As a less elevated watch condition; Watch Condition 2 required four watchstanders: the Master and one licensed officer, one AB, and a second AB or OS to serve as lookout. While initially the Master, Chief Mate, an AB, and an OS were on the bridge at 0405, according to reference (e), "[a]t about 0520H, the OS, who was assigned as the lookout, did not feel well and obtained the Chief Officer's permission to go down to his cabin to relieve himself." The Master did not immediately summon a relief as was required by reference (h) and, with the OS's absence at 0520, the ALNIC MC's bridge team comprised three persons.

5. ALNIC MC's Improper Watch Stationing Increased The Work Burden On The Master And Reduced His Ability To Maintain Timely Overall Situational Awareness.

a. Watch conditions are set consistent with the complexity of prevailing conditions such that as the complexity of the environment increases, additional watchstanders and specific watch assignments are made. Increased manning and specific assignments are made to ensure continuous close attention to critical responsibilities and allow the master to more easily supervise all watches and maintain overall situational awareness. In the absence of additional watchstanders, the Master performed several additional duties.

b. *An Anti-Collision Officer Was Not Stationed.* In the minutes before the collision, the Master had the conn and the Chief Mate was Officer of the Watch (OOW). Instead of having a dedicated officer to operate the radars, monitor traffic, and provide trial maneuvering options to avoid collision, the Master assumed this additional duty. According to reference (e), the Master attempted but failed to acquire MCCAIN as a target on the S-band radar, yet "he did not convey any concerns of being unable to acquire the target to the Chief Officer, who was the OOW, and asked him to attempt to acquire [MCCAIN] on the other ARPA. The Master could also have allocated this task to the Second officer [in the chart room] if it was considered urgent." In the opinion of reference (e), this failure to use all available radars "contributed to the Bridge team not having an enhanced situational awareness." Had the bridge been properly manned, ALNIC MC would have been in a position to use both its S-band and X-band radars and ARPA, and the

dedicated anti-collision officer would very likely have identified and reported MCCAIN's abnormal movement earlier, providing the Master more time to assess the situation and take action to avoid collision.

c. *The Lookout Was Sent Below Without Relief.* The OS, who had been serving as dedicated lookout, at some point prior to the accident, saw a vessel, later identified as MCCAIN, on the starboard quarter and running parallel to the ALNIC MC's course. The OS could not tell the type of vessel, but he could see the red side light of the vessel. This is significant because MCCAIN was visible to the lookout. When the OS was excused at approximately 0520, ALNIC MC began operating in the Singapore TSS without a dedicated lookout. The Master (Conning Officer) and Chief Mate (OOW) assumed lookout and anti-collision duties in addition to their primary watchstanding duties.

(1) A dedicated lookout can see another vessel's course change almost instantly, whereas there can be a significant delay in ARPA computation as ARPA predicts future vessel movement only by observing its historical path. A proper lookout, appropriate in the prevailing circumstances of multiple vessels in close quarters, would have alerted ALNIC MC to MCCAIN's proximity and changes in relative motion sooner than would have been detected using the ARPA equipment.

(2) A dedicated lookout would also have been more likely to observe and report a change in another ship's lighting configuration. Reference (b)'s findings that at or about 0522, the MCCAIN's bridge watch team displayed the vessel's not under command lights. We concur that no later than 05:22 and potentially earlier, MCCAIN had already illuminated its red-over-red mast lights indicating that it was a vessel Not Under Command. We also note the finding in reference (e) that prior to the collision "[t]he Master then noticed that [MCCAIN] had displayed some red lights on her mast" and that "[t]he [AB] positioned himself near [ALNIC's] steering console in anticipation of change of steering command by the Master from Auto-Pilot to manual steering."

d. *The Master's Assigned Responsibility Was Conning Officer.* In the seconds before the collision, the Master personally reduced the throttles to ahead one-half.

e. *ALNIC MC Was Not In Conformity With Watch Condition 2 At The Time Of Collision.* During the four minutes prior to the collision, the ALNIC MC bridge watch team did not conform with their planned Watch Condition 2 and were 40% below the requirements of Watch Condition 3. The absence of the Anti-Collision Officer and the Dedicated Lookout slowed early identification of a potential problem, reducing the amount of time to react once the Master himself identified the risk MCCAIN posed. The SMS watch condition procedures were designed to provide specific risk management boundaries in various environmental conditions. Typically, these boundaries create margin for crew competency variations and to ensure the Master has the support necessary in complex environments to make timely critical decisions.

By allowing the bridge watch manning to fall below Watch Condition 3 and by operating steering in auto-pilot, the Master assumed more risk than he was authorized to assume.

6. ALNIC MC's Failed To Take Sufficient Action To Avoid Collision

a. Reconstruction simulations will show that reasonable maneuvering options were available to ALNIC MC which would have avoided the collision with MCCAIN or mitigated the damage of a collision. In reference (e), the TSIB concluded that "when the Bridge team of Alnic MC saw the USS John S McCain, it presumed that the USS John S McCain would be able to safely pass safely ahead. The collision happened within three minutes of the USS John S McCain turning to Port, and the actions taken by Alnic MC were insufficient to avoid the collision." ALNIC MC should have taken action for multiple reasons.

(1) MCCAIN was showing Red over Red (Not Under Command) no later than 0522. A dedicated lookout would likely have seen and reported the change immediately. Per reference (e), "[t]he Master then noticed that [MCCAIN] had displayed some red lights on her mast." We note with concurrence reference (e)'s analysis, that "COLREGs – Rule 18 – Responsibilities between vessels – Except where Rules, 9, 10 and 13 otherwise require, a power driven vessel underway shall keep out of the way of a vessel not under command. A not under command vessel is one which due to some exceptional circumstance, is unable to maneuver as required by COLREGs and thus unable to keep out of the way of another vessel." The Master should have immediately assumed ALNIC MC was required to give-way in accordance with COLREG Rule 16 and take positive action to avoid MCCAIN.

(2) ALNIC MC's Master admitted that "more than two minutes" elapsed from the time MCCAIN began its port turn while abeam of ALNIC at 05:21 to the time of collision at 05:23:58.5. Yet, during this time the ALNIC watch team took no action. The Master explained to investigators that he mistakenly believed MCCAIN was attempting to cross between ALNIC MC and TEAM OSLO. The Master also told investigators that, although he believed such a crossing attempt was the "wrong maneuver" for MCCAIN to make in this situation, he took no action to stop the tanker, take her out of auto-pilot, sound five short blasts, or attempt to hail MCCAIN on the bridge-to-bridge radio. Instead, he had directed his bridge team simply to "leave it," i.e. to take no action vis-à-vis MCCAIN.

(3) In interviews with ALNIC MC crew conducted by USCG acting on behalf of the NTSB, the crew describes their actions immediately prior to the collision. The Chief Mate of ALNIC MC stated that in the minutes prior to the collision he had been standing by ALNIC MC's EOT where he could have slowed the ship. He awaited the Master's orders prior to the collision, but no orders were ever given. The Master explained that, while he could see MCCAIN's lights and realized that she was continuing her turn to port, instead of acting

decisively, he took no action at all, other than reducing the throttle to Half Ahead just seconds before the collision.[3]

b. A minor change to the point of impact may have dramatically reduced the lethality of the collision. Using speed as an example, NTSB simulations could determine the exact change required however nautical 3 minute rule math (1 knot for 3 minutes is 100 yards) indicates that a minor speed change may have had a major effect. Using the simple math example; a ½ knot speed reduction over the minute preceding the collision (an average of ¼ knot less for the last minute) would have reduced ALNIC MC distance traveled over ground by 25 feet, therefore shifting the impact point 25 feet aft and MCCAIN's last below the waterline berthing compartment (berthing 5) would have been avoided.

c. ALNIC MC had enough time to take proper and effective action to avoid a collision. The ALNIC MC Master and Bridge Watchteam, jointly and individually, failed to take action when they found themselves so close to JSM that collision could not be avoided by MCCAIN alone, as required by COLREGS Rules 2, 6, 7, 8, and 17, including, but not limited to, shifting steering mode out of auto-pilot, adequately reducing ALNIC's speed, communicating with JSM, or sounding at least five short and rapid blasts, as required by COLREGS Rule 34. All of these deficiencies contributed to the collision.

7. As explained in reference (c), the U.S. Navy acknowledges the catalyst of the sequence of events which led to the collision was initiated by MCCAIN's loss of maneuvering control and included numerous additional factors which, if corrected, would have prevented the collision. ALNIC MC's failure to comply with safety procedures, reduced situational awareness and failure to act sufficiently to avoid a collision are significant "external contributing factors" which should be included in the NTSB report to ensure complete understanding, assessment and provide a solid foundation for lessons learned discussion on merchant and warships in the future.

8. Thank you for the opportunity to comment on reference (b) in support of NTSB and Navy's shared objectives to ensure this type of tragedy never happens again.

[redacted]

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[3] According to reference (f), the USCG determined that not until 05:23:44, just 14.5 seconds before the collision, was ALNIC MC's EOT order changed from position +9 to position +8/73.4 RPM.