



DEPARTMENT OF THE NAVY  
COMMANDER  
UNITED STATES PACIFIC FLEET  
250 MAKALAPA DRIVE  
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:  
5830  
Ser N00/0639  
22 May 13

EXE (b)(6)&(b)(7)(C)

FINAL ENDORSEMENT on CAPT [REDACTED] ltr 5830 of 11 Mar 13

From: Commander, U.S. Pacific Fleet  
To: File

Subj: COMMAND INVESTIGATION INTO THE GROUNDING OF USS GUARDIAN  
(MCM 5) ON TUBBATAHA REEF, REPUBLIC OF THE PHILIPPINES  
THAT OCCURRED ON 17 JANUARY 2013

1. I have reviewed subject investigation and approve the findings of fact, opinions, and recommendations of the investigating officer (IO), as modified below.

2. Executive Summary

a. Background. USS GUARDIAN ran aground on Tubbataha Reef on 17 January 2013 at 0222(H). The grounding caused damage to a protected reef and necessitated a lengthy and expensive salvage effort that resulted in the total loss of one of 14 MCMs in the United States Navy inventory.

b. Causation. This tragic mishap was wholly preventable and was the product of poor voyage planning, poor execution, and unfortunate circumstances. This investigation uncovers no single point of failure; instead, there were numerous links in the error chain leading up to the grounding. Had any one of which been appropriately addressed, the grounding would have been prevented. USS GUARDIAN leadership and watch teams failed to adhere to prudent, safe, and sound navigation principles which would have alerted them to approaching dangers with sufficient time to take mitigating action. The watch team's observations of visual cues in the hours leading up to the grounding, combined with electronic cues and alarms, should have triggered immediate steps to resolve warnings and reconcile discrepancies. Further, notwithstanding multiple, readily-available sources of accurate information, the leadership and watch teams relied primarily on an inaccurate Digital Nautical Chart (DNC)<sup>®</sup> coastal chart during planning and execution of the

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navigation plan. Finally, USS GUARDIAN leadership failed to exercise due diligence to ensure the watch teams were knowledgeable and proficient, and failed to recognize that key personnel transfers within the navigation team had degraded USS GUARDIAN's navigation capability to an unacceptable level. Ultimately, the lack of leadership led to increased navigational risk to the ship and her crew.

3. Findings of Fact

a. FoF 26 is relabeled FoF 26.a.

b. Add FoF 26.b. The CO's Standing Orders further direct the OOD to contact the CO, and then the XO, when within 8 nautical miles (16,000 yards) of the 10 meter shoal water depth curve. [Encl (24)]

c. FoF 349 is approved as modified: Per XO/NAV, the CO, ANAV, and he viewed the Navigation Plan for the transit from Subic Bay to Makassar as a group by using the VMS-3 laptop computer in the Chart Room. [Encls (9), (10), (11), (19), (20), (123)]

d. FoF 352 is approved as modified: According to the XO/NAV, he ran a safety check on the track and found no dangers. [Encl (20)]

e. FoF 357 is approved as modified: Per the XO/NAV, the CO was comfortable with the track after XO/NAV's review. [Encl (20)]

f. Add FoF 596. During voyage planning, the CO was aware that the planned navigation track, when displayed on DNC® GEN11A, went over the top of Tubbataha Reef. [Encls (9), (11), (123)]

g. Add FoF 597. The CO was aware that the planned navigation track when displayed on DNC® COA11D was at least four nautical miles from the land features of Tubbataha Reef: South Islet, North Islet, and was 3.5 nautical miles from Jessie Beazley Island. [Encls (9), (10), (11), (19), (20), (123)]

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h. Add FoF 598. The CO was aware that DNC<sup>®</sup> GEN11A and DNC<sup>®</sup> COA11D did not display the land features of Tubbataha Reef: South Islet, North Islet, and Jessie Beazley Island in the same geographic position. [Encls (9), (10), (11), (123)]

i. Add FoF 599. The CO made a determination to rely on DNC<sup>®</sup> COA11D based on his supposition that "it is 'well known' that general charts are inaccurate." [Encls (9), (10), (11), (123)]

j. Add FoF 600. Per the CO's Standing Orders, when following a navigation track, the OOD shall not normally change course/speed to avoid a contact without notifying the CO. [Encl (24)]

k. Add FoF 601. Toward the end of QM3 [REDACTED] watch on 16 January 2013, in reviewing the ship's track on VMS, he observed a small island north of Tubbataha Reef that was 10 nautical miles or more west of the ship's track. QM3 [REDACTED] states that during turnover with QMSN [REDACTED], he showed QMSN [REDACTED] the small island as well as Tubbataha Reef. QMSN [REDACTED] states that he did not discuss the ship's track in the vicinity of Tubbataha Reef with QM3 [REDACTED] during turnover. [Encls (30), (32)]

EXE (b)(6)&(b)(7)(C)

EXE (b)(6)&(b)(7)(C)

EXE (b)(6)&(b)(7)(C)

l. Add FoF 602. The OOD determined before grounding that the ship was closer to the South Islet of the Tubbataha Reef than expected based on the navigation plan, yet failed to take action to determine the ship's true position in accordance with the CO's Standing Orders. [Encls (21), (24)]

#### 4. Opinions

a. Add Op 48. The CO, XO/NAV and ANAV failed to reconcile the differences between DNC<sup>®</sup> GEN11A and DNC<sup>®</sup> COA11D, which could have been reasonably done by comparing the position of the land features of Tubbataha Reef: South Islet, North Islet, and Jessie Beazley Island found in Publication 112 and/or Publication 162. [FoF (14) through (18), (20) through (25), (28), (29), (139), (154), (228), (307) through (351), (352) through (366), (369), (370), (596) through (599)]

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b. Add Op 49. The failure by the CO, XO/NAV, and ANAV to ensure consistent application of and compliance with prudent, safe, and sound navigation principles and standards during underway execution contributed to the watch teams' over-reliance on the DNC® COA11D chart and failure to recognize the ship was headed toward danger. [FoF (14) through (18), (20) through (25), (28), (29), (139), (154), (307) through (351), (352) through (366), (369), (370), (377) through (430), (596) through (599)]

c. Add Op 50. The DNC® GEN11A was loaded and available in VMS and was viewed by at least one Bridge watchstander. [FoF (601)]

d. Add Op 51. The XO/NAV failed to recognize the OOD's second report (close CPA to Tubbataha Reef) was contrary to what was expected based on the navigation plan and failed to take appropriate action to reconcile the discrepancy. [FoF (112), (113), (114), (602)]

e. Add Op 52. VMS human interface factors (e.g., alarm fatigue, volume controls, technical cartographer language used in alarms and warnings, and visual challenges associated with night mode) may have desensitized the watch team or otherwise contributed to the watch team's inability to recognize the specifics of approaching dangers. [FoF (139), (140), (141)]

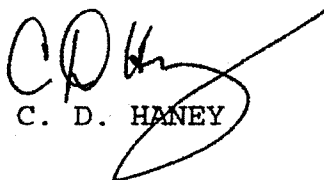
5. Recommendations. I approve and adopt the recommendations of the IO as modified by the Second Endorsement. Appropriate actions responsive to these recommendations will be taken by separate correspondence. In addition to reporting the findings from the navigation wholeness study related to training, I direct Commander, Naval Surface Force Pacific to coordinate with the Naval Electronic Chart and Display System (ECDIS-N) technical community, including engineers and programmers, to investigate and develop requirements for improving ECDIS-N human interface.

6. Accountability. I note that Commander, Expeditionary Strike Group SEVEN has awarded nonjudicial punishment to LCDR Mark

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Rice, Commanding Officer; LT Daniel Tyler, Executive Officer;  
LTJG [REDACTED] EXE (b)(6)&(b)(7)(C), Officer of the Deck; and, QMC [REDACTED] EXE (b)(6)&(b)(7)(C)  
Assistant Navigator, Quartermaster of the Watch. Further  
disciplinary and administrative action is under consideration.

7. Finally, the heroic efforts of the crew to save their ship are commendable. The actions of the Engineering and Damage Control teams, in particular, were instrumental in reinforcing the structural integrity of the ship despite multiple breaches to her hull. Additionally, while facing dangerous seas, the Boat Coxswains, Damage Control Assistant, and Navy rescue swimmers ensured the safe evacuation of the crew without any significant injuries. In short, their efforts saved lives. Their actions are in keeping with the highest traditions of the naval service and are deserving of admiration and recognition.

  
C. D. HANEY

Copy to:  
COMNAVSURFPAC  
COMSEVENTHFLT  
Investigating Officer



DEPARTMENT OF THE NAVY  
COMMANDER, NAVAL SURFACE FORCE  
UNITED STATES PACIFIC FLEET  
2841 RENDOVA ROAD  
SAN DIEGO, CALIFORNIA 92155-5490

IN REPLY REFER TO  
5812  
Ser N00J/286  
12 Apr 13

SECOND ENDORSEMENT on CAPT EXE (b)(6)&(b)(7)(C) ltr 5830 of 11 Mar 13

From: Commander, Naval Surface Force, U.S. Pacific Fleet  
To: Commander, U.S. Pacific Fleet

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Encl: (125) OPNAV ltr 5310 Ser N12/020 of 22 Nov 11 (SMD Mod MCM-1 Class)

1. Per reference (a), I have reviewed subject investigation.

2. Executive Summary

a. Causation. Any single direct cause or contributory factor of this incident is difficult to pinpoint given the many interrelated failures by leadership and the navigation team to adhere to sound navigation principles and practices. Those principles are clearly prescribed in the NAVDORM and reinforced for the specific purpose of preventing incidents like this. In that regard, I generally concur with paragraphs 3.d and 3.d(1) of the First Endorser, but would not assign the predominant cause to failing to reconcile the charts. The root causes point to key failings that were equally, if not more, significant. For instance, had GUARDIAN followed OPORD 201 the ship's track would not have intersected either reef. Also, had the night orders been properly annotated or had VMS Mariner Objects been used along the track to denote the stand-off distances to both reefs, it is likely that the watch team would have set the Modified Navigation Detail, and watchstanders with more experience would have been on the bridge. I note there is no evidence to support that VMS was not operating properly before, during or after the transit. Accordingly, all indicators lead to the conclusion that failures in leadership and oversight, and failing to follow NAVDORM procedures were the primary causes of this incident.

b. Logging Requirements. I note GUARDIAN failed to execute the "Special Logging Requirements" procedures in NAVDORM Chapter 5 that require specific actions following a grounding. This would have preserved all the "Situational Awareness System" files covering data for two hours before and two hours after the incident. Logging requirements data would have assisted in the reconstruction of the incident.

3. VMS (Voyage Management System) Basics. A short description of the basic process for inputting and approving a navigation plan is warranted to better understand how adhering to the NAVDORM and using VMS properly can avoid incidents like the GUARDAIN grounding. When building the Voyage Plan in VMS the Voyage Plan Developer must "save" the Plan, and VMS then performs a "Plan Validation and Safety Check." The Safety Check identifies and reports all "Dangers" along the intended track in a "Danger Query Window." The "Voyage Planning Checklist" in the NAVDORM requires the Voyage Plan Developer and an independent Reviewer to validate the Voyage Plan, and to check for dangers prior to routing the Plan for review and approval.

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4. Pursuant to reference (a), I concur with the findings of fact, opinions and recommendations of both the Investigating Officer (IO) and First Endorser, subject to modifications below.

#### Findings of Fact

5. Comments on additional Findings of Fact of the First Endorser, as modified below:

a. COMSEVENTHFLT additional FoF 596. The CO was aware that the planned navigation track, when displayed on DNC<sup>®</sup> GEN11A, intersected South Islet, Tubbataha Reef. [Encls (9), (10), (11), (19), (20), (123)]

**CNSP:** Concur with FoF 596, as modified: by deleting enclosure (10) (digital coastal chart) as supporting evidence.

**Justification:** EXE (b)(6)&(b)(7)(C) CDR noted in his statement (Encl (123)) the CO had remarked that during voyage planning he (the CO) observed the ship's track on the general chart "went right over top of the [Tubbataha] reef," which caused the CO to use the coastal chart instead. There is no indication from the CO's statements or the XO's statement that at the time during the voyage plan the CO observed this ship's track on any chart. The XO's statement indicates the CO had "no concerns" the CO, the XO and ANAV reviewed the Voyage Plan together. It is evident from the CO's reliance on the coastal chart that he did not observe the same ship's track running over Tubbataha reef when viewed on the coastal chart. Enclosure (10) does not support the additional FoF.

b. COMSEVENTHFLT Additional FoF 597. The CO was aware that the planned navigation track when displayed on DNC<sup>®</sup> COA11D was at least four nautical miles from the land features of Tubbataha Reef: South Islet, North Islet, and Jessie Beaxley Island. [Encls (9), (10), (11), (19), (20), (123)]

**CNSP:** Concur with FoF 597, as modified: by inserting "was 3.5 nautical miles from" before "Jessie Beaxley Island." Resultant FoF will read:

*"The CO was aware that the planned navigation track when displayed on DNC<sup>®</sup> COA11D was at least four nautical miles from the land features of Tubbataha Reef: South Islet, North Islet, and was 3.5 nautical miles from Jessie Beaxley Island."*

**Justification:** Per his statement (Encl (19)), the CO was aware the CPA to Jessie Beaxley Reef was "about 3.5nm." The CO-approved Voyage Plan when viewed on the coastal chart displays ship's track at 3.3nm (FoF 25). Any distance below 4nm was significant to the CO, per his statement where he expected, and had discussed with the XO, the need to set the Modified Navigation Detail (MND) for the Jessie-reef passage. I note that the OOD and QMOW (i.e., Navigation) recommended setting the MND but the OOD did not order MND following the OOD's discussion with the XO (FoF 84).

c. COMSEVENTHFLT Additional FoF 598. The CO was aware that DNC<sup>®</sup> GEN11A and DNC<sup>®</sup> COA11D did not display the land features of Tubbataha Reef: South Islet, North Islet, and Jessie Beaxley Island in the same geographic position. [Encls (9), (10), (11), (19), (20), (123)]

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**CNSP: Concur with additional FoF 598, as amplified:** noting the CO indicated to CDR(b)(6)&(b)(7)(C) 1 (123)) that he (the CO) was aware of the differences in the charts. However, it is uncertain from the evidence at which point in time the CO made himself aware of the significance of those differences. The XO's statement (Encl (20)) indicates he had no concerns regarding the charts when the voyage plan was reviewed in Subic Bay, and the CO's first statement (i.e., answers to IO questions at (Encl (22)) answered "No" to the question, "Were you aware of differences between the coastal and general charts."

d. COMSEVENTHFLT additional FoF 599. The CO made a determination to use DNC<sup>®</sup> COA11D based on his supposition that "it is 'well known' that general charts are inaccurate." [Encls (9), (10), (11), (19), (20), (123)]

**CNSP: Concur with additional FoF 599, as modified:** by striking enclosures (11) and (20) supporting enclosures. This change is consistent with the explanation for additional FoF 598 above. The resultant FOF will read:

*"The CO made a determination to use DNC<sup>®</sup> COA11D based on his supposition that "it is 'well known' that general charts are inaccurate." [Encls (9), (10), (19), (123)]"*

e. COMSEVENTHFLT Modify FoF 349. Per XO/NAV, the CO, ANAV, and he viewed the Navigation Plan for the transit from Subic Bay to Makassar as a group by using the VMS-3 laptop computer in the Chart Room. ~~They had no concerns.~~ [Encls (9), (10), (11), (19), (20), (123)]

**CNSP: Concur with changes** to FoF 349 where the First Endorser deleted the last sentence, "They saw no concerns." Concurrence with this change is amplified by CNSP new FoFs 357.a, 357.b and 357.c below based on witness statements.

f. COMSEVENTHFLT Delete FoF 352. The XO/NAV ran a safety check on the track and found no dangers. [Encl (20)]

**CNSP: Do Not Concur** in deleting FoF 352, and further recommend modifying FoF 352: by inserting the words, "Per the XO/NAV" at the beginning of the sentence for consistency with FoF 349.

**Justification:** FoF 352 contains an observation from the XO/NAV's statement (Encl (20)) not reflected in other witness statements. The XO indicated he ran a safety check in VMS, the specific date and time of which is unknown. As a matter of course, when a safety check is executed in VMS it will automatically identify all known dangers along the Voyage Plan track but a Reviewer is not required to assess every event in the Danger Query Window. Therefore, it is possible for the XO to have run a safety check and to have determined that the results of the query (i.e., the danger notification boxes) were insignificant or inapplicable. In this instance, the XO's statement that he ran a safety check is not refuted by other evidence, and it is reasonable to conclude that the XO, in fact, ran a safety check. The resultant FOF will read:

*"FOF 352. Per the XO/NAV, he ran a safety check on the track and found no dangers. [Encl (20)]"*



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6. Additional Findings of Fact of the Second Endorser:

a. Add FoF 357.a: EXE (b) (5)

Justification: FoF 357.a EXE (b) (5)

b. Add FoF 357.b: EXE (b) (5)

Justification: FoF 357.b EXE (b) (5)

c. Add FoF 357.c: EXE (b) (5)

Justification: FoF 357.c EXE (b) (5)

Opinions

7. Comments on additional Opinions of the First Endorser, as modified below:

a. COMSEVENTHFLT additional Op 48.

EXE (b) (5)

CNSP:

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EXE (b) (5)

b. COMSEVENTHFLT additional Op 49. The XO/NAV and ANAV failed to reconcile the differences between DNC<sup>®</sup> GEN11A and DNC<sup>®</sup> COA11D, which could have been reasonably done by comparing the position of the land features of Tubbataha Reef: South Islet, North Islet, and Jessie Beaxley Island found in Publication 112 and/or Publication 162. [FoF (14) through (18), (20) through (25), (28), (29), (139), (154), (288), (307) through (351), (352) through (366), (369), (370), (596) through (599)]

EXE (b)(6)&(b)(7)(C)

CNSP: Concur, with amplification: QMSA [REDACTED] (Encl (32)) indicates he knew the ANAV QMC [REDACTED] built the Plan in question, and the XO said he ran a safety check. But the VMS process, if done properly, would have alerted the persons who "Saved" the Plan, who then should have used a Voyage Plan Safety Checklist to note the errors in this particular NAVPLAN when it was briefed.

c. COMSEVENTHFLT additional Op 50.

EXE (b) (5)

d. COMSEVENTHFLT additional Op 51. The failure to reconcile the differences between DNC<sup>®</sup> GEN11A and DNC<sup>®</sup> COA11D was the cause of the grounding. [FoF (14) through (18), (20) through (25), (28), (29), (63) through (141), (154), (185) through (224), (228), (307) through (351), (352) through (366), (369), (370), (596) through (599)]

EXE (b) (5)

e. COMSEVENTHFLT additional Op 52. The failure by the CO, XO/NAV, and ANAV to ensure consistent application and compliance with prudent, safe, and sound navigation principles and standards during underway execution caused the navigation team to focus solely on the DNC<sup>®</sup> COA11D chart and to not recognize the ship was headed to danger. [FoF (14) through (18), (20) through (25), (28), (29), (139), (154), (307) through (351), (352) through (366), (369), (370), (377) through (430), (596) through (599)]

CNSP: Concur, with specific emphasis on the IO's Executive Summary, paragraph 2 at pp 8-19.

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#### RECOMMENDATIONS

8. I have no comments on Recommendations of the Investigating Officer involving "Accountability" (#1 through #6) and "Personal Awards" (#7). Comments on the remaining IO Recommendations #8 through #18.d as originally serialized in the investigation, as modified or amplified:

##### USS GUARDIAN Crew Readiness

#8. I recommend COMCMRON SEVEN conduct a thorough Command Readiness Inspection of the USS GUARDIAN crew to include an emphasis on divisional/departmental training and Personnel Qualification Standards. The crew should develop and adhere to a rigorous training regimen and conduct quality watch station and divisional training on a routine and repetitive basis. When the GUARDIAN crew is reassigned to their next ship I recommend the ship readiness cycle clock be reset requiring the crew to recertify in all mission areas pursuant to CNSPINST/CNSLINST 3502.3 (SFRM) and CNSPINST/CNSLINST 3500.10 (READ-E Instruction) before deploying.

CNSP: Concur. COMCMRON-7 is directed to deliver a POA&M for assessment and execution of this requirement within 30 days following the final endorsement of this Report by COMPACFLT. CNSP POC: N7 CDR Kevin Meyers.

##### U.S. Navy Navigation Standards

#9. I recommend Director Navy Staff review the U.S. Navy SORM to determine the U.S. Navy requirement for stationing a Combat Information Center Watch Officer (CICWO) in CIC during condition III/IV underway steaming in MCM 1 class ships. My personal recommendation is that stationing a CICWO is required in MCM 1 class ships during condition III/IV underway steaming. However, if a CICWO is not deemed mandatory for MCM 1 class ships, reference (c) should be revised to include specific duties and responsibilities of the Combat Information Center Watch Supervisor (CICWS) to include responsibilities for safe navigation of the ship. If a CICWO is required in MCM 1 class ships after the review, I recommend Naval Warfare Development Command (NWDC) revise the MCM 1 Class Tactical Manual to comply with Navy SORM requirements for stationing a CICWO during Condition III/IV underway steaming.

CNSP: Concur.

#10. I recommend that the Navigator of the Navy, working in coordination with the National Geospatial-Intelligence Agency (NGA), establish mandatory requirements for reporting safety of navigation related discrepancies identified in Digital Nautical Charts once issued. Current guidelines outlined in Appendix E of the NAVDORM request immediate notification of noted discrepancies to DNCs®.

CNSP: Concur, as amplified. NAVDORM Appendix E will be revised to state: "Users of DNC are required to immediately report safety of navigation related discrepancies that may be detected on DNC to NGA's 24-hour World-Wide Navigation Warning Service Broadcast Desk via:".

#11.

EXE (b) (5)

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EXE (b) (5)

#12. I recommend that Commander, Naval Surface Forces add a sub-section to the NAVDORM establishing a VMS System Administrator function and outlining system password management responsibilities. Further, I recommend that this function not be assigned to a member of the navigation team in order to assure security and proper management of navigation plans. Additionally, I recommend that the In Service Engineering Agent for the VMS system investigate the capability of providing approval authority in VMS to someone other than the Commanding Officer if delegation of approval authority for open ocean voyage plans (i.e., Navigator) is implemented as outlined in the NAVDORM chapter five paragraph 2.d.2.

CNSP: Concur, with emphasis on the second sentence that the functions not reside with the Navigation team. CNSP will submit a revision of the NAVDORM to include requiring System Administrator duties to be performed by the system technician IAW with VMS Operator's manual to include control of usernames and passwords. CNSP POC: N7 CDR Kevin Meyers.

Emergency Destruction

#13. I recommend COMCMRON SEVEN investigate the emergency destruction process and procedures used in USS GUARDIAN. This investigation should focus on identifying challenges during execution and recommend any necessary improvements from both procedural and material requirements perspective. A

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subset of this investigation should include verification and validation of the process used in USS GUARDIAN to ensure full Crypto and classified material accountability and formal close out of these accounts. Potential information and lessons learned from this investigation should be considered for implementation as a class wide instruction.

CNSP: Concur. COMCMRON-7 is directed to conduct the investigation and provide findings and an Executive Summary of Recommendations within 30 days following the final endorsement of this Report by COMPACFLT. CNSP POC: N6 CDR Michael Nadeau.

#### Manning

#14. I recommend Commander, Naval Surface Forces pursue a billet change request establishing a second tour 1110 division officer billet as Navigator in MCM 1 Class ships.

CNSP: Concur, noting action is complete on the billet change and replacement will be cyclical for each vessel per new enclosure (125). As of 22 Nov 11, second tour 1110 division officers have been ordered into the Navigator billet alleviating the requirement for the XO to perform navigator duties IAW OPNAV N12 letter adjudicating SMD for MCM 1 Class and Rotational Crews. The change takes place when the second tour division officer OPS rotates and is replaced by a first tour Department Head OPS. The second tour division officer will receive required navigation training in-route to filling the Navigator billet. This change had not taken place on USS GUARDIAN as of the grounding.

#15. I recommend Commander, U.S. Fleet Forces Command as enlisted fleet manning control authority implement a policy change for Quartermaster manning that mandates a face-to-face relief for the senior Quartermaster position in all ships. Further, I recommend that all Quartermaster positions in MCM and PC ships require face-to-face relief (no gaps).

CNSP: Concur in part. Concur with face-to-face Senior QM relief. Do not concur with the same face-to-face requirement for all QM positions though the practice is recommended if feasible.

#### Training and PQS

#16. I recommend Commander, Naval Education and Training Command and Commander, Naval Surface Forces conduct a comprehensive review of all officer and enlisted navigation training courses to ensure curriculum compliance with reference (d), implementation of Navigation Plan development, review and approval processes for using Digital Nautical Charts and implementation of navigation techniques and procedures using the Voyage Management System as applicable to each of the following courses: Quartermaster "A" school, Senior Quartermaster Refresher, officer pre-commissioning training pipelines (NN200 course taught by Naval Reserve Officer Training Corps (ROTC) units and the Division of Professional Development, U.S. Naval Academy, Annapolis, Maryland), Basic Division Officer Course, Advanced Ship Handling and Tactics Course, Department Head Course, Perspective Executive Officer Course, Perspective Commanding Officer Course, Major Command Course and Bridge Resource Management training.

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CNSP: Concur, noting that curriculum review is ongoing at Surface Warfare Officer School (SWOS) with delivery anticipated in June 2013. SWOS is currently conducting an annual review of VMS Operator's course (CIN A-061-0042) and Prospective Navigator (P-NAV) (CIN J-4N-0009) courses. In addition, CNSP has scheduled a navigation training conference to discuss courses, curriculum, and fleet feedback regarding navigation training. I will provide a report of the Conference findings and outcomes to SWOS as Executive Agent for Navigation Training, and to other stakeholders.

#17. I recommend Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM) and Commander, U.S. Pacific Fleet (COMPACFLT) ensure that subordinate Air and Surface Type Commanders revise applicable Personal Qualification Standards instructions to provide specific guidelines with respect to delegation of final qualification/certification authority by Commanding Officers for officer and enlisted navigation watchstations (e.g., Navigator, Assistant Navigator, CICWO, CICWS, VMS Operator, Radar Operator, etc.). I further recommend that if delegation authority is authorized that this authority not be delegated below the Executive Officer level.

CNSP: Concur, as applicable only to Navigation Watchstanding PQS standards and procedures.

Equipment

#18.

a.

EXE (b) (5)

b.

Subj: COMMAND INVESTIGATION INTO THE GROUNDING OF USS GUARDIAN (MCM 5)  
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c.

EXE (b) (5)

a

9. Comment on the recommendation of the First Endorser, contained in the fifth paragraph of that endorsement:

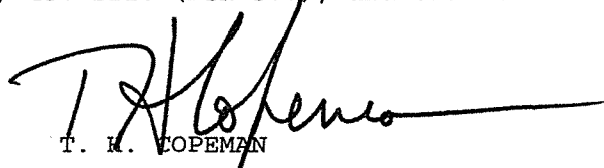
#5. The investigation revealed potential systemic issues on units that rely on the Naval Electronic Chart and Display System (EDICS-N). These systemic issues primarily stem from the training provided for and the use of the Voyage Management System (VMS). While I concurred with the recommendation that relate to the use of VMS, Commander, Naval Surface Force Pacific, as the Pacific Fleet Type Commander and the lead for the Surface Warfare Enterprise,

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must evaluate the accuracy and efficacy of these recommendations to determine if intermediate measures should be put in place to mitigate the findings of this investigation as related to the navigation standards under reference (d) for units using EDICS-N. As a result of the findings of fact, I transmitted enclosure (124), Mitigation Measures for Safe Navigation of U.S. SEVENTH Fleet Units, which directs my Task Force Commanders to take appropriate mitigation steps consistent with reference (d).

CNSP: Concur, as amplified. All VMS enabled vessels and all navigation teams can benefit from this recommendation regarding VMS consistent with enclosure (124). Basically, navigation principles in the NAVDORM can mitigate and likely eliminate recurrence of this incident throughout the Fleet. Training and procedures for the proper use of VMS are provided during both officer and enlisted training courses. The NAVDORM provides policy and guidance for safe navigation using VMS to include the voyage planning that must be followed as specified. Commander, Naval Surface Forces, Pacific Fleet has received the Navigation Wholeness study and is aware of the need to improve training for navigation systems in general, including VMS operator and maintainer courses, as well as ECDIS-N. In this particular case, however, failure to adhere to basic procedures and navigation principles was the principal contributing factor to the grounding, and not a lack of training.

10. Point of contact for this matter is the Force Judge Advocate, CAPT  
JAGC, USN at: (619) 437 2210 (DSN 577), and email:  
EXE (b)(6)&(b)(7)(C) @navy.mil

  
T. H. COPEMAN

Copy to:  
COMSEVENTHFLT





DEPARTMENT OF THE NAVY

COMMANDER SEVENTH FLEET  
UNIT 25104  
FPO AP 96601-6003

5830  
Ser N013/040J  
28 Mar 13

FIRST ENDORSEMENT on CAPT <sup>EXE (b)(6)&(b)(7)(C)</sup> ltr 5830 of 11 Mar 13

From: Commander, U.S. SEVENTH Fleet  
To: Commander, U.S. Pacific Fleet  
Via: Commander, Naval Surface Force Pacific

Subj: COMMAND INVESTIGATION INTO THE GROUNDING OF USS GUARDIAN  
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Encl: (121) RDML Harley ltr 5830 Ser N00/074 of 18 Mar 13  
(122) PP Brief GUA Remaining Salvage Effort  
(123) CDR statement of 26 Feb 13  
(124) COMSEVENTHFLT 220820Z Mar 13

<sup>(b)(6)&(b)(7)(C)</sup>

1. Per reference (a), I have reviewed subject investigation.
2. At my direction, RDML Jeffery A. Harley, Commander, Task Force SEVENTY SIX, the first flag officer in the operational chain of command, reviewed the subject investigation. I valued his review and found RDML Harley's comments informative and compelling as I conducted my review. Enclosure (121) pertains.
3. Executive Summary

a. Transit. On 6 January 2013, USS GUARDIAN (MCM 5) departed Sasebo, Japan for Subic Bay, Republic of the Philippines, arriving on 13 January 2013, after a brief stop for fuel in Okinawa, Japan. After Subic Bay, GUARDIAN was initially scheduled to conduct a brief stop for fuel in Puerto Princesa, Republic of the Philippines, on 16 January 2013. However, a schedule change occurred, and GUARDIAN's next port visit was changed to Makassar, Indonesia. On 15 January 2013, GUARDIAN departed Subic Bay for the routine transit to Makassar.

b. Grounding. On 17 January 2013, while in the Sulu Sea, GUARDIAN ran aground on South Islet, Tubbataha Reef, Republic of the Philippines. On 18 January 2013, GUARDIAN broached with her keel resting on the reef, and due to unsafe conditions onboard GUARDIAN, the crew left the ship, boarding MV SEA CHAMPION and USS MUSTIN (DDG 89).

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c. Salvage. On 18 January 2013, Commander, U.S. Pacific Fleet directed Commander, U.S. SEVENTH Fleet in coordination with Naval Sea System Command's Supervisor of Salvage and Diving to commence salvage operations in order to mitigate environmental damage and to recover GUARDIAN from the reef. As of the date of this endorsement, salvage operations are ongoing and are expected to be completed by 15 April 2013. Enclosure (122) pertains.

d. Causation. The cause of the grounding was the failure to reconcile the known difference between DNC® GEN11A, the 'general' chart, and DNC® COA11D, the 'coastal' chart. The Commanding Officer (CO), Executive Officer/Navigator (XO/NAV), and Assistant Navigator (ANAV) all had an affirmative duty to use all available means to ensure the safe navigation of GUARDIAN. After determining there was a difference between the 'general' chart and the 'coastal' chart, the CO, XO/NAV, and ANAV had a duty to verify the position of Tubbataha Reef using Publication 112 List of Lights and Publication 162 Sailing Directions and to make the chart difference known to the National Geospatial-Intelligence Agency. Had the CO, XO/NAV, and ANAV taken either of the two measures that they were required to take, the grounding would not have occurred.

(1) A significant contributing causal factor was the failure of command leadership to provide the necessary oversight and direction and to ensure the consistent application and compliance with prudent, safe, and sound navigation principles and standards, which placed the ship and her crew into danger. This failure led the crew, specifically the navigation team on the night of the grounding, to fail to recognize that the DNC® COA11D chart was in error.

4. Pursuant to reference (a), I concur with the findings of fact, opinions, and recommendations of the Investigating Officer with the following modifications:

a. Findings of Fact

(1) Add FoF 596. The CO was aware that the planned navigation track, when displayed on DNC® GEN11A, intersected South Islet, Tubbataha Reef. [Encls (9), (10), (11), (19), (20), (123)]

(2) Add FoF 597. The CO was aware that the planned navigation track when displayed on DNC® COA11D was at least four

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nautical miles from the land features of Tubbataha Reef: South Islet, North Islet, and Jessie Beaxley Island. [Encls (9), (10), (11), (19), (20), (123)]

(3) Add FoF 598. The CO was aware that DNC® GEN11A and DNC® COA11D did not display the land features of Tubbataha Reef: South Islet, North Islet, and Jessie Beaxley Island in the same geographic position. [Encls (9), (10), (11), (19), (20), (123)]

(4) Add FoF 599. The CO made a determination to use DNC® COA11D based on his supposition that "it is 'well known' that general charts are inaccurate." [Encls (9), (10), (11), (19), (20), (123)]

(5) Modify FoF 349. Per XO/NAV, the CO, ANAV, and he viewed the Navigation Plan for the transit from Subic Bay to Makassar as a group by using the VMS-3 laptop computer in the Chart Room. [Encls (9), (10), (11), (19), (20), (123)]

(6) Delete FoF 352. The XO/NAV ran a safety check on the track and found no dangers. [Encl (20)]

b. Opinions

(1) Add Op 48.

EXE (b) (5)

(2) Add Op 49. The XO/NAV and ANAV failed to reconcile the differences between DNC® GEN11A and DNC® COA11D, which could have been reasonably done by comparing the position of the land features of Tubbataha Reef: South Islet, North Islet, and Jessie Beaxley Island found in Publication 112 and/or Publication 162. [FoF (14) through (18), (20) through (25), (28), (29), (139), (154), (228), (307) through (351), (352) through (366), (369), (370), (596) through (599)]

(3) Add Op 50.

EXE (b) (5)

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EXE (b) (5)

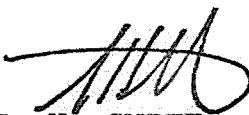
(4) Add Op 51.

EXE (b) (5)

(5) Add Op 52. The failure by the CO, XO/NAV, and ANAV to ensure consistent application and compliance with prudent, safe, and sound navigation principles and standards during underway execution caused the navigation team to focus solely on the DNC<sup>®</sup> COA11D chart and to fail to recognize the ship was headed toward danger. [FoF (14) through (18), (20) through (25), (28), (29), (139), (154), (307) through (351), (352) through (366), (369), (370), (377) through (430), (596) through (599)]

5. The investigation revealed potential systemic issues on units that utilize the Naval Electronic Chart and Display System (EDICS-N). These systemic issues primarily stem from the training provided for and the use of the Voyage Management System (VMS). While I concurred with the recommendations that relate to the use of VMS, Commander, Naval Surface Force Pacific, as the Pacific Fleet Type Commander and the lead for the Surface Warfare Enterprise, must evaluate the accuracy and efficacy of these recommendations to determine if intermediate measures should be put in place to mitigate the findings of this investigation which relate to the navigation standards under reference (d) for units using EDICS-N. As a result of the findings of fact, I transmitted enclosure (124), Mitigation Measures for Safe Navigation of U.S. SEVENTH Fleet Units, which directs my Task Force Commanders to take appropriate mitigation steps consistent with reference (d).

6. While many portions of this investigation focus on the negative, the response by the crew members of GUARDIAN must not be overlooked. The efforts by the crew to save their ship and to ensure the safe departure of their shipmates were nothing short of remarkable and in many individual cases heroic.

  
S. H. SWIFT

5830  
11 Mar 13

From: CAPT (b) (3), (b) (6), (b) (7) (C), USN,  
To: Commander, U.S. SEVENTH Fleet

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Ref: (a) JAGINST 5800.7F, JAGMAN  
(b) U.S. Navy Regulations, 1990, as amended  
(c) OPNAVINST 3120.32D, U.S. Navy SORM  
(d) COMNAVSURFPAC/COMNAVAIRPAC/COMNAVSURFLANT/  
COMNAVAIRLANTINST 3530.4C, Navigation Department  
Organization and Regulations Manual (NAVDORM)  
(e) COMSEVENTHFLT Operations Order (OPORD) 201  
(f) JA26-8631 Rev A Operator's Manual Voyage Management  
System, Military Software Version 7.7 of 1 Jun 06  
(g) OPNAVNOTE 5400 Ser DNS-33/12U1002150 of 1 Oct 12  
(h) Pub. 162, Sailing Directions (10th Ed. 2011)  
(i) Pub. 112, List of Lights (Ed. 2012)  
(j) OPNAVINST 3500.34F, Personnel Qualification Standards  
Program  
(k) NAVEDTRA 43100-1K, Personnel Qualification Standards  
Unit Coordinator's Guide  
(l) International Convention for the Safety of Life at  
Sea (SOLAS) Convention, 1974, as amended  
(m) OPNAVINST 9420.2, Implementation of the Electronic  
Chart Display and Information System-Navy (ECDIS-N)  
Certification Process  
(n) NAVSEAINST 9420.4A, Certification of Navigation  
Systems (NAVCERT)  
(o) Title 10, U.S. Code  
(p) FY13 Global Force Management Implementation Guidance  
Forces For Assignment Tables  
(q) CTF 76 170159Z Dec 12  
(r) DoD Directive 5105.60, National Geospatial-  
Intelligence Agency, of 29 July 2009  
(s) DoD Instruction 5030.57, Special Warnings to Mariners,  
of 5 December 2011  
(t) OPNAVINST 3100.7B, Preparing, Maintaining, and  
Submitting the Ship's Deck Log  
(u) COMNAVSURFPACINST/COMNAVSUFLANTINST 3500.10,  
Readiness Evaluations (READ-E) Instruction  
(v) MILPERSMAN 1611-020

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- (w) MILPERSMAN 1616-010
- (x) COMNAVSURFPACINST/COMNAVSUFLANTINST 3502.3, Surface Force Readiness Manual
- (y) COMPACFLT OPORD 201
- (z) USPACOMINST S3020.2 (Series), Command Relationships in U.S. Pacific Command
- (aa) DoD 2005.1-M, Maritime Claims Reference Manual
- (bb) U.S Chart No. 1, Nautical Chart Symbols, Abbreviations, and Terms (11th Ed)
- (cc) ECDIS-N Display Symbology (1st Ed)
- (dd) Pub No. 9, The American Practical Navigator, Bowditch (2002)

- Encl:
- (1) COMSEVENTHFLT ltr 5830 Ser N013/017J of 24 Jan 13
  - (2) COMSEVENTHFLT ltr 5830 Ser N013/018J of 5 Feb 13
  - (3) COMSEVENTHFLT ltr 5830 Ser N013/027J of 21 Feb 13
  - (4) Naval Vessel Register, USS GUARDIAN (MCM 5)
  - (5) USS GUARDIAN ltr 5400 MCM 5 Ser 053 of 27 May 93
  - (6) Tubbataha Reefs Natural Park  
(<http://tubbatahareef.org/wp/history>)
  - (7) Tubbataha Reefs Natural Park  
([http://whc.unesco/pg\\_friendly\\_print.cfm?cid=31&id\\_site=653&](http://whc.unesco/pg_friendly_print.cfm?cid=31&id_site=653&))
  - (8) Tubbataha Reefs Natural Park  
([http://tubbatahareef.org/wp/global\\_ecological\\_significance](http://tubbatahareef.org/wp/global_ecological_significance))
  - (9) Digital Nautical Chart (DNC®) GEN11A (16th Ed)
  - (10) Digital Nautical Chart (DNC®) COA11D (16th Ed)
  - (11) USS GUARDIAN (MCM 5) Voyage Management System-3 Navigation Plan Screen Captures
  - (12) Tubbataha Reefs Natural Park Rules 01-08
  - (13) Statement of QM1 (SW/AW) <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, Technical Assistant to the Investigating Officer
  - (14) USS GUARDIAN Ship's Deck Log
  - (15) USS GUARDIAN Engineering Log
  - (16) USS GUARDIAN Combat Information Center General Log
  - (17) USS GUARDIAN Ship's Position Log
  - (18) USS GUARDIAN 162046Z Jan 13 (NOTAL)
  - (19) Statement of LCDR Mark Rice, USN, Commanding Officer, USS GUARDIAN (MCM 5) w/ Article 31, UCMJ Rights Advisement

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- (20) Statement of LT Daniel Tyler, USN, Executive Officer /Navigator, USS GUARDIAN (MCM 5) w/ Article 31, UCMJ Rights Advisement
- (21) Statement of LTJG (b) (3), (b) (6), (b) (7) (C), Communications Officer, USS GUARDIAN (MCM 5) w/ Article 31, UCMJ Rights Advisement and Response to Interrogatories
- (22) USS GUARDIAN memo of 20 Feb 13
- (23) USS GUARDIAN 120334Z JAN 13
- (24) GUARDIANINST 1601.1Q
- (25) GUARDIANINST 3530.4I
- (26) USS GUARDIAN (MCM 5) Underway Schedule, 2012
- (27) Commanding Officer's Night Orders of 16 Jan 13
- (28) Statement of MNC (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (29) Statement of ENS (b) (3), (b) (6), (b) (7) (C), Prospective Communications Officer, USS GUARDIAN (MCM 5)
- (30) Statement of QMSN (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (31) FLTGPS Individual Qualification Record for QMSN (b) (3), (b) (6), (b) (7) (C)
- (32) Statement of QM3 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5), of 20 Feb 13
- (33) FLTGPS Individual Qualification Record for QMC (b) (3), (b) (6), (b) (7) (C)
- (34) Statement of MN3 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (35) Statement of MN2 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (36) Statement of MN2 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (37) Statement of MNCS (b) (3), (b) (6), (b) (7) (C), Operations Department Leading Chief Petty Officer, USS GUARDIAN (MCM 5)
- (38) Summary of Interview with Mr. (b) (6), (b) (7) (C), Naval Surface Warfare Carderock Division, ECDIS-N ISEA
- (39) Summary of Interview with MN3 (b) (3), (b) (6), (b) (7) (C)
- (40) International Maritime Organization, Charts and ECDIS (<http://www.imo.org/ourwork/safety/navigation/pages/charts.aspx>)
- (41) International Maritime Organization's Status of Conventions, 31 January 2013
- (42) CNSP Combat Systems Port Engineer Sasebo, JA e-mail ltr of 31 Jan 13
- (43) SPAWARSYSCEN ATLANTIC CHARLESTON SC ltr 9420 Ser 525BODM/00775 of 9 Mar 11
- (44) COMCMRON SEVEN ltr 3530 Ser 00/191 of 3 Jun 11
- (45) COMNAVSURFPAC SAN DIEGO CA 181803Z Jul 11
- (46) COMCMRON SEVEN ltr 3530 Ser 00/346 of 30 Nov 11



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- (47) COMCMRON SEVEN ltr 3530 Ser 00/038 of 20 Apr 12
- (48) Statement of QMCS(SW) (b) (3), (b) (6), (b) (7) (C), USS GEORGE  
WASHINGTON (CVN 73)
- (49) USS GUARDIAN (MCM 5) Crew List
- (50) Official Biography of LCDR Mark Rice, USN
- (51) Official Biography of LT Daniel Tyler, USN
- (52) MILPERSMAN 1301-222
- (53) Statement of CMDCM Stone, USN, Command Master Chief,  
USS GUARDIAN (MCM 5)
- (54) FLTTPS Individual Qualification Record for LT (b) (3), (b) (6), (b) (7)
- (55) FLTTPS Individual Qualification Record for LT  
(b) (3), (b) (6), (b) (7) (C)
- (56) Statement of LTJG (b) (3), (b) (6), (b) (7) (C), Damage Control  
Assistant, USS GUARDIAN (MCM 5)
- (57) Supplemental Statement of LTJG (b) (3), (b) (6), (b) (7) (C),  
Damage Control Assistant, USS GUARDIAN (MCM 5)
- (58) FLTTPS Individual Qualification Record for LTJG  
(b) (3), (b) (6), (b) (7) (C)
- (59) FLTTPS Individual Qualification Record for LTJG  
(b) (3), (b) (6), (b) (7) (C)
- (60) Statement of ENS (b) (3), (b) (6), (b) (7) (C), Supply Officer,  
USS GUARDIAN (MCM 5)
- (61) FLTTPS Individual Qualification Record for ENS  
(b) (3), (b) (6), (b) (7) (C)
- (62) Statement of ENS (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN  
(MCM 5)
- (63) FLTTPS Individual Qualification Record for ENS  
(b) (3), (b) (6), (b) (7) (C)
- (64) Summary of Interview with ENS (b) (3), (b) (6), (b) (7) (C),  
First Lieutenant, USS GUARDIAN (MCM 5)
- (65) Summary of Interview with ENS (b) (3), (b) (6), (b) (7) (C),  
Combat Information Center Officer, USS GUARDIAN  
(MCM 5)
- (66) FLTTPS Individual Qualification Record for ENS  
(b) (3), (b) (6), (b) (7) (C)
- (67) Statement of ENC (b) (3), (b) (6), (b) (7) (C), Main Propulsion  
Assistant, USS GUARDIAN (MCM 5)
- (68) Statement of DCC (b) (3), (b) (6), (b) (7) (C), Repair Division LCPO,  
USS GUARDIAN (MCM 5)
- (69) Statement of ITC (b) (3), (b) (6), (b) (7) (C), Deck and Weapons  
LCPO, USS GUARDIAN (MCM 5)



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- (70) USS GUARDIAN (MCM 5) Sea and Anchor Watch Bill  
(approved)
- (71) USS GUARDIAN (MCM 5) Underway Condition III Watch  
Bill (unapproved)
- (72) USS GUARDIAN (MCM 5) Standard Bearing Book
- (73) Commanding Officer's Night Orders Binder Record of  
Acknowledgement
- (74) USS GUARDIAN (MCM 5) Enlisted Distribution and  
Verification Report of 12 Feb 13
- (75) USS GUARDIAN 211218Z Dec 12
- (76) COMNAVPERSCOM MILLINGTON TN 230313Z Jan 13
- (77) Statement of YN1 (b) (3), (b) (6), (b) (7) (C), Ship's Secretary and  
Administration Officer, USS GUARDIAN (MCM 5)
- (78) Statement of MNSN (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (79) Statement of MNSN (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (80) Statement of HT1 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (81) Statement of MN2 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (82) Statement of MN2 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (83) Statement of MN3 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (84) Statement of DC3 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (85) Statement of CS1 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (86) Statement of LSC (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (87) Statement of MNSN (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN  
(MCM 5)
- (88) Statement of MN3 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (89) Statement of MNSN (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (90) Statement of HM1 (b) (3), (b) (6), (b) (7) (C), USS GUARDIAN (MCM 5)
- (91) Summary of Interview with DC2 (b) (3), (b) (6), (b) (7) (C), USS  
GUARDIAN (MCM 5)
- (92) NAVEDTRA 43534-D
- (93) FLTTPS Individual Qualification Record for MNCS  
(b) (3), (b) (6), (b) (7) (C)
- (94) FLTTPS Individual Qualification Record for ET2  
(b) (3), (b) (6), (b) (7) (C)
- (95) FLTTPS Individual Qualification Record for MN2 (b) (3), (b) (6), (b) (7) (C)
- (96) FLTTPS Individual Qualification Record for MN2  
(b) (3), (b) (6), (b) (7) (C)
- (97) USS AVENGER e-mail of 19 Oct 12
- (98) USS AVENGER 180033Z OCT 12
- (99) USS GUARDIAN 150900Z JAN 13
- (100) USS GUARDIAN Operations Department Eight O'Clock  
Reports of 15 Jan 13

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(MCM 5) ON TUBBATAHA REEF, REPUBLIC OF THE PHILIPPINES  
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- (101) Commanding Officer's Night Orders of 6 Jan 13
- (102) Commanding Officer's Night Orders of 9 Jan 13
- (103) Commanding Officer's Night Orders of 10 Jan 13
- (104) Commanding Officer's Night Orders of 11 Jan 13
- (105) Statement of QM3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, USS GUARDIAN (MCM 5), of  
5 Mar 13
- (106) Statement of LS2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, USS GUARDIAN (MCM 5)
- (107) Commanding Officer's Night Orders of 15 Jan 13
- (108) Tidal Heights, Location 8° 48.5' N, 119°, 48.5' E
- (109) USS GUARDIAN (MCM 5) Bridge-to-Bridge Log
- (110) Statement of MN3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, USS GUARDIAN (MCM 5)
- (111) Unclassified External Hard Drive with Videos
- (112) Statement of MN3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, USS GUARDIAN (MCM 5)
- (113) NAVSEA SEA21 E-Mail of 17 Feb 2013
- (114) Marianas Variety article of 11 Mar 13  
(<http://www.mvariety.com/regional-news/Palaupacific-news/54235-us-navy-salvage-operations-in-philippines-tubbataha-reef-continues>)
- (115) USS GUARDIAN 290459ZNOV12
- (116) COMCMRON SEVEN 110546ZDEC12
- (117) CTF 76 300202ZNOV12
- (118) COMCMRON-7 Operations Officer e-mail of  
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- (119) Voyage Management System-3 Screen Captures of  
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- (120) CTF-72 Photo of Lighthouse at South Islet

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Preliminary Statement

1. Purpose and Scope. In accordance with reference (a), this reports the command investigation convened pursuant to enclosure (1) to inquire into the facts and circumstances surrounding the grounding of USS GUARDIAN (MCM 5) on Tubbataha Reef, Republic of the Philippines (RP) that occurred on 17 January 2013. This investigation focused on the cause of the grounding, resulting injuries and damages, and any fault, neglect, or responsibility therefore; the planning and execution of the transit plan; the qualifications and training of the crew; the events immediately before, during, and after the grounding; the immediate response actions of the crew; and damage to the ship, the Tubbataha Reef, and surrounding marine environment.

2. Executive Summary

a. The grounding of USS GUARDIAN was entirely preventable.

b. The root causes of the grounding were human error and a failure of leadership to provide adequate oversight and direction in planning and executing the Navigation Plan.

(1) The Commanding Officer (CO), the Executive Officer/Navigator (XO/NAV), the Operations (OPS) Officer, the Officer of the Deck Underway (OOD), and the Assistant Navigator (ANAV) (who was also Quartermaster of the Watch (QMOW) at the time of grounding) failed to exercise their assigned responsibilities to ensure the safe navigation of the ship as prescribed by references (b) through (e), the CO's Standing Orders, and the ship's Navigation Bill.

(2) The CO exercised absolute responsibility for USS GUARDIAN and the ship's safe navigation, and was not relieved from such responsibility by any competent authority.

(3) The CO, XO/NAV, and ANAV failed to ensure consistent application and compliance with prudent, safe, and sound navigation principles and standards during navigation planning and underway execution.

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(4) The CO and XO/NAV failed to lead and supervise the ANAV during the Navigation Plan review and approval process on the Voyage Management System (VMS).

(5) The CO, XO/NAV, and ANAV failed to lead the OODs, Quartermasters (QMs), and Bridge and Combat Information Center (CIC) watchstanders by enforcing, through personal example and actions, fundamental navigational standards and requirements of references (b) through (e), the CO's Standing Orders, and the ship's Navigation Bill.

(6) The OPS Officer failed to ensure that CIC watchstanders were adequately trained in navigation and failed to ensure USS GUARDIAN's compliance with the navigational requirements of Commander, U.S. SEVENTH Fleet (COMSEVENTHFLT) Operations Order 201 (reference (e)).

c. My specific opinions and recommendations regarding accountability determinations for the CO, XO/NAV, OPS Officer, Senior Watch Officer, OOD, and ANAV are set forth in the Recommendations section.

d. The CO-approved Navigation Plan for the transit from Subic Bay, RP to Makassar, Indonesia was imprudent, unsafe, and unsound. This plan was executed by USS GUARDIAN.

(1) The Navigation Plan consisted of four Voyage Plans:

(a) A transit from Okinawa, JA to Subic Bay, RP, including the restricted waters transits outbound Okinawa and inbound Subic Bay.

(b) A restricted waters transit outbound Subic Bay.

(c) A transit from Subic Bay to Makassar, including the restricted waters transit inbound Makassar.

(d) A transit from Subic Bay to Makassar that had been downloaded from the VMS following a change to the final waypoint in Makassar harbor.

(2) The CO-approved Voyage Plan for the restricted waters transits inbound and outbound Subic Bay, coupled with

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corresponding log entries and crew member statements, indicate exclusive reliance on a single source of electronic navigation (Global Positioning System (GPS) from the AN/WRN-6 or Defense Advanced GPS Receiver (DAGR)) by the Bridge during the Sea and Anchor Details despite the availability of visual aids to navigation and RADAR navigation.

(3) The CO-approved Voyage Plan enroute Makassar, coupled with corresponding log entries and crew member statements, indicate a wholesale lack of leadership by the CO and XO/NAV for ensuring the safe navigation of the ship, as well as the ANAV's failure to support the XO/NAV and CO.

(a) On 15 and 16 January 2013, USS GUARDIAN entered restricted waters on two occasions without holding a Navigation Brief.

1. Mindoro Strait Transit. USS GUARDIAN sailed through restricted waters at night with the underway condition III watch section on the Bridge and CIC, maintained a 30 minute fix interval, and relied on one source of electronic navigation despite the availability of a visual aid to navigation on an adjacent island and RADAR navigation.

2. Framjee Bank Transit. After the CO came to the Bridge, the OOD set a Modified Navigation Detail, immediately reduced the fix interval from 30 minutes to 3 minutes, and continued to navigate using a single source of electronic navigation despite the availability of visual aids and RADAR navigation to the west.

3. The OOD's inaction during these two transits, and the poor degree of backup provided by Bridge and CIC watchstanders, evidences a lack of situational awareness and a weak understanding of the CO's Standing Orders, the Navigation Bill, and the VMS by all watchstanders.

(b) The transit toward Jessie Beazley Reef and Tubbataha Reefs was plotted on two corresponding general and coastal Digital Nautical Charts (DNCs®) in the Chart Portfolio.

1. The DNC® GEN11A correctly displayed the location of the Jessie Beazley Reef, Tubbataha Reefs, and the

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lighthouse on the South Islet. The DNC® COA11D incorrectly displayed the locations of these three reefs. A VMS safety check of the CO-approved Voyage Plan would have indicated numerous dangers in the vicinity of the reefs, to include a clear identification of the errors in DNC® COA11D. This information was available to the ANAV, XO/NAV, and CO during the planning stage.

2. On DNC® GEN11A, the CO-approved Voyage Plan plotted the Plan of Intended Movement (PIM) over the northwest corner of the South Islet of Tubbataha Reefs, nearly the exact location where USS GUARDIAN ran aground. The PIM also passed through the middle of a clearly depicted Restricted Area encompassing the Tubbataha Reefs.

3. The DNC® GEN11A information about the Tubbataha Reef lighthouse was nearly identical to information in Publication 112, List of Lights. In contrast, the DNC® COA11D information about the Tubbataha Reef lighthouse was significantly different from Publication 112. A comparison of DNC® GEN11A, DNC® COA11D, and the List of Lights would have shown a disparity about the lighthouse location, which in turn should have alerted ANAV, XO/NAV, and the CO to a potential error in one of the DNCs®.

4. The DNC® COA11A error was one of many contributing factors to the grounding, but it should have been identified through adherence to fundamental navigation principles, prudent planning, and proper VMS employment.

e. The VMS would have indicated dangers during the Navigation Plan review and approval process and indicated audible and visual alarms on these dangers during execution of the underway transit because the ship's PIM was plotted over or near areas of shoal water and through the Restricted Area encompassing the Tubbataha Reefs.

(1) These visual VMS alarms and dangers were available to the OOD, QMOW, and CIC watchstanders at various portions of the transit. However, based on witness statements, it is my opinion that the audible alarms were not heard because the Bridge and CIC either disabled the audible alarm feature or turned the VMS volume down on their respective VMS consoles.

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(2) Moreover, it is my opinion that alarms and dangers were generally acknowledged without review and without report to the OOD as a matter of routine.

f. Had USS GUARDIAN not ran aground on the Tubbataha Reef, the imprudent, unsafe, and unsound CO-approved Navigation Plan would have placed the ship directly over another navigation hazard with unknown depth at latitude 05 degrees 34.932 minutes North, longitude 119 degrees 32.835 minutes East as the ship passed in vicinity of Pearl Bank in the southern Sulu Sea approaching the Sibutu Passage.

g. The grounding of USS GUARDIAN placed the crew in great peril, resulted in the total loss of a multi-million dollar commissioned U.S. Navy warship with a proud history, and damaged the Tubbataha Reefs Natural Park.

h. The crew's collective response to the grounding was nothing short of heroic. The crew of USS GUARDIAN exemplified honor, courage, and commitment in their purest form.

(1) Damage control efforts were spearheaded by strong deckplate leadership. Many sailors fought valiantly and courageously to save their ship.

(2) Some members of the crew risked personal injury and fear of death to control flooding as USS GUARDIAN swung broadside on the Tubbataha Reef, breaking the ship's keel and piercing numerous holes and cracks in her wooden hull. Others risked personal injury and death upon abandoning ship into the rough Sulu Sea near the edge of a dangerous coral reef. Miraculously and through unrelenting personal perseverance, no one was seriously injured.

i. There is nothing more fundamental to a professional mariner than the safe navigation of his or her vessel. As this investigation shows, the U.S. Navy is "re-learning" painful lessons taught by the grounding of USS PATRIOT (MCM 7) near Chinhae Bay, Korea on 19 March 2005, and the grounding of USS PORT ROYAL (CG 73) on 5 February 2009. Only this time the lessons cost our Navy the total loss of a commissioned warship, and nearly cost Sailors' lives.



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j. We can and must do better. My recommendations address deficiencies and/or causal/contributing factors identified in the areas of shipboard leadership, crew readiness, navigation standards, manning, training, personal qualification standards, equipment and publications.

3. Amendments to Convening Order. Commander, U.S. SEVENTH FLEET amended enclosure (1) as follows:

a. Assigned a technical assistant and administrative assistant to the Investigating Team. [Encl (2)]

b. Granted an extension for final submission of the report of investigation. [Encl (3)]

c. Granted a second and final extension on 1 March 2013 for final submission of the report of investigation.

4. Investigating Team

a. Assistant Investigating Officer: LCDR (b) (3), (b) (6), (b) (7) (C),  
USS FITZGERALD (DDG 62).

b. Technical Assistant: QM1 (SW/AW) (b) (3), (b) (6), (b) (7) (C),  
Afloat Training Group, Western Pacific Detachment (ATG WESTPAC)  
Sasebo, Japan (JA).

c. Administrative Assistant: YN2 (SW/AW) (b) (3), (b) (6), (b) (7) (C),  
USS GEORGE WASHINGTON (CVN 73) Executive Administration  
Department.

d. Legal Advisor: CDR (b) (6), (b) (7) (C), Office of  
the Judge Advocate General, Administrative Law Branch (Code 13).

5. Administrative and Logistics Support. The Investigating Team received tremendous administrative and logistics support from Task Force SEVEN SIX (CTF 76); Destroyer Squadron FIFTEEN (CDS 15); ATG WESTPAC Detachment Sasebo, JA; U.S Naval Ship Repair Facility Detachment, Sasebo, JA (SRF SASEBO); Mine Countermeasure Squadron SEVEN (MCMRON 7); USS AVENGER (MCM 1); USS DEFENDER (MCM 7); Naval Criminal Investigative Service (NCIS) Resident Agency Sasebo, JA; NCIS Far East Region, Yokosuka, JA;

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and Naval Surface Warfare Center Carderock Division (NSWC  
CARDEROCK), Navigation Systems and Integrated Bridge Controls  
Branch.

6. Assumptions. The Investigating Team made the following  
assumptions at the start of the investigation. All proved  
accurate.

a. Assumption One. The circumstances of the grounding and  
subsequent crew evacuation would limit collection of relevant  
documentary and computer evidence.

(1) Initial operational reports indicated that USS  
GUARDIAN ran aground in a remote location in the Sulu Sea, and  
that her crew executed emergency destruction and abandon ship  
procedures. Prior to evacuating the ship, the crew packed logs,  
records, and computer hardware in plastic bags and Pelican boxes  
for transfer off the ship. Some bags and boxes fell into the  
sea. Most were recovered; some were not.

(2) Unrecovered items with significant probative value  
include two classified hard drives containing data for the  
Bridge and CIC VMS consoles. These hard drives were destroyed  
during emergency destruction. The CIC RADAR Contact Log, CIC  
Ship's Position Log, and CIC Sea and Anchor Detail Log remained  
onboard and were never recovered.

(3) During initial recovery operations, divers from  
Mobile Diving Salvage Unit ONE (MDSU-1) removed additional items  
of evidence from USS GUARDIAN. The ship's unsafe condition,  
variable weather, and adverse sea conditions (particularly in  
the shoal area in vicinity of USS GUARDIAN) presented challenges  
and limitations to recovery operations.

(4) When the Investigating Team assumed custody and  
opened USS GUARDIAN's locked abandon ship box, the stored logs,  
records, and computer hardware were wet with seawater. Utmost  
care was taken to preserve and protect all evidence.

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b. Assumption Two. Fleet operational schedules would dictate timing of evidence collection and crew interviews.

(1) At the start of the investigation, the crew and evidence remained onboard USNS RAPPAHANNOCK (TAO 204) and USS MUSTIN (DDG 89), awaiting further transport to U.S. Fleet Activities Sasebo, JA.

(2) On 28 January 2013, USS RAPPAHANNOCK arrived inport U.S. Fleet Activities, Sasebo, JA. The XO/NAV and Command Master Chief accompanied the majority of ship's crew. Crew interviews commenced later during the week.

(3) Ten key members of the crew remained onboard USS MUSTIN and were unavailable for interview for nearly three weeks. This "skeleton crew" included the CO, Communications Officer (the on-watch OOD upon grounding), Damage Control Assistant, Deck Leading Chief Petty Officer (LCPO) (the on-watch JOOD upon grounding), Main Propulsion Assistant (the Engineering Officer of the Watch during the entire post-grounding response), the Damage Control Chief Petty Officer, Independent Duty Corpsman, and three Second Class Petty Officers who were CIC Watch Supervisors (CICWS). USS MUSTIN arrived inport U.S. Fleet Activities, Sasebo, JA on 8 February 2013.

c. Assumption Three. Witness interviews, a single VMS laptop computer, and the Ship's Deck Log, CIC General Log, and Engineering Logs would serve as the primary vehicle for evidence collection.

d. Assumption Four. Determining the exact time of events as they occurred onboard USS GUARDIAN would be difficult.

(1) On the first day of crew interviews, the Investigating Team immediately recognized that the stress and trauma of the grounding, the damage control response, and crew evacuation had significantly impacted the crew's ability to remember time.

(2) Specific event times in this investigation are based on the Investigating Team's correlation of log entries, crew member statements, and, in limited cases, video footage obtained from crew members. In many cases, a crew member's recollection

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of an event or occurrence could not be correlated with any corresponding log entry, crew member statement, or video footage; therefore, only a general timeframe is stated.

7. Time. All times stated in this investigation are a combination of local time (-8H as indicated in ship's logs and records) and the corresponding Greenwich Mean Time (ZULU as used by VMS).

8. Evidence Collection and Custody. The Investigating Team collected all reasonably available logs, records, documents, and computer hardware, and interviewed 76 members of the crew.

a. Crew interviews totaled more than 120 hours. Summarized written statements were prepared for crew member review and signature. The average time to draft each statement was effectively double the length of the interview.

b. NCIS Resident Agent Sasebo, JA provided assistance during the early stages of the investigation. The Legal Advisor secured original evidence at U.S. Fleet Activities, Sasebo, JA, building 480, third deck, room 1312A. Only the Investigating Team had access to the room, which was secured with a combination cipher lock and swipe card access. The Legal Advisor packaged all original items in evidence custody bags using evidence tape and appropriate markings, and stored all items in a secure cabinet marked with evidence tape. Custody was recorded using OPNAV 5580/22 "Department of the Navy Evidence/Property Custody Receipt" forms.

c. On 1 March 2013, the Investigating Team departed U.S. Fleet Activities, Sasebo, JA. The Legal Advisor maintained custody of all original evidence during the transit to U.S. Fleet Activities, Yokosuka, JA by hand carrying the evidence in a locked Pelican 1650 case.

d. Upon arrival in Yokosuka, JA, the Legal Advisor maintained custody of all original evidence with the exception of three items of computer evidence that were transferred to Special Agent (b) (6), (b) (7) (C) of NCIS FO Far East. Special Agent (b) (6), (b) (7) (C) successfully created a forensic image of the hard drive in USS GUARDIAN's VMS laptop computer, and returned custody of the original hard drive and the VMS laptop computer

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to the Legal Advisor. The Investigating Officer used an imaged copy of the VMS hard drive to conduct further analysis of the Navigation Plan and DNCs®. Special Agent <sup>(b) (6), (b) (7) (C)</sup> sent another copy of the imaged VMS hard drive and the original Western Digital external hard drive via registered mail to the Cyber Division at NCIS Pacific in Hawaii, which will conduct additional forensic imaging upon receipt. The Western Digital external hard drive was damaged, likely from seawater intrusion or corrosion during storage in USS GUARDIAN's abandon ship Pelican box.

e. The Legal Advisor currently maintains possession of all original evidence with the exception of the Western Digital external hard drive, and will transfer custody to the U.S. SEVENTH Fleet, Force Judge Advocate Office in the near future.

#### 9. Suspected Offenses

a. Five crew members were suspected of offenses under the Uniform Code of Military Justice (UCMJ), and each member retained assigned military defense counsel from Defense Service Office Pacific and subordinate detachments. Two crew members invoked Article 31, UCMJ, and declined to provide a statement. The other three crew members were informed of their rights under Article 31, UCMJ, were provided a Bill of Particulars through counsel, executed a free and voluntary waiver of their rights to remain silent and not make a statement, and participated in interviews with the Investigating Team in the presence of assigned military defense counsel.

b. Following the interviews, the Legal Advisor coordinated with assigned military defense counsel for each of the three crew members, who provided signed written statements and, in the case of two members, signed written answers to interrogatories.

10. Voyage Management System (VMS) Terms and Definitions. This investigation uses technical terms related to USS GUARDIAN's use of DNCs® and ECDIS-N for electronic navigation. The following definitions will assist the reader in understanding the technical aspects of the VMS employed by USS GUARDIAN. Reference (f) is the source document for these VMS terms and definitions. The Legal Advisor, with the assistance of NSWC CARDEROCK, sought and obtained permission from Northrup Grumman

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Maritime Systems, Charlottesville, Virginia to reproduce portions of reference (f), including VMS screen captures, for the purpose of this investigation.

a. Navigation Plan

(1) A VMS Navigation Plan is a group of route planning components which have been assembled for use between a designated starting time and ending time. The components of a Navigation Plan are Voyage Plans, PIM Plans, Chart Portfolios, and Layer Portfolios. Multiple components of each type can be included in a Navigation Plan to ensure that the necessary Voyage Plans, PIM Plans, and their associated portfolios will be available during the specified time period. Each Navigation Plan is saved under an operated-designated name.

(2) Up to three different Navigation Plans can be activated on VMS at once. Commanding Officer approval of the Navigation Plans, and of their individual components, provides a monitoring mechanism to verify that route planning is carried out in accordance with the CO's orders.

(3) Overall system approval status is based upon the use of one or more approved Navigation Plans. The Approval Status indicator is always visible at the top of the Main Menu on all VMS workstations. Changes to any component of a Navigation Plan (i.e., Voyage Plans, PIM Plans, Chart Portfolios, and Layer Portfolios) will cause the approval status of that component and of the Navigation Plan to change to UNAPPROVED. No changes in VMS functionally occurs based on the CO's approval status. The change in approval status notifies the Navigation Team of unapproved changes to components of the Navigation Plan.

b. Voyage Plan. A Voyage Plan is a stored, reusable plan that describes the intended track line, waypoints, and other components of a voyage. Only one Voyage Plan can be active on VMS at a given time. A Voyage Plan is subject to the CO's approval process.

c. Plan of Intended Movement (PIM) Plan. A PIM Plan, like a Voyage Plan, is displayed as a track line drawn from a starting point to a destination point via a series of waypoints.

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The PIM Plan shows the ship's intended movement, not the ship's actual course. The PIM Plan is subject to CO approval.

d. Chart Portfolio. A chart portfolio is an operated-designated, named group of DNCs®. The VMS uses the DNCs® contained in the active Chart Portfolio to enable automatic chart selection. Various safety checking processes check the DNCs® in the active Chart Portfolio for known hazards and other dangers. Only one chart portfolio can be activated at any time. A portfolio can be activated manually or it can be activated automatically if it is associated with a loaded Voyage Plan. Chart Portfolios are subject to the CO's approval process.

e. Mariner Object. A Mariner Object is a means for the operator to add information to the chart display that is not otherwise depicted on the DNC® itself. Examples of Mariner Objects would be a circular marking around a visual aid to navigation, a letter identifier near a visual aid to navigation (e.g., V1, V2), or a night steaming box.

f. Layer Folio. The Layer Folio is an operator-defined location where Mariner Objects are saved and linked to a designated location, and not to a specific chart. The Mariner Object can be displayed with any electronic chart whose coverage area includes the object's location. Layer Folios can be organized for convenience in selecting the correct set of Mariner Objects for display in specific situations, such as entering or leaving port.

11. Organization. A Table of Contents is provided for ease of reference. The Findings of Fact are grouped in sixteen sections.

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Findings of Fact

Section One  
History of USS GUARDIAN (MCM 5)

1. On 23 December 1983, the U.S. Navy awarded a contract to Peterson Builders to construct the fifth ship in the Mine Counter Measures (MCM) 1 class. This ship was subsequently christened as USS GUARDIAN (MCM 5). [Encl (4)]
2. The following were key milestones prior to USS GUARDIAN's commissioning.
  - a. Her keel was laid on 8 May 1985.
  - b. She was launched on 20 June 1987.
  - c. The U.S. Navy accepted delivery on 5 December 1989.[Encl (4)]
3. On 16 December 1989, USS GUARDIAN was commissioned as a warship in the U.S. Navy. Her hull was constructed of wood. She had an overall length of 224 feet, an extreme beam of 39 feet, a maximum navigational draft of 15 feet, and a full displacement of 1,369 tons. She had a diesel engine propulsion plant with twin screws. Her crew complement was eight officers and 76 enlisted. [Encl (4)]
4. The ship served with distinction in the First Gulf War. [Encl (5)]
5. USS GUARDIAN was homeported at U.S. Fleet Activities Sasebo, JA. [Ref (g)]
6. On 15 February 2013, USS GUARDIAN was stricken from the Naval Vessel Register. [Encl (4)]



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Section Two  
The Tubbataha Reefs

7. The Tubbataha Reefs are located in the central part of the Sulu Sea. [Ref (h); Encls (6), (7), (8), (9), (10), (11)]

8. The Tubbataha Reefs consist of two separate reefs named the North Islet and South Islet. The two reefs are separated by a channel four nautical miles wide. [Ref (h); Encls (6), (8), (9), (10), (11)]

9. The Jessie Beazley Reef is located 13.9 nautical miles to the north-northwest of the North Islet of the Tubbataha Reefs. [Ref (h); Encls (7), (8), (9), (10), (11)]

10. On DNC® GEN11A and DNC® COA11D, the charted name is Jessie Beazley Reef. [Encls (9), (10)]

11. On 11 August 1988, the President of the Republic of the Philippines, with the endorsement of the Provincial Government of Palawan, declared Tubbataha Reefs as a Natural Park. [Encls (6), (7)]

12. In 1993, the United Nations Educational, Scientific and Cultural Organization (UNESCO) declared the Tubbataha Reefs Natural Park as a World Heritage Site. [Encls (7), (8)]

13. The Tubbataha Protected Area Management Board (TPAMB) administers the Tubbataha Reefs Natural Park and World Heritage Site. In 2008, the TPAMB issued the "Rules and Regulations for the Entry and the Conduct of All Activities in the Tubbataha Reefs Natural Park and World Heritage Site" (TRNP Park Rules 01-08). [Encl (12)]

14. Publication 162, Sailing Directions (Enroute) Philippine Islands provides the following description of the Jessie Beazley Reef and Tubbataha Reefs.

**The Sulu Sea - Central Part**

**12.9** There are three main groups of islands and dangers lying in the central part of the Sulu Sea. ... [The]

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Tubbataha Reefs, lying 47 to 64 miles SW of Arena Island, form the remaining groups.

**12.12 ... Tubbataha Reef[s]** (8°50'N., 119°53'E.) are two extensive and dangerous reefs separated by a channel 4 miles wide, lying about 48 miles SW of Arena Island.

**North Islet** (8°56'N., 120°02'E.), a rock 1.2m high, covered with grass and guano, lies near the N end of the NE reef. This reef, which is steep-to, encloses a lagoon in which there are depths of 5.5 to 33m; there is no entrance to the lagoon. A stranded wreck lies on the E side of the reef, 2 miles SSW of North Islet.

Central Islet, North Islet, and several small black rocks are the only objects on the NE reef that are above HW. At LW there are numerous sand cays or ridges, each about 91m long, visible along the entire length of the reef.

**South Islet** (8°44'N., 119°49'E.), about 1.6m high, lies at the S end of the SW reef. Black Rock, and several other black rocks and sand keys, all above-water, lie at the N end of this reef. The islet is marked by a light. A stranded wreck lies on the NW extremity of the reef. Another stranded wreck is reported to lie 0.5 mile NE of the light.

A depth of 262m was reported 13 miles SW of South Islet. It has been reported that the reefs appeared to have extended and increased in height. Extensive white-colored patches of sand and coral, together with numerous palm trees, were sighted on the N and NE extremities of the NE reef, and three stranded wrecks were sighted on the W side. The lighthouse was difficult to identify in daylight.

**Jessie Beazley Reef** (9°02'N., 119°48'E.), a reef of broken coral about 1.8m high, encircled by a white sand cay near the middle, lies 14 miles NW of North Islet. The reef dries over a considerable distance.

[Ref (h)]

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15. Publication 112, List of Lights, provides information about a lighted visual aid to navigation at Tubbataha Reefs. The location of the lighted aid to navigation is latitude 08 degrees 44 minutes North, longitude 119 degrees 49.1 minutes East; its characteristics are flashing white with a period of five seconds; the nominal range is 15 nautical miles; and the physical description is a "White round stone structure, white square building." [Ref (i)]

16. On DNC@ GEN11A, the position of the lighthouse at the South Islet of Tubbataha Reefs is latitude 08 degrees 44.624 minutes North, longitude 119 degrees 49.198 minutes East. Using VMS, a query of the lighthouse on DNC@ GEN11A states its characteristics as flashing white with a period of five seconds, and a nominal range of 15 nautical miles. [Encls (9), (11), (13)]

17. On DNC@ COA11D, the position of the lighthouse at the South Islet of Tubbataha Reefs is latitude 08 degrees 42.022 minutes North, longitude 119 degrees 56.538 minutes East. Using VMS, a query of the lighthouse on DNC@ COA11D states its characteristics as flashing white with a period of five seconds, and a nominal range of 15 nautical miles. [Encls (10), (11), (13)]

18. The respective locations of the lighthouse at Tubbataha Reef are depicted in Figure 1.

**Figure 1**  
**Lighted Aid to Navigation**  
**South Islet, Tubbataha Reefs**

Source	Latitude	Longitude
Pub. 112	08° 44.0' North	119° 49.1' East
DNC@ GEN11A	08° 44.624' North	119° 49.198' East
DNC@ COA11D	08° 42.022' North	119° 56.538' East

[Ref (i); Encls (9), (10), (11), (13)]

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Section Three

The Grounding on South Islet of Tubbataha Reefs

19. At 161822Z/170222H January 2013, USS GUARDIAN ran aground on the northwest corner of the South Islet of Tubbataha Reefs, RP at latitude 08 degrees 48 minutes North, longitude 119 degrees 48 minutes East. [Encls (9), (10), (11), (13), (14), (15), (16), (17), (18), (19), (20), (21)]

The Navigation Plan

20. A few days before the grounding, on or about 12 January 2013, the ANAV, XO/NAV, and CO reviewed the Navigation Plan for the transit from Subic Bay, RP to Makassar, IN using the VMS computer in the Chart Room. [Encls (19), (20), (22)]

21. The CO approved the Navigation Plan and its associated Voyage Plans and PIM Plan for the transit from Subic Bay to Makassar. [Encl (22)]

22. The Movement Report (MOVREP) with the PIM for the transit from Subic Bay to Makassar is record message USS GUARDIAN 120334Z Jan 13 (MOVREP GUARDIAN 01). The MOVREP GUARDIAN 01 date-time-group in local time is 121134H Jan 13. [Encl (23)]

23. The PIM listed in MOVREP GUARDIAN 01 is identical to the PIM Plan associated with the CO-approved Voyage Plan used by USS GUARDIAN at the time of grounding. [Encls (11), (13), (23)]

24. The CO-approved Voyage Plan and PIM Plan for the transit enroute Makassar, when viewed on DNC® GEN11A (16th Ed) using the VMS computer from the Chart Room, displays the ship's track over the northwest corner of the South Islet of Tubbataha Reefs. [Encls (9), (11), (13), (23)]

25. The CO-approved Voyage Plan and PIM Plan for the transit enroute Makassar, when viewed on DNC® COA11D (16th Ed) using the VMS computer from the Chart Room, displays the ship's track approximately 3.3 nautical miles from Jessie Beaxley Reef, 10 nautical miles to the west of the North Islet, and 6.7 nautical miles west of the South Islet of Tubbataha Reefs. [Encls (10), (11), (13), (23)]

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CO's Standing Orders and Navigation Bill

26. The CO's Standing Orders direct the OOD to "**Station the Navigation Detail** and slow to no more than 8 knots after calling the XO when **4 NM (8,000 yards)** from shoal (waters 10 meters or less)." [Encl (24)]

27. The CO's Standing Orders and Navigation Bill do not provide any guidance with respect to the Modified Navigation Detail onboard USS GUARDIAN. [Encls (24), (25)]

28. According to the CO, on the evening of 16 January 2013 he discussed with XO/NAV the ship's three and a half (3.5) nautical mile closest point of approach (CPA) to the west of Jessie Beazley Reef. The CO believed that a Modified Navigation Detail would be set and that the XO/NAV would be on the Bridge. [Encls (19), (22)]

29. Per the CO's Standing Orders and the Navigation Bill, a CPA of three and a half (3.5) nautical miles from shoal water is considered navigating in "Piloting Waters 1," and would require the OOD to set the Navigation Detail and reduce the fix interval from two to five minutes as conditions warrant. [Encls (24), (25)]

30. As a matter of routine, the CO did not go to the Bridge for the Modified Navigation Detail because the XO/NAV was always on the Bridge in his absence. [Encls (19), (22)]

31. As of 17 January 2013, the XO/NAV had been underway in USS GUARDIAN for a total of 13 days. [Encls (20), (26)]

32. CO's Standing Order Number 4 is titled "Navigation."  
[Encl (24)]

33. The first paragraph of CO's Standing Order Number 4 states: "Fix accuracy and periodicity and navigation practices shall strictly follow the requirements of references (f) and (h)."  
[Encl (24)]



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34. In the CO's Standing Orders, reference (f) is OPNAVINST 3100.7B, Preparing, Maintaining and Submitting the Ship's Deck Log, and reference (h) is CNSFINST 3540.3, Engineering Department Organization and Regulations Manual (EDORM). The CO's Standing Orders contain no other discussion of fix accuracy and fix periodicity. [Encl (24)]

35. Onboard USS GUARDIAN, the ship's distance from shoal water defines the characterization of the waterspace in which the ship is navigating (e.g., restricted waters), the required fix interval (or fix periodicity), and the required fix accuracy. These criteria are set forth in Table 2-A of the Navigation Bill. [Encl (25)]

36. Table 2-A of the Navigation Bill is titled "Fix Accuracy and Fix Interval Guidelines." The table is reproduced below.

**Table 2-A-FIX ACCURACY AND INTERVAL GUIDELINES**

Area	Distance from Shoal water or land	Fix Accuracy/ GPS FOM	Maximum Fix / Fix Comparison Interval
Restricted Waters	Less than 2 NM	50 yds/ FOM = 2	3 MIN unless otherwise designated by Commanding Officer
Piloting Waters 1	2-5 NM	100 yds/ FOM = 4	2-5 as conditions warrant
Piloting Waters 2	5-10 NM	100 yds/ FOM = 4	5-10 as conditions warrant
Coastal Waters	10-30 NM	500 yds/ FOM = 6	15-30 as conditions warrant
Open Ocean (En Route Navigation)	Over 30 NM	1500 yds/ FOM = 7	30 min or as conditions warrant

Encl [(25)]

CO's Night Orders of 16 January 2013

37. Per the NAVDORM, the Navigator is responsible for preparing the CO's Night Orders in such a format as prescribed by the CO. At a minimum, the CO's Night Orders should include operating

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areas, night steaming instructions, aids to navigation, and the fix interval. [Ref (d)]

38. The CO approved his Night Orders on the evening of 16 January 2013 using his standard review and approval process. The CO's digital signature indicated his approval. [Encl (19)]

39. The front page of the CO's Night Orders has a section entitled "Navigational Aids and Hazards" with spaces for time, bearing, range, and description/characteristics. On the CO's Night Orders of 16 January 2013, this section was blank. [Encl (27)]

40. The CO's Night Orders of 16 January 2013 contained no express guidance about expected navigational aids and hazards other than the ANAV's statement on the back page, "See the QMOW for lights along the track." These same Orders did not direct the setting of the Modified Navigation Detail nor was there any guidance about the fix interval as required by the NAVDORM. [Ref (d); Encl (27)]

#### The Watchstanders - Qualifications and Experience

41. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> assumed the watch as OOD from LTJG <sup>(b) (3), (b) (6), (b) (7) (c)</sup> at 162359H January 2013. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> had 68 days underway onboard USS GUARDIAN as a qualified OOD. The CO and XO/NAV considered him as one of the two best OODs onboard. [Encls (14), (19), (20), (21), (26)]

42. MNC <sup>(b) (3), (b) (6), (b) (7) (c)</sup> assumed the watch as a qualified JOOD at 162345H January 2013. He had served 13 months onboard USS GUARDIAN. [Encl (28)]

43. ENS <sup>(b) (3), (b) (6), (b) (7) (c)</sup> assumed the CONN at 170132H Jan 13 for his very first night watch. He reported to USS GUARDIAN in December 2012. [Encls (14), (29)]

44. QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> was the QMOW until approximately 35 minutes before the grounding when he was relieved by QMC <sup>(b) (3), (b) (6)</sup>. QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> was onboard USS GUARDIAN for 13 months, had attended the ECDIS-N Operator course in May 2012, and qualified as VMS Operator on 31 December 2012. QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> was qualified as QMOW on 4 January 2013, only 13 days before the grounding. He was

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not a qualified RADAR operator and did not know how to employ the AN/SPS-73 RADAR for purposes of ensuring safe navigation. [Encls (17), (30), (31)]

45. QMC <sup>(b) (3), (b) (6)</sup> relieved QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> as QMOW approximately 35 minutes before the grounding. QMC <sup>(b) (3), (b) (6)</sup> reported onboard USS GUARDIAN in spring 2012. He had recently promoted to Chief Petty Officer in fall 2012. He qualified as Navigator/Assistant Navigator on 29 October 2012 and qualified as VMS Operator on 31 December 2012. [Encls (17), (19), (20), (30), (32), (33)]

46. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> was a qualified Helmsman. [Encl (34)]

47. The CIC watch team held turnover between 0145H and 0200H, shortly before the grounding occurred. The CIC watch team consisted of a CICWS, an AN/SPS-73 RADAR Operator/Logkeeper, the VMS Operator, Global Command and Control System - Maritime (GCCS-M), Chat Operator, VMS Operator/Logkeeper. [Encls (35), (36), (37), (39)]

48. USS GUARDIAN did not assign a CIC Watch Officer (CICWO) during condition III underway steaming. The CO informed XO/NAV that USS GUARDIAN did not use nor require a CICWO during condition III steaming. [Encls (19), (20), (36)]

49. Approximately 26 minutes before the grounding, MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> turned over his watch as CICWS to the oncoming relief, MN2 <sup>(b) (3), (b) (6)</sup>. These two Mineman Second Class Petty Officers, along with an Electronics Technician Second Class Petty Officer, had qualified CICWS one day prior to the grounding. [Encls (16), (19), (20), (35), (36), (37)]

50. In the U.S. Navy, the final approval authority for a Personnel Qualification, including the CICWS qualification, shall not be delegated below the Department Head level. [Refs (j), (k)]

51. The Operations Department Leading Chief Petty Officer (LCPO) qualified these three Second Class Petty Officers as CICWS with the awareness and approval of the CO, XO/NAV, and the Senior Watch Officer (SWO). [Encls (19), (20), (35), (36), (37)]



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52. In calendar year 2012, USS GUARDIAN was underway for 59 days. Figure 2 provides a breakdown of underway days on a monthly basis for 2012. [Encl (26)]

Figure 2

USS GUARDIAN (MCM 5) Days Underway - 2012	
Month	# Days Underway
January	0
February	0
March	0
April	3
May	6
June	14
July	19
August	0
September	0
October	14
November	1
December	2
<b>Total</b>	<b>59</b>

Late Evening of 16 January 2013

53. During the late evening of 16 January 2013, USS GUARDIAN was underway in the Sulu Sea heading south-southwest enroute Makassar, IN. The ship was operating in underway condition III steaming. Neither the Navigation Detail nor Modified Navigation Detail was set. [Encls (14), (15), (16), (17), (19), (20), (21), (27)]

54. The Damage Control Assistant (DCA), LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, had the Deck as the hour approached midnight. LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup> watch had been quiet and dark without any surface contacts. [Encls (14), (56), (57)]

55. The CO and XO/NAV were asleep in their staterooms. [Encl (19), (20)]

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56. The weather forecast was mostly cloudy skies with isolated thunderstorms, visibility seven nautical miles or greater, winds from the northeast at 20 to 25 knots, minimum air temperature of 78 degrees Fahrenheit, and sea state of three to five feet. [Encl (27)]

57. The night was dark with very little illumination. Actual winds were observed as light to breezy with a sea state of about three to four feet. [Encls (21), (28), (29), (30), (34), (35), (36), (53)]

58. No special evolutions or events were scheduled for the evening and morning. [Encl (27)]

#### OOD Turnover

59. At midnight, the Communications Officer (COMMO), LTJG <sup>(b) (3), (b) (6), (b) (7)</sup>, was scheduled to assume the watch as OOD from LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup>. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> conducted his usual watch preparations by visiting the Central Control Station (CCS), checking on the Aft Lookout on the fantail, visiting CIC, and then going to the Bridge. [Encls (21), (56), (57)]

60. During their turnover, LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup> and LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> discussed the ship's PIM and viewed the track on VMS. The VMS was set to night mode. The Bridge was the primary navigation plot. [Encls (21), (30), (53)]

61. LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup> informed LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> that during his watch the ship would transit past one small reef approximately 3.7 nautical miles to the east of track and another reef at greater than 7.5 nautical miles east of track. [Encl (53)]

62. LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup> used the zoom feature on VMS to show LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> the DNC® and the location of the reefs. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> did not recall any discussion with LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup> concerning a territorial sea existing around any of the charted islands or reefs in the Sulu Sea. [Encl (21)]

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Assuming the Watch

63. On 162359H January 2013, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> assumed the watch as OOD. The ship was on course 190 true with an ordered speed of all ahead 7.5. [Encls (14), (21)]

64. The midnight entry in the Ship's Deck Log stated: "0000. CONTINUED THE WATCH UNDERWAY AS BEFORE. USS GUARDIAN IS UNDERWAY FROM SUBIC BAY, RP TO MAKASSAR, ID. DARKEN SHIP IS SET. MODIFIED ZEBRA IS SET. THE ENGINEERING PLANT STATUS IS AS FOLLOWS: 2B, 1A MAIN ONLINE, 1A, 2 SSDG, #2 & 3 FIREPUMPS, #1 & 2 ASW, #1 & 2 A/C, #2 REEFERS ALL ONLINE. THE OOD IS LTJG <sup>(b) (3), (b) (6), (b) (7)</sup>." [Encl (14)]

65. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> was aware that the two Bridge-to-Bridge (BTB) radios in the Pilot House were degraded. The port BTB radio had a nominal effective range of about seven to eight nautical miles. The starboard BTB radio was more degraded as compared to the port BTB radio. The BTB radio in CIC was fully operational and had an effective range upward of nine nautical miles. To the best of LTJG <sup>(b) (3), (b) (6), (b) (7) (c)</sup> knowledge, all other Bridge equipment was operational. [Encl (21)]

66. During his watch, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> monitored the VMS display on the Bridge. At one point, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> queried the light at Tubbataha Reef to obtain the light's characteristics and nominal range. [Encl (21)]

67. Based on his experience onboard USS GUARDIAN, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> figured that the lighthouse would be visible at about eight to 10 nautical miles from its charted location because of the ship's height of eye and the environmental conditions. He estimated that the light would be visible at approximately 0230H, and that he would see the lighthouse on the port side bearing approximately 130 degrees. [Encl (21)]

68. As USS GUARDIAN approached the Jessie Beazley Reef and Tubbataha Reefs, the ship navigated exclusively on electronic fixes derived from GPS at a 30-minute fix interval. [Encls (14), (16), (17)]

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69. QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> was on watch as QMOW. He obtained electronic positioning data from the AN/WRN-6 Satellite Signals Navigation Set feed into VMS, and logged the latitude and longitude in the Ship's Position Log. The AN/WRN-6 was the primary source of positional data; the DAGR was the secondary source. [Encls (14), (16), (17), (30)]

70. The QMOW was zoomed into the coastal DNC® and saw a small blue circular area that was approaching off the ship's port side. Based on his experience, the QMOW thought this blue circular area was a fish haven. [Encl (30)]

71. The QMOW used the Electronic Bearing Line (EBL) function on VMS-2 to measure the range from the small blue circular area to the ship's track. The QMOW recalls the EBL measured a little more than four nautical miles, and he reported the charted small blue circular area to the OOD (LTJG <sup>(b) (3), (b) (6), (b) (7)</sup>). The QMOW also recommended setting the Modified Navigation Detail. [Encl (30)]

72. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> came over and looked at the charted object on the VMS-2 display, and then he moved away from the chart table to let MNC <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, the JOOD, look at the charted object on VMS. [Encl (30)]

73. Almost immediately after, the QMOW queried something on the coastal DNC®, and a triangular shaped shaded area appeared on the VMS-2 display. Per the QMOW's recollection, the triangular shaped shaded area was just to the east of the ship's track and did not intersect the track. Along with the triangular shaped shaded area was a query window that popped up on the screen referencing a "Restricted Area." The QMOW reported the Restricted Area to LTJG <sup>(b) (3), (b) (6), (b) (7)</sup>, who came back to look at the VMS-2 display on the Chart Table. [Encl (30)]

74. The QMOW does not remember LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> saying anything to him about the Restricted Area. [Encl (30)]

75. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> called the XO/NAV. [Encls (20), (21), (30)]

76. According to LTJG <sup>(b) (3), (b) (6), (b) (7)</sup>, he informed XO/NAV that the ship would approach within four nautical miles from a reef, and that he and the QMOW recommended setting the Modified Navigation Detail according to the CO's Standing Orders. In reply, the

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XO/NAV told LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> not to set the Modified Navigation Detail because the ship would only approach to about 3.8 nautical miles from the reef. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> asked XO/NAV if he should come right to increase the CPA to four nautical miles, and XO/NAV said it was not necessary or something to that effect. [Encl (21)]

77. According to the XO/NAV, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> called him in his stateroom sometime before the grounding to report that the ship was approaching the reef. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> expressed no concern and XO/NAV does not recall LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> stating a distance from the reef. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> did not recommend setting the Modified Navigation Detail to the XO/NAV. The XO/NAV considered this "a routine-albeit unnecessary-report." [Encl (20)]

78. The QMOW remembers LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> calling the XO/NAV from the port side of the Bridge. The QMOW stands at the Chart Table on the starboard side near the Bridge wing door. The QMOW heard LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> say something to the effect, "Good morning XO, this is the OOD." The QMOW didn't hear the rest of LTJG <sup>(b) (3), (b) (6), (b) (7) (c)</sup> conversation. [Encl (30)]

79. At time 0035H on 17 January, the QMOW made the following entry in the Ship's Deck Log: "NAVIGATION & OOD RECOMMEND SETTING MODIFIED NAV DETAIL DUE TO APPROACHING ISLAND PORTSIDE, CPA LESS THAN FOUR NM. NAVIGATION RECOMMENDS EXIT RESTRICTED AREA." [Encls (14), (30)]

80. Per the QMOW, he made this log entry by himself and was not instructed to do so by anyone. The ANAV had trained the QMs to log everything because you could never have too many log entries. [Encl (30)]

81. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> states that the "island" referenced in the 0035H Deck Log entry is the Jessie Beazley Reef, and that he did not gain any RADAR contact on the Reef. [Encl (21)]

82. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> did not call the CO. [Encl (19)]

83. The fix interval remained 30 minutes as the ship approached and achieved CPA to the Jessie Beazley Reef. [Encls (14), (16), (17)]

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84. Per the QMOW, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> did not order the Modified Navigation Detail after calling XO/NAV. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> did not say anything about his conversation with the XO/NAV, and LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> did not state his intentions for Modified Navigation Detail. The QMOW asked LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> if the ship would set the Modified Navigation Detail. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> said words to the effect, "No."  
[Encl (30)]

85. Per the QMOW, the ship had been right of track and passed the charted small blue circular area off the port side at a range greater than four nautical miles. [Encl (30)]

86. Sometime after 0100H, the QMOW was still zoomed into the coastal DNC® and saw another small blue circular area approaching off the port side. As before, the QMOW thought it may be a fish haven. He used the EBL function on VMS to measure the range from the charted small blue circular area to the ship's track. The EBL measured more than four nautical miles, but less than five nautical miles. [Encl (30)]

87. The QMOW reported this second charted small blue circular area to the OOD and made a second recommendation to set the Modified Navigation Detail. [Encl (30)]

88. The QMOW recalls the OOD looking at the charted object on the VMS-2 display. The OOD moved away from the chart table to let MNC <sup>(b) (3), (b) (6), (b) (7)(C)</sup>, the JOOD, look at the charted object on the VMS-2 display. [Encl (30)]

89. At or about the same time, the QMOW saw a charted reef with a lighted visual aid to navigation on the coastal DNC®. The coastal DNC® indicated the characteristics of the lighted visual aid to navigation. The QMOW looked for the light using the Night Vision Goggles. He did not see the light during his watch.  
[Encl (30)]

90. The QMOW believes the OOD went to the port side of the Bridge to call the XO on the growler concerning the QMOW's recommendation to set the Modified Navigation Detail.  
[Encl (30)]

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91. At or about one hour prior to the grounding, CIC and the Bridge detected a contact on the AN/SPS-73 RADAR. [Encls (28), (29), (35), (36)]

92. In CIC, the RADAR contact was reported by MN3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> to the Bridge. MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> thought this contact was a strange contact for the AN/SPS-73 to pick up. The RADAR Operator marked the contact, waited three minutes, and then marked it again. CIC then notified the Bridge. The speed was decimal three knots. [Encl (35)]

93. This contact was reported in CIC around 0100H. MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> went on the Bridge to see the contact. It looked like a vague, white, blip on the horizon. MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> spoke to the JOOD, who was MNC <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, about the contact. He told him that he would go back and have the radar operator keep an eye on the contact. [Encl (35)]

94. CIC waited another five minutes and reported it again. The solution showed an increase in speed to three knots. The ship did not make a course change. The RADAR in CIC was in true bearing. [Encl (35)]

95. No one in CIC computed a MOBOARD on this contact. While MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> had the watch, there were three reports of the contact: the initial report and the two follow-up reports. [Encl (35)]

96. The QMOW logged various course changes in the Ship's Deck Log between 0046H and 0129H. The QMOW does not remember why the OOD and CONN made these course changes. [Encl (30)]

97. At 1706Z / 0106H, the Ship's Deck Log and the CIC General Log indicate a two degree course change starboard to 186 degrees true. This was the first in a series of four course changes to starboard over the next 23-minute period. [Encl (14)]

98. At 1723Z / 0123H, the ship came right to course 191 degrees true. [Encls (14), (16)]

99. At 1727Z / 0127H, the ship came right 10 degrees to course 201 true using right standard rudder. [Encls (14), (16)]

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100. At 1729Z / 0129H, the ship came right to course 206 degrees true. [Encls (14), (16)]

101. Between 0115H and 0130H, MN2 <sup>(b) (3), (b) (6)</sup> came to the Bridge as part of his normal routine prior to relieving the CICWS. As a matter of routine, MN1 <sup>(b) (3), (b) (6)</sup> would come to the Bridge from 30 to 45 minutes before relieving the watch in CIC. [Encl (36)]

102. MN2 <sup>(b) (3), (b) (6)</sup> stood outside on the port Bridge wing and let his eyes adjust to the dark. MN2 <sup>(b) (3), (b) (6)</sup> saw a light off the port bow. It was a steady light, but at times would disappear and then reappear. The light did not appear to have a specific periodicity. [Encl (36)]

103. MN2 <sup>(b) (3), (b) (6)</sup> asked the OOD, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup>, about the light. The OOD told MN2 <sup>(b) (3), (b) (6)</sup> that the light "appeared to be a surface contact," and that the ship had just changed course to the right to avoid the contact and open up the CPA. [Encl (35)]

104. The CICWS, MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, understood that the ship maneuvered to starboard to open up the contact's CPA. [Encl (35)]

105. MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> never heard any discussion about the contact being correlated with a lighthouse, but he did know that there was a lighthouse on the ship's track. [Encl (35)]

106. MN2 <sup>(b) (3), (b) (6)</sup> went back and forth from the Bridge to the port Bridge wing for the 30 to 45 minutes that he was on the Bridge. He checked the AN/SPS-73 RADAR Scope on the Bridge and saw good RADAR return from the contact off the port bow. [Encl (36)]

107. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> was conducting his preparations to assume the CONN at or about the same time as MN2 <sup>(b) (3), (b) (6)</sup>. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> visited CCS, the Aft Lookout, and CIC. While in CIC, he spoke with the CICWS, MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, who informed ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> of one surface contact that had a speed of about two to three knots. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> looked at the AN/SPS-73 RADAR, but does not remember what the scope looked like. [Encl (29)]



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108. At or about 0130H, ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> arrived at the Bridge. He let his eyes adjust to the dark. He recalls it being very dark outside with little illumination. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> observed the seas as relatively calm and it was not windy. [Encl (29)]

109. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> reported to the OOD, who showed him a white light off the port bow. [Encl (29)]

110. At 161932Z / 170132H, ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> assumed the CONN from ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup>. It was ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> first night watch.  
[Encls (14), (29)]

111. At 161736Z / 170136H, the QMOW wrote the following entry in the Ship's Deck Log: "NAVIGATION & OOD RECOMMEND SETTING MODIFIED NAV DETAIL DUE TO APPROACHING ISLAND PORTSIDE, CPA LESS THAN 4 NM." The QMOW made this log entry by himself, and was not told to do so by anyone, including the OOD and JOOD.  
[Encls (14), (30)]

112. Regarding the 0136H Deck Log entry, the OOD states that he called XO/NAV to report that the ship would pass a reef within four nautical miles, and that he and the QMOW recommended setting the Modified Navigation Detail. Per the OOD, XO/NAV told him not to set the Modified Navigation Detail. [Encl (21)]

113. Per the OOD, the island referenced in the 0136H Deck Log entry is the northern part of the South Islet of Tubbataha Reefs.  
[Encl (21)]

114. The OOD went to the chart table and said to the QMOW, words to the effect, "We're not going to set the Modified Navigation Detail." [Encl (30)]

115. The OOD did not call the CO. [Encl (19)]

116. At 161936Z/170136H, the ship altered course to port and steadied on course 201 true. This course change was the first in a series of seven small course changes to port during the next 25 minutes. [Encls (14), (16)]

117. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> observed the Bridge Team trying to determine if the light off the port bow was a fishing vessel or a different object. He discussed the light with the OOD, who said

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that a lighthouse was approaching along the ship's track, that he had not seen the lighthouse, and that the light off the port bow did not correlate to the expected position of the lighthouse. [Encl (29)]

118. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> came to the Bridge to relieve the Helm shortly after ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> relieved the CONN. As Helmsman, MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> stood at the centerline of the Bridge at the Ship's Control Console (SCC). This position provides a clear view of the sea through the Bridge windows and doors from an angle slightly forward of the beam on the port and starboard sides. The QMOW stands to the right of the Helmsman, up front on the starboard side of the Bridge at the Chart Table. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> could see the VMS display and the AN/SPS-73 RADAR Console, which is located about three feet away to the left side of the SCC. [Encl (34)]

119. Before MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> relieved the helm, he saw a "green blob" on the AN/SPS-73 RADAR scope. He does not recall the range to the green blob contact on the radar, but it was located in the upper part of the radar scope, slightly to the left of the dotted line that indicates the ship's heading. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> believed the AN/SPS-73 RADAR scope was in the relative mode. [Encl (34)]

120. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> saw the light off the port bow flash consistently about once every five seconds. He recalls thinking that it looked like a lighthouse. [Encl (34)]

121. At 161745Z/170145H Jan 13, QMC <sup>(b) (3), (b) (6)</sup> relieved QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> as QMOW. QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> does not recall any discussion on his watch about the Tubbataha Reefs or a surface contact. [Encls (17), (30)]

122. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> observed everyone on the Bridge looking at the lighthouse. This was the only thing that he remembers the Bridge watch team doing before the ship ran aground. There were no surface contacts other than the flashing light off the port bow. [Encl (34)]

123. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> recalls a discussion among the OOD, JOOD, CONN, and QMOW about the RADAR contact - the green blob on the AN/SPS-73 RADAR - having a speed. The Bridge Team discussed the contact for a while. [Encl (34)]

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124. At or about 0145H, MN2 <sup>(b) (3), (b) (6)</sup> left the Bridge and went to CIC to turnover with the CICWS, MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>. [Encl (36)]

125. At 0146H, the ship came left one degree to course 200 degrees true. [Encls (14), (16)]

126. Sometime before the CICWS turnover, CIC and the Bridge were tracking the RADAR contact that had been detected on the AN/SPS-73 RADAR. [Encls (29), (35)]

127. In CIC, MN2 <sup>(b) (3), (b) (6)</sup> checked CHAT, GCCS-M, the fixes on VMS, how far ahead or behind the ship was on PIM, the distance left or right of track, the contact picture on the AN/SPS-73 RADAR Scope, and message traffic. [Encl (36)]

128. Per MN2 <sup>(b) (3), (b) (6)</sup>, GCCS-M only displayed the land, the latitude and longitude grid, ownship position, and other contact positions. VMS indicated the ship's track and a reef located a good distance from the track, not enough to cause any danger or concern. VMS also indicated a danger area indicated by a purple dashed line; one corner of the danger area was just off the edge of the ship's track, and the rest of the danger area was not anywhere near the ship's track. MN2 <sup>(b) (3), (b) (6)</sup> did not see the CO's Night Orders before assuming the watch, probably because the Orders were being routed. [Encl (36)]

129. At 161656Z / 170156H January 13, MN2 <sup>(b) (3), (b) (6)</sup> assumed the watch as CICWS. [Encls (16), (35), (36)]

130. MN2 <sup>(b) (3), (b) (6)</sup> walked back to the Bridge to verify the three knot contact that CIC was tracking. He saw the light off the port bow, and then he went back to CIC. [Encl (36)]

131. At or about 0200H, ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> used the Night Vision Goggles (NVGs) and saw the white light flashing with a periodicity of five seconds. He notified the OOD about the flashing white light and its five-second periodicity. The OOD acknowledged him. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> took a bearing to the light from the port gyrocompass on the Bridge wing. The bearing through the port alidade was 167 true. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> told the OOD, who acknowledged the report. [Encl (29)]

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132. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> also viewed the AN/SPS-73 RADAR. He saw a RADAR contact indicated by a small green circle on the scope. The bearing to this RADAR contact was about 345 degrees relative. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> correlated this RADAR contact with the flashing white light off the port bow. He does not remember seeing anything else on the RADAR and does not remember what the range scale was. [Encl (29)]

133. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> stated that he was going to do a maneuvering board (MOBOARD) solution, but he could not find MOBOARD paper on the Bridge. Instead, he used the AN/SPS-73 RADAR to determine the course and speed of the contact. [Encl (29)]

134. In CIC, MN2 <sup>(b) (3), (b) (6)</sup> positioned himself near the PINS console. He did not hear any audible alarms from the VMS display in CIC before the grounding. [Encl (36)]

135. At or about 161800Z/170200H January 13, ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, using Night Vision Goggles, saw that the light off the port bow was flashing with a period of five seconds. He reported the light's characteristics of flashing white every five seconds to the OOD, who acknowledged the CONN's report by saying "Very well." [Encl (29)]

136. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> observed QMC <sup>(b) (3), (b) (6)</sup> looking at the VMS chart and saying, words to the effect, "There's a lighthouse out here, it should be flashing every five seconds, and that's what the contact could be." Neither the OOD nor QMOW logged the attempt to correlate the lighthouse in the Ship's Deck Log. [Encl (14), (34)]

137. Before the ship ran aground, MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> observed that the OOD, QMOW, and Bridge team had correlated the light off the port bow with the contact on the AN/SPS-73 RADAR, and the OOD determined that it was the lighthouse indicated on the VMS display. [Encl (34)]

138. USS GUARDIAN ran aground at 161822Z/170222H January 13 on the northwest corner of the South Islet of Tubbataha Reefs, RP at latitude 08 degrees 48 minutes North, longitude 119 degrees 48 minutes East. [Encls (9), (10), (11), (13), (14), (15), (16), (17), (18), (19), (20), (21)]

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VMS Dangers

139. Based on a simulation ran by the Investigating Officer and the Technical Assistant on the CO-approved Voyage Plan used by USS GUARDIAN on VMS-3, when the ship approached Jessie Beazley Reef and Tubbataha Reefs the VMS-3 issued 12 dangers with associated visual and audible alerts prior to the reaching the location of the grounding. The ninth danger alert was a Data Quality Area Notice that provided 14 notes with respect to DNC® COA11D. Note seven of this alert included a caution with respect to using satellite derived positions (GPS) with DNC® COA11D. [Encls (11), (13)]

140. When VMS issues a danger, the system sounds a continuously beeping audible alarm. If the VMS operator acknowledges the danger, the audible alarm continues to sound until the operator opens the Danger Query window. Onboard USS GUARDIAN, the dangers and alarms displayed on VMS-1, VMS-2, and VMS-3 while operating underway would have been identical on each VMS display so long as all three VMS stations were on and connected to the network. [Encl (38)]

141. No watchstanders on the Bridge or in CIC heard any audible alarms from VMS at anytime prior to the grounding. [Encls (28), (29), (30), (32), (35), (36), (39)]

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Section Four

Electronic Chart Display and Information System - Navy (ECDIS-N)

142. The International Maritime Organization (IMO) and the International Convention for the Safety of Life at Sea (SOLAS) Convention, 1974, as amended, regulate the Electronic Chart Display and Information System (ECDIS) used onboard commercial, non-government vessels. [Ref (1); Encl (40)]

143. The United States has ratified the SOLAS Convention, 1974 and its two related Protocols. [Encl (41)]

144. Chapter V of the SOLAS Convention governs safety of navigation, and excludes warships and naval auxiliaries from its coverage. However, warships, naval auxiliaries, or other ships owned or operated by a Contracting Government, such as the United States, and used only on government non-commercial service are encouraged to act in a manner consistent, so far as reasonable and practical, with Chapter V of the Convention. [Ref (1)]

145. The U.S. Navy authorizes the use of electronic charts for navigation onboard U.S Navy vessels and has implemented an ECDIS-N certification process involving Naval Sea Systems Command, the Type Commanders, Immediate Superiors in Command, and individual units. [Refs (d), (m), (n)]

146. The U.S. Navy only authorizes DNC@s produced by the National Geospatial-Intelligence Agency (NGA) for use on ECDIS-N; no other electronic chart format may be used. [Ref (d)]

147. Per sections 441 and 442 of Title 10, U.S. Code, the NGA is a combat support agency of the Department of Defense (DoD) that "shall improve means of navigating vessels of the Navy and the merchant marine by providing, under the authority of the Secretary of Defense, accurate and inexpensive nautical charts, sailing directions, books on navigation, and manuals of instructions for the use of all vessels of the United States and of navigators generally." [Ref (n)]

148. The Navigator of the Navy, in cooperation with the Deputy Chief of Naval Operations for Warfare Requirements and Programs,

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is responsible for determining the training appropriate for  
ECDIS-N. [Ref (m)]

149. The VMS is a computer-based navigation, planning, and  
monitoring system that uses electronic charts and data feeds  
from various external sensors such as the Global Positioning  
System (GPS). The VMS is designed for military use. [Ref (f)]

150. The VMS is designed for military use in accordance with  
IMO specifications as an Electronic Chart Digital Information  
System (ECDIS), and also meets U.S. Navy requirements as an  
ECDIS-N. [Ref (d), (f)]

151. In 2008, the VMS Military Software Version 7.7.1 was  
installed onboard USS GUARDIAN. The installed VMS consists of  
three operator stations located in CIC, the Bridge, and the  
Chart Room that function on a local area network. [Encl (42)]

152. The operator station in CIC is called VMS-1, which is an  
installed system consisting of an operator console with a  
keyboard, display, and rack mounted server with one hard drive.  
The VMS-2 is the installed system on the Bridge consisting of an  
operator console with a keyboard, display, and rack mounted  
server with one hard drive. The rack mounted server and two  
hard drives for VMS-1 and VMS-2 are located in CIC. VMS-3 is a  
portable laptop computer labeled AN/SSN-2(V)5 Navigation Command  
& Control System, Unit No. 8, Ser No. 4, Part No. N117340-1).  
VMS-3 was located in the Chart Room. [Encls (13), (30), (32),  
(35), (36), (39)]

153. Since the 2008 VMS installation, the VMS software and  
hardware onboard USS GUARDIAN has not been altered or changed.  
[Encl (42)]

154. The VMS onboard USS GUARDIAN displays the NGA-produced  
DNCs®. [Encls (11), (13)]

155. On 9 March 2011, Commanding Officer, Space and Naval  
Warfare Systems Center, Atlantic certified USS GUARDIAN's ECDIS-  
N as meeting all necessary installation and performance  
requirements per reference (k). [Encl (43)]

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Section Five  
ECDIS-N Certification and Navigation Assessments

156. On 31 May 2011, COMCMRON SEVEN completed an Immediate Superior In Command (ISIC) Navigation Assessment Check Ride and certified the ship safe for navigation. The overall assessment was satisfactory with some discrepancies identified. USS GUARDIAN was still navigating with paper charts because she had not received TYCOM certification to use ECDIS-N as the primary plot as required by references (d), (m), and (n). [Encl (44)]

157. On 18 July 2011, COMNAVSURFPAC certified USS GUARDIAN for unrestricted navigation operations using ECDIS-N as the primary navigation plot. [Encl (45)]

158. On 30 November 2011, COMCMRON SEVEN completed an ISIC Navigation Assessment Check Ride following the change of command onboard USS GUARDIAN. COMCMRON SEVEN certified the ship as safe to navigate. The ISIC report identified the assessors as one O-4 (MCMRON SEVEN Operations Officer), one O-2, and one QMC. The ISIC report also noted some discrepancies including the Navigator being unaware of alarms cleared by the VMS Operator in the Chartroom. [Encl (46)]

159. In early 2012, USS GUARDIAN was inport for more than 90 days. On 17 April 2012, COMCMRON SEVEN completed an ISIC navigation assessment with ATG support and certified the ship safe for navigation. The assessment report identified discrepancies that "must be addressed in order to ensure continued safe navigation." The report noted that the AN/SPS-73 RADAR was newly installed, not all personnel were familiar with its operation, and therefore recommended to institute a rigorous training program based on technical/operational manuals. There were no discrepancies noted with respect to VMS and log keeping. [Encl (47)]

160. QMCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> was formerly the Senior Navigation Assessor at Afloat Training Group Western Pacific from December 2009 to December 2012. He worked onboard USS GUARDIAN during numerous training events including VMS Certification, Unit Level Training Assessments, Navigation Check-rides, and Visual Communication exercises. [Encl (48)]



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161. During his experience in USS GUARDIAN, QMCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> worked with the leading QM, QM2 <sup>(b) (6), (b) (7) (C)</sup>, who was a "sound and professional marine navigator [who he] routinely spoke highly about." QMCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> made USS GUARDIAN the example for other MCMRON-7 ships because of her very proficient and administratively sound Navigation Team. [Encl (48)]

162. QM2 <sup>(b) (6), (b) (7) (C)</sup> was the senior QM onboard USS GUARDIAN until QM1 <sup>(b) (3), (b) (6)</sup> arrived in 2012. QMCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> had little interaction with QM1 <sup>(b) (3), (b) (6)</sup>. To the best of his memory, April 2012 was the last time that QMCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> was onboard USS GUARDIAN, and the crew performed very well with QM2 <sup>(b) (6), (b) (7) (C)</sup> "leading the way." [Encl (48)]

163. Following her 17 April 2012 ISIC Navigation Assessment, USS GUARDIAN was underway for a total of 58 days. [Encl (26)]

164. On 29 June 2012, COMNAVSURFPAC/COMNAVSURFLANTINST 3500.10 (reference (t)) was issued to establish policies and procedures for conducting Readiness Evaluations (READ-E) for surface ships. The ISIC is assigned the responsibility of assigning a Senior Assessor for the Squadron/Group Staff Navigation Assessment (i.e., Navigation Check Ride). [Ref (t)]

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Section Six  
Chain of Command

165. On 17 January 2013, USS GUARDIAN's administrative chain of command was:

- a. Echelon I - Chief of Naval Operations (CNO)
- b. Echelon II - Commander, U.S. Pacific Fleet (COMPACFLT)
- c. Echelon III - Commander, Naval Surface Force, U.S. Pacific Fleet (COMNAVSURFPAC)
- d. Echelon IV - Commander, Mine Countermeasure Squadron SEVEN (COMMCMRON SEVEN)

[Refs (b), (g), (o)]

166. On 17 January 2013, the ship's operational chain of command was:

- a. Geographic Combatant Commander - Commander, U.S. Pacific Command
- b. Navy Service Component Commander - COMPACFLT
- c. Numbered Fleet Commander - COMSEVENTHFLT
- d. Task Force Commander - Commander, Task Force SEVEN SIX
- e. Operational ISIC - COMMCMRON SEVEN

[Refs (o), (p), (q)]

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Section Seven  
USS GUARDIAN (MCM 5) Unit Organization

167. On 17 January 2013, the unit organization of USS GUARDIAN consisted of 11 officers and 68 enlisted members. [Encl (49)]

Leadership Triad

168. Commanding Officer - LCDR Mark Rice, USN. LCDR Rice assumed command of USS GUARDIAN on 29 October 2012. He was XO/NAV in USS GUARDIAN from October 2011 to October 2012. LCDR Rice received his commission in May 2000. [Encls (19), (50)]

169. Executive Officer/Navigator - LT Daniel Tyler, USN. LT Tyler relieved LCDR Rice as XO/NAV in late October 2012. He has been a commissioned officer for 10 years. The XO/NAV billet onboard a MCM is a second tour department head afloat. [Encls (20), (51), (52)]

170. Command Master Chief (CMDCM) - CMDCM Stone, USN. CMDCM Stone had served in USS GUARDIAN since July 2011. His rating is Personnel Specialist and he has over 21 years of service in the U.S. Navy. [Encl (53)]

Department Heads

171. Chief Engineer (CHENG) - LT (b) (3), (b) (6), (b) (7) (C). His underway condition III watch station was OOD. The CHENG billet onboard a MCM is a first tour department head afloat. [Encls (15), (19), (20), (52), (54)]

172. Operations Officer - LT (b) (3), (b) (6), (b) (7) (C). LT (b) (3), (b) (6), (b) (7) (C) underway condition III watch station was OOD. His billet is a second tour division officer tour. [Encls (14), (19), (20), (55)]

Division Officers

173. Damage Control Assistant (DCA) - LTJG (b) (3), (b) (6), (b) (7) (C). LTJG (b) (3), (b) (6), (b) (7) (C) has been a commissioned officer for six years. He has served onboard USS GUARDIAN for seven months. LT (b) (3), (b) (6), (b) (7) (C) underway condition III watch station was OOD. [Encls (56), (57), (58)]

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174. Communications Officer (COMMO) - LTJG (b) (3), (b) (6), (b) (7) (C). LTJG (b) (3), (b) (6), (b) (7) has been a commissioned officer in the U.S. Navy for 2 years and 5 months. On 15 February 2012, he was qualified as OOD Underway. His underway condition III watch station is OOD, and he estimates that he had three and a half months on the Bridge as a qualified OOD. His collateral duty is the Training Officer. [Encls (14), (21), (59)]

175. Supply Officer (SUPPO) - ENS (b) (3), (b) (6), (b) (7) (C). ENS (b) (3), (b) (6), (b) (7) has been a commissioned officer for almost two years and has been attached to USS GUARDIAN since October 2011. ENS (b) (3), (b) (6), (b) (7) (C) underway condition III watch station is CONN. [Encls (60), (61)]

176. Auxiliary and Electrical Division Officer (A&E DIVO) - ENS (b) (3), (b) (6), (b) (7) (C). ENS (b) (3), (b) (6), (b) (7) (C) has been attached to USS GUARDIAN for seven months. ENS (b) (3), (b) (6), (b) (7) (C) underway condition III watch station is JOOD Under Instruction (U/I). He is qualified as CONN and his collateral duty is Repair Locker Officer. [Encls (14), (62), (63)]

177. First Lieutenant - ENS (b) (3), (b) (6), (b) (7) (C). ENS (b) (3), (b) (6) received his commission in July 2012. He has been attached to USS GUARDIAN for 18 months. ENS (b) (3), (b) (6), (b) (7) underway condition III watch station was JOOD. He qualified as OOD Underway during the days immediately following the grounding, but possessed a weak knowledge of navigation, the CO's Standing Orders, and Navigation Bill. ENS (b) (3), (b) (6) has the collateral duties of Weapons Officer and Assistant Safety Officer. [Encls (14), (64)]

178. CIC Officer - ENS (b) (3), (b) (6), (b) (7) (C). ENS (b) (3), (b) (6), (b) (7) (C) has been attached to USS GUARDIAN since November 2011. ENS (b) (3), (b) (6), (b) (7) (C) underway condition III watch station is CONN. [Encl (65), (66)]

#### Chief Petty Officers

179. Operations Department Leading Chief Petty Officer (LCPO) - Senior Chief Mineman (MNCS) (b) (3), (b) (6), (b) (7) (C). MNCS (b) (3), (b) (6), (b) (7) reported to USS GUARDIAN in October 2012. He has almost 15 years of service in the U.S. Navy. His underway condition III watch station was CIC Watch Supervisor (CICWS). [Encl (37)]

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180. Main Propulsion Assistant - Chief Engineman (ENC) <sup>(b) (3), (b) (6), (b)</sup>  
. ENC <sup>(b) (3), (b) (6)</sup> has served onboard USS GUARDIAN for three  
years. He has 17 years of service in the U.S. Navy. His  
underway condition III watch station is Engineering Officer of  
the Watch (EOOW). [Encl (67)]

181. Repair Division LCPO - Chief Damage Controlman (DCC) <sup>(b) (3), (b) (6), (b)</sup>  
. DCC <sup>(b) (3), (b) (6), (b)</sup> had served onboard USS GUARDIAN (MCM 5)  
for three and a half years. He has 13 years of service in the  
U.S. Navy. His underway condition III watch station is  
Electrical Plant Control Console (EPCC) Operator. [Encl (68)]

182. Deck and Weapons LCPO - Chief Mineman (MNC) <sup>(b) (3), (b) (6), (b) (7) (C)</sup>  
. MNC <sup>(b) (3), (b) (6), (b) (7) (C)</sup> had served onboard USS GUARDIAN for  
13 months. He has 11 years of service in the U.S. Navy. His  
underway condition III watch station is JOOD. [Encl (28)]

183. Communication Division LCPO - Chief Information Technician  
(ITC) <sup>(b) (3), (b) (6), (b) (7) (C)</sup>. ITC <sup>(b) (3), (b) (6), (b) (7)</sup> has 15 years in the U.S.  
Navy and two years of service onboard USS GUARDIAN. His  
underway condition III watch station is Communication Watch  
Officer and Electronic Key Management Systems (EKMS) Manager.  
[Encl (69)]

184. Assistant Navigator - Chief Quartermaster (QMC) <sup>(b) (3), (b) (6), (b) (7) (C)</sup>  
. QMC <sup>(b) (3), (b) (6)</sup> reported to USS GUARDIAN in March 2012, having  
transferred from shore duty. He promoted to Chief Petty Officer  
in the fall 2012. His underway condition III watch station was  
QMOW. [Encls (17), (19), (20), (30), (32), (33), (67), (68)]

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Section Eight  
Authorities

Accountability, Duties, and Responsibility

185. Article 92, Uniformed Code of Military Justice (UCMJ) states in part: "Any person subject to this chapter who ... violates or fails to obey any lawful general order or regulation; ... or is derelict in the performance of his duties; shall be punished as a court-martial may direct."  
[Ref (o) § 892]

186. Article 110, UCMJ states in part: "Any person subject to this chapter who negligently hazards or suffers to be hazarded any vessel of the armed forces shall be punished as a court-martial may direct." [Ref (o) § 910]

187. Article 0802, U.S. Navy Regulations states: "The responsibility of the commanding officer for his or her command is absolute, except when, and to the extent to which, he or she has been relieved therefrom by competent authority, or as provided otherwise in these regulations." [Ref (b)]

188. Article 0857, U.S. Navy Regulations states: "The commanding officer is responsible for the safe navigation of his or her ship or aircraft, except as prescribed otherwise by these regulations for ships at a naval shipyard or station, in drydock, or in the Panama Canal." [Ref (b)]

189. OPNAVINST 3120.32D, the Standard Organization and Regulations of the U.S. Navy (U.S. Navy SORM) defines accountability:

1.3. ACCOUNTABILITY. In connection with general and organizational authority, the principles of accountability include:

a. Each Sailor, regardless of rank or position, is fully accountable for their actions, or failure to act when required.

b. Leaders and supervisors have a duty to assign clear lines of authority and responsibility, reaching to the

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deck-plate level, for all activity within their organization.

c. Leaders and supervisors have a duty to provide their subordinates the resources and supervision necessary to enable them to meet their prescribed responsibilities.

d. Leaders and supervisors have a duty to hold their subordinates accountable, and to initiate appropriate corrective, administrative, disciplinary, or judicial action when sailors fail to meet their responsibilities.

[Ref i]

190. The U.S. Navy SORM defines the duties and responsibilities of the CO. The relevant excerpt is set forth below.

#### 3.1.1 THE COMMANDING OFFICER

a. BASIC FUNCTION. The commanding officer is charged with the absolute responsibility for the safety, well-being, and efficiency of the ship and crew until properly relieved by a competent authority.

b. DUTIES, RESPONSIBILITIES, AND AUTHORITY. The duties and responsibilities of the commanding officer are established by U.S. Navy Regulations (NAVREGS), general orders, customs and tradition. The authority of the commanding officer is commensurate with their responsibility, subject to the limitations prescribed by constitutional, statutory, international, and regulatory law including NAVREGS.

[Ref i]

191. The U.S. Navy SORM defines the duties and responsibilities of the XO. The relevant excerpt is set forth below.

#### 3.1.2 THE EXECUTIVE OFFICER

a. BASIC FUNCTION. The executive officer is the direct representative of the commanding officer and shall be primarily responsible to the commanding officer for the

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organization, performance of duty, training, maintenance,  
and good order and discipline of the entire command.

[Ref i]

192. The U.S. Navy SORM defines the duties and responsibilities  
of the Navigator. The relevant excerpt is set forth below.

### 3.17. NAVIGATOR

a. GENERAL DUTIES. The head of the Navigation  
Department is designated the Navigator. [...]

b. SPECIFIC DUTIES. The navigator receives all orders  
relating to navigational duties directly from the  
commanding officer and makes all reports in connection  
therewith directly to the commanding officer.

(1) Advise the commanding officer and OOD as to the  
ship's movements and, if the ship is running into danger,  
as to a safe course to be steered. To this end the  
navigator will:

(a) Maintain an accurate plot of the ship's  
position by celestial, visual, electronic, or other  
appropriate means.

(b) Prior to entering piloting waters, study  
all available sources of information concerning the  
navigation of the ship therein. Consult with the  
commanding officer about the advisability of requesting and  
employing a pilot and tugs, considering such circumstances  
as changing waterway configurations, experience in these  
piloting waters, extent of congestion or restriction of the  
waterway, and size of the ship.

(c) Give careful attention to the course of the  
ship and depth of water when approaching land or shoals.

[...]

(6) Conduct navigation training of personnel such  
as junior officers.



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[Ref i]

193. The U.S. Navy SORM defines the duties and responsibilities of the OPS Officer. The relevant excerpt is set forth below.

### 3.18. OPERATIONS OFFICER

a. GENERAL DUTIES. The head of the operations department of a unit is designated by the operations officer. They are responsible for all operational aspects of the assigned mission, such as maintaining operational readiness in support of battle plans or other instructions as may be directed by higher authority.

b. SPECIFIC DUTIES. The operations officer is responsible for the proper performance of the functions of their department which include:

[...]

(5) The preparation of operation plans, orders, and other reports and directives.

(6) The maintenance and repair of all electronic equipment except as assigned to another department.

[...]

(11) The obtaining of clearance and operating assignments incident to the movements and operations of the unit.

(12) The preparation and issuing of training schedules.

c. ORGANIZATIONAL RELATIONSHIPS. The operations officer reports to the commanding officer concerning operations, intelligence and tactical employment of the unit and assigned aircraft.

[Ref i]

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194. The U.S. Navy SORM defines the duties and responsibilities of the OOD Underway. The relevant excerpt is set forth below.

#### 4.15.3 OFFICER OF THE DECK (OOD) UNDERWAY

a. BASIC FUNCTION. The OOD underway is designated by the commanding officer to be in charge of the ship including its safe and proper operation.

b. DUTIES, RESPONSIBILITIES, AND AUTHORITY. The OOD Underway shall:

(1) Be aware of the tactical situation and geographic factors which may affect safe navigation and take action to avoid the danger of grounding or collision following tactical doctrine, the U.S. Coast Guard Navigation Rules of the Road, and the orders of the commanding officer or other proper authority.

(2) Be informed of current operation plans and orders, intentions of the OTC and the commanding officer, and other matters of ship or force operations.

[...]

(4) Make all required reports to the commanding officer.

[...]

c. ORGANIZATIONAL RELATIONSHIPS. The OOD reports directly to the commanding officer for the safe navigation and general operation of the ship; to the executive officer ... for carrying out the ship's routine; and to the navigator on sighting navigational landmarks, and on making course/speed changes. The following personnel report to the OOD:

[...]

(2) The JOOD and the JOOW concerning their duties and on-watch training.

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(3) The CICWO (when a [Tactical Action Officer (TAO)] is not assigned) concerning air and surface radar search and tracking, combat and tactical information affecting maneuvering and safe navigation, and sonar search on ships provided with sonar equipment but not an ASW weapon battery.

[...]

(6) The quartermaster of the watch (QMOW) for the supervision of the Helmsman (when senior to the boatswain's mate of the watch), for the proper maintenance of the deck log, and for navigational matters.

[Ref i]

195. The U.S. Navy SORM defines the duties and responsibilities of the CICWO. The relevant excerpt is set forth below.

#### 4.15.6 COMBAT INFORMATION CENTER WATCH OFFICER (CICWO)

a. BASIC FUNCTION. The CICWO is a representative of the CICO and supervises the operation of the CIC during the watch period.

b. DUTIES, RESPONSIBILITIES AND AUTHORITY. The CICWO shall:

(1) Supervise personnel on watch in the combat information center, ensuring that air, surface, and submarine contacts are detected and reported within the capabilities of the equipment; that summary and geographic plots and status boards are correct and current; that voice radio and phone circuits are manned; and that correct procedures and terminology are used.

(2) Evaluate operational information received in the Combat Information Center by voice, radio, radar, sonar, electronic warfare support measures, visual lookouts, direction finders, intelligence, and dispatches.

(3) Disseminate evaluated information to appropriate control stations including the Bridge, flag

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plot, war room, strike operations, air operations, air intelligence, secondary conn, and weapons control stations.

(4) Keep the OOD advised of recommended procedures for maintaining station, avoiding navigational hazards and collisions, and speed or course changes necessary to change or regain station.

[...]

(11) Supervise and evaluate the OJT of enlisted CIC personnel on watch, including the ship's lookouts.

[...]

(15) Report all landfalls, maintain navigation track, and position when within radar range of land, when operations are conducted in dangerous or restricted waters and during sorties and entries; report to the OOD when the unit is standing into danger and as the OOD directs.

[Ref i]

196. The U.S. Navy SORM promulgates a punitive lawful general order governing safe navigation, which assigns additional duties and responsibilities to the CO. The relevant excerpt appears below.

5.1.51 SAFE NAVIGATION. *THE COMMANDING OFFICER OF A SHIP, SUBMARINE AND, AS APPROPRIATE, OF AN AIRCRAFT SHALL BE THOROUGHLY FAMILIAR WITH NAVIGATION GUIDANCE SET FORTH IN TYCOM REFERENCES, SUCH AS BUT NOT LIMITED TO [THE] NAVDORM, NODORM AND NATOPS. THE COMMANDING OFFICER SHALL ALSO:*

a. *PRESERVE ALL INFORMATION RECEIVED OR PROCURED CONCERNING SAFE NAVIGATION.*

[...]

c. *MAKE EVERY EFFORT TO OBTAIN FROM RELIABLE SOURCES (FOREIGN OR OTHERWISE) ALL INFORMATION THAT SHALL AID IN ANY CASE OF DOUBT ABOUT SAFE NAVIGATION OVER PROPOSED ROUTES OR PORTS TO BE VISITED.*

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[...]

h. REQUIRE THAT AVAILABLE ELECTRONIC AND OTHER AIDS TO SAFE NAVIGATION BE EMPLOYED DURING PERIODS OF LOW VISIBILITY AND OTHER TIMES WHEN NEEDED.

[...]

n. KEEP A NIGHT ORDER BOOK, WHICH SHALL BE PRESERVED AS PART OF THE SHIP'S OFFICIAL RECORDS, IN WHICH SHALL BE ENTERED THEIR ORDERS WITH RESPECT TO COURSES, ANY SPECIAL PRECAUTIONS CONCERNING THE SPEED AND NAVIGATION OF THE SHIP AND ALL OTHER ORDERS FOR THE NIGHT FOR THE OOD.

[Ref i]

197. The U.S. Navy SORM does not define the duties and responsibilities of the CIC Watch Supervisor (CICWS). [Ref i]

Surface Ship Navigation Department Organization and Regulations Manual (NAVDORM)

198. The NAVDORM provides uniform standards and comprehensive instruction with aim to achieve trained Navigation Team personnel and strong management of the navigation picture.  
[Ref (d) chap 1]

199. The NAVDORM contains six chapters: (1) Introduction; (2) Duties and Responsibilities; (3) Standard Policies, Requirements and Procedures; (4) Supplemental Policies, Requirements and Procedures for Ships Not Authorized to Navigate Using ECDIS-N; (5) Supplemental Policies, Requirements and Procedures for Ships Certified to Navigate Using ECDIS-N; and (6) Records, Logs, and Forms. [Ref (d)]

200. The NAVDORM authorizes an ECDIS-N certified ship to use approved GPS as the primary fix source in all waters. During restricted waters, the Navigation Team is required to fix the ship's position by other than electronic means once every third fix interval. There is no NAVDORM requirement to fix the ship's

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position by other than electronic means at a specified time interval while in piloting, coastal, or open ocean waters.

[Ref (d) chap 1]

201. Per the NAVDORM, the XO "will be readily available to assist the CO and Navigator during all restricted water transits and shall not normally be assigned to a specific watch station so that he/she is free to supervise all aspects of the transit."

[Ref (d) chap 2]

202. Onboard ships under the administrative control (ADCON) of a Surface Type Commander, the XO is responsible for direct supervision of the Navigator and Navigation Team while in restricted waters unless otherwise directed by the CO. If the CO assigns the XO to fill another critical supervisory position, then another senior officer should be assigned as the Navigation Team supervisor. This does not relieve the XO of his navigation responsibilities. [Ref (d) chap 2]

203. Onboard USS GUARDIAN, the Navigator is dual-hatted as the Executive Officer. During the Sea and Anchor Detail and restricted waters transits, the XO/NAV is assigned to the specific watch station of Navigation Evaluator on the Bridge. [Encls (14), (20), (67)]

204. On ECDIS-N certified ships, the XO will review the navigation brief and the Navigation Plan for completeness as outlined in Appendix B of the NAVDORM. [Ref (d) chap 2]

205. Table 2-D of the NAVDORM mandates required watchstations for ECDIS-N certified ships. Watchstation requirements are dictated by the distance from land and/or shoal water: restricted waters - less than two nautical miles; piloting waters - two to 10 nautical miles; or open ocean/coastal waters - greater than 10 nautical miles. [Ref (d) chap 2]

206. The CICWO and CICWS do not appear in Table 2-D. [Ref (d)]

207. The Navigator's assigned duties include ensuring the Special Navigation Evolution Checklists contained in Appendix C of the NAVDORM are completed as required, logging the commencement and completion of all checklists in the Ship's Deck Log, and ensuring required navigational training is conducted

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for all appropriate personnel such as junior officers,  
navigation watchstanders, boat coxswains and boat officers.  
[Ref (d) chap 2]

208. Chapter 3 of the NAVDORM "provides guidance on standard policies, requirements, and procedures that serve as the basis for development of each ship's routine." The guidance is "equally applicable to all ships, regardless of the method authorized to maintain the navigation plot." [Ref (d) chap 3]

209. NAVDORM policy designates the Bridge navigation plot as the primary navigation plot, requires navigation watchstanders to "plot all fixes and compare fix information from the available sensors" and states that the OOD "will employ all means available for detecting and avoiding danger." Junior watchstanders, such as the JOOD or QMOW, "should never hesitate to request additional watch personnel or recommend stationing the full Navigation Team if a situation warrants." [Ref (d)]

210. The Navigation Team "must satisfy ... specific requirements while the ship is underway." These requirements include:

a. Properly maintaining the ship's dead reckoning (DR) and relying upon DR as the foundation for maintaining an acceptable estimate of the ship's position between fixes. ECDIS-N generates the DR automatically but the display must be properly set using guidance in Appendix J of the NAVDORM.

b. Integrating as many sources of fix information as reasonably possible to improve position accuracy and raise the confidence in data produced.

c. Comparing all charts covering the area of operations, regardless of scale, to ensure that hazards to navigation are properly displayed and highlighted on all charts in use.

d. Maintaining close communication with the Tactical Action Officer (TAO) or CICWO. For ECDIS-N ships, "the oversight of the ship's position that is fed to the warfare suite is still a critical role for the CIC/CDC watch team."

[Ref (d) chap 3]

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211. The Navigator must verify the geodetic system on which the chart is based and ensure adjustments are made to the GPS equipment to match the chart datum. [Ref (d) chap 3]

212. The Navigator must also determine the scale, units of measurement, and other pertinent characteristics of the chart prior to its use and take appropriate action to ensure that the chart is safely and properly used. [Ref (d) chap 3]

213. Prior to entering restricted waters, the NAVDORM mandates the following requirement:

Charts will be reviewed, signed, and dated, prior to initial use. All subsequent changes will be addressed in the Navigation Brief. At a minimum, the following information will appear on every paper chart displaying a restricted water track:

\_\_\_\_\_ Prepared by:  
\_\_\_\_\_ Reviewed by: (Senior QM/Senior OS)  
\_\_\_\_\_ Reviewed by: (ANAV/Piloting Officer) (AIRFOR)  
\_\_\_\_\_ Submitted by: (NAV)  
\_\_\_\_\_ Reviewed by: (XO) (SURFOR)  
\_\_\_\_\_ Approved by: (CO)

Date: \_\_\_\_\_

[Ref (d) chap 3]

214. Chapter 3 of the NAVDORM establishes requirements for restricted waters and open ocean transits, but does not establish any express written requirements during piloting and coastal waters transits. [Ref (d) chap 3]

215. Chapter 5 of the NAVDORM "provides guidance on additional policies, requirements, and procedures that supplement and amplify those contained in Chapters 2 [Duties and Responsibilities] and 3 [Standard Policies, Requirements and Procedures] and [OPNAVINST 9420.4] for ships CERTIFIED to navigate using ECDIS-N." [Ref (d) chap 5]

216. On ECDIS-N certified ships, NAVDORM policy assigns the CO with the responsibility "for establishing the standards for ECDIS-N set-up and use[.]" [Ref (d) chap 5]



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217. On ECDIS-N certified ships, the CO is responsible for establishing standards applicable to the set-up and use of the Ownship Safety Zone Configuration. The minimum settings for the Ownship Safety Zone Configuration are: Look ahead Time of six minutes; Safety Depth equal to the navigation draft/safety contour on the paper chart; Safety Height equal to the masthead height plus 25 feet; ALARM ON NEW DANGERS set to 'ON'. [Ref (d) chap 5]

218. The NAVDORM establishes minimum standards and procedures for Navigation Plan approval on ECDIS-N certified ships. The excerpt below provides the relevant guidance:

d. The ECDIS-N software provides for CO approval of Voyage Plans and PIM Plans, and of the chart portfolios and layer portfolios that are associated with them. In addition to the individual approval of these plans and their components, the VMS also provides for overall review and approval of plans and portfolios for use during a specified time period. The overall approval status of the system is visible at all times, in the approval status indicator at the top of the main menu. The indicator is green when the status is APPROVED, and it is red when the status is UNAPPROVED. In either case, the operator can obtain more information about the overall system approval status by selecting the indicator.

(1) Utilizing similar procedures as with paper charts, the CO shall clearly establish who is required to review and then RECOMMEND the Navigation Plan and included Chart Layer(s), Chart Portfolio(s), Voyage Plan(s) and PIM Plan(s) for CO's approval. On SURFOR ships, this process must include the XO. Standard ECDIS-N installation includes a QM, QMC, Navigator, and XO account with RECOMMEND authority; only the CO account has APPROVAL authority. These accounts are set up through a Windows Operating System function, and may be added to (i.e. OSC or CDO Underway account) or customized (i.e. change passwords). It is highly recommended that the Navigator and a generic CDO UNDERWAY (AIRFOR ONLY) login have APPROVAL authority, with the specific procedures for using this authority detailed in CO's Standing Orders or the ship's Navigation

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Bill. It is highly recommended, that ships visiting foreign ports, have voyage plans approved for leaving port upon arrival, in case of emergency sortie.

(2) At a minimum, all Restricted Water transits must be APPROVED by the CO. This requirement corresponds to the paper charts the CO has to sign. The CO may designate APPROVAL authority to the Navigator for all other transits to avoid having UNAPPROVED routinely appear.

[Ref (d) chap 5] (emphasis added)

219. On ECDIS-N certified ships, the CO is responsible for establishing standards with respect to tailoring VMS display settings, to include alarm settings. The ship's pre-evolution checklists "shall include verification of the displayed feature set required at each ECDIS-N display per [the ship's] navigation bill." Appendix J of the NAVDORM indicates the minimum display requirements. [Ref (d) chap 5]

220. The VMS software does not append follow-on tracks, which results in "a practical requirement to end a plan, unload the navigation plan, then load and start the next navigation plan." The NAVDORM requires that "each voyage plan shall have at least one leg (the last two waypoints) in common with the first leg (first two waypoints) of the next plan." [Ref (d) chap 5]

221. For ECDIS-N certified ships, the Navigation Team "must satisfy ... additional requirements while the ship is underway." These requirements include, but are not limited to, the exclusive use of DNCs® produced by NGA as the only approved charts for ECDIS-N; the rigorous maintenance and updating of DNCs®, portfolios, layers, and Mariner Objects to ensure success of VMS; and the review of all Mariner Objects for correctness and applicability on a regular basis. [Ref (d) chap 5]

222. Chapter 6 of the NAVDORM establishes TYCOM requirements for logs and records. The Navigator must review the Ship's Deck Log on a daily basis, and must review and sign the Navigation Workbook on a weekly basis. [Ref (d) chap 6]

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223. The NAVDORM does not establish a requirement for the Navigator's review and signature of the Standard Bearing Book. [Ref (d) chap 6]

224. Appendix C contains a six-page Voyage Planning Checklist intended for use with paper charts and ECDIS-N. The first page of the Checklist states that the "checklist is preparatory to navigating in open ocean or in restricted waters." Page five of six is specifically intended for use by ECDIS-N equipped ships regardless of certification status. [Ref (d) app C]

#### Warning of Navigational Dangers

225. The SOLAS Convention, Chapter V, Regulation 4 states: "Each Contracting Government shall take all steps necessary to ensure that, when intelligence of any dangers is received from whatever reliable source, it shall be promptly brought to the knowledge of those concerned and communicated to other interested Governments." [Ref (1)]

226. Department of Defense Directive (DoDD) 5105.60 (ref i) governs the NGA. Per paragraph 6.a(9) of DoDD 5105.60, Director NGA "shall ... [p]rovide for Safety of Navigation, pursuant to [Title 10 of the U.S. Code] and the International Convention for the Safety of Life at Sea[.]" [Ref i]

227. Department of Defense Instruction (DoDI) 5030.57 (ref (s)) governs special warnings to mariners. Per paragraph 3 of the enclosure of DoDI 5030.57, the Secretary of the Navy and the Combatant Commanders, as heads of their respective DoD Components, "shall ensure information germane to the safety of U.S. mariners is made available to the Department of State, NGA, and the National Maritime Intelligence Center by the most expeditious means [and e]nsure that communications related to the safety of U.S. mariners is prefaced with "Mariner Special Warning Information" to aid in alerting interested parties." [Ref (s)]

228. Appendix E of the NAVDORM contains the following guidance on reporting a DNC® error:

Authorized users of DNC® are requested to immediately report any safety of navigation related discrepancy that

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may be detected on DNC® to NGA's 24-hour World-Wide Navigational Warning Service Broadcast Desk via: DMS message to NGA NAVSAFETY AUTODIN and to NGA NAVSAFETY BETHESDA MD//; NIPRnet e-mail at avsaftty@nga.mil; SIPRNET e-mail at Navsaftty@nscn.nga.smil.mil Phone: Comm 301-227-3147, 1-800-362-NAVY, or DSN 287-3147. In the report, the user must identify which electronic charting system/ECDIS-N, including the software version, is being used; the DNC® library number; DNC® CD edition number and a description of the discrepancy. Upon receipt of the report, NGA will take immediate action to determine if corrective action is necessary and, if so, will advise all users accordingly via the HYDROLANT and HYDROPAC broadcast service.

[Ref (d)] (emphasis added)

#### Logs, Records, and Reports

229. Article 0845 of U.S. Navy Regulations mandates the maintenance of a deck log and engineering log onboard all commissioned vessels, and permits a record generated by a ship's automated data logging equipment to satisfy the requirements of the Article. [Ref (b)]

230. Per Article 0846 of U.S. Navy Regulations, the deck log, the compass record, and any record generated by automated data logging equipment shall constitute an official record of the command. [Ref (b)]

231. OPNAV Instruction 3100.7B (ref (t)) implements Article 0845 of U.S. Navy Regulations by providing comprehensive guidance and requirements for preparing and maintaining the Ship's Deck Log. Per OPNAV Instruction 3100.7B, "the ship's deck log describes every circumstance and occurrence of importance or interest which concerns the crew and the operation and safety of the ship[.]" Specific navigational and operational entries are mandated, and sample deck log entries are provided to include the sighting of aids to navigation. [Ref (s)]

232. Paragraph 15 of chapter 6 of the NAVDORM provides the guidance and requirements for the automated data logging aspects of ECDIS-N:

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Data Recording provided by ECDIS-N.

a. Purpose. ECDIS-N is capable of recording, storing and downloading to removable media certain data elements to allow reconstruction of ship's track and verification of the official database(s) in use. This data does not yet replace existing log requirements but must be maintained to ensure a record of critical information utilized by ECDIS-N is available.

b. Instructions for Maintenance. The Navigator is charged with ensuring all hourly files generated by an ECDIS-N system while underway shall be backed up to a suitable storage medium, such as a CD-R, Zip drive, server-based drive, or a local hard-drive, twice a month at a minimum. Once the last files generated during an underway have been saved, no further downloads are required while inport.

c. Responsibility for Review and Approval. The Navigator is charged with ensuring the electronic backs up requirements are met.

d. Retention. Maintain the electronic back up for not less than twelve months.

[Ref (d) chap 6] (emphasis added)

233. The VMS periodically records chart data, as well as data from selected navigation sensors and meteorological sensors, to electronic log files. Depending upon the system configuration, these Data Log files can be used to generate various types of VMS data reports. The Data Log files also support the VMS Playback function. [Ref (f)]

234. Data Log files are recorded periodically in accordance with an operator-designated data logging interval. Each file contains all data collected during one data logging interval. Filenames are based on the date and time when the data was stored. [Ref (f)]

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235. Older Data Log files are deleted automatically to avoid using an excessive amount of the VMS hard drive storage capacity. The time interval after which files are deleted is configured at the time of system installation. [Ref (f)]

236. The VMS has the capability to generate and print standardized reports based on the Data Log however, the function has been disabled. Available report types include Bell Book Reports, Data Log Reports, and Noon Reports. The current VMS software configuration used onboard U.S. Navy vessels does not support a printer connection to the VMS computer. [Ref (f); Encl (38)]

237. The VMS does not provide a screen display of the Data Log Report. The Data Log Report is generated directly to the printer. [Ref (f)]

238. The VMS3 laptop computer recovered from USS GUARDIAN was missing Event Log data from 15054622Z Jan 13 through 17204324Z Jan 13. This is an abnormal anomaly because there is no data available for review with respect to Alarms and Dangers during the period leading up to and shortly after the grounding. [Encls (11), (13)]

239. The Data Log Report is in a table format based on a selected time interval. Data reported for each time interval includes the time, latitude, longitude, heading, speed, set, drift, sounding, ownship depth, and wind direction. [Ref (f)]

240. The Noon Report provides ownship information at noon, Coordinated Universal Time (UTC). [Ref (f)]

241. The Bell Book Report, like the Data Log Report, can only be generated to a printer connected to the VMS computer. The Bell Book Report is in a table format based on a selected time interval. Information reported for each time interval includes time, latitude, longitude, heading, speed, rudder, throttle, and revolutions per minute (RPM). [Ref (f)]

242. The VMS records certain events that occur during its operation in the Windows Event Viewer. From the Event Viewer, the history of these events can be viewed and detailed information can be obtained about each event. The following

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events are logged to the Event Viewer: issuance of VMS alarms, system approval status, login security authentication for CO approval or recommendations for approval, changes in correction values for magnetic variation, and changes in operator-designated settings for Position Uncertainty processing. [Ref (f)]

243. When a VMS alarm is issued, acknowledged, or cleared, the event is logged by the Windows operating system in the Windows Event Viewer. The System Administrator can use the Event Viewer to inspect alarm history. [Ref (f)]

#### USS GUARDIAN Log Keeping

244. The Ship's Deck Log entries from 14 to 18 January 2013 do not contain log entries for daily gyro error and gyro repeater error as required by reference (d). [Encl (14)]

245. In the Standard Bearing Book entries for January 2012, the gyrocompass error at the top of each page is always zero as calculated by azimuth. [Encl (69)]

246. At the beginning of each Navigation Detail or Sea and Anchor, the gyrocompass repeater error on each pelorus used for navigation and the RADAR range/bearing error and/or heading error of all navigation RADARS in use were never recorded at the top of the initial page of the Standard Bearing Book as required per reference (d). [Encl (69)]

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Section Nine  
USS GUARDIAN (MCM 5) Change of Command

247. On 29 October 2012, LCDR Rice assumed command of USS GUARDIAN. [Encl (19)]

248. Immediately upon assuming command, LCDR Rice revised and issued various shipboard instructions including the CO's Standing Orders, the Navigation Bill, and the Personnel Qualification instruction. [Encls (19), (24), (25)]

249. Shortly after assuming the duties as XO/NAV, LT Tyler validated the ship's navigation brief and determined that it complied with the NAVDORM. [Encl (20)]

250. The XO/NAV did not validate LCDR Rice's Standing Orders against the NAVDORM, but he knew that specific NAVDORM provisions refer to the CO's Standing Orders as the authoritative source. [Encl (20)]

251. Prior to the start of deployment, LT Tyler was underway onboard USS GUARDIAN for two short underway periods totaling five days. [Encls (20), (26)]

CO's Standing Orders

252. The CO printed copies of his Standing Orders in small booklet form and distributed the copies to all Officers, Chief Petty Officers, and First Class Petty Officers. On the booklet's last page appeared "Rice's Rules." [Encls (19), (20), (21), (73)]

253. The CO met with the Wardroom to discuss the differences between his Standing Orders and those of his predecessor, LCDR <sup>(b) (6), (b) (7) (C)</sup>. [Encl (19)]

254. The COMMO, P-COMMO, and DCA did not receive tailored training concerning the navigational aspects of the CO's Standing Orders. [Encls (21), (29), (54)]

255. For CIC watchstanders, MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, the CIC Leading Petty Officer, conducted a two-day training course with the



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entire OI division on the specific requirements of the CO's  
Standing Orders. [Encl (35)]

256. The CO's Standing Orders state: "Each Officer of the Deck,  
Junior Officer of the Deck, MCM-E, CIC Watch Officer and/or  
Supervisor, Engineering Officer of the Watch, Quartermaster of  
the Watch and Boatswain's Mate of the Watch will read and  
signify they understand these orders monthly by signing the  
"Record of Acknowledgment" sheet." [Encl (24)]

257. The CO's Night Orders Binder contained Record of  
Acknowledgment sheets labeled "October," "November," and  
"January." The calendar year does not appear on any sheets.  
[Encl (73)]

258. The October Record of Acknowledgement sheet contains 24  
missing signature blocks to include LCDR Rice (then XO/NAV),  
CHENG, and OPS OFFICER. [Encl (73)]

259. The November Record of Acknowledgement Sheet contains one  
missing signature block. Only three of the 11 officers  
indicated on the sheet are currently attached to USS GUARDIAN.  
Numerous enlisted members on the sheet are either no longer  
onboard the ship or have received promotions to the next higher  
rank. [Encl (73)]

260. The January Record of Acknowledgement Sheet contains 25  
missing signature blocks. The LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> was the only officer  
who signed the sheet out of a total of 10 officers listed. The  
current CO and XO/NAV had not signed the sheet. [Encl (73)]

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Section Ten  
Manning

261. As of February 2013, USS GUARDIAN was authorized four QM billets: one QM1, one QM2, one QM3, and one QMSN. [Encl (74)]

262. Shortly before deployment, QM2 <sup>(b) (6), (b) (7) (C)</sup> detached from USS GUARDIAN, reducing the ship's complement of QMs to three. [Encls (19), (20), (75)]

263. Per the XO/NAV, LT Tyler, QM2 <sup>(b) (6), (b) (7) (C)</sup> was very sharp on navigation, particularly with VMS. QM2 <sup>(b) (6), (b) (7) (C)</sup> extended for a year in order to (b) (6), (b) (7) (C). QM2 <sup>(b) (6), (b) (7) (C)</sup> ultimately requested a cancellation of his extension. [Encl (20)]

264. The XO/NAV heard that the previous CO, LCDR <sup>(b) (6), (b) (7) (C)</sup>, approved QM2 <sup>(b) (6), (b) (7) (C)</sup> request to cancel his extension, thereby allowing his early transfer before January 2013 deployment. This happened before XO/NAV reported onboard. [Encl (20)]

265. Upon QM2 <sup>(b) (6), (b) (7) (C)</sup> departure, USS GUARDIAN worked out a temporary fix with the CO, USS AVENGER (MCM 1), to receive a QM1 for deployment. The ship was scheduled to pick up the new QM1 at the next port in Makassar, Indonesia. [Encl (20)]

266. On 21 December 2012, sixteen days before the scheduled deployment, USS GUARDIAN released an Enlisted Manning Inquiry Report (EMIR) to Commander, Navy Personnel Command (CNPC). The EMIR message stated that QM2 <sup>(b) (6), (b) (7) (C)</sup> had transferred with no replacement identified, and the loss of one QM2 "will significantly impact the Navigation Department during the scheduled four month deployment." USS GUARDIAN requested an immediate fill. [Encl (75)]

267. On 23 January 2013, CNPC responded to the EMIR with notice that USS GUARDIAN's current level of QMs (three of four current onboard) would not change at POB9 with one requisition available. [Encl (76)]

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Section Eleven  
Training

Personnel Qualification Standards

268. As XO/NAV, LCDR Rice approved all PQS qualifications onboard USS GUARDIAN with the exception of major qualifications such as OOD Underway and EOOW. [Encls (19), (20), (20), (37)]

269. The Chiefs observed LCDR Rice, as XO/NAV, being "bombarded" by PQS sheets. [Encls (20), (50)]

270. After LCDR Rice assumed command, the Chief's Mess recommended to the CO that the Chief Petty Officers be granted more control over the PQS process. [Encls (20), (50)]

271. LCDR Rice approved and implemented the Chiefs' recommendation. The ship's PQS instruction was updated to reflect the change in approval authority depending on the type of qualification. [Encls (19), (20), (50)]

272. The CO retained final approval authority for major PQS to include OOD Underway, EOOW, MCM Evaluator, and CICWO. [Encls (19), (20), (37), (50), (77)]

273. The XO/NAV was delegated approval authority for Maintenance and Material Management (3M) PQS and several others. [Encls (19), (20)]

274. The DCA was delegated approval authority for Damage Control PQS. [Encls (19), (54)]

275. Approval authority for some basic PQS was delegated as low as certain Chief Petty Officers. [Encl (19)]

276. MNCS <sup>(b) (3), (b) (6), (b)</sup> was delegated approval authority for CICWS PQS. [Encls (19), (20), (35), (36), (37)]

277. Once a PQS is complete, it was documented in the Relational Administration Database Management (RADM) program. YN1 <sup>(b) (3), (b) (6), (b) (7) (c)</sup>, PS1 <sup>(b) (3), (b) (6), (b)</sup>, and IT1 <sup>(b) (3), (b) (6), (b) (7) (c)</sup> were the three Sailors onboard who had administrator access to enter Sailors as qualified in RADM. [Encls (20), (50), (77)]

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278. All crew members interviewed had a solid understanding of USS GUARDIAN's PQS program for their respective rank and grade. All crew members were assigned one or more PQS, knew the goal date, understood how qualifications were annotated on the watch bill, and demonstrated familiarity with the ship's PQS process. [Encls (19), (20), (21), (28), (29), (30), (32), (34), (35), (36), (37), (38), (39), (50), (54), (57), (59), (61), (62), (64), (65), (66), (78), (79), (80), (81), (82), (83), (84), (85), (86), (87), (88), (89), (90), (91)]

#### The CICWS Qualification

279. Before deployment, LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, ITC <sup>(b) (3), (b) (6), (b) (7)</sup>, and MN1 <sup>(b) (3), (b) (6), (b) (7)</sup> detached from USS GUARDIAN. All three crew members were CICWS-qualified. [Encls (19), (36)]

280. The CO characterized these detachments as "a couple of unplanned losses." [Encl (19)]

281. Upon the start of deployment on 6 January 2013, the CO approved the underway condition III watchbill, which assigned MNCS <sup>(b) (3), (b) (6), (b) (7)</sup> to watch section ZERO as the only qualified CICWS. ET2 <sup>(b) (3), (b) (6), (b) (7)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> were assigned to a three section rotation as CICWS U/I. [Encls (19), (37), (68)]

282. MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> had been standing CICWS U/I for about one year. [Encl (35)]

283. While underway, MNCS <sup>(b) (3), (b) (6), (b) (7)</sup> would stay in CIC for the majority of the day to supervise the three Sailors standing CICWS U/I. [Encls (19), (37)]

284. When MNCS <sup>(b) (3), (b) (6), (b) (7)</sup> left CIC, he remained "on call" to support the three unqualified CICWS U/Is. [Encl (37)]

285. MNCS <sup>(b) (3), (b) (6), (b) (7)</sup> is the approval authority for the CICWS qualification and numerous other CIC watchstations. [Encls (35), (37)]

286. Before departing for deployment, MCNS <sup>(b) (3), (b) (6), (b) (7)</sup> held about a one-week long CICWS qualification board for ET2 <sup>(b) (3), (b) (6), (b) (7)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>. MNCS <sup>(b) (3), (b) (6), (b) (7)</sup> considered the transit from

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Sasebo to Subic Bay as a period for ET2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> to prove themselves for the CICWS qualification.  
[Encl (35)]

287. Before the ship entered Subic Bay on 13 January 2013, MNCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> and YN1 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> were on watch in CIC. YN1 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> recalls MNCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> directing him to access the RADM database and approve ET2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> as CICWS PQS qualified. At this time, MNCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> had not provided the completed and signed PQS sheets to YN1 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>. [Encl (77)]

288. After departing Subic Bay on 15 January 2013, the CO and XO/NAV believed that ET2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> were CICWS-qualified. [Encls (19), (20)]

289. MNCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> states that he interim qualified ET2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> on 16 January 2013. [Encl (37)]

290. Sometime after departing Subic Bay, the CO directed the Senior Watch Officer, LT <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, to add the three newly qualified CICWS Sailors to the underway condition III watchbill.  
[Encl (20)]

291. On the evening of 16 January 2013, the CO signed and approved the new underway condition III watch bill, which assigned ET2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> as qualified CICWS in a three section rotation. Per the CO, this watch bill was in force when USS GUARDIAN ran aground and all watch standers were qualified. [Encls (19), (20)]

292. On the night of the grounding, MNCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> believed that ET2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> were interim qualified. MNCS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> had not seen a revised watchbill and was not sure if the CO had approved any changes to the watchbill. [Encl (37)]

293. NAVEDTRA 43534-D contains the CICWS PQS used onboard USS GUARDIAN and other MCMs. Qualification as a Piloting Officer under NAVEDTRA 43309-4A is a prerequisite for final watch station qualification as a CICWS onboard MCMs. [Encl (92)]

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294. According to USS GUARDIAN's Fleet Training Management Planning System (FLTTMPS), MNCS <sup>(b) (3), (b) (6), (b)</sup>, ET2 <sup>(b) (3), (b) (6), (b)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> were not qualified Piloting Officers under NAVEDTRA 43309-4A. [Encls (93), (94), (95), (96)]

295. ET2 <sup>(b) (3), (b) (6), (b)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> were highly qualified in other respects. In particular, MN2 <sup>(b) (3), (b) (6)</sup> had 223 PQS qualifications in his FLTTMPS database, nearly all of them achieved while attached to USS GUARDIAN. [Encls (94), (95), (96)]

#### Navigation Training

296. The ANAV never trained QM3 <sup>(b) (3), (b)</sup> on celestial navigation. In the past, QM3 <sup>(b) (3), (b)</sup> often observed QM2 <sup>(b) (6), (b) (7) (C)</sup> perform celestial navigation on the Bridge. [Encl (32)]

297. Sometimes while on watch the Bridge watchstanders would conduct general navigation training with the Junior Officers in order to keep the Bridge Team engaged. [Encl (32)]

298. The Senior QM Refresher Course provides no ECDIS-N training. [Encl (20)]

299. In October 2012, USS AVENGER (MCM 1) gained one QM2 who possessed no VMS experience and did not receive the VMS Operator School enroute. USS AVENGER also had a QM1 prospective gain (PG) in May 2013, but the QM1 PG was not slated to attend any schools enroute to include the Senior QM/NAV Refresher course. Per the NAVDORM, the senior QM must be a graduate of the Senior QM/NAV Refresher course. [Ref (d); Encl (97)]

300. Per USS AVENGER's XO, sending the senior QM to TYCOM-required training after the Sailor reports onboard would impact navigation readiness for conducting underway operations. [Encl (97)]

301. On 18 October 2012, USS AVENGER released an EMIR to CNPC. The EMIR message requested the QM1 PG attend the Senior QM/NAV Refresher course prior to reporting to USS AVENGER. The EMIR stated that "QMs coming to AVENGER are missing critical schools, i.e., QM/NAV Refresher or VMS Operator School/experience." The EMIR message also emphasized that imposing a requirement on

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Forward Deployed Naval Forces to send the Senior QM to TYCOM-  
required schools after reporting to the ship significantly  
impacts manning and crosses a Personnel Readiness redline.  
[Encl (98)]

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Section Twelve  
Readiness

302. On 15 January 2013, USS GUARDIAN's READ-E 1 Report indicated the MOB-N with a Training Figure of Merit (TFOM) of 32; the CO assessed GUARDIAN MOB-N as 85. The CO stated that the ship was unable to run MOB-N drills due to inclement weather and that proficiency drills were scheduled during the next two weeks to correct training deficiencies. [Encl (99)]

303. All equipment related to safe navigation was operable at the time of grounding with the exception of the Digital Dead Reckoning Tracer (DDRT) and the starboard Bridge-to-Bridge radio in the Pilot House. [Encls (19), (20), (21), (36), (100)]

304. Prior to LCDR Rice assuming command, the Digital Dead Reckoning Tracer (DDRT) had not been used. When LCDR Rice assumed command, he directed use of the DDRT for contact management in CIC. The CO released a Category Two Casualty Report (CASREP) for the DDRT, and technical representatives had come onboard to repair/replace a faulty circuit card. The repairs were not successful, and the DDRT remained degraded at the start of deployment up until the grounding on 17 January. [Encl (19)]

305. The two Bridge-to-Bridge (BTB) radios in the Pilot House were degraded. Based on observations of the OODs, the port BTB radio had a nominal effective range of about seven to eight nautical miles. The starboard BTB radio was more degraded as compared to the port BTB radio. The BTB radio in CIC was fully operational and had an effective range upward of nine nautical miles. [Encls (21), (56)]

306. After troubleshooting, ship's force suspected the BTB antennae cabling was disturbed during the AN/SPS-73 installation or during mast painting. The ship submitted a work request that sought to effect repairs using scaffolding while in port Singapore. [Encl (100)]



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Section Thirteen  
Navigation Plan Process and Procedures

Note: A basic understanding of VMS terms and definitions is required to understand the content of this section. VMS terms and definitions are set forth in paragraph 10 of the Preliminary Statement, pages 16 to 18.

307. There are four components to a Navigation Plan in VMS: Voyage Plan(s), PIM Plan(s), Chart Portfolio(s), and Layer Folio(s). [Ref (f)]

Duties and Responsibilities

308. In USS GUARDIAN's Navigation Bill, the CO retained approval authority for restricted water and piloting water Navigation Plans and associated Voyage Plans, PIM Plans, Chart Folios, and Layer Folios. [Encl (25)]

309. The CO required XO/NAV to "ensure completion of navigation and voyage plans and PIM plans, and of the chart portfolios and layer portfolios for safe and prudent passage." [Encl (25)]

310. The CO delegated approval authority to the ANAV (QMC <sup>(b) (3), (b) (6)</sup>) for all open ocean Navigation, Voyage, and PIM Plans, and of the Chart Portfolios and Layer Folios associated with them. The ANAV is responsible for assembling all available information concerning the navigation of the ship using applicable publications and websites prior to underway and prior to entering restricted waters. [Encl (25)]

311. QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> was not involved in building the Voyage Plan, the PIM Plan, the Chart Folios, or the Layer Folios in VMS-3. He has never logged into VMS-3, but he frequently saw QMC <sup>(b) (3), (b) (6)</sup> log into VMS-3. [Encl (30)]

312. QM3 <sup>(b) (3), (b)</sup> was not involved with building the Voyage Plan and he does not believe that QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> has any involvement either. [Encl (32)]

313. According to QM3 <sup>(b) (3), (b)</sup>, the Voyage Plan review and approval process onboard USS GUARDIAN began with the ANAV, who drafts the track on VMS-3 in the chartroom. QM3 <sup>(b) (3), (b)</sup> knew that ANAV built

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the Voyage Plans for the transit from Subic Bay to Makassar.  
[Encl (32)]

314. To the best of QMSN <sup>(b) (3), (b) (6), (b) (7) (C)</sup> knowledge, QMC <sup>(b) (3), (b) (6)</sup> prepared the Voyage Plan and associated PIM Plan on the VMS-3 laptop computer in the Chart Room. QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> is also quite sure that QMC <sup>(b) (3), (b) (6)</sup> prepared the Chart Folio and Layer Folio associated with each Voyage Plan. [Encl (30)]

315. For the Subic Bay to Makassar transit, QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> believed that the QMC <sup>(b) (3), (b) (6)</sup> built three Voyage Plans: (1) a restricted waters transit departing from Subic Bay; (2) an open ocean transit; and (3) restricted waters transit into Makassar.  
[Encl (30)]

#### Building the Navigation Plan

316. As a matter of routine, ANAV would start building a Voyage Plan by creating a Chart Folio. Then QMC <sup>(b) (3), (b) (6)</sup> would usually go into the Voyage Plan editor function, and then the Layer Folio.  
[Encl (32)]

317. The version of VMS onboard USS GUARDIAN was not capable of editing or creating a PIM Plan so ANAV would create the PIM Plan by building waypoints in the Voyage Plan and assigning each waypoint with the estimated time of arrival. The PIM Plan was effectively built in the Voyage Plan itself. [Encl (32)]

318. QM3 <sup>(b) (3), (b)</sup> believes a checklist was available for building a Voyage Plan, but he does not recall seeing QM2 <sup>(b) (6), (b) (7) (C)</sup> or QMC <sup>(b) (3), (b) (6)</sup> ever using one. [Encl (32)]

319. The VMS operator can select file names for each Navigation Plan and Voyage Plan. [Ref (f)]

320. The CO-approved Navigation Plan entitled DEPLOYMENT SBMA TO MAK was uploaded on VMS-3. [Encls (11), (13)]

321. The CO-approved Navigation Plan DEPLOYMENT SBMA TO MAK contained four Voyage Plans: OKI TO SUBIC.PLN; SUBIC OUTBOUND.PLN; SUBIC TO MAK.PLN; and SUBIC TO MAKASAR.PLN. This Navigation Plan and associated Voyage Plans are stored on the

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VMS-3 laptop computer recovered from USS GUARDIAN's Chart Room.  
[Encls (11), (13)]

322. The Chart Portfolio DEPLOYMENT 13.FOL was associated with Navigation Plan DEPLOYMENT SBMA TO MAK and all four Voyage Plans. This Chart Portfolio contained 149 DNCs® including DNC® GEN11A and DNC® COA11D. [Encl (11)]

323. The Voyage Plan OKI TO SUBIC.PLN contained the PIM used to navigate from Okinawa to Subic Bay. This Voyage Plan was a pier-to-pier transit that included the restricted waters transit outbound Okinawa; the piloting, coastal, and open ocean transit to Subic Bay, and the coastal, piloting, and restricted waters transit inbound Subic Bay. [Encls (11), (13)]

324. The VMS Operator Course (course ID A-061-0042) trains Sailors, as a sound navigation practice, to develop a separate Voyage Plan for restricted waters transits into or outbound of ports. A single pier-to-pier Voyage Plan decreases the VMS processing time, whereas separate Voyage Plans increase the VMS processing speed. [Encl (11)]

325. The Layer Folio OKINAWA NAVAIDS was associated with the OKI TO SUBIC.PLN Voyage Plan and remained active for the entire pier-to-pier transit from Okinawa to Subic Bay. It only contained Mariner Objects for the area in the vicinity of Okinawa. [Encls (11), (13)]

326. No turn bearings were built at any waypoint on Voyage Plan OKI TO SUBIC.PLN. [Encls (11), (13)]

327. On or about 11 January 2013, USS GUARDIAN's port visit to Puerto Princesa, RP was cancelled. [Encls (19), (20), (23)]

328. On or about 12 January 2013, a new track was laid for the transit from Subic Bay to Makassar and USS GUARDIAN 120334Z JAN 13 MOVREP GUARDIAN 01 was released. The MOVREP contained the ship's PIM for the transit from Subic Bay to Makassar, including the transit towards the Tubbataha Reefs. [Encls (19), (20), (23)]

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329. The waypoints contained in Voyage Plan SUBIC OUTBOUND.PLN and Voyage Plan SUBIC TO MAK.PLN are identical to the waypoints in MOVREP GUARDIAN 01. [Encls (11), (13), (23)]

330. All MOVREP messages are handled by QMC <sup>(b) (3), (b) (6)</sup>. [Encl (32)]

331. The Voyage Plan SUBIC OUTBOUND.PLN contains the restricted waters transit outbound Subic Bay between waypoints one and four. [Encls (11), (13)]

332. No turn bearings were built at any waypoint on Voyage Plan SUBIC OUTBOUND.PLN. [Encls (11), (13)]

333. The Voyage Plan SUBIC TO MAK.PLN contains the transit enroute Makassar. [Encls (11), (13)]

334. Chapter 5 of the NAVDORM states that each Voyage Plan shall have at least one leg (the last two waypoints) in common with the first leg (first two waypoints) of the next Voyage Plan. [Ref d]

335. The end waypoint of the Voyage Plan SUBIC OUTBOUND.PLN did not correlate with the first waypoint of the Voyage Plan SUBIC TO MAK.PLN, contrary to the guidance contained in Chapter 5 of the NAVDORM. [Encls (11), (13)]

336. There were no Layer Folios associated with the Voyage Plan SUBIC OUTBOUND.PLN and the Voyage Plan SUBIC TO MAK.PLN. Without a Layer Folio, there can be no Mariner Objects associated with the DNC®. [Ref (f); Encls (11), (13)]

337. Voyage Plan SUBIC TO MAK.PLN placed the ship directly over a navigation hazard with unknown depth at latitude 05 degrees 34.932 minutes North, longitude 119 degrees 32.835 minutes East in the vicinity of Pearl Bank in the southern Sulu Sea approaching the Sibutu Passage. [Encl (11)]

338. During Voyage Planning, QMC <sup>(b) (3), (b) (6)</sup> conducted safety checks for the transit track. [Encl (32)]

339. Prior to getting underway, QM3 <sup>(b) (3), (b) (6)</sup> reaffirmed that the ownship safety settings complied with the VMS instruction for Mine Countermeasure ships. There is a checklist for the ownship

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safety settings. While in port Subic Bay, QM3 <sup>(b) (3), (b)</sup> did the ownship safety setting checks, but not the safety checks, for the transit from Subic Bay to Makassar. [Encl (32)]

340. A Critical Point is a point placed by the VMS operator on a DNC®, usually along the plotted track, that will provide notice of an action to be taken (e.g., set Nav Detail). When the ship arrives at the Critical Point, the VMS will issue an alert notifying the VMS Operator of the specific action that should be taken. [Ref (f); Encl (13)]

341. In the Voyage Planning Checklist of Appendix C of the NAVDORM, there is no requirement to include a Critical Point on the ship's track to indicate when the Sea and Anchor Detail or Navigation Detail should be set per the CO's Standing Orders. [Ref (d)]

#### Navigation Plan Review

342. As a matter of routine, the CO and XO/NAV reviewed the Navigation Plan on VMS-3 in the Chart Room with the ANAV. [Encls (30), (32)]

343. The XO/NAV usually reviewed the Voyage Plan for a restricted waters transit into or out of port. [Encls (30), (32)]

344. To the best of QM3 <sup>(b) (3), (b) (6), (b)</sup> knowledge, XO/NAV generally didn't review the Voyage Plan for the open ocean transit. [Encl (32)]

345. The CO and XO/NAV did not require that a completed Voyage Plan checklist be produced when they visited the Chart Room to review and/or approve the Voyage Plan. [Encl (32)]

346. When LCDR Rice was XO/NAV, he did not review the Voyage Plan for open ocean transits. QM3 <sup>(b) (3), (b)</sup> believes that LCDR <sup>(b) (6), (b) (7) (C)</sup> was the last XO/NAV who reviewed all Voyage Plans, including those for open ocean transits. [Encl (32)]

347. As a standard practice, the XO/NAV recommended approval for a Voyage Plan by logging into VMS-3 with his own username and password. [Encl (30), (32)]

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348. Sometime before arriving Subic Bay on 13 January 2013, the CO, XO/NAV, and ANAV met in the Chart Room to review the Navigation Plan for the transit from Subic Bay to Makassar. [Encls (19), (20), (22), (23), (32)]

349. Per XO/NAV, the CO, ANAV, and he viewed the Navigation Plan for the transit from Subic Bay to Makassar as a group by using the VMS-3 laptop computer in the Chart Room. EXE (b)(5)  
EXE (b)(5) [Encl (20)]

350. When reviewing the track, XO/NAV set VMS-3 to auto and zoomed into the DNCs®. XO/NAV clicked on the offset tab on VMS-3 so he could view the entire track, moving down the track along the PIM. XO/NAV saw about 30 nautical miles on either side of the track. He looked at everything along the track and everything close to it. [Encl (20)]

351. XO/NAV saw the Tubbataha Reef located a good distance away from the track, about eight nautical miles, so he thought the track was acceptable. The CO provided no direction. [Encl (20)]

352. The XO/NAV ran a safety check on the track and found no dangers. [Encl (20)]

353. In VMS, XO/NAV recommended approval of the Navigation Plan by typing in his username and password as a coded signature. XO/NAV and ANAV recommended approval to the CO of the Navigation Plan for the transit from Subic Bay to Makassar. [Encl (20)]

354. To the best of XO/NAV's knowledge, XO/NAV was the only one who knew his VMS password. [Encl (20)]

355. ANAV was the VMS system administrator. XO/NAV does not know any other passwords that ANAV had. XO/NAV had no indication that ANAV ever used XO/NAV's password. [Encl (20)]

356. QM3 <sup>(b) (3), (b)</sup> did not remember if XO/NAV reviewed the Voyage Plan for the open ocean transit or the restricted waters transit into Makassar. [Encl (32)]

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Navigation Plan Approval

357. The CO was comfortable with the track after XO/NAV's review. [Encl (20)]

358. The CO approved the Navigation Plan and associated Voyage Plan for the transit from Subic Bay to Makassar for the period of 15 to 21 January 2013. [Encl (22)]

359. The CO approved the Navigation Plan on VMS by entering his username and password. [Encl (20)]

360. The CO used his VMS account with username and password to approve the overall Navigation Plan, including all Voyage Plans, PIM Plan, Layer Folios, and Chart Folios. Once the CO approves the Navigation Plan, the word "APPROVED" appears in white letters in a green box in the upper right-hand corner of all three VMS display consoles. [Ref (f); Encls (30), (32)]

361. Per the CO, ANAV had access to the XO and CO passwords for VMS and had been verbally counseled by the CO for approving Navigation Plans that he was not authorized to approve. The CO did not believe there was another incident after this counseling. [Encl (19)]

362. In the recent past, QM3 <sup>(b) (3), (b)</sup> witnessed the CO, LCDR Rice, come to the Chart Room to review the Voyage Plan for restricted waters transits. QM3 <sup>(b) (3), (b)</sup> did not see the CO review the Voyage Plan for the restricted waters transit departing Subic Bay on 15 January 2013. To the best of QM3 <sup>(b) (3), (b) (6), (b)</sup> knowledge, no one besides the CO has the CO's password for Plan approval on VMS. [Encl (32)]

363. On the morning of 15 January 2013 before USS GUARDIAN departed from Subic Bay, there was a problem with VMS-3 that erased the passwords for the CO and XO/NAV. ET2 <sup>(b) (3), (b) (6), (b)</sup> assisted with troubleshooting. The CO and XO/NAV had to reset their passwords. QM3 <sup>(b) (3), (b)</sup> believes that ANAV, ET2 <sup>(b) (3), (b) (6), (b)</sup>, and QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> helped the CO and XO/NAV reset their passwords. [Encl (32)]

364. After departing from Subic Bay on 15 January 2013, the CO came to the Chart Room to review and approve the restricted

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waters transit into Makassar. The CO had problems entering his password into VMS-3. The CO's VMS password had been erased. The CO had to reset his VMS password, but he didn't know how to reset it. [Encl (30)]

365. ANAV and QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> helped the CO reset his VMS password. The CO came to the Chart Room and gave QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> his new VMS password, which QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> typed into VMS-3. ANAV and QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> knew the CO's new password. QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> reset the CO's password on VMS-2 on the Bridge and VMS-1 in CIC. This was the first and only time that QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> had to reset the CO's VMS password. [Encl (30)]

366. When QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> entered the CO's new password, he saw that the XO/NAV's password had also been erased. QMC <sup>(b) (3), (b) (6)</sup> knew the XO/NAV's password and told QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> to use the same process to reset the CO's password on each VMS console. QMC <sup>(b) (3), (b) (6)</sup> told me to use the same password for XO/NAV, but add a number. I reset the XO/NAV's password for the three VMS consoles (VMS-1, VMS-2, and VMS-3). The XO/NAV was not present with us when we reset his password. [Encl (30)]

367. Per the CO, there was no ISIC or CTF policy regarding a review of USS GUARDIAN's Navigation Plan. [Encl (19)]

368. Per QM3 <sup>(b) (3), (b)</sup>, the Voyage Plan was not sent off USS GUARDIAN for higher headquarters review or approval. [Encl (32)]

369. The VMS "transit data" was saved on the external classified SECRET hard drive plugged into VMS-3 in the Chart Room. [Encl (32)]

370. At the time of grounding, the Voyage Plan SUBIC TO MAK.PLN was uploaded on VMS-3. [Encls (11), (13)]

Note: Section Seventeen, Application of COMSEVENTHFLT OPORD 201, is a late insertion to this report that contains recently declassified findings of fact relevant to Navigation Plan process and procedures. For clarity, the reader may consider reading Section Seventeen, beginning at page 106, followed by Sections Fourteen through Sixteen.



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Section Fourteen  
Deployment 2013

371. On 6 January 2013, USS GUARDIAN departed Sasebo, JA and commenced her deployment. [Encls (26), (91), (101)]

372. Between 8 January 2013 and the time of grounding on 17 January 2013, USS GUARDIAN navigated on the CO-approved Navigation Plan DEPLOYMENT SBMA TO MAK. [Encls (11), (13)]

373. From 6 to 8 January 2013, USS GUARDIAN was underway enroute Okinawa, JA. [Encls (26), (91), (101)]

374. On 8 January 2013, USS GUARDIAN arrived inport Okinawa, JA for a brief stop for fuel. [Encls (26), (53), (67), (91)]

375. From 8 to 12 January 2013, USS GUARDIAN was underway enroute Subic Bay, RP. [Encls (26), (102), (103), (104)]

376. On 13 January 2013, USS GUARDIAN was scheduled to arrive inport Subic Bay, RP. [Encls (26), (105), (106)]

13 January 2013

Sea and Anchor Detail Inbound Subic Bay, RP

377. QM3<sup>(b) (3), (b)</sup> was the qualified ECDIS-N Operator assigned to the Sea and Anchor Detail and the Navigation Detail. QM3<sup>(b) (3), (b)</sup> stood this watch in the Chart Room. As ECDIS-N Operator, he managed and operated the VMS-3 computer in the Chart Room, and maintained communication via the TELEX circuit with the AN/SPS-73 RADAR Operator in CIC. [Encls (70), (105)]

378. QMSN<sup>(b) (3), (b) (6), (b) (7)</sup> was the qualified Bearing Book Recorder assigned to the Sea and Anchor Detail and Navigation Detail. QMSN<sup>(b) (3), (b) (6), (b) (7)</sup> stood this watch in the Chart Room next to QM3<sup>(b) (3), (b)</sup>. QMSN<sup>(b) (3), (b) (6), (b) (7)</sup> maintained the Standard Bearing Book and maintained communications with the port and starboard Bearing Takers on the sound powered phone 5JP circuit. [Encls (31), (105), (106)]

379. LS2<sup>(b) (3), (b) (6), (b) (7) (C)</sup> was one of two qualified Bearing Taker assigned to the Sea and Anchor Detail and Navigation Detail. He stood this watch station since August 2011 and participated in many Sea and Anchor Detail evolutions for entering and exiting

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ports. As Bearing Taker, his duties were to be a lookout and a backup to the Bridge team. He looked for navigation aids and took bearings to those navigation aids when directed by the Bearing Recorder. [Encl (105)]

380. LS2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> stood watch on the port side bridge wing and maintained communications via the 5JP sound powered phone circuit with the starboard Bearing Taker, CS3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, and the Bearing Book Recorder, QMSN <sup>(b) (3), (b) (6), (b) (7)</sup>, who was in the Chart Room. [Encl (106)]

381. On 13 January 2013, LS2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> and QM3 <sup>(b) (3), (b)</sup> attended the Navigation Brief held prior to setting the Sea and Anchor Detail for entering Subic Bay. [Encls (105), (106)]

382. QM3 <sup>(b) (3), (b)</sup> watched the Conning Officer brief the ship's track covering the restricted waters portion of the outbound transit. The turn ranges and turn bearings were briefed orally as though they would be used for navigation during the Sea and Anchor Detail. The turn ranges and turn bearings were not indicated on the actual DNCs that were uploaded to the VMS computers for the outbound transit. [Encl (105)]

383. The Navigation Brief was built using Power Point. DNC extracts from VMS were displayed on the slides. The DNC-extract slides had text boxes describing the visual aids to navigation and points of land for RADAR ranges. The text boxes were constructed using some kind of overlay feature in Power Point, something similar to clip art that was copy and pasted onto the slide. [Encls (30), (32), (105)]

384. There were no Mariner Objects on the DNCs for the Voyage Plan into Subic Bay. After the Navigation Brief, QM3 <sup>(b) (3), (b)</sup> took the handout copy of the brief to the Chart Room and used the information from the text boxes to build Temporary Navigation Points on the VMS-3 computer. [Encl (105)]

385. On the morning of 13 January 2013, the ship set the Sea and Anchor Detail for the transit into Subic Bay, RP. In the chart room, QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> manned his watch station as the Bearing Book Recorder and QM3 <sup>(b) (3), (b)</sup> manned his watch station as ECDIS-N Operator. [Encls (105), (106)]

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386. After the Navigation Brief, LS2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> conducted his normal routine of going to the Chart Room and meeting with the QMs and CS3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>. It was a normal meeting. They didn't discuss the track or anticipated navigation aids. Subic Bay was a new port that USS GUARDIAN hadn't visited before, so the Bearing Takers manned their positions and started looking for navigation aids for the QMs. [Encl (106)]

387. The weather was clear and nice. Using the 5JP circuit, LS2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> told QMSN <sup>(b) (3), (b) (6), (b) (7)</sup> the navigation aids that he saw. LS2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> remembers a lighthouse on an island. There may have been a couple more navigation aids and a few tangents to land. There weren't many navigation aids to shoot bearings. [Encl (106)]

388. QM3 <sup>(b) (3), (b)</sup> doesn't recall shooting any visual aids to navigation inbound Subic Bay except for one fix at 0728, as indicated in the Standard Bearing Book. [Encl (105)]

389. USS GUARDIAN's Standard Bearing Book is void of any visual bearings or RADAR ranges with the exception of what appear to be two bearings logged at 0728H on 13 January 2013. [Encl 72]]

390. There were no Mariner Objects on the DNCs for the Voyage Plan into Subic Bay. [Encl (105)]

391. Publication 162 identifies numerous visual aids to navigation in the vicinity of Subic Bay, RP. The control tower of the former Naval Air Station at Cubi Point and the former Naval Signal Tower at Port Olongapo are both visible from a good distance to seaward. There are two towers situated near the northwest extremity of Grande Island, and a prominent radar mast situated about 0.3 mile south of these towers. A signal station is also situated on Grande Island. When navigating off the east side of Subic Bay at Camayan Point, a good landmark is the conspicuous, white, cylindrical tower located on the 485 meter summit of Mount Santa Rita, which is about 8 miles east-northeast of Camayan Point. Red obstruction lights are shown from the Tower on the summit of Mount Rita. Two beacons are located about 0.7 mile east of Camayan Point and when in range, bearing 140.5°, lead to Camayan Wharf. At Cubi Point, 2.5 miles north of Pamocan Point, is the south entrance point to Port Olongapo and the site of the Naval Air Station. Two towers

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stand near the aviation light. The control tower on this complex, which is situated about 0.45 mile south-southeast of the aviation light, is visible from a good distance seaward. The Port Control Office is situated 0.9 mile southeast of the Kalaklan Point light. A tower, from which red and white lights are shown, stands on the W entrance point of the Inner Basin. The buildings of the naval station, which occupy this part of the coast, are prominent. [Ref (h)]

392. On 13 January 2013, the Bridge Navigation Team relied exclusively on GPS fixes during the inbound transit including the restricted waters portion of the transit. [Encls (72), (105)]

393. Fixes were not compared every third fix in accordance with the NAVDORM and CO's Navigation Bill. [Encls (14), (17), (72), (105)]

15 January 2013

Sea and Anchor Detail Outbound Subic Bay, RP

394. On 15 January 2013, USS GUARDIAN navigated outbound Subic Bay in restricted waters on the SUBIC OUTBOUND.PLN Voyage Plan. [Encls (11), (13)]

395. On the morning of 15 January 2013, a Navigation Brief was conducted on the Mess Decks prior to setting the Sea and Anchor Detail. The Navigation Brief was nearly identical to entering port with the exception of the track going outbound from Subic Bay. [Encls (19), (20), (105), (106)]

396. The XO/NAV led the brief and the Conning Officer briefed the track. [Encls (19), (20)]

397. The ANAV built the brief using DNC extracts from the VMS-3 computer in the Chart Room. Using Power Point, the ANAV would add descriptions of visual aids to navigation on the slide brief. These descriptions appeared as text boxes in the same manner as the brief for entering Subic Bay. [Encls (30), (32), (105)]

398. There were no Mariner Objects associated with this Voyage Plan. [Encls (11), (105)]

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399. USS GUARDIAN took on fuel during the early morning hours at approximately 0700. [Encls (15), (67)]

400. The refueling caused a slight delay in GUARDIAN's underway departure time. [Encls (19), (20)]

401. At 0953H, USS GUARDIAN departed Subic Bay, RP enroute her next port of call at Makassar, Indonesia. [Encls (14), (23), (72)]

402. Upon getting underway, nearly all crewmembers recall the sea state being relatively calm, especially in comparison to the previous rough transit from Okinawa, JA to Subic Bay. [Encl (20)]

403. The Bridge Navigation Team relied exclusively on electronic fixes from the AN/WRN-6 GPS while navigating outbound Subic Bay in restricted waters despite the availability of visual aids to navigation and RADAR navigation. [Encls (17), (72), (105)]

404. The Standard Bearing Book contains two bearings for the entire outbound transit. [Encl (72)]

405. Fixes were not compared every third fix in accordance with the NAVDORM and CO's Navigation Bill. [Encls (14), (17), (72)]

406. The end waypoint of the Voyage Plan SUBIC OUTBOUND.PLN did not correlate with the first waypoint of the Voyage Plan SUBIC TO MAK.PLN, contrary to the guidance contained in Chapter 5 of the NAVDORM. [Encls (11), (13)]

#### 15 January 2013 - Mindoro Strait Transit

407. At 1748H on 15 January 2013, the ship shifted to 30 minute fixes. [Encl (17)]

408. The CO's Night Orders for 15 January 2013 were void of any guidance pertaining to navigational aids and hazards along the track. The Orders did not direct the setting of the Navigation Detail prior to entering restricted waters, nor was any guidance provided with respect to reducing the fix interval and making required reports per the CO's Standing Orders. [Encl (107)]

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409. Between 151521Z/152321H and 152155Z/160555H January 2013, USS GUARDIAN entered and exited restricted waters twice as defined by the ship's Navigation Bill. [Encls (11), (13), (14), (23), (25)]

409. At 151521Z/152321H January 2012, USS GUARDIAN arrived at waypoint three on Voyage Plan SUBIC OUTBOUND. The ship altered course to port and steadied on course 126 true. [Encls (11), (13), (14), (23)]

410. The first entry into restricted waters occurred shortly after turning to course 126 true at waypoint three. The ship's transited on a southeast course just west of Apo Island. [Encls (11), (13), (23), (25)]

411. Per Publication 162, there is a light on the northeast side of Apo Island and it has been reported that the island is a good radar target up to 17 miles. [Ref (h)]

412. The ship remained at normal underway condition III steaming, did not set the Navigation Detail or Modified Navigation Detail, maintained a 30 minute fix interval, and relied on one source of electronic navigation despite the availability of visual aids to navigation on Apo Island and RADAR navigation. [Encls (13), (14), (17), (72)]

413. The CO and XO/NAV were off the bridge when the ship entered and navigated through restricted waters. [Encl (14)]

414. The second entry into restricted waters occurred on the same leg between waypoints three and four on Voyage Plan SUBIC OUTBOUND. The ship passed between the Sarraceno Bank and Ambulong Bank, which are two areas of shoal water with depths of less than four meters and five meters, respectively, lying to the west of the southern tip of Mindoro Island. [Encls (9), (11), (13), (23), (25)]

415. Under Voyage Plan SUBIC OUTBOUND, the ship transited through the four nautical mile wide passage between the two shoals, placing USS GUARDIAN within 4,000 yards of shoal water on either beam and within the criteria for setting the

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Navigation Detail in accordance with the CO's Standing Orders.  
[Encls (9), (11), (13), (23), (25)]

416. USS GUARDIAN remained at normal underway condition III steaming and did not set the Navigation Detail or Modified Navigation Detail. The ship maintained a 30 minute fix interval and relied on one source of electronic navigation despite the availability of a lighted visual aid to navigation (FL 5s 136m 21M) on Ambulong Island located approximately nine nautical miles from the track, as well as RADAR navigation from Ambulong Island and the southern tip of Midoro Island to the east.  
[Ref (h); Encls (9), (13), (14), (17), (72)]

417. The CO and XO/NAV were off the bridge when the ship entered and navigated through restricted waters. [Encl (14)]

16 January 2013 - Framjee Bank Transit

418. During the early afternoon of 16 January, USS GUARDIAN was operating in condition III steaming. [Encls (14), (16)]

419. Between 160630Z/161430H to 160730Z/161530H, the ship approached and entered restricted waters, but no Navigation Detail or Modified Navigation Detail was set. [Encls (14), (16), (17)]

420. The Bridge maintained a 30-minute fix interval.  
[Encls (14), (17)]

421. At approximately 1200, ANAV assumed the watch as QMOW.  
[Encl (17)]

422. At 1205, LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup> assumed the watch as OOD. [Encl (14)]

423. At 1418, the CO was on the Bridge. [Encl (14)]

424. At 1423, the Navigator was on the Bridge. [Encl (14)]

425. At 1424, the Navigator left the Bridge. [Encl (14)]

426. At 1437, the CO left the Bridge. [Encl (14)]

427. At 1438, the Navigator was on the Bridge. [Encl (14)]

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428. At 1444, USS GUARDIAN stationed Modified Navigation Detail.  
[Encl (14)]

429. At 1445, the fix interval reduced from 30 minutes to three  
minutes. [Encl (17)]

430. The Bridge continued to navigate using a single source of  
electronic navigation despite the availability of visual aids  
and RADAR navigation to the west. [Encls (17), (72)]



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Section Fifteen  
Actions Upon Grounding

Note: This Section begins where Section Three ends. The time is 0222H on 17 January 2013. USS GUARDIAN has just ran aground on the northwest corner of the South Islet of Tubbataha Reefs, RP, at latitude 08 degrees 48 minutes North, longitude 119 degrees 48 minutes East. LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> has the Deck.

431. At 0222H on 17 January 2013, the OOD, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup>, sounded the collision alarm and ordered all engines stop. The JOOD, MNC <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, announced on the LMC, "Captain to the Bridge," repeating the phrase twice. [Encls (14), (15), (16), (28)]

432. The ship's heading at the time of the grounding was 192 degrees true. The ship's heading was not logged in the Ship's Deck Log for the remainder of the crew's time onboard. [Encls (14), (34)]

433. At 0222H, The CIC General Log contains the entry "major vibrations." [Encl (16)]

434. The CO was in his stateroom asleep. The CO felt a sensation like the shimmying of a DDG going down a large swell. He ran to the bridge. XO/NAV and DCA arrived on the Bridge right behind the CO. Condition II DC was ordered. [Encl (19)]

435. It was very dark outside with little background luminescence. The winds were on the stern, either the port or starboard quarter. The sea state was about four to six feet. The CO heard ANAV repeatedly state, "The fathom reads 200 meters...The fathom reads 200 meters." [Encl (19)]

436. At approximately 0224H to 0228H, ENC <sup>(b) (3), (b) (6)</sup>, the EOOW, emergency stopped the fuel oil purifier and secured a fuel oil transfer. The DCA assumed control of damage control (DC) efforts and ordered Condition II DC set. DCA reported water intrusion in auxiliary machinery room (AMR) through hydrophone number four. CIC personnel were ordered to raise the hydrophone. Water intrusion was reported in bow thruster at approximately one half gallon per hour. [Encls (14), (15), (56), (57)]

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437. The CO spoke with XO/NAV and DCA. The DCA said words to the effect, "We have one shot to back off the reef." At 0226H to 0229H, the CO ordered All Emergency Back Six. The EOOW started 1B and 2A Main Propulsion Diesel Engines and placed them online. The EOOW placed the port and starboard Main Reduction Gear lube oil pumps in manual. [Encls (15), (16), (19), (20), (56)]

438. MNCS <sup>(b) (3), (b) (6), (b)</sup> came to CIC within minutes of the grounding and relieved MN2 <sup>(b) (3), (b) (6)</sup> as CICWS. MN2 <sup>(b) (3), (b) (6)</sup> left CIC and went to Repair and Assistance. [Encls (36), (37)]

439. For Condition II DC, CS1 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> and MN2 <sup>(b) (3), (b) (6)</sup> are Investigators. CS1 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> and MN2 <sup>(b) (3), (b) (6)</sup> donned their investigating equipment and started investigating throughout the ship. They started at the Bos'n Locker and worked their way back to the stern. They checked the HAZMAT locker for flooding and reported from Repair Locker 2 to CCS. They went to Bow Thruster and saw a crack right on the Sonar Trunk where it meets the hull. The flooding was slow at this time. They went to 15-man berthing and 40-man berthing. There was no damage or flooding, but there was a loud creaking noise in the 40-man berthing. They opened up Pump Room and there was no water underneath the deck plates. They went back aft and reported all conditions normal to CCS. [Encls (36), (82), (85)]

440. At 0230H, the Navigator shifted to 10 minute fixes. With respect to latitude and longitude as indicated on the AN/WRN-6, the ship remained fixed at her original position upon grounding. [Encl (17)]

441. At 0235H, CIC personnel were sent to raise the SONAR. The CO entered the Bridge. [Encls (14), (15), (16), (82)]

442. At 0238H, the Communications Watch Officer was ordered to set River City throughout the ship. [Encl (16)]

443. CS1 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> and MN2 <sup>(b) (3), (b) (6)</sup> completed their initial round of investigating and were told to stand easy on station. The initial DC efforts were complete so MN2 <sup>(b) (3), (b) (6)</sup> went back to CIC. MNCS <sup>(b) (3), (b) (6), (b)</sup> told him to look at the VMS console. MNCS <sup>(b) (3), (b) (6), (b)</sup> showed MN2 <sup>(b) (3), (b) (6)</sup> the DNC® that he saw on his watch and queried the box indicated by a purple dashed line. Upon querying this

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box, a mirror image of the original shape showed up directly over the track and the ship's position. They changed the DNC®, queried the same box again, and the VMS displayed the ship aground with a bright red shaded box around ownship position. While on watch as CICWS, there were no such dangers or alarms indicated on the VMS; this was the first time that MN2 <sup>(b) (3), (b) (6)</sup> had seen them. [Encl (36)]

444. Approximately 20 minutes after ordering All Emergency Back 6, the CO ordered engines all stop because the ship did not move. The CO knew that USS GUARDIAN had to avoid broaching on the reef. [Encl (19)]

445. The CO called his Immediate Superior In Command, Commodore Truluck, COMCMCRON-7, to give him a verbal OPREP-3 NAVY BLUE. Then he called the Task Force SEVEN SIX Battle Watch Captain (BWC), followed by the U.S. Pacific Fleet BWC. Then CIC prepared the written OPREP-3 NAVY BLUE messages and released them. Before daylight on 17 January, the CO was on the phone with the Commodore about three or four times to provide a status update. [Encl (19)]

446. At 0242H to 0245H, the EOOW aligned and started the Magnetic Mine Gas Turbine Generator (MMGTG). The EOOW secured bow thruster and MMGTG due to the assessment that the ship was aground forward of frame 79 and the bow thruster was out of the water. The DCA ordered ZEBRA set throughout the ship. Navigation reported to the EOOW that the tide was falling and that the next assessed high tide would be at approximately 1400. [Encls (14), (15), (16)]

447. The ANAV used the STELLA program to calculate the tides, but the closest location with a tide table was Porta Princesa, RP, which was over 75 nautical miles away. [Encls (32), (108)]

448. At 0246H, the DCA reported that the sea water leak in AMR through #4 hydrophone had been secured. [Encls (14), (39), (16)]

449. At 0248H, the OOD ordered all engines stop. [Encl (14)]

450. At 0250H, the EOOW aligned number one and number two reverse osmosis units to fill the potable water tank in space 3-43-2-W. [Encl (15)]

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451. At 0253H, CIC personnel sounded the SONAR sea chest and the water level measured six feet by lead line. Coral was visible at the bottom of the SONAR sea chest trunk. [Encls (16), (82)]

452. At 0259H, the DCA reported a leak in bow thruster at a rate of approximately a half gallon per minute. DCA reported ZEBRA set throughout the ship. [Encl (15)]

453. At 0300H, the EOW emergency stopped 1A and 2B MPDEs and placed them offline. [Encl (15)]

454. At 0307H, Navigation energized lighting indicating a vessel not under command. [Encl (14)]

455. At 0323H the CO ordered All Back 2 in order to keep the ship perpendicular to the reef and straight. The DCA informed the CO that All Back 2 was against standard aground procedure and the CO acknowledged. Sounding of the water depth from frame 79 to 107 was approximately 50 feet. The Port and Starboard shafts were clear of the reef. [Encls (14), (15), (19), (56), (57)]

456. At 0400H, the OOD energized the waterline security lights on the fantail in order to increase visibility. [Encl (16)]

457. At 0414H, Navigation shifted to DAGR to indicate the ship's position because the AN/WRN-6 figure of merit indicated five. [Encl (14)]

458. At 0436H, USS GUARDIAN was resting on Tubbataha Reef with a list of zero degrees and pitch of positive 3 degrees. Tubbataha Reef was indicated on DNC® COA11D in VMS to be 7.5 nautical miles away bearing 113 degrees true. [Encls (14), (13)]

459. At 0448H, the EOW ordered a lube oil sample drawn on 2A and 1B main propulsion diesel engines and both tested satisfactory. The EOW ordered the alignment of #2 potable water pump to take suction from tank 3-43-1-W; potable water was available throughout the ship for drinking purposes only. The EOW secured #2 air conditioning plant. [Encl (15)]

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460. At 0510H to 0511H, the EOW stopped #2 fire pump and #1 auxiliary seawater pump and aligned emergency cooling water to the auxiliary machinery room. [Encl (15)]

461. At 0513H, the EOW conducted a water indicator paste test on storage tanks 3-34-2-F, 3-34-1-F, 3-29-1-F, 3-29-2-F and service tanks 2-87-3-F, 2-87-4-F, 2-87-1-F, 2-87-2-F, 2-27-2-F and 2-27-4-F to ensure fuel system integrity. [Encl (15)]

462. At 0517H, the CO ordered all engines stop. [Encl (14)]

463. From 0519H to 0522H, the EOW stopped and placed all four main engines offline. The EOW ordered a lube oil sample be drawn on the port and starboard hydraulic power units. [Encl (15)]

464. At 0536H, the EOW secured potable water throughout the ship, stopped #2 auxiliary seawater pump and aligned emergency seawater cooling to the Main Machinery Room (MMR). [Encl (15)]

465. At 0603H, the Communication Watch Officer reported that River City set throughout the ship. [Encl (15)]

466. At daybreak, approximately 0610H to 0630H, a small boat approached USS GUARDIAN. The CO was on the Bridge speaking with the ISIC on the Iridium phone. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> was on the Bridge as DC Plotter and heard the boat hail USS GUARDIAN on the BTB radio. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> picked up the handset and responded to the hail. [Encls (14), (19), (20), (21), (29), (34), (36)]

467. The OOD called away the Snoopy Team to respond to a small craft approaching on the starboard side. The SCAT also manned their stations, but no order was passed to station the SCAT. The OOD directed that the weapons remain uncovered. The small craft identified herself as "Philippine Park Rangers" or "Park Rangers." The vessel had approximately five personnel onboard and at least one man was armed with a shoulder carried weapon. The small boat was not flying a flag or displaying any other identifying markings. [Encls (14), (19), (20), (21), (29), (34), (36)]

468. The small grey boat had a few men onboard. There was no flag. I heard the small boat hail our ship on the BTB radio. I

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believe they called themselves "Philippine Park Rangers" or just "Park Rangers." The small boat offered assistance. USS GUARDIAN responded that she was a U.S. Navy warship and did not need any assistance. Then the small boat requested to come onboard USS GUARDIAN. The OOD ordered the radio talker to inform the small boat via BTB radio that they could not come onboard. [Encls (21), (29)]

469. ENS <sup>(b) (3), (b) (6), (b) (7) (c)</sup> made his very first log entry onboard USS GUARDIAN in the BTB Log: "0625 - Contact with Philippine Navy Craft - They are returning to Ranger station." [Encl (109)]

470. At 0617H, the EOW reported an engineering casualty of high jacket water temperature on 1A Ship's Service Diesel Generator (SSDG). The Electric Plant Control Console (EPC) removed the load from 1A SSDG and placed USS GUARDIAN on single generator operations. [Encl (15)]

471. At 0618H, the EOW stopped the port and starboard shaft Main Reduction Gears and controllable propeller lube oil standby pumps. The EOW secured the port and starboard steering units and low-load electronic equipment in order to maintain a low load on the last generator, #2 SSDG, which was providing power throughout the ship. The EOW emergency stopped 1A SSDG due to uncontrollable overheating. The EOW aligned emergency cooling to 1A SSDG. [Encl (15)]

472. At 0635H, the CICWS logged that Mount 51 and Mount 52 were manned and the weapons were in Condition 4. [Encl (16)]

473. At 0639H to 0645H, the EOW barred over 1B SSDG and reported 92 percent potable water. The DCA reported the leak in bow thruster was under control and leaking at one gallon per hour, and that dewatering was in progress and being maintained by buckets and a vacuum. The DCA setup a P-100 portable pump in the event the ship lost number three fire pump. [Encls (15), (56)]

474. At 0710H, Navigation secured the fathometer. [Encl (14)]

475. At 0730H, Navigation began logging the ship's position in the Standard Bearing Book. The position logged was latitude 08 degrees 48.5 minutes North, longitude 119 degrees 48.5 minutes East. No bearings to the Tubbataha Reef lighthouse were

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recorded for the duration of the grounding. The last log entry was at 180453H January 2013. [Encl (72)]

476. At 0803H, the EOW ordered a heat stress survey conducted in the MMR with a stay time of five hours. The EOW ordered all four main engines barred over. [Encl (15)]

477. At 0849H, the CO entered the Bridge and ordered the start of anchor windlass in order to assist in rousting the anchor chain on deck and move it to the fantail in order to distribute weight aft. [Encls (14), (19), (20), (28), (56)]

478. At 0852H, the Bridge shifted control of port and starboard shafts to CCS. [Encl (14)]

479. Between 0859H and 0948H, eight shots of anchor chain were moved to the fantail for weight distribution. Shots nine and ten remained in the anchor chain locker. [Encls (14), (19), (20)]

480. At 1000H, the EOW ordered the anchor chain locker gas freed. The gas free results were oxygen of 20.5 percent, carbon monoxide of zero, hydrogen sulfide of zero, and lower explosive limit of zero. [Encl (15)]

481. At 1023H, DCA and MN3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, a Search and Rescue (SAR) swimmer, entered the water to take video and pictures of the damage below the waterline. [Encls (14), (56), (110)]

482. At 1132H, the CO ordered to shift control of the port and starboard steering gear units from CCS to the Bridge and ordered the EOW to come to split plant. The EOW started the port and starboard steering gear units and transferred control to the pilot house with the starboard unit in the lead. [Encls (14), (15)]

483. At 1134H, the EOW aligned and started the port and starboard Main Reduction Gear and controllable pitch propeller lube oil standby pumps. [Encl (15)]

484. At 1139H, the EOW started and stopped the pre-lube pumps on all four main propulsion diesel engines. [Encl (15)]

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485. At 1140H, the EOOW ordered the alignment and start of 1A/B and 2A/B MPDEs and verified the Bridge throttle control was placed at All Engines Stop. [Encls (14), (15)]

486. At 1142H, the Bridge took control of the port and starboard shaft. The CO ordered All Engines Back 2. This order commenced the CO's second attempt to back off the reef. [Encls (14), (15)]

487. From 1148H to 1204H, the OOD ordered All Engines Back 4, Back 2, Back 6, Back 2, and finally Back 1 in an effort to free USS GUARDIAN from the South Islet of Tubbataha Reefs. [Encls (14), (15)]

488. From 1221H to 1235H, the OOD ordered various engine and rudder combinations in an effort to free the ship from Tubbataha Reef. [Encls (14), (15)]

489. At 1225H, the Main Propulsion Assistant, ENC <sup>(b) (3), (b) (6)</sup>, made the recommendation to secure 1A MPDE and place the engine out of commission due to a consistent overheating condition. [Encls (14), (15)]

490. At 1300H to 1303H, the OOD ordered all engines back 6, and then all engines back 2. [Encls (14), (15)]

491. At 1307H, the AMR watch stander reported a cracked beam in the AMR bilge but reported no water intrusion. [Encls (15), (53), (56)]

492. From 1330H to 1340H, the OOD ordered various engine and rudder combinations in an effort to free the ship from Tubbataha Reef. [Encls (14), (15)]

493. At 1402H, the EOOW ordered 1A MPDE online. [Encls (14), (15)]

494. From 1416H to 1434H, and for the last time during the mid day tide window, the OOD ordered various engine combinations in an effort to free the USS GUARDIAN from Tubbataha Reef. [Encls (14), (15), (108)]

495. At 1434H, the OOD ordered all engines stop. [Encl (14)]



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496. At 1435H, the EOW took control of the port and starboard shafts, transferred control of steering gear units to aft steering, and placed all four MPDEs offline in cool down. The EOW reported to the OOD that the ship had 90 percent potable water. [Encls (14), (15)]

497. At 1447H, the EOW secured the port and starboard controllable pitch propeller lube oil standby pumps. [Encl (15)]

498. At 1449H, the EOW notified the CO and the CHENG that port and starboard Main Reduction Gear lube oil standby pumps were secured and that the port and starboard shaft would not be jacked over in order to maintain a low load on #2 SSDG. [Encl (15)]

499. At 1459H, the OPS Officer assumed the watch as OOD. [Encl (14)]

500. From 1518H to 1521H, the EOW aligned, started, and stopped the #2 fire pump. The #2 refrigeration unit tripped offline due to low firemain pressure. [Encl (15)]

501. At 1530H, the AMR watch stander discovered a ruptured pipe in #1 air conditioning plant auxiliary seawater supply system at the rate of one half gallon per minute. The leak was isolated and the watch stander attempted to apply a soft patch. [Encl (15)]

502. At 1706H, the EOW conducted a follow on heat stress survey and determined the maximum stay time in the MMR was seven hours. The DCA reported that the soft patch applied to the piping in the AMR had slowed the leak. [Encl (15)]

503. At 1808H, the EOW secured potable water throughout the ship. [Encl (15)]

504. At 1812H, the CHENG assumed the watch as OOD. [Encl (14)]

505. At 1900H, all watch stations throughout the ship reported all secure and seawater leakage was being maintained. Personnel were sent aloft to change light bulbs on mast. [Encl (15)]

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506. At 2010H, all personnel working aloft were secured.  
[Encl (15)]
507. At 1900H, the sounding watch reported three feet sounding  
on the forecastle. [Encl (15)]
508. At 1930H, the sounding watch reported three point five  
feet sounding on the forecastle. [Encl (15)]
509. At 2032H, the sounding watch reported four feet sounding  
on the forecastle. [Encl (15)]
510. At 2052H, the sounding watch reported four feet sounding  
on the forecastle port and starboard side. [Encl (14)]
511. At 2054H, the sounding watch reported four feet sounding  
at midships frame 59. [Encl (14)]
512. At 2055H, the sounding watch reported eleven feet sounding  
on the the boat deck. [Encl (14)]
513. At 2100H, all watch stations through out the ship reported  
all secure and seawater leakage was being maintained.  
[Encl (15)]
514. At 2101H, the sounding watch reported 39 feet sounding at  
frame 79. [Encl (14)]
515. At 2119H, the DCA assumed the watch as OOD. [Encl (14)]
516. At 2131H, the sounding watch reported four feet sounding  
on the forecastle. [Encl (14)]
517. At 2150H, the EOOW reported 85 percent potable water.
518. At 2359H, CHENG reported all damage and flooding resulting  
from grounding appeared to be under control. Wave activity  
appeared to be banging/grinding the hull and keel against the  
reef, and he anticipated greater damage the longer the ship  
remained aground. [Encl (14)]

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519. On 18 January 2013, the midnight entry in the Ship's Deck Log midnight stated: "CONTINUED THE WATCH, SHIP REMAINS AGROUND AT 08° 48.537'N 119° 48.579'E. ZEBRA IS SET MAIN DECK AND BELOW. WATCHES STATIONED IN FWD PUMP ROOM AND BOW THRUSTER. THE ENGINEERING WATCH IS SET IN CCS AND INTERNAL ROVER IS SET THROUGHOUT THE SHIP. THE FORECASTLE LOOKOUT IS SET, THE AFT LOOKOUT IS SET, THE TOPSIDE ROVER IS SET. CONDITION II IS SET ON ALL CREW SERVED WEAPONS. THE CO IS OFF THE BRIDGE."  
[Encl (14)]

520. At midnight, the engineering plant status was auxiliary steaming with the following equipment online: #2 SSDG singled up taking suction from tank 2-87-2-F, #3 firepump online, #1 air conditioning plant online, #1 chill water pump online, #1 400hz MG set on line, #1 gyro in operation. The liquid load was 16,800 gallons and the fuel percentage was 73 percent.  
[Encl (15)]

521. At 0027H, LTJG <sup>(b) (3), (b) (6), (b) (7)</sup> assumed the watch as OOD.  
[Encl (14)]

522. The CO knew that the next high tide was approximately 180300H January 2013. This was the ship's final attempt to back off the reef. [Encl (19)]

523. At 0300H, the OPS Officer assumed the deck. [Encl (14)]

524. The CO and XO/NAV came onto the Bridge. The CO ordered Condition 2 DC set and took control of the port and starboard steering gear units. [Encls (14), (15)]

525. At 0335H, all four MPDEs were online. [Encl (14), (15)]

526. At 0339H, Condition 2 DC was set through the ship. The CO ordered all back 6. The EOOW reported that the temperature for 1A MPDE was rising rapidly. There was no movement of the ship on the reef. [Encls (14), (15), (19)]

527. At 0343H, the CO ordered hard left rudder and then starboard engine back full, attempting a starboard twist. The

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starboard side afforded the most water because of the way the ship was lying on the reef. This attempt failed.

[Encls (14), (19)]

528. AMR reported the bulkhead and hull starting to flex and separate. The temperature on 1A MPDE was rising rapidly so the EOOW ordered alignment of emergency cooling. The water was rising and was approximately one foot from the deckplate. Repair 2 reported extensive flooding in Bow Thruster and Forward Pump Room. The EOOW emergency stopped 1A MPDE because of a high temperature of 195 degrees. [Encl (15)]

529. At 0346H, the CO tried a port twist. This did not work. [Encls (14), (19)]

530. The CO ordered a full backing bell on all three available MPDEs. The ship did not move. [Encls (14), (19), (34)]

531. Ultimately, the CO ordered all ahead full on all three MPDEs in a final attempt to move USS GUARDIAN forward on the reef and secure the ship's position. The CO observed no movement. [Encls (14), (15), (19), (34)]

532. The CO secured the three MPDEs. After this last attempt, the ship's heading had moved about 50 degrees to the left of the 192 degree heading at the time of grounding. [Encls (15), (19), (34)]

533. At 0450H, the OOD reported to the EOOW that the ship was broadside on the reef on the starboard side. [Encl (15)]

534. Sometime around 0500H, the CO felt the rudder post hitting the reed. Then the flooding below the waterline started to increase significantly. [Encl (19)]

535. Around 0600H on 18 January, the CO knew that if the ship lost the Air Conditioning Unit that communications and other essential ship's systems would be lost. At that point, the CO still had no communications with Motor Vessel (M/V) C CHAMPION, which was enroute our position. The weather was getting worse with the winds and sea state increasing. The scenario of the crew staying onboard the ship, and then the ship's hull breaking up on the reef, was the CO's biggest concern. [Encl (19)]

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536. The flooding in AMR had significantly worsened. DC2 (b) (3), (b) (6), (b) (7) (C), EN2 (b) (3), (b) (6), (b) (7) (C), and DC3 (b) (3), (b) (6), (b) (7) (C) were fighting the flooding under the supervision of CMDCM Stone and DCC (b) (3), (b) (6), (b) (7) (C). DC2 (b) (3), (b) (6), (b) (7) (C) observed that the centerline "beam" under #1 Air Condition Unit had splintered, causing a rupture in the hull and significant flooding. CMDCM Stone saw the ruptured "beam" and believed it was the ship's keel that had broke. DC3 (b) (3), (b) (6), (b) (7) (C) went down into the bilges in water up to his neck to shore the crack. The hull, deckplates, and piping were flexing. The situation grew dangerous, and CMDCM Stone and DC2 (b) (3), (b) (6), (b) (7) (C) ordered DC3 (b) (3), (b) (6), (b) (7) (C) to climb out of the bilge. The flooding in the AMR continued. [Encls (15), (53), (56), (67), (68), (84), (91), (111)].

537. At 0611H, the DCA passed the word "AMR secured, time zero-six-one-one." [Encl (111)].

538. The Commodore's direction to the CO via Chat was to keep the crew onboard the ship as long as possible, but that safety was paramount. At some point the CO informed the Commodore of his intention to commence emergency destruction and "evacuate the ship." [Encl (19)]

539. Sometime in the morning, the CO made the decision to abandon ship. The MCMRON-7 Chief Staff Officer recommended to the CO that GUARDIAN's RHIBs be lowered into the water. [Encls (19), (20), (36)]

540. The XO/NAV told the personnel to prepare to launch the RHIBs. At this point, everyone had their life jackets on. The XO/NAV then directed CMDCM Stone to muster all of the weak swimmers on the fantail. The word was passed on the 1MC, and 19 of our weak-swimming Sailors went onboard M/V C CHAMPION's RHIB. [Encls (20), (36), (53), (56)]

541. MN2 (b) (3), (b) (6) and MN3 (b) (3), (b) (6), (b) (7) (C) were the two assigned Boat Coxswains. Launching the RHIBs was very difficult because of the high and heavy swells on the port side of the ship. MN2 (b) (3), (b) (6), (b) (7) (C) RHIB was the top boat so he was launched first. The XO/NAV was present on the boat deck. MN2 (b) (3), (b) (6) gave the safety brief. EN1 (b) (3), (b) (6), (b) (7) (C) was the boat engineer and was the only member of the boat crew with MN2 (b) (3), (b) (6) as they launched the RHIB. MN3

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(b) (3), (b) (6), (b) (7) (C) was the operator, and he had to time the swells while lowering MN2 (b) (3), (b) (6), (b) (7) RHIB into the water. They made two attempts to launch the first RHIB. On the second attempt, MN2 (b) (3), (b) (6) got his RHIB safely into the water. [Encls (20), (28), (32), (110)]

542. MN3 (b) (3), (b) (6), (b) (7) (C), the other SAR Swimmer, jumped into the water from the fantail and swam to MN2 (b) (3), (b) (6), (b) (7) RHIB. [Encls (34), (110)]

543. MN2 (b) (3), (b) (6), (b) (7) took over as operator for the second RHIB launch. MN3 (b) (3), (b) (6), (b) (7) (C), EN2 (b) (3), (b) (6), (b) (7) (C), and MN3 (b) (3), (b) (6), (b) (7) were onboard the second RHIB. MN2 (b) (3), (b) (6), (b) (7) and the boat crew safely launched the second RHIB in the water. [Encl (111)]

544. There was great risk of injury to the boat crews as the swell crashed into the ship while the sea painter remained connected. Both RHIBs were successfully and safely lowered into the water. [Encls (34), (36), (110)]

545. MN2 (b) (3), (b) (6) drove to the stern of USS GUARDIAN, picked up the Boat Officer, LTJG (b) (3), (b) (6), (b) (7) (C), and the SAR Swimmer, MN3 (b) (3), (b) (6), (b) (7) (C), and a bunch of bags. Then they stood off from the ship. MN2 (b) (3), (b) (6) then heard the CO pass the word on the 1MC to abandon ship. [Encl (36)]

546. At approximately 0945H, the RHIBS from M/V C CHAMPION arrived onscene. The sea state was about four to six feet. [Encl (111)]

547. At approximately 0952H, the CO made the following 1MC announcement:

"GUARDIAN, this is the Captain. Commence the emergency destruction, right now. The C CHAMPION RHIBS are off the port beam. We're using the emergency pumps and there is four feet of water in MMR and it seems to be holding. We're going to release the life boats on the port side and pull the RHIBS in which will collect the life boats once they inflate. Once we get all the life boats inflated, we'll have a place for you guys to go to when you go over the side. So wait for the order, the official order. We need to make sure that we keep good accountability of everyone going over the side, so we can keep track. We're

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going to do this slow, methodical, and safe. There will be a skeleton crew that will remain on the ship: myself, a couple others here on the Bridge and the engineering skeleton crew."

[Encl (111)].

548. The crew started to abandon ship from the fantail one-by-one. The life rafts were deployed. [Encls (36), (79)]

549. DCA and CMDCM Stone led the abandon ship from the fantail. They directed each crew member to have a swim buddy. The DCA timed the swells and told each member of the crew when to jump so that the Sailor hit the water when the swell was approaching, thereby carrying him towards the reef. [Encls (53), (56), (57)]

550. MNCS <sup>(b) (3), (b) (6), (b) (7)</sup> was the first member of the crew to jump into the rough surf. He led all others by swimming to the reef, where he gathered the life rafts being deployed from USS GUARDIAN. He and MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> also swam after a black pelican case containing the Engineering Logs, but the current carried it away. [Encls (37), (79)]

551. MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> and MN3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> jumped into the water and swam to the stern to assist the crew as each member abandoned ship from the fantail. MN2 <sup>(b) (3), (b) (6)</sup> and MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> maintained station on the RHIBs off the stern, assisting the crew and the SAR swimmers as needed. [Encls (36), (110)]

552. The current was very strong near the ship. The weaker swimmers were pummeled from the swells and surf zone as they abandoned ship, and the current took them further away from the ship. Stronger swimmers stayed near the ship and fared better in the swells. [Encl (34)]

553. When the crew members jumped in, MN3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> and MN3 <sup>(b) (3), (b) (6), (b) (7)</sup> did whatever they could to help them out. In some cases, they saved crew members from drowning. In other cases, they talked to their shipmates, retrieved bags of personal gear thrown in after them, and helped them swim to the reef. MN3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> got the swimmer's tending line, and was tied him off behind the ship. [Encls (34), (110)]

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554. Based on the personal observations of the crew, the actions of MN3 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN3 <sup>(b) (3), (b) (6), (b) (7)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, and MN3 <sup>(b) (3), (b) (6), (b)</sup> were heroic and saved lives. [Encls (19), (20), (30), (53), (56)]

555. During emergency destruction, the CIC watch standers destroyed every computer system in CIC with the exception of GCCS-M including the VMS1 and VMS2 hard drives located in CIC on a rack mounted server. [Encls (35), (79)]

556. At 1015H, the CHENG had custody of the port and starboard main reduction gear keys. [Encls (15), (67)]

557. At 1030H, all hatches throughout the ship were dogged. Some hatches could not be dogged due deformation of the access. The last Engineering watchstanders left on station were EN2 Davis in AMR; FN <sup>(b) (3), (b) (6), (b) (7) (C)</sup> in MMR; EN2 <sup>(b) (3), (b) (6), (b)</sup>, the Oil King; EM2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, the EPCC Operator; ENC <sup>(b) (3), (b) (6)</sup>, the EOOW; and CHENG as Plant Control. LTJG <sup>(b) (3), (b) (6), (b) (7) (C)</sup> and DCC <sup>(b) (3), (b) (6), (b)</sup> remained as DC support. [Encl (15)]

558. At 1053H, the CO ordered remaining personnel to secure USS GUARDIAN as much as possible and disembark to the reef until the rescue ship arrives. [Encl (15)]

559. At 1102H, nineteen GUARDIAN personnel were offloaded via RHIB to M/V C CHAMPION. [Encl (14)]

560. At 1218H, the EOOW reported the last personnel onboard USS GUARDIAN as EN2 <sup>(b) (3), (b) (6), (b)</sup>, EM2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, IC1 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, DCC <sup>(b) (3), (b) (6), (b)</sup>, DCA, MPA, CHENG, XO/NAV, and the CO. [Encls (15), (19), (20), (67), (68)]

561. The two RHIB coxswains approached the ship and embarked four more Sailors who were concerned about their swimming abilities, placing themselves at great risk in order to safeguard their fellow crew members. [Encl (19)]

562. Around 1218H, all of the crew had abandoned ship with the exception of DCA and the CO. The DCA jumped into the sea from the fantail and swam to the reef. The CO was the last person to abandon ship. [Encls (19), (56)]



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563. The crew members who remained on the reef manned the life rafts and were transferred to M/V C CHAMPION and USNS BOWDITCH. By the afternoon of 18 January 2013, there were 45 crew members on USNS BOWDITCH and 34 crew members on M/V C CHAMPION. All persons were present and accounted for. [Encl (19)]

564. None of the crew were seriously injured during the grounding and the events that followed. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> cut his finger onboard USS GUARDIAN and required a few stitches. ENS <sup>(b) (3), (b) (6), (b) (7) (C)</sup> suffered bad sunburn on his head while on the reef. Some sailors suffered minor cuts and bruises from the reef and fire coral. Otherwise, no one was seriously injured. [Encls (19), (20), (21), (28), (29), (30), (32), (34), (35), (36), (37), (39), (53), (56), (60), (62), (64), (65), (67), (68), (69), (77), (78), (79), (80), (81), (82), (83), (84), (85), (86), (87), (88), (89), (90), (91), (106), (110)]

565. Commander, Task Force SEVEN THREE assumed the duties of On Scene Commander. The Supervisor of Salvage and Diving and Mobile Diving and Salvage Unit ONE arrived on scene to support recovery and salvage efforts. USNS RAPPAHANNOCK and USS MUSTIN arrived on the scene and embarked members of the crew from M/V C CHAMPION and USNS BOWDITCH. [Encl (19)]

566. The XO/NAV, CDMCM Stone, and 67 members of the crew embarked USNS RAPPAHANNOCK for further transfer to U.S. Fleet Activities Sasebo, JA. USNS RAPPAHANNOCK arrived inport Sasebo on 28 January 2013. [Encl (19)]

567. The CO, COMMO, DCA, MNC <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, ENC <sup>(b) (3), (b) (6)</sup>, DCC <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, HM1 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN2 <sup>(b) (3), (b) (6)</sup>, ET2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup>, MN2 <sup>(b) (3), (b) (6), (b) (7) (C)</sup> formed the skeleton that embarked in USS MUSTIN. On 8 February 2013, the skeleton crew arrived inport Sasebo onboard USS MUSTIN. [Encls (19), (20), (49)]

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Section Sixteen  
Damages

568. Based on data provided by NAVSEA, the program cost for the fourteen MCM 1 class ships was \$1.7 billion as of June 30, 1991. Using the average of \$121,430,000 in 1991 dollars, the calculated procurement cost in FY13 dollars is \$211,971,974 in FY13. [Encl (112)]

569. The salvage operations continue. It is therefore difficult to estimate the total cost of damage to the Tubbataha Reefs and the marine environment given the ongoing salvage efforts. [Encl (113)]

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Section Seventeen  
Application of COMSEVENTHFLT OPORD 201

Note: This section is a late insertion containing findings of fact from COMSEVENTHFLT OPORD 201 that were declassified for this investigation. This section is closely related to Section Thirteen, Navigation Plan Process and Procedures, at pages 77 through 84.

NAVDORM Guidance

570. Appendix C of the NAVDORM contains a Voyage Planning Checklist. Block 3 of Sheet Two of the Voyage Planning Checklist directs the preparation of an operations binder to include the "current MOVREP, OPORD, PRE-EX's, etc." Block 4.d of Sheet Three of the Voyage Planning Checklist requires the chart to have the 12 nautical mile territorial sea boundary determined and labeled from land. [Ref (d) app C]

USS GUARDIAN (MCM 5) Navigation Bill Requirements

571. Paragraph 9 of the ship's Navigation Bill is entitled "Voyage Standards" and provides the CO's guidance with respect to creating rhumb, great circle, and combination Voyage Plans. The guidance states, in part, that recommended routes of Sailing Directions will be used, and that the Voyage Plan will remain clear of marine hazards and prohibited areas by applying guidance from COMSEVENTHFLT OPORD 201. [Encl (25)]

COMSEVENTHFLT OPORD 201 Navigational Requirements

572. COMSEVENTHFLT OPORD 201 provides "guidance for the planning and execution of naval operations within the U.S. SEVENTH Fleet area of responsibility," and states that "all commands under SEVENTH Fleet operational and/or tactical control are responsible for understanding and complying with its content." [Ref (e)]

573. Prior to and at the time of the grounding, COMSEVENTHFLT exercised operational control of USS GUARDIAN. [Refs (o), (p), (q), (y), (z)]

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574. Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT Operations Order (OPORD) 201 provides guidance on the Philippines transit regime. [Ref (e)]

575. Paragraph 3.c(1) to Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT OPORD 201 describes the excessive maritime claims of the Government of the Philippines and the United States non-recognition of these claims. [Ref (e)]

576. Paragraph 3.c(2) to Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT OPORD 201 states that rules governing archipelagic sea lanes passage do not apply to U.S. Navy vessels transiting waters claimed as an archipelago by the Government of the Philippines. Paragraph 3.c(2) further states that the United States will not recognize such claims until the Government of the Philippines rolls back its excessive maritime claims. [Ref (e)]

577. Paragraph 3.c(3) to Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT OPORD 201 states that each individual Republic of the Philippines island will be treated as an individual island with its own 12 nautical mile territorial sea. [Ref (e)]

578. Paragraph 3.c(4) to Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT OPORD 201 requires coordination with and approval by higher headquarters to operate in innocent passage. [Ref (e)]

579. The coordinates of the Sulu Sea are located within RP-claimed internal waters. [Ref (aa); Encls (9), (10)]

580. The Jessie Beazley Reef and Tubbataha Reefs are located in the central Sulu Sea, and therefore are located within RP-claimed internal waters. [Ref (h); Encls (9), (10)]

581. USS GUARDIAN did not request approval by higher authority to conduct innocent passage as required by paragraph 3.c(4) to Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT OPORD 201. [Encl (118)]

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Digital Nautical Chart Symbology

582. U.S. Chart No. 1 (11th Ed) provides guidance with respect to the identification of chart symbology on paper nautical charts. Land and other features that are always dry are depicted with the color buff (i.e., tan). Foreshore and other intertidal areas are portrayed with a green tint. Shades of blue depict hazards to navigation, typically shallow water and submerged obstructions. [Ref (bb)]

583. The VMS-3 laptop computer onboard USS GUARDIAN contains the electronic, windows-based version of U.S. Chart No. 1 entitled "ECDIS-N Display Symbology (DNC)," which is accessible by clicking on the "Tools" button on the main VMS-3 display screen. This database contains the chart symbology for NGA DNCs®, including DNC® GEN11A and DNC® COA11D. The symbols and abbreviations displayed on DNCs® are similar to those used on paper charts for some features, but different for others. [Refs (bb), (cc); Encl (119)]

584. The Introduction page of the ECDIS-N Display Symbology states that DNC® symbols comply with the International Hydrographic Organization's S-52 standard for ECDIS symbols, making DNC® data compliant with the International Convention for the Safety of Life at Sea, 1974, as amended (ref (1)). The Introduction also states that DNCs® consist of 12 Thematic Layers: Cultural Landmarks, Earth Cover, Environment, Hydrography, Inland Waterways, Land Cover, Limits, Aids to Navigation, Obstructions, Port Facilities, Relief, and Data Quality. [Ref (cc); Encl (119)]

585. On VMS-3, the main page of ECDIS-N Display Symbology (DNC) contains a hyperlink to each of the twelve Thematic Layers. Clicking on a particular link provides the DNC® symbology for that respective Thematic Layer. [Ref (cc); Encl (119)]

586. In the ECDIS-N Display Symbology database, the "Earth Cover Features" Thematic Layer page describes the chart symbology and colors associated with land and islands. The color buff or tan refers to the "ground surface element" (i.e., land) and islands. An "island" is defined as "a body of land surrounded by water." An "island (point)" is indicated by a small circle of buff color with a grey outer circumference. The

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color green refers to the "foreshore," which is "that part of the shore or beach which lies between the low water mark and the coastline/shoreline." [Ref (cc); Encl (119)]

587. In the ECDIS-N Display Symbology database, the "Obstructions" Thematic Layer page describes the chart symbology and colors associated with rocks, wrecks, obstructions, offshore installations, bridges, cables, and pipelines. A "rock - submerged; depth unknown" is depicted as a blue circle with a black plus (+) sign in the middle surrounded by a dashed black line around the circumference of the blue circle. A "rock - awash or covers and uncovers" is indicated by a six-point black spar. A "Wreck - hull, superstructure, masts showing" is depicted as a grey vessel with the bow up, pointing to port. [Ref (cc); Encl (119)]

588. In the ECDIS-N Display Symbology database, the "Limits" Thematic Layer page describes the chart symbology and colors associated with anchorages, maritime areas, maritime limit boundaries, restricted areas, route (maritime), traffic separation schemes, and other limits. Per the "Restricted Areas" tab, a dashed magenta line with a magenta question mark (?) refers to a "Restricted Area - Unknown, Other." [Ref (cc); Encl (119)]

The Charted Objects on DNC® GEN11A and DNC® GEN11A

589. DNC® GEN11A (16th Ed) and DNC® COA11D (16th Ed) cover the waterspace of the Sulu Sea, and were two of the 149 charts in Chart Folio DEPLOYMENT 13.FOL associated with the CO-approved Navigation Plan SBMA TO MAK and Voyage Plan SUBIC TO MAK.PLN. USS GUARDIAN navigated on DNC® GEN11A (16th Ed) and DNC® COA11D (16th Ed) during the transit of the Sulu Sea on 16 and 17 January 2013, up to the time of the grounding. [Encls (9), (10), (11), (13)]

590. On DNC® GEN11A (16th Ed), a "Restricted Area - Unknown, Other" is depicted by a magenta-colored dashed line, a magenta-colored question mark (?), and magenta-colored exclamation marks (!) inside magenta-colored circles. The "Restricted Area - Other, Unknown" encompasses two named charted objects: the "Jessie Beaxley Reef" and the "North Islet." The Jessie Beaxley Reef is depicted by an island (point) chart symbol (a small

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circle of buff color with a grey outer circumference). The North Islet is depicted with a blue area of water inside a green outer foreshore area. Six island (point) chart symbols are located on the northeast part of North Islet. The text "Tubbataha Reefs" appears on the bottom left portion of the Restricted Area on the outer edge of the magenta dashed line. A third unnamed charted object lies in the southern part of the Restricted Area (corresponding with the "South Islet" per Publication 162). The South Islet is depicted by a large green foreshore area. On the northwest part of the South Islet, a grey wreck chart symbol depicts a "wreck - hull, superstructure, masts showing." On the northeast part of the South Islet, a "rock - awash or covers and uncovers" is indicated by a six-point black spar. On the southern part of South Islet, one larger buff-colored chart symbol enclosed by a solid magenta line is depicted, indicating an island. Adjacent to the larger buff-colored island are two island (point) chart symbols on the island's left and right sides. On the southern end of the South Islet, a yellow chart symbol on a black circular base depicts a lighted aid to navigation with the characteristics "FL W 5s 15M" (i.e., flashing white light, period five seconds, nominal range of 15 nautical miles). Two island (point) chart symbols are depicted just to the north of the yellow/black light chart symbol. [Refs (h), (cc); Encls (9), (10), (11), (119)]

591. On DNC® COA11D (16th Ed), a "Restricted Area - Unknown, Other" is depicted by a magenta-colored dashed line, a magenta-colored question mark (?), and magenta-colored exclamation marks (!) enclosed in magenta-colored circles. An unnamed island (point) chart symbol is located in the northwest corner of the Restricted Area with the text "Co" and "White sand cay" appearing below the chart symbol. In the center-left part of the Restricted Area, a grey wreck chart symbol depicts a "wreck - hull, superstructure, masts showing." A "rock - submerged; depth unknown" is depicted to the east of the grey wreck symbol, and immediately below is a green foreshore area chart symbol with a horseshoe shape adjacent to a blue shallow water area chart symbol with a black dotted line circumference. The text "Cay" appears in the middle of the Restricted Area without any adjacent chart symbology. At the bottom of the Restricted Area lies a blue shallow water chart symbol with a black dotted line circumference completely enclosed by a green foreshore area. A "rock - submerged; depth unknown" is depicted on the northeast

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part of the green foreshore area labeled with a black question mark (?) indicating a data quality of "low accuracy." The text "Lagoon" and "Tubbataha Reefs" appears on the bottom left portion of the Restricted Area overlapping the magenta dashed line. On the southern end of the green foreshore area, a yellow chart symbol on a black circular base depicting a lighted aid to navigation with the characteristics "FL W 5s 15M" (i.e., flashing white light, period five seconds, nominal range of 15 nautical miles). [Ref (cc); Encls (9), (10), (11), (119)]

592. The word "islet" is defined as "a very small and minor island." [Ref (dd)]

593. In VMS, the Mariner Object function can be used to create a range circle around a charted object, e.g., a standoff range around an island or a range of visibility for a lighthouse. The Mariner Object function can provide watchstander notifications for specific required actions while navigating. [Ref (f); Encls (11), (13)]

594. In the CO-approved Voyage Plan SUBIC TO MAK.PLN, DNC@ GEN11A (16th Ed) and DNC@ COA11D (16th Ed) did not depict any 12 nautical mile territorial sea standoff ranges constructed as Mariner Objects around the charted islands and islets in the Sulu Sea, including the islands and islets in the vicinity of the Restricted Area encompassing the Tubbataha Reefs, or any notification of the expected range and bearing to the lighted aid to navigation on the South Islet of Tubbataha Reefs. [Encls (9), (10), (11)]

595. On the South Islet of Tubbataha Reefs, there is at least one sandy island exposed above mean high water at the location of the lighthouse structure known as the Tubbataha Reef light. [Ref (i); Encl (120)]



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## Opinions

### Root Causes

1. The grounding of USS GUARDIAN was entirely preventable. The root causes of the grounding were human error and a failure of command leadership to provide the necessary oversight and direction in developing a prudent and safe Navigation Plan. In execution, the command leadership failed to provide the most basic direction, guidance, and supervision to ensure the safe navigation of the ship as it transited one of the most complex navigation environments in the Western Pacific. [FF (14), (15), (16), (17), (18), (20), (21), (22), (23), (24), (25), (27), (28), (29), (30), (37), (38), (39), (40), (83), (133), (254)]
2. During interviews, it was evident that the crew did not understand and had made little to no attempt to study, learn, and apply the Commanding Officer's Standing Orders. Furthermore, the command leadership failed to rigidly enforce fundamental navigation standards outlined in the Commanding Officer's Standing Orders, the command's Navigation Bill, and the NAVDORM. [FF (24), (28), (29), (30), (77), (83), (114), (133), (177), (253), (254)]
3. The Commanding Officer had developed and the command had printed the Commanding Officer's Standing Orders in booklet form for distribution to senior crew members. However, there was little to no training, oversight, and reinforcement of the requirements and standards by command leadership. [FF (37), (38), (39), (40), (77), (114), (133), (177), (253), (254)]
4. The CO, XO/NAV, OPS Officer, OOD, and ANAV (who was also QMOW at the time of grounding) failed to exercise their assigned responsibilities to ensure the safe navigation of the ship as prescribed by U.S. Navy Regulations, the U.S. Navy SORM, the NAVDORM, the CO's Standing Orders, and the ship's Navigation Bill. [FF (14), (15), (16), (17), (18), (20), (21), (22), (23), (24), (25), (28), (29), (30), (37), (48), (83), (133), (258), (260), (279)]
5. The CO, XO/NAV, and ANAV failed to ensure consistent application and compliance with prudent, safe, and sound navigation principles and standards during navigation planning

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and underway execution. The navigation capability in USS GUARDIAN had atrophied to an unacceptable standard that made the ship susceptible to catastrophic failure. Command leadership failed to recognize the significant risk this placed on the ship and her crew. [FF (20), (21), (22), (23), (24), (28), (29), (30), (35), (37), (133), (258), (260), (279), (281), (282), (283), (284), (285), (287), (288), (289), (290), (291), (292), (294), (302)]

Accountability

6. The Commanding Officer, LCDR Mark Rice, USN.

a. . LCDR Rice

(1)

(2)

(3)

EXE (b)(5)(b)(6) & (b)(7)(C)

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(4)

EXE (b)(5)(b)(6) & (b)(7)(C)

b.

LCDR Rice

(1)

(2)

(3)

(4)

(5)

(6)

EXE (b)(5)(b)(6) & (b)(7)(C)

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(7)

(8)

(9)

(10)

EXE (b)(5)(b)(6) & (b)(7)(C)

c.

LCDR Rice

7. Executive Officer/Navigator, LT Daniel Tyler, USN.

a.

LT Tyle

EXE (b)(5)(b)(6) & (b)(7)(C)

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(9)

EXE (b)(5)(b)(6) & (b)(7)(C)

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(10)

(11)

b. . LT Tyler

8. Officer of the Deck (on watch),

a.

(1)

(2)

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(4)

(5)

(6)

(7)

(8)

(9)

(10)

b.

EXE (b)(5)(b)(6) & (b)(7)(C)

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9. Assistant Navigator, Quartermaster of the Watch (on watch),

(1)

(2)

(3)

(4)

(5)

(6)

EXE (b)(5)(b)(6) & (b)(7)(C)



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(7)

b.

10. Senior Watch Officer,

EXE (b)(5)(D)(G) & (b)(7)(C)

11.

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#### Personal Awards

12. The crew's collective response to the grounding was heroic and in several cases warrants individual recognition. Six crew members deserve specific mention because their actions saved the lives of their fellow Shipmates: LTJG Shrader, USN, DCA; CMDCM Stone, USN; MN2 Akin, USN, Boat Coxswain; MN3 Kirchof, USN, SAR Swimmer; MN3 Martin, USN, SAR Swimmer; and MN3 Olsen, USN, Boat Coxswain. Some members of the crew risked personal injury and fear of death to control flooding as USS GUARDIAN swung broadside on the Tubbataha Reef, breaking the ship's keel and piercing numerous holes and cracks in her wooden hull. Others risked personal injury and death upon abandoning ship into the rough Sulu Sea near the edge of a dangerous coral reef. Miraculously, no one was seriously injured. Damage control efforts were spearheaded by strong deckplate leadership. Many sailors fought valiantly and courageously to save their ship. There are many others whose personal sacrifice warrants special recognition. [FF (536), (541), (542), (543), (544), (545), (549), (550), (551), (554)]

#### USS GUARDIAN Crew Readiness

13. USS GUARDIAN's Bridge and CIC watchstanders are weak in the basic fundamentals of navigation. [FF (325), (326), (327), (384), (388), (389), (390), (391), (392), (393), (409), (410), (411), (412), (413), (414), (415), (416)]

#### Navigation Standards

14. The CO, XO/NAV, OPS Officer, and ANAV did not follow the NAVDORM Voyage Planning Checklist (ref (d)). The GUARDIAN Navigation Team should have followed and applied the guidance in blocks 3 and 4.d of the Voyage Planning Checklist in Appendix C of the NAVDORM when preparing Navigation Plan DEPLOYMENT SBMA TO MAK and its associated Voyage Plan SUBIC TO MAK/PLN. If they had followed the NAVDORM Voyage Planning Checklist and applied the guidance when developing Navigation Plan SUBIK TO MAK, they would have known to label a 12 nautical mile territorial sea boundary from charted land and islands, including the islands and islets in the Sulu Sea depicted on DNC® GEN11A (16th Ed) and DNC® COA11D (16th Ed). The Voyage Planning Checklist would also have alerted them to review the COMSEVENTHFLT OPOD 201

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navigational guidance. [FF (196), (210), (318), (345), (348), (349), (350), (351), (353), (358), (359), (360), (370), (384), (390), (398), (570), (572), (573), (574), (575), (576), (577), (578), (579), (580), (581), (582), (583), (584), (585), (586), (587), (588), (589), (590), (591), (592), (593), (594)]

15. From 6 to 17 January 2013, the CO was required to comply with COMSEVENTHFLT OPORD 201. [FF (166), (187), (188), (196), (572), (573)]

16. When developing the Navigation Plan for transits through RP waters, the CO, XO/NAV, OPS Officer, and ANAV should have known to review and ensure compliance with the navigational requirements of Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT OPORD 201. They did not. [FF (19), (20), (21), (22), (23), (24), (25), (28), (38), (39), (40), (61), (62), (73), (76), (77), (79), (81), (111), (113), (138), (139), (187), (188), (190), (191), (192), (193), (196), (210), (217), (218), (221), (316), (320), (321), (322), (325), (342), (348), (349), (350), (351), (353), (358), (359), (360), (410), (416), (570), (571), (572), (573), (574), (575), (576), (577), (578), (579), (580), (581), (582), (583), (584), (585), (586), (587), (588), (589), (590), (591), (592), (593), (594)]

17. The CO's own Navigation Bill references COMSEVENTHFLT OPORD 201 in the Voyage Planning guidance. The CO, XO/NAV, OPS Officer, and ANAV were not familiar with the contents of their own ship's Navigation Bill. [FF (410), (416) (571)]

18. When developing the Navigation Plan for transits through RP waters, the XO/NAV and ANAV failed to study the charted objects on DNC® GEN11A (16th Ed) and DNC® COA11D (16th Ed) and recognize the existence of a 12 nautical mile territorial sea around RP islands in the Sulu Sea. [FF (211), (212), (221), (316), (320), (321), (322), (325), (336), (572), (573), (574), (575), (576), (577), (579), (580), (582), (583), (584), (585), (586), (587), (588), (589), (590), (591), (592), (593), (594)]

19. When planning and reviewing the Voyage Plan and PIM Plan on DNC® GEN11A (16th Ed) and DNC® COA11D (16th Ed), a reasonable and prudent CO, XO/NAV, and ANAV should have recognized that the charted islands in the Sulu Sea, including charted islands in the vicinity of the Tubbataha Reefs, are located in RP-claimed

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internal waters, and therefore fall within the scope of paragraph 3.c to Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT OPORD 201. [FF (14), (15), (187), (188), (190), (191), (192), (196), (572), (573), (574), (575), (576), (577), (578), (579), (580), (581), (582), (583), (584), (585), (586), (587), (588), (589), (590), (591), (592)]

20. Absent permission granted from higher authority per Enclosure 2 to Tab E to Appendix 16 to Annex C to COMSEVENTHFLT OPORD 201, a reasonable and prudent CO of a U.S. Navy vessel under the operational control of COMSEVENTHFLT would not transit within 12 nautical miles of land or islands in the Sulu Sea except to ensure the safety of life at sea in accordance with customary international law. [FF (187), (188), (196), (572), (573), (574), (575), (576), (577), (578), (579), (580), (581), (584), (585), (586), (587), (588), (589), (590), (591), (592), (593), (594)]

21. When planning and reviewing the Voyage Plan and PIM Plan on DNC® GEN11A (16th Ed) and DNC® COA11D (16th Ed), a reasonable and prudent CO, XO/NAV, and ANAV should have constructed a Mariner Object in VMS-3 to indicate a 12 nautical mile standoff distance around any charted islands, including the island (point)/sandy white cay named Jessie Beaxley Reef and the numerous islands located on the North Islet and South Islet of Tubbataha Reefs as depicted on DNC® GEN11A (16th Ed). Mariner Objects (known as Critical Points) should also have been developed to provide specific locations on the ship's track where the OOD should have stationed the Navigation Detail or Modified Navigation Detail. A reasonable and prudent CO, XO/NAV, and ANAV should also have constructed a Mariner Object in VMS-3 centered on the base of the lighted aid to navigation on the South Islet of Tubbataha Reefs, indicated the expected detection range and bearing, and included directions to notify the Navigator if the light was not detected within a specified bearing and range. [FF (14), (15), (16), (17), (18), (20), (21), (24), (25), (28), (37), (38), (39), (40), (187), (188), (190), (192), (196), (308), (309), (310), (313), (314), (336), (337), (340), (341), (350), (351), (582), (583), (584), (585), (586), (587), (588), (589), (590), (591), (592), (593), (594)]

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22. If the CO, XO/NAV, and ANAV had plotted the ship's track outside 12 nautical miles from the charted islands and islets in the vicinity of the Tubbataha Reefs and not have closed within such range, USS GUARDIAN would not have ran aground even if only using the incorrect DNC® COA11D. [FF (11), (14), (24), (25), (337), (577), (578), (579), (580), (581) (583), (584), (585), (586), (587), (588), (589), (590), (591), (592), (593), (594)]

23. With prudent and thorough planning, the CO, XO/NAV, and ANAV should have recognized the differences in the chart symbology between DNC® GEN11A (16th Ed) and DNC® COA11D (16th Ed). In particular, they should have recognized that DNC® COA11D (16th Ed) was less detailed than DNC® GEN11A (16th Ed) in its depiction of the charted objects in the vicinity of the Tubbataha Reefs. Additionally, diligence in comparing the two DNCs® during the planning phase would have indicated significant differences that required deconfliction to determine accuracy between the charts to ensure safe navigation of the ship and notice to higher authority with respect to the chart errors. [FF (14), (15), (16), (17), (18), (187), (188), (190), (192), (196), (225), (226), (227), (228), (308), (309), (310), (313), (314), (316), (320), (321), (583), (584), (585), (586), (587), (588), (589), (590), (591), (592)]

24. During the planning, review, and approval stages, a VMS safety check of the CO-approved Voyage Plans would have indicated numerous dangers in the vicinity of the reefs, to include a clear identification of the errors in DNC® COA11D. This information was available to the ANAV, XO/NAV, and CO at every stage of Navigation Plan development. [FF (16), (17), (18), (24), (25), (139), (140), (242), (243)]

25. During the planning and review process, the XO/NAV and ANAV should have consulted Publication 112 (for details on the lighthouse at Tubbataha Reefs) and Publication 162 (for navigation information about Tubbataha Reefs). Upon review, they should have compared Publication 112's indicated position of the lighthouse to the charted position on the GEN and COA DNCs®. The difference between Publication 112's position and the charted position on the COA DNC® was recognizable, and should have alerted them to a potential chart error on the COA DNC®. A comparison between Publication 112's lighthouse position and the GEN DNC® would have shown that the GEN DNC's®

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charted position corresponded with Publication 112, suggesting that the GEN DNC® was accurate and should be used instead of the COA DNC®. [FF (14), (15), (16), (17), (18), (24), (25)]

26. The DNC® COA11A error was one of many contributing factors to the grounding. This chart error should have been identified through adherence to fundamental navigation principles, prudent planning, and proper employment of the VMS. [FF (14), (15), (16), (17), (18), (24), (25), (204), (207), (217), (218), (219), (220), (224)]

27. A series of data quality notes for DNC® COA11A was available to the ANAV, XO/NAV, and CO during the planning, review, and approval process, and should have been reviewed at each stage. Had this action occurred, leadership would have been informed of issues associated with safe navigation using GPS with DNC® COA11A. [FF (14), (15), (16), (17), (18), (19), (24), (25), (242), (243)]

28. The VMS would have indicated audible and visual alarms and dangers during the Navigation Plan review and approval process, and during execution of the underway transit because the ship's PIM was plotted over or near areas of shoal water and through the Restricted Area encompassing the Tubbataha Reefs. [FF (19), (24), (139), (140), (409), (410), (414), (415)]

29. Loss of Event Log data from 15054622Z Jan 13 through 17204324Z Jan 13 is an abnormal anomaly which resulted in no data available for review with respect to Alarms and Dangers during the period leading up to and shortly after the grounding of USS GUARDIAN. Additional forensic analysis on the VMS-3 LAPTOP hard drive may yield when/where the actual data was changed through system settings or deleted/removed and potentially allow for the recovery of the data. [FF (238), (243)]

30. A detailed checklist for DNC planning, review, and approval should be an expressly stated requirement due to the lack of VMS experience and familiarity with digital chart navigation. [FF (224)]

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31. The NAVDORM does not define the duties and responsibilities of the VMS Administrator and does not provide business practices to ensure VMS password security. [FF (347), (353), (355), (359), (360), (361), (363) (364), (365), (366)]

#### Execution of the Navigation Plan

32. During underway execution of the Voyage Plan, a reasonable and prudent CO, XO/NAV, and ANAV should have ensured that the OOD and all Bridge and CIC Watchstanders with responsibilities for safe navigation knew that the ship must stay outside of the 12 nautical mile standoff range from land or islands indicated by Mariner Objects on CO-approved DNCs®, and include specific direction in the CO's Night Orders. [FF (24), (25), (37), (38), (39), (40), (187), (188), (190), (192), (196), (336), (589), (590), (591), (592), (593), (594)]

33. During underway execution of the Voyage Plan, a reasonable and prudent CO, XO/NAV, and ANAV should have provided specific direction, including guidance in the CO's Night Orders, to the OOD and all Bridge and Combat Information Center Watchstanders with responsibilities for safe navigation about the lighted aid to navigation on the South Islet of Tubbataha Reef and its expected detection range and bearing. Such action would have placed the OOD and watchstanders on notice to look for the light at a certain bearing and range, would have ensured a report was made to the Navigator when the light was not sighted at the expected bearing and range, and could have resulted in avoidance of the grounding. [FF (24), (25), (37), (38), (39), (40), (66), (67), (89), (93), (102), (103), (105), (109), (11), (112), (113), (116), (117), (119), (120), (122), (123), (128), (130), (131), (132), (135), (136), (137), (187), (188), (190), (192), (196), (589), (590), (591), (592), (593), (594)]

34. The U.S. Navy needs to pause and think about how ECDIS-N certified vessels should navigate in a digital chart environment using VMS. The current NAVDORM provides a solid foundation for digital chart navigation, but in my opinion we must take further steps to develop and institute sound VMS processes and procedures that maximize VMS capabilities to ensure safe navigation. There are three areas that deserve focus.

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a. What does "fix" mean in a digital chart environment? The NAVDORM's definition of "fix" recognizes GPS as a means to fix the ship's position by obtaining a latitude and longitude from installed equipment. Onboard ECDIS-N certified U.S. Navy vessels, the VMS logs and displays a fix of the ship's position as a function of operator selectivity during Features setup. Most ships use a logging and display update rate of once every 60 seconds.

b. What does "fix interval" mean in a digital chart environment? The NAVDORM directs unit COs adjust the fix interval based on the distance from land or shoal water. Again, the VMS logs and displays a fix at an interval selected by the operator during the Features setup. The interval is normally set to 60 seconds. In a digital chart environment, the fix interval is constant and frequent to ensure safe navigation.

c. What should our log keeping requirements be in a digital chart environment? Current limitations with respect to ability to recover stored data logs is a function of printer interface and development of a process to extract the stored data. Ample legal authorities exist to support Navy-wide use of automated data logging in ECDIS-N VMS. [FF (200), (209), (210), (214), (216), (217), (219), (229), (230), (231), (232), (233), (234), (235), (236), (237), (238), (239), (240), (241), (242), (243)]

35. The OOD's inaction during the transits in the vicinity of the Minoro Strait and Framjee Bank, and the poor degree of backup provided by Bridge and CIC watchstanders, evidences a lack of situational awareness, a poor understanding of the CO's Standing Orders and Navigation Bill, and a weak understanding of the VMS by all watchstanders.

[FF (409), (410), (411), (412), (413), (414), (415), (416), (418), (419), (420), (421), (422), (423), (428), (429), (430)]

36. Had USS GUARDIAN not ran aground on the Tubbataha Reef, the imprudent, unsafe, and unsound CO-approved Navigation Plan would have placed the ship directly over another navigation hazard with unknown depth at latitude 05 degrees 34.932 minutes North, longitude 119 degrees 32.835 minutes East as the ship passed in vicinity of Pearl Bank in the southern Sulu Sea approaching the Sibutu Passage. [FF (320), (321), (322)]



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37. There is no supporting evidence or witness testimony that would indicate VMS did not perform as designed. [FF (321)]

38. Visual VMS alarms and dangers were available to the OOD, QMOW, and CIC watchstanders at various portions of the transit. However, based on witness statements, it is my opinion that the audible alarms were not heard because the bridge and CIC either disabled the audible alarm feature or turned the VMS volume down on their respective VMS consoles. Based on crew member statements, there is strong indication that VMS alarms and dangers were generally acknowledged without review and frequently without report to the OOD or the CICWS. [FF (18), (139), (140), (141), (242), (243), (443)]

#### MCM Organization and Manning

39. The dual-hatted billet of XO/NAV onboard USS GUARDIAN is contrary to the NAVDORM guidance that the XO should normally not be assigned a watch station during restricted waters transits so that he is free to supervise all aspects of the transit.

28. Onboard GUARDIAN, the XO's duties interfered with his ability to focus on executing his duties and responsibilities as NAV. [FF (168), (169), (201), (202), (203), (204)]

40. The QM manning interfered with the Navigator's responsibility under the NAVDORM to ensure that Seamanship Training Team (STT)/ Seamanship and Navigation Training Team (SNTT) is in place whenever manning permits. [FF (261), (262), (263), (264), (265), (266), (267)]

#### Training

41. Most of today's QMs grew up in a paper chart world. However, without sufficient VMS training many do not have the level of knowledge concerning the use of VMS and its capacity/tools to ensure safe navigation. These VMS tools, such as the Safety Check function, were not available in the paper chart world. [FF (299), (300), (301)]

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42. The CO failed to ensure that he maintained a properly trained and qualified watch team on the bridge and in CIC. [FF (271), (275), (276), (281), (282), (283), (284), (285), (287), (288), (289), (290), (291), (292), (294), (295)]

EXE (b)(6)&(b)(7)(C)

43. It is my opinion that the three CIC Watch Supervisors (ET2 [REDACTED] MN2 [REDACTED] and MN2 [REDACTED]) were qualified out of necessity, not on demonstrated standards of performance. [FF (276), (279), (280), (281), (282), (283), (284), (285), (286), (287), (290), (291), (293)]

#### Equipment

44. The VMS audio alarms should be hard wired into an amplified speaker in such a way that it cannot be disconnected or turned completely off. [FF (134), (140), (141), (158), (243), (443)]

45. The VMS software program should have an automatic chart error checking/comparison function on all layered charts used in the same geographic area. This would prevent a future occurrence of chart errors of the nature observed during the grounding USS GUARDIAN. [FF (16), (17)]

46. The VMS data archive function has the capability to allow system operators/administrators to conduct watch to watch system saves and/or print outs of ship positional data, system alarms and system navigation danger alerts. This function is currently not implemented, but should be in order to reduce the manual workload of the Bridge navigation team and satisfy the legal record requirement for logging ship's position. This capability would also provide outside activities with required data to reconstruct own ships track and system performance parameters. [FF (229), (230), (231), (232), (233), (234), (235), (236), (237), (238), (239), (240), (241), (242), (243)]

47. During the course of the investigation, several differences were noted with respect to system setup procedures and specific system capabilities between the VMS Standard Operating Procedures for MCM 1 Class Ships, the MCM 1 Class Tactical Manual, and the NAVDORM. A thorough review and comparison of these publications/documents is needed. [Refs (d), (f)]

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Recommendations

Accountability

1. Commanding Officer, LCDR Mark Rice, USN.

EXE (b)(5)(b)(6) & (b)(7)(C)

2. Executive Officer/Navigator, LT Daniel Tyler, USN.

EXE (b)(5)(b)(6) & (b)(7)(C)

3. Officer of the Deck (on watch),

EXE (b)(5)(b)(6) & (b)(7)(C)

4. Assistant Navigator, Quartermaster of the Watch (on watch),

EXE (b)(5)(b)(6) & (b)(7)(C)

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EXE (b)(5)(b)(6) & (b)(7)(C)

5. Senior Watch Officer,

EXE (b)(5)(b)(6) & (b)(7)(C)

6. Operations Officer,

EXE (b)(5)(b)(6) & (b)(7)(C)

Personal Awards

7. I recommend that COMMCMRON SEVEN solicit personal award recommendations from the senior leadership in USS GUARDIAN and due consideration be given to these recommendations by the upper chain of command.

USS GUARDIAN Crew Readiness

8. I recommend COMMCMRON SEVEN conduct a thorough Command Readiness Inspection of the USS GUARDIAN crew to include an emphasis on divisional/departamental training and Personnel Qualification Standards. The crew should develop and adhere to a rigorous training regimen and conduct quality watch station and divisional training on a routine and repetitive basis. When

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the GUARDIAN crew is reassigned to their next ship I recommend the ship readiness cycle clock be reset requiring the crew to recertify in all mission areas pursuant to CNSPINST/CNSLINST 3502.3 (SFRM) and CNSPINST/CNSLINST 3500.10 (READ-E Instruction) before deploying.

U.S. Navy Navigation Standards

9. I recommend Director Navy Staff review the U.S. Navy SORM to determine the U.S. Navy requirement for stationing a Combat Information Center Watch Officer (CICWO) in CIC during condition III/IV underway steaming in MCM 1 class ships. My personal recommendation is that stationing a CICWO is required in MCM 1 class ships during condition III/IV underway steaming. However, if a CICWO is not deemed mandatory for MCM 1 class ships, reference (c) should be revised to include specific duties and responsibilities of the Combat Information Center Watch Supervisor (CICWS) to include responsibilities for safe navigation of the ship. If a CICWO is required in MCM 1 class ships after the review, I recommend Naval Warfare Development Command (NWDC) revise the MCM 1 Class Tactical Manual to comply with Navy SORM requirements for stationing a CICWO during Condition III/IV underway steaming.

10. I recommend that the Navigator of the Navy, working in coordination with the National Geospatial-Intelligence Agency (NGA), establish mandatory requirements for reporting safety of navigation related discrepancies identified in Digital Nautical Charts once issued. Current guidelines outlined in Appendix E of the NAVDORM request immediate notification of noted discrepancies to DNCs®.

11. .

EXE (b) (5)

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EXE (b) (5)

12. I recommend that Commander, Naval Surface Forces add a subsection to the NAVDORM establishing a VMS System Administrator function and outlining system password management responsibilities. Further, I recommend that this function not be assigned to a member of the navigation team in order to assure security and proper management of navigation plans. Additionally, I recommend that the In Service Engineering Agent for the VMS system investigate the capability of providing approval authority in VMS to someone other than the Commanding Officer if delegation of approval authority for open ocean voyage plans (i.e., Navigator) is implemented as outlined in the NAVDORM chapter five paragraph 2.d.2.

#### Emergency Destruction

13. I recommend COMCMRON SEVEN investigate the emergency destruction process and procedures used in USS GUARDIAN. This investigation should focus on identifying challenges during execution and recommend any necessary improvements from both procedural and material requirements perspective. A subset of this investigation should include verification and validation of the process used in USS GUARDIAN to ensure full Crypto and classified material accountability and formal close out of these accounts. Potential information and lessons learned from this investigation should be considered for implementation as a class wide instruction.

#### Manning

14. I recommend Commander, Naval Surfaces Forces pursue a billet change request establishing a second tour 1110 division officer billet as Navigator in MCM 1 Class ships.

15. I recommend Commander, U.S. Fleet Forces Command as enlisted fleet manning control authority implement a policy change for Quartermaster manning that mandates a face-to-face relief for the senior Quartermaster position in all ships.

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Further, I recommend that all Quartermaster positions in MCM and PC ships require face-to-face relief (no gaps).

#### Training and PQS

16. I recommend Commander, Naval Education and Training Command and Commander, Naval Surface Forces conduct a comprehensive review of all officer and enlisted navigation training courses to ensure curriculum compliance with reference (d), implementation of Navigation Plan development, review and approval processes for using Digital Nautical Charts and implementation of navigation techniques and procedures using the Voyage Management System as applicable to each of the following courses: Quartermaster "A" school, Senior Quartermaster Refresher, officer pre-commissioning training pipelines (NN200 course taught by Naval Reserve Officer Training Corps (ROTC) units and the Division of Professional Development, U.S. Naval Academy, Annapolis, Maryland), Basic Division Officer Course, Advanced Ship Handling and Tactics Course, Department Head Course, Perspective Executive Officer Course, Perspective Commanding Officer Course, Major Command Course and Bridge Resource Management training.

17. I recommend Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM) and Commander, U.S. Pacific Fleet (COMPACFLT) ensure that subordinate Air and Surface Type Commanders revise applicable Personal Qualification Standards instructions to provide specific guidelines with respect to delegation of final qualification/certification authority by Commanding Officers for officer and enlisted navigation watchstations (e.g., Navigator, Assistant Navigator, CICWO, CICWS, VMS Operator, Radar Operator. Etc.). I further recommend that if delegation authority is authorized that this authority not be delegated below the Executive Officer level.

#### Equipment

18.

EXE (b) (5)

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a.

b.

c.

EXE (b) (5)

(6), (b) (7) (C)

(b) (6), (b) (7) (C)

(b) (3), (b) (6), (b) (7) (C)

(b) (6), (b) (7) (C)

CAPT, USN

CDR, JAGC, USN