

## APPENDIX N

### MIDSHIPMAN FIRST CLASS SUBMARINE CRUISE GUIDE

This booklet provides general guidelines for Midshipmen First Class Submarine Cruises. These guidelines are not platform specific and should be considered a starting point through which you can become familiar with the role of junior officers on board a nuclear submarine. The effort you exert to learn about the duties and responsibilities of junior officers will be directly reflected in how instructive and rewarding your summer cruise will be.

You are encouraged to learn as much as possible about the qualification process required of all Submarine Officers. If you desire to qualify a particular watchstation, see the Senior Watch Officer for watchbill assignment. Recognize that final watchstation qualification will be difficult during a 30-day cruise, and that the total submarine qualification process can take up to a year and a half to complete. You are encouraged to use and work on watchstation PQS while standing watches as a means to focus and enhance your learning about each area of the submarine.

Above all, talk to the junior officers aboard your submarine about their experiences. They are in the position in which you will be shortly after graduation. Any information you obtain now will pay dividends when you are commissioned as a junior officer.

The following items should be completed as ship's operating schedule allows. Discuss those items not actually performed with a qualified officer.

It is recommended that you concentrate on Submarine PQS Watchstation requirements whenever the ship is underway, and work on systems and theory when in port.

\* U/I WATCHES WILL BE A MINIMUM OF 3 HOURS.

#### I. BASIC SUBMARINE KNOWLEDGE

- a. Read the SSORM and discuss any questions with an officer.
- b. Read the CO's standing orders.
- c. Identify all ship's compartments and the major spaces in each.
- d. Phonetalker abilities:
  1. Learn the names and uses of all the IC circuits.
  2. Learn the correct pronunciation for all letters and numbers per the IC manual.
  3. Learn the procedures for:
    - Reporting spaces rigged
    - Formal face-to-face and phone communications, including verbatim repeat back
    - Casualty reporting

- e. Demonstrate the correct use of a sound powered phone during a ship's evolution.
- f. Find all the 4MC and 31MC locations on the boat.
- g. Accompany an officer for rig for dive in two spaces (one forward and one aft).
- h. Demonstrate the ability to find and correctly don an EAB.
- i. Demonstrate the ability to correctly don an OBA.
- j. Complete phase two of the basic submarine qualification card.
- k. With the assistance of the off going section, rig a fire hose from machinery room to engine room middle level.
- l. With an off watch COW, demonstrate proper operation of a NFTI(Navy Fire Thermal Imager).
- m. With an off watch ERS, inventory a DC bandit kit and learn how to apply a pipe patch.
- n. Discuss the importance of noise prevention on the submarine.

## II. ENGINE ROOM KNOWLEDGE.

- a. Discuss basic core construction with an EOOW.
- b. Discuss a single line diagram of the primary coolant system.
- c. Discuss the reasons and use of primary and secondary chemistry with an EOOW.
- d. Observe the actions for a SCRAM and FRSU. Discuss actions with the ENGINEER.
- e. Observe an all ahead flank cavitate from maneuvering.
- f. Observe a steam generator blowdown and discuss the procedure with the EOOW.
- g. Trace the power generation cycle (steam cycle) engine room including: finding and explaining the use of: MS-1&2, MS-3&4, MS-5, SSTGS, main engine turbines, reduction gears, condensers, condensate pumps, and feed pumps.
- h. Discuss the generation of electricity in the plant with an electrician (include the basic use of SSTGS, SSMGS, and the battery).
- i. Locate and discuss the use of the EPM and the SPM.
- j. Locate and discuss the ship's anchor.

k. Observe the following drills as a drill monitor from the location of the casualty:

1. Fire

2. Flooding

3. Spill

l. With the assistance of an ELT, don a set of anti-c's.

m. Discuss basic battery construction and reasons for the battery with a battery charging lineup qualified officer.

n. Accompany an officer on a battery charging lineup.

\*o. Be present for one watch as an EOOW OBSERVER.

### III. OPERATIONS KNOWLEDGE.

a. As helmsman/planesman perform the following:

1. Change depth

2. Change speed

3. Change course

4. Train and operate the SPM

5. Operate the planes and rudder in emergency and shift to normal.

6. Maintain the ship's depth at periscope depth.

\*7. Stand one watch as helmsman under instruction.

\*8. Stand one watch as planesman under instruction.

\*b. Stand one watch as Chief of the Watch Under Instruction.

c. As Chief of the Watch under instruction, perform the following:

1. Pump from tank to tank with the trim pump.

2. Pump overboard using the trim pump.

3. Flush the TDU

4. Raise and lower at least one mast or antenna

d. Learn the purpose, priorities, and locations of all the ship's alarms.

- e. Discuss a one line diagram of the ventilation system.
- f. Discuss atmospheric items that are monitored onboard and the basic means of controlling each.
- \*g. Stand one watch as Diving Officer of the Watch under instruction.
- h. Using a line diagram, discuss the trim and drain systems.
- i. Observe large angles and high speed operations in the control room.
- j. Raise and lower both periscopes.
- k. List all Main Engine bell orders and their associated speeds.
- l. Discuss the importance of cavitation and its prevention.
- m. Discuss submerged operating envelope.
- n. While a drill monitor, observe a flooding drill in control and Damage Control Central.
- o. While a drill monitor, observe a fire drill at the scene.
- p. Observe the ship proceed to periscope depth. Discuss with the OOD his actions after completion of the procedure.
- q. As JOOD, take the ship to periscope depth.
- r. Discuss and perform the different periscope searches.
- s. Discuss the emergency deep procedure with an OOD. Perform an emergency deep drill as OOD.
- t. Observe battle stations in control. Discuss the jobs of all Control Room watchstanders.
- u. Discuss with an OOD his actions for a torpedo in the water.
- v. Observe and operate the underwater telephone, if tactically feasible.
- \*w. Stand one watch as Submerged OOD U/I.
- x. With an FT's assistance, track a contact using fire control.
- y. Enter a visual observation into fire control.
- z. Discuss OTH/TAC-3/LINK-11/LINK-16 with the Weapons Officer.
- \*AA. Stand one watch as FTOW U/I.

- \*BB. Stand one watch as Sonar Supervisor U/I.
- CC. Discuss the difference between active and passive sonar.
- DD. Observe active sonar. (SSN ONLY)
- EE. In the sonar room, listen to several contacts, and assign broadband trackers.
- FF. Discuss the various Sonar arrays and their differences.
- GG. Discuss the Sonar Search Plan with STC
- HH. Pass a rules of the road exam given by the Navigator.
- II. Demonstrate to an officer the proper use of the 3 minute rule.
- JJ. Discuss inertial navigation basics with a Nav ET.
- KK. Discuss the basic means to get an external fix.
- LL. Demonstrate a working knowledge of local area charts including lights, hazards,  
and navigation aids.
- MM. Discuss the use of red and yellow soundings with an OOD.
- NN. Explain the concept of DR using a navigation chart.
- OO. Assist in loading and shooting the TDU.
- PP. Observe the firing of a water slug from 3” launcher.
- QQ. With the assistance of an off watch Torpedoman, look at the various types of pyrotechnics and countermeasures carried aboard.
- RR. Observe/discuss the loading of weapons onto the boat.
- SS. With an off-watch torpedoman, inventory the small arms locker.
- TT. Discuss with a TM the various weapons carried onboard.
- UU. With an officer, check a torpedo tube empty.
- VV. Observe the firing of a water slug in the torpedo room.
- WW. Discuss the basic communication capabilities of the boat.
- XX. Discuss the ship’s ESM capabilities.
- YY. Discuss the basic method of ordering and receiving parts.

ZZ. Conn the ship submerged for several course, depth and speed changes.

AAA. Demonstrate proficiency in operating the VCR by selecting at least one movie for the wardroom and running it after evening meal.

#### IV. STRATEGIC WEAPONS (SSBN ONLY)

A. Observe battle stations Missile from:

1. MCC
2. Missile Compartment
3. Control

B. Discuss the missiles carried on board.

C. Discuss the Missile Fire Control System.

D. Discuss the operation of a missile tube.

E. Discuss Launcher operation

#### V. TOPSIDE AND SAIL.

A. Act as assistant topside supervisor for an underway or a mooring.

B. Explain the name and location of all lines.

C. Discuss line handling safety.

D. Conduct a walk through of topside identifying all important items.

E. Discuss man overboard procedures with a qualified OOD.

F. Perform one man overboard drill as JOOD.

G. Draw a top view of the sail and show the locations for all masts and antennas.

\*H. Stand one watch as Surface OOD U/I.

#### SHIPBOARD SAFETY PRECAUTIONS

1. Ashore, and especially at home, lighting and other electrical circuits are not treated with the respect deserved. This can lead to the mistaken impression that 115 volt circuits are not lethal; this is not true. More Navy personnel have been killed by 115 volts than all circuits of higher voltages combined. For this reason it is essential that all personnel understand the lethal nature of the hazard and are familiar with electrical safety precautions.

2. No privately owned electric equipment (including razors, radios, and notebook computers, etc.) shall be used or kept on board the ship without being electrically safety-checked by a qualified ship's electrician.
3. Never open or close any valve unless you are sure what it is for and for what purpose you are operating it, and that you have authorization from proper authority.
4. Never wear loose or sloppy clothing that might easily be caught in machinery.
5. Do not wear corfam shoes or 100% polyester clothing in the engineering spaces.
6. Never spray water on or near electrical junction boxes or switchboards.
7. Never run if you hear a main steam leak (loud hissing or whistling screech) - you might run into it. Don't attempt to leave the engine room unless directed to do so. The bilges may be the safest places.
8. The atmosphere control equipment on board submarines cannot remove certain contaminants, such as chlorofluorocarbons found in the propellant of most aerosol cans. In the enclosed atmosphere of the submarine, these pollutants can build up and pose a health risk. Therefore, aerosol cans (such as hair spray, shave cream, spray deodorant) are not authorized to be brought on board.
9. Additional safety requirements must be met when personnel are to enter the sail which are not required for going to the bridge. Never enter the sail or go to the bridge in port without first obtaining the permission of the Ship's Duty Officer. Underway, permission to go to the bridge is obtained from the OOD via the COW.
10. Never stand directly behind a mooring line topside, especially one that has taken a strain and begun to steam, neck down, or has started "singing". These are warning signs that the line may soon part, and the recoil from a parted line has sufficient force to kill or maim anyone in its path.
11. Ensure you read, understand, and heed ALL posted safety precautions on board your ship. If you are ever in doubt, ask your Leading Petty Officer, Chief Petty Officer, or an officer.

**SAFETY PRECAUTIONS MUST BE FOLLOWED 100 PERCENT OF THE TIME BY 100 PERCENT OF THE CREW. ALL HANDS MUST BE ALERT AT ALL TIMES.**