

ENERGETIC TANK INC.
80, Broad Street, Monrovia, Liberia

May 20, 2019

National Transportation Safety Board
490 L'Enfant Plaza, SW
Washington, D.C. 20594
Attn: Captain Michael J. Kucharski

Re: ALNIC MC Collision with USS JOHN S MCCAIN
Singapore Strait, August 21, 2017

Dear Captain Kucharski:

During the course of scheduling meetings with the National Transportation Safety Board's Executive Officer, Shawn Dalton, he suggested to our outside counsel that it would be helpful if we were to submit proposed Findings, Proximate Cause and Safety Recommendations in advance of our meeting. Accordingly, we have prepared this letter and would be grateful if you would convey it to the members of the Board at your earliest opportunity.

By way of brief background, we note that we have previously been provided a copy of the draft Factual Section to the NTSB's report, on which we were provided the opportunity to comment. At this stage we have no further comments to this portion of the report. We would, however, refer the Board to our March 20, 2018 letter to Captain Neubauer of the United States Coast Guard providing our comments to the Coast Guard's Preliminary Report dated January 22, 2018. As we then noted, although Energetic was an Interested Party in that investigation, it was never provided with substantial portions of the Coast Guard's investigative record. It remains the case to this day that Energetic has not been provided with copies – or even a complete listing – of all documents and data considered by the NTSB during its investigation, and accordingly we do not have a full understanding of what materials the Board has considered in the course of its investigation. In particular, it is not clear to us whether the NTSB record includes any of the documents relating to the court martial proceedings of Commanding Officer Alfredo J. Sanchez and BMC Jeffery Butler – particularly including their respective Stipulations of Fact with the United States which were made part of the record in those proceedings in connection with their respective guilty pleas. If not, we would urge the Board to review those documents as they contain, in our judgment, significant factual stipulations that are highly relevant to the ultimate findings in this investigation.

We also were provided a draft of the Collision Reconstruction Study, to which we were also invited to provide comments. While we did submit “qualitative” comments in respect of this analysis, there was not sufficient time for us to conduct a full technical analysis of this study, and thus we were not in a position to submit comments concerning the underlying technical methodology and analysis.

With the above comments in mind, we respectfully submit our Proposed Findings, Proximate Cause analysis, and Safety Recommendations.

A. Proposed Findings

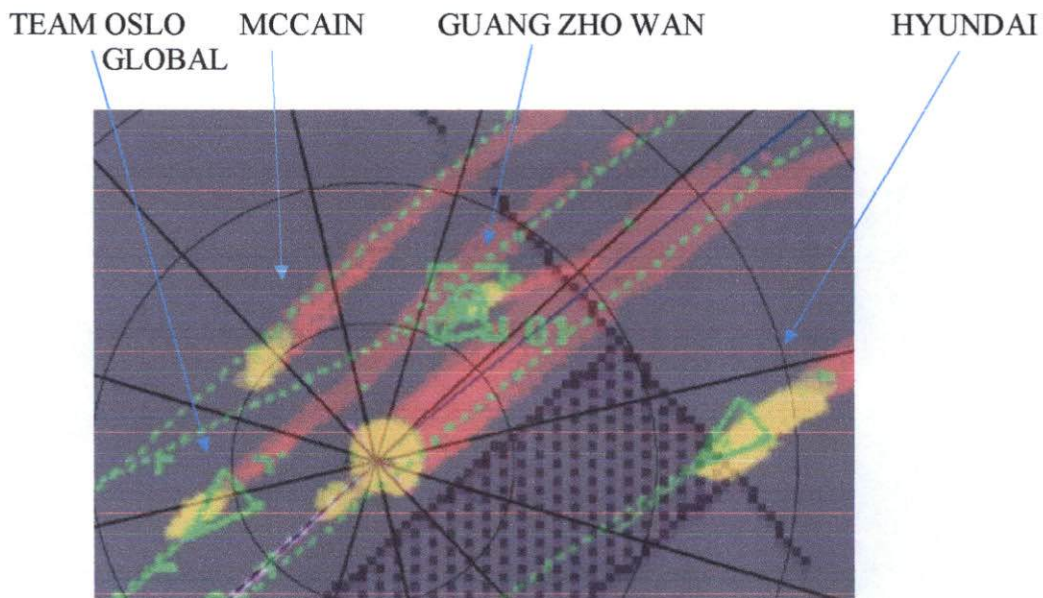
1. The McCain was not sailing with a full crew complement and was operating at a very high operational tempo. Many key watchstanders were functioning on insufficient rest. A number of key watch stations were filled by sailors who were on Temporary Assigned Duty from the Antietam. Those sailors had not been required to fully requalify for helm, lee helm and boatswain mate of the watch (BMOW) positions aboard McCain even though the helm system on the Antietam was not the same as the McCain's.
2. The PQS qualification process for the helm, lee helm, BMOW and helm safety officer positions was inadequate because the people primarily responsible for overseeing training and qualification were not themselves fully knowledgeable and qualified to operate the Integrated Bridge Navigation System (IBNS) and, particularly, the steering control console.
3. The McCain's IBNS had been experiencing serious faults for over a year, for which the McCain had submitted casualty reports which had not been fully addressed as of the time of the collision. These faults included regular major fault alarms relating to the hydraulic power units which control the rudders, and also problems with nodes crashing, particularly when AIS data was imported into the Voyage Management System (VMS). As a partial solution to this problem, the McCain deactivated the AIS input into the VMS and could only access AIS data via a stand-alone laptop located on the bridge, which materially impaired their ability to monitor surrounding vessels.
4. In connection with the navigation brief, the Executive Officer and Navigator recommended setting sea and anchor detail at 05:00 that morning, *i.e.*, before the McCain entered the Singapore Strait traffic separation scheme. The Commanding Officer overrode this recommendation, however, and decided to set sea and anchor detail at 06:00. Additionally, although not specifically briefed, a number of the key watch standers arranged to be relieved at 05:30 so they could get breakfast before taking their sea and anchor duty watch stations.
5. The navigation briefing contained a number of errors and omissions, including (1) failing to reflect that the IBNS system was degraded, and (2) reflecting the wrong procedure for loss of steering. Also, because the sea and anchor detail was not scheduled until 06:00, many of the watchstanders on watch at the time of the collision were not required to – and did not – attend the navigation briefing.
6. At 04:35 on August 21, the McCain's deck log reflects a "Major fault 1A HPU." This was one of the IBNS faults that had been regularly occurring over the previous several months. In response to this fault, the McCain's CO directed at 04:36 that the steering be switched to "back-up manual" mode.
7. By 05:20, the watch team aboard the Alnic had made visual and radar contact with the McCain and was monitoring her progress, along with the progress of the other vessels around the Alnic. At this time, the McCain was traveling on approximately a parallel path to the Alnic's in the TSS and was overtaking the Alnic at a distance of approximately .3 miles to her starboard beam. The Alnic was traveling at approximately 9.5 knots and the McCain was traveling at

approximately 18 knots. Other nearby vessels were traveling at between 10-11 knots.

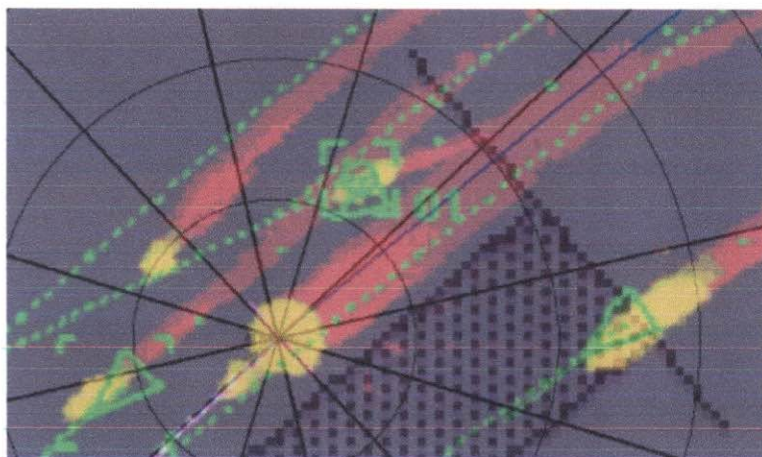
8. At approximately 05:21, the McCain's helmsman was ordered to shift control of the thrust to the lee helm station. This operation was not briefed during the navigation brief and was not a normal operation aboard the McCain except when in special maneuvers with the most experienced watchstanders.
9. In the course of shifting thrust control to the lee helm, control of the helm was inadvertently (and unknowingly) transferred to the lee helm station at approximately 05:21. The helmsman erroneously perceived this as a loss of steering.
10. Additionally, the thrust controls were ungangged during the transfer and were not re-gangged at the lee helm station.
11. At around 05:22, in response to the perceived loss of steering, the order was given to slow the McCain's engines. This order was implemented at 05:22:20. Because the thrust controls were not gangged, however, only the port engine was slowed at this time. And because there are no physical throttle controls, but only slide controls on the touch screen, this disparity was not immediately recognizable, and neither the helmsman nor the lee helmsman realized that the thrust controls were not gangged and that the port and starboard propellers were at different thrust settings.
12. The McCain's emergency procedure for loss of steering calls as one of its initial primary steps for the helmsman to depress the emergency override button on the steering control console. Doing so at the helm console causes the system to switch to backup manual and causes the steering control to switch to the helm console where the button was pressed.
13. None of the watchstanders on the McCain's bridge properly understood how the emergency override button functioned, with most believing either that pressing the button automatically sent steering control to the aft steering console or that pressing the button somehow invited the aft steering to assume control of steering.
14. If the McCain's watchstanders had properly understood how the emergency override button functioned, they could have regained steering control at the helm station or at the aft steering station at any instant during the casualty. Moreover, if the McCain's watchstanders had followed the applicable loss of steering casualty procedure, which was located in a booklet right at the steering control console, they could have regained steering control at the helm station even if they had not otherwise properly understood how the emergency override button functioned.
15. In the time between the slowing of the McCain's port engine and the collision, the McCain's watchstanders lost situational awareness, and key watchstanders failed to perceive that the vessel was turning to port into the path of the Alnic. This was exacerbated by the fact that the VMS was not receiving AIS data, and also by the fact that the McCain's watchstanders were dropping radar contacts from their

tracking after they had passed them in order to avoid overloading the SPA-73 radar.

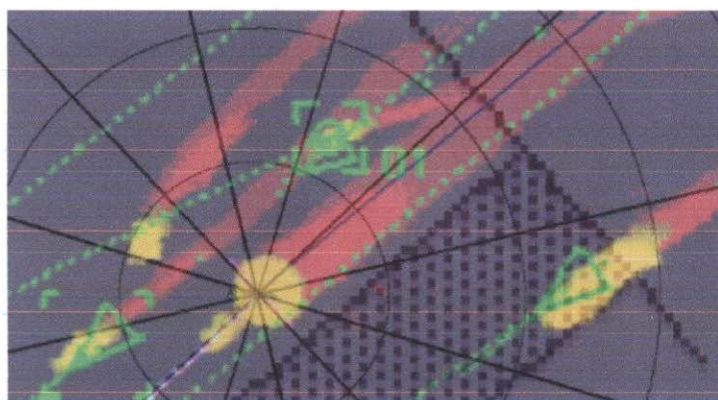
16. At no time prior to the collision did the McCain make any bridge-to-bridge call on the VHF to warn nearby vessels, nor did it make any danger signal with its ship's whistle. At no time did the McCain give orders to fully stop her engines.
17. In the time shortly before the collision, the Alnic had just been passed by the Team Oslo and had the Guang Sho Wan overtaking to starboard and the Hyundai Global overtaking to port.
18. Following are screen shots from Alnic's VDR replay reflecting their radar view in the moments leading up to the collision. (Alnic's radar completed one sweep about every 14 or 15 seconds, with the image refreshing at 05:22:20, :34, :49, 23:06, :21, :35 and :50.):
 - a. ALNIC radar view at 05:22:20, just at the moment the McCain's port engine was slowed:



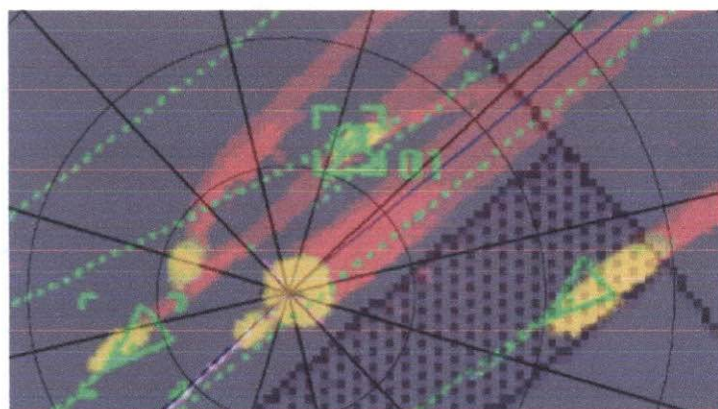
b. ALNIC radar view at 05:22:34



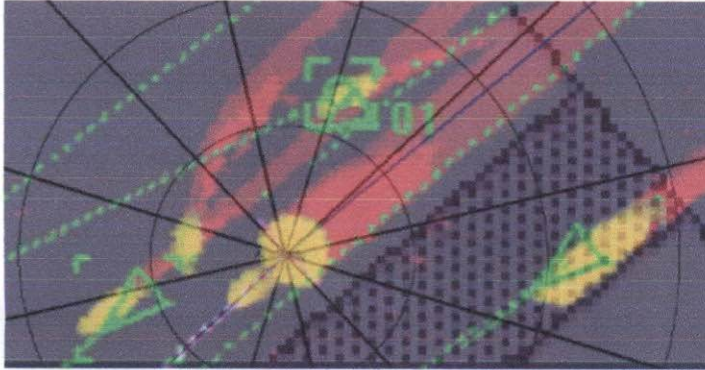
c. ALNIC Radar view at 05:22:49



d. Alnic radar view at 05:23:06:



e. Alnic radar view at 05:23:21



19. As can be seen from the radar screen shots above, until 05:22:49 the McCain and Alnic were on roughly parallel courses. At that time, the McCain's turn to port became noticeable, and at 05:23:05, the Master can be heard on the bridge recording commenting that he thought the McCain intended to pass between Alnic and Team Oslo. At 05:23:12, the Master remarked "Think he is OK." A few seconds later, at 05:23:16, he further remarked "Doing wrong maneuver."
20. At no time prior to the collision did the Alnic's crew see the McCain's not-under-command (red-over-red) lights.
21. The McCain was not broadcasting AIS data. If it had done so, the Alnic would have received additional information concerning McCain's course and speed changes that might have given her crew earlier warning that there was a risk of collision.
22. The McCain finally re-aligned her engine thrust controls at 05:23:22 by reducing the speed of the starboard engine. This slowed the McCain further just as she was about to cross paths with the Alnic. If the McCain had not slowed her engine at this time, the collision probably would not have occurred.
23. At 05:23:44, the Alnic's master slowed her engine to half ahead, though he believed at the time that he had put the engine to all stop.
24. The collision occurred at 05:23:58, one minute and thirty-eight seconds after the McCain first slowed its port engine and thereby initiated its hard turn to port across the Alnic's path.
25. According to the NTSB's Reconstruction Study, in order to slow the ALNIC enough to avoid the collision, the master would have to have put the vessel's engine control to either all stop or full astern somewhere between 70 to 90 seconds before the collision – *i.e.*, at some time between 5:22:28 and 5:22:48. [For the reasons stated above, please note that Energetic Tank is not able to express a technical view at this time on the correctness of this Reconstruction Study.]

26. The evidence is inconclusive as to when the McCain energized her not under command lights, but the deck log, which is intended to be the contemporaneous record of events, indicates this did not occur until 05:34 – *i.e.*, after the collision.
27. Even if one were to assume that the McCain energized her not-under-command lights before the collision and that the Alnic’s crew observed these lights at about the time they were energized, the Alnic’s master could not reasonably have anticipated as of 05:22:48 – *i.e.*, the last possible second when the NTSB’s Reconstruction Study suggests that slowing the Alnic’s engine might have avoided the collision – that a collision was likely. At that instant the vessels still appeared on Alnic’s radar to be on roughly parallel tracks.
28. Because of the position of the McCain relative to the Alnic, and because the Alnic was being overtaken by the Guang Zho Wan to starboard, it would not have been safe or reasonable for the Alnic’s master to order a turn to starboard to attempt to avoid the collision. Moreover, because the Alnic was being overtaken by the Hyundai Global to port, and because a turn to port would have taken the Alnic into the oncoming traffic lane of the TSS, it would not have been safe or reasonable for the Alnic’s master to order a turn to port to attempt to avoid the collision.
29. At the time of the collision, the McCain was the overtaking vessel under Rule 13 of the COLREGS, which were applicable at the time. As such, the Alnic had the obligation to maintain its course and speed and the McCain had the obligation to keep clear. Even if the McCain subsequently became a vessel not under command within the meaning of Rule 18 of the COLREGS, that did not thereby make the McCain the stand-on vessel relative to the Alnic. Rule 13(a) makes clear that it applies “notwithstanding anything contained in the Rules of Part B,” which includes Rule 18. And Rule 18 makes clear that it applies “except where Rules 9, 10 and 13 otherwise require.” Accordingly, a vessel not under command does not have the right of way over a vessel which it is overtaking, as was the case here.
30. Since the bridge team aboard the McCain was already aware of its steering casualty and was already actively working to regain control of the helm in the moments leading up to the collision, no whistle or VHF radio signal from the Alnic would have caused the McCain’s crew to take any action beyond what they were already doing to try to avoid the collision.
31. At all relevant times the Alnic’s master and first officer were fully monitoring the McCain both visually and by radar, with an AB available at the helm and prepared to accept orders in the event it was deemed necessary. By the time the risk of collision became apparent, it was already too late for the Alnic’s crew to take any step to avoid the collision.

B. Probable Cause

The probable cause of the collision was a cascade of failures of bridge resource management and training aboard the John S. McCain which resulted in inexperienced, fatigued and poorly trained sailors undertaking an unplanned helm operation while the vessel was in the heavily-trafficked Singapore Traffic Separation Scheme, without proper


planning and without adequate knowledge of proper emergency procedures for loss of steering. During this operation, errors in operating the McCain's steering control console caused an abrupt and unplanned turn to port across the bow of the Alnic, in violation of the COLREGS and without leaving the Alnic any opportunity to take evasive action. Because of the McCain's watch standers' failure to follow – and lack of understanding of – proper emergency procedures, they were unable to regain control of the McCain in time to avoid collision.

C. Proposed Safety Recommendations

1. Navy ships should be required to transmit AIS information in high traffic areas such as the Singapore Strait and other TSS except where the needs of national security clearly outweigh safety considerations.
2. Guidance should be given to Navy ships about transiting congested traffic separation schemes to include cautions about using unsafe speeds and passing other vessels at unsafe distances; modifying contact reporting and tracking requirements; and stationing additional or more qualified watch standers to better manage the operational requirements.
3. Naval ship manning levels, operational tempo, and rest hours should be carefully managed to ensure that ship's maintenance requirements are not being ignored and that sailors are not operating under significant impairment during critical maneuvers.
4. All issues relating to the degraded IBNS system should be fully resolved so that the system properly and fully functions as designed and the operating procedures are clear and complete. The graphical display of the touchscreen steering and helm controls should be reviewed for improvements that would make the status and operation of the controls clearer to operators. Until such problems are solved, appropriate procedures should be implemented to mitigate risks by, for instance, stationing additional watchstanders as appropriate.
5. Navy training procedures should be improved to ensure that sailors operating the helm and steering controls, and those supervising them, fully understand their function and fully understand all emergency procedures for loss of steering/helm control, including requiring more comprehensive bridge resource management training, and providing operator training courses and specific PQS for the IBNS. Sailors coming from another ship, including those reporting for temporary duty, should be required to re-qualify on the system they will be using.

Please do not hesitate to contact me if we can be of any further assistance in this matter.

Very truly yours,


Captain Nikolaos Argyriou
Representative, Energetic Tank, Inc.