



# WINTER SEA TERM 2013 COMMERCIAL SHIPPING PROJECT



**CADET** \_\_\_\_\_

# COMMERCIAL SHIPPING PROJECT CUSTODY SHEET WINTER 2013

Cadet Name: \_\_\_\_\_ Ship Assigned: \_\_\_\_\_

DO ANY OTHER ITEMS ACCOMPANY THIS PROJECT?

Yes No (Circle One) if yes, please list here: \_\_\_\_\_

Chart(s) that accompany project \_\_\_\_\_

Check that ALL SECTIONS Have something in the appropriate instruction:

Piloting Section \_\_\_\_\_ Cel Nav Workbook \_\_\_\_\_ Ship's Business -A \_\_\_\_\_

Ship Fam Gen - B \_\_\_\_\_ Bridge Equip - C \_\_\_\_\_ Bridge Ops - D \_\_\_\_\_

Cargo Ops - E \_\_\_\_\_ Firefighting - F \_\_\_\_\_ Rules - G \_\_\_\_\_

Journal \_\_\_\_\_

**NOTE: IF ANY SECTION ABOVE IS COMPLETELY MISSING, NOTIFY THE MT DEPARTMENT CHAIR IMMEDIATELY. CADET MAY FAIL PROJECT AND NEED TO ARRANGE RESHIPING FOR HIS/HER JUNIOR SEA TERM.**

***ELECTRONIC COPY OF ALL WRITTEN DATA AND PHOTOS*** (circle which format)

CDRom Floppy Flash Drive Other \_\_\_\_\_

Turned in to Daniel Bumpus: Date \_\_\_\_\_, received ALL items (initial) \_\_\_\_\_

Copies made of all completed STCW Control Sheets, and original documents and certificates (if enclosed). Originals put back in binder. Signature \_\_\_\_\_ Date \_\_\_\_\_

Turned over to Dept. Chair: Date \_\_\_\_\_, received ALL items (initial) \_\_\_\_\_

Turned over to Assessor (If not Dept. Chair) Date \_\_\_\_\_, received ALL items (initial) \_\_\_\_\_

Finished assessing: Date \_\_\_\_\_ Assessors Initials \_\_\_\_\_

Reviewed with cadet: Date \_\_\_\_\_ Initials of CADET after reviewing: \_\_\_\_\_

Navigation Notebook ONLY returned to cadet if wanted Date \_\_\_\_\_, cadet (initial) \_\_\_\_\_

Returned to Dept. Chair: \_\_\_\_\_, Dept. Chair received (Initial) \_\_\_\_\_

Grades turned into Registrar: Date \_\_\_\_\_ Via \_\_\_\_\_

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FROM: Chairman, Department of Marine Transportation  
TO: Second Class Deck Cadets  
SUBJ: Commercial Shipping Program – Winter 2013

The Commercial Shipping Program is of vital interest to the Department of Marine Transportation and the Academy. This program allows the industry to view the quality of the cadets at our institution and, in turn, allows the institution to view trends and developments within the industry. Some of you have the opportunity to sail with companies new to the Mass. Maritime Academy Commercial Shipping Program. Some placements will be on foreign ships working with multi-national crews. This is a golden opportunity for you and the Academy to open new employment opportunities for our graduates in the global economy. Utilize this chance to demonstrate the quality and character of the Academy and its students.

Please read through the entire project before attempting the assignments. This will help you in organizing the format of your project. Review appendix III for grading criteria. The appendix will help you determine what is needed to fulfill the project requirements. Complete instructions for the Sea Term Project and grading criteria are provided. Follow the directions of each part carefully.

You must submit your completed **individual** sea project, that represents only your work, ***IN PERSON***, to Danielle Bumpus' office (Harrington Bldg Admin Floor) no later than **1600** Tuesday March 5, 2013. However, you will have at least seven (7) days after your USCG discharge date from your shipping assignment to submit. For example: **if your ship returns *after* March 5, 2013, you will have until 1600 on the seventh day from your sign off date to submit your project.** Ms. Bumpus works regular office hours and she must be there to sign in your project and issue you a receipt for your project providing proof you turned it in on time. (See APPENDIX VII) **You may not collaborate** (see Item # 14 on page 7 for more details) with other cadets while working on the project. If the project is not submitted by the appropriate deadline there will be a one (1) letter grade reduction for each day the project is late. Should you receive a failing grade for the Sea Term you will be required to make up Sea Term III aboard the Academy training vessel. Other than in an extraordinary circumstance, you are expected to remain aboard the vessel to which you have been assigned **for 60 days**. Should such a circumstance arise that prohibits you from attaining 60 sea days, you are to contact Captain Lima's office at 508-830-5012, for permission to leave the vessel *prior* to signing off the vessel, and you should know that the missing days must be made up before you can graduate. I will also be available via email during the winter so there is no reason not to ask your questions.

**Remember that, as a cadet, you are a guest on board. ACT ACCORDINGLY.** There is no task from which you will not learn. Be willing to assist the Ship's Officers in any way. **VOLUNTEER** to help out! Everyone has a job to do on board, and any time that they dedicate to your education is a gift. Try to repay that debt. Seek out work from the Chief Mate. Do not expect him/her to create learning jobs for you. Take the good with the bad. He/she is responsible for getting the vessel's work done, and you are an employee assigned to his/her department. Earn your keep! You won't regret it.

You must remain aware of the U.S. Coast Guard regulations on DRUG AND ALCOHOL ABUSE. Your pre-employment drug test has been completed; however, the policy has four more criteria for further testing: Routine, Random, Probable Cause, and Post Accident. Alcohol limits are established at 0.04 Blood/Alcohol content. Many company policies are stricter. Find out what the company policy is.

**If you are fired from the vessel, for any reason, you will receive a failing grade for your sea project, unless you are later found not responsible for the firing at the subsequent MMA disciplinary board. If so found, your sea project will then be graded.**

Do everything you can to make this one of the most rewarding periods of your training at MMA. Work very hard, be professional, ask questions, and have some fun.

## **Sea Project General Guidelines**

### **Follow These Simple Steps:**

#### **ORGANIZE THE PROJECT WELL.**

- **ALL WRITTEN MATERIAL in SECTIONS A, B, C, D, E and F MUST BE SUBMITTED ON DISK in word format as well as in typed or neatly hand printed format.**
- **BACK UP YOUR COMPUTER INFO AFTER EVERY ENTRY!** Loosing your data by computer crashes will not be allowed as an excuse for late or insufficient submissions. Carry your report back in two copies in two locations
- Diagrams are to be hand drawn. (**unless otherwise specified in these project instructions.**)
- Photographs add a great deal but **must be mounted and clearly explained** to improve the value of your grade. I strongly suggest taking an inexpensive digital camera with you to photograph your vessel and include applicable illustrations incorporated within your sea project.
- Xerox copies of ship's manuals or drawings cannot be substituted for required hand drawings **unless otherwise specified in these project instructions.**

#### **FOLLOW PROJECT INSTRUCTIONS CAREFULLY.**

1. The Project consists of two parts; Navigation and Vessel Operations. Each part has specific instructions. Follow them. The sum of the two parts will account for 75 percent of your Sea Term grade. We are not going to weigh the Project, so content, not mass is the standard. You should be prepared to orally defend your Project before a board comprised of members of the Department of Marine Transportation. You are required to have two (2) notebooks for the project: one for each part. The first is for terrestrial and celestial navigation (Nav Notebook - Provided at meeting) and the second is for vessel operations. It is best to get a 3-inch 3- ring loose leaf binder with section partitions for the vessel operations section. Label each section of the project on the section partitions and put the sea project directions and grading section for each section at the start of your work.
2. Place the following parts of your project in this order, to make its receiving and grading easier:  
In the very front of the project place:
  - a. Receipt for project (Appendix VIII)
  - b. Project Custody Sheet - with your name and ship assigned filled in
  - c. Your unsealed copy of the Master's evaluation and any other evaluations or rankings given you while aboard.
  - d. Any STCW Sign-offs completed
  - e. Any Certification - Shipping Records, Discharge, Training (Keep originals for your records and place copy in your project.)
  - f. Ship's Log Record - (Page 8 of your project)
  - g. Entire Appendix III - Grading Sheets, in order Pages 44 - 72
3. Complete Vessel Vital Statistics and place at the beginning of your Vessel Operations Section.
4. You are to maintain a daily journal of your activities for each day aboard the vessel. Place these sheets in chronological order immediately behind the Vessel Vital Statistics page. Use a separate sheet or sheets for each day. Describe the activities that occurred that day: drills, training, exercises, and anything that happened to you during that day. Don't fall behind on this. We expect a minimum of one half page for each day, but would expect that you can not describe all that happened to you during that day within one half page. Pages are to be typed (computer) and double spaced with half inch margins.

5. Read over APPENDIX I. (Master's Evaluation). The master will be grading your performance and attitude while you are aboard. **THIS EVALUATION ON YOU IS 25% OF YOUR SEA TERM GRADE. (This means make a good impression at all costs!)** Although the Master will look for input from his/her officers, and in some cases delegate this responsibility to the Chief Mate, it should be noted that only this evaluation will be used for grading purposes. A few days after joining the vessel, when opportunity permits, make an appointment with the master and with the Chief mate to review this evaluation, and to seek their expectations of you. Later, be sure to request a meeting with them mid-way through your tour on the vessel, to go over the evaluation and see how you are doing, and where you need improvement. Request a final meeting to review their final evaluation of you prior to reaching your last port. Port calls are exceptionally busy for the ship's officers, and they will most likely NOT have time to do this in your last port. Make sure you get a copy of your final evaluation to place in your Sea Project after he/she reviews it with you, and then have the Master seal another copy inside the envelope that was provided for him/her with this project. The Master can sign his/her signature over the seal, place transparent tape over the signature and give the envelope to you. You will place this evaluation, unopened, inside your project binder as well as the other unsealed copy. The original evaluation is to be mailed by the master in the envelope provided, to Career Services at the Academy. You are responsible for ensuring that the master completes the evaluation, reviews it with you, makes the three copies, giving one to you, placing one copy sealed in the provided envelope, mailing the third copy in the envelope addressed to Captain Dalton and mailing the original in the envelope addressed to Captain Dooley to at Career Services. Follow through with this in a timely manner, but do not be obnoxious!

If a master refuses to follow this procedure, document the fact, and the reasons why in your Sea Project.

6. Cadets assigned to tank vessels carrying dangerous liquid cargo are encouraged to document experience, "sea time," towards a Tankerman-PIC endorsement. Appendix II is provided as guidance as to how to document your cargo operation time. Should the tank vessel you be assigned to not have their own forms for documenting these transfers, samples of two are in this appendix. You can type up your own, based upon the wording and format of these.
7. All sections of the sea project must be completed in order to receive a passing grade. Do not attempt to leave a section out because you feel the time required to do that section is not worth the assigned points. **\*\*\*\*\*NOTE: NEW 2013\*\*\*\*\*** You must complete at least 50% of any section for that section to be considered "complete" as per this paragraph.  
If you leave any section out, or fail to answer at least half the questions in any part, the sea project is deemed incomplete and thus a failing grade will be issued.
8. **SUBMIT YOUR ENTIRE COMPLETED PROJECT TO Ms. Danielle Bumpus' office by the deadlines as indicated on the first page of this project booklet.** After that date there will be a one (1) letter grade reduction for each day the project is late.
9. The projects will be graded during the spring semester and the final grade will be submitted to the Registrar before all Spring 2013 grades, by June 14, 2013 at the latest. You will be able to check your grades online when they are posted.
10. Your Sea Project, charts and photos will become the property of the Marine Transportation Department. If you want a copy of your project, make one before submitting the original to the Captain Mayhofer for grading. I suggest that you copy any special original certificates obtained while aboard, that are included with your Sea Project before submitting the project. The originals, will be returned to you after they are verified and copied. Your Navigation notebook may be returned to you for future use upon your request.



11. Appendix IV includes three STCW assessments that go with the Junior Commercial Sea Term. You should successfully complete as many of these as possible while aboard your vessel. Should you not complete any or all of them, you will not be penalized, but be aware, that you must complete them on your senior cruise aboard TV KENNEDY, or you WILL NOT GRADUATE on time! Thus, it makes things much better for you if you do complete them on your Commercial Shipping Assignment. You will be issued a copy of the "**Assessor's Manual for Conducting Mariner Assessments**". Read this yourself, then make sure that whoever assesses you, has read and understands the manual. We do not want these assessments "gun-decked". Make sure that only those you demonstrate competency in are signed off. You may make it easier for the assessor by filling in as much of his/her information as possible. Remember, these officers are doing you a favor by assessing you in these skills. Make sure you know how to do them before bothering the ship's crew.
12. With your written project, you MUST SUBMIT a copy of all written material in digital format: Flash Drive. PROPER FORMAT of this information for your submittal will be provided by way of a handout at our pre-cruise meeting when you get this project. This information will be submitted to "Turn-it-in" for analysis of plagiarism, either from published works, or your predecessors, so do your own work. Remember: It is ok to quote from professional books, publications or manuals, as long as they are cited as having come from there. Your Flash Drive will be returned, if requested, after grading.
13. Submit your completed project to Ms. Danielle Bumpus. Do not take chances with your report by leaving it unattended on her desk or by leaving it with someone else.
  - Include a Flash drive with your project containing:
  - Your report, in a single file (MS Word, or pdf preferred). Name your file yourname-shipname
  - Your diagrams,
  - Your scrapbook and photos, if included. Note your diagrams, scanned materials and photo's can be saved to a separated file on your flash drive. It is not necessary to include all of these on your flash drive as you will be submitting hard copies in your project.
  - Submit an electronic copy of the project file on your Flash drive to Turnitin anti-plagiarism software at <http://www.turnitin.com>. Name your submission yourname-shipname. **Before you can submit files to Turnitin, you will need to register using the class ID 5845590 and the enrollment password, "2013 project"**.
  - Turnitin accepts work in the following formats: MS Word, Word Perfect, PostScript, PDF, HTML, RTF, and plain text. PDF files work best followed by MS MS Word. Files are limited to approximate 10Mb in size. This limit will not normally be an issue unless your project contains a large number of uncompressed images. This is why we suggest that your scrapbook can be in a separate file which does not need to be submitted to Turnitin.
14. The Department of Marine Transportation, in lieu of a Massachusetts Maritime Academy Policy, is using the following guidelines for academic misconduct.
  - a. The sea project you hand in must be written in your own words. If you photocopy a drawing or document you must cite the original source of the document. If at anytime you are not sure cite a reference.
  - b. The department does not distinguish between cheaters who copy others' work and cheaters who allow their work to be copied. In this type of situation both projects may receive an F for the grade.
15. Also, it would be greatly appreciated if any pictures utilized in the project, and any others taken aboard ship that show the vessel, its equipment, operations and ports, or other ships, would be submitted in digital format as well. MT might be able to utilize some of these views to better demonstrate future.

# Vessel Vital Statistics

CADET NAME \_\_\_\_\_ VESSEL NAME \_\_\_\_\_

Days on Board \_\_\_\_\_ Days at Sea \_\_\_\_\_  
Watch Stood \_\_\_\_\_ With Which Mate \_\_\_\_\_  
Name of Ship \_\_\_\_\_ Class of Ship \_\_\_\_\_  
Port of Registry \_\_\_\_\_ Official Number \_\_\_\_\_  
Call Sign \_\_\_\_\_  
LOA \_\_\_\_\_ LBP \_\_\_\_\_  
Depth of Hull \_\_\_\_\_ Breadth \_\_\_\_\_  
Light Draft \_\_\_\_\_ Max. Summer Draft \_\_\_\_\_  
TPI \_\_\_\_\_ MTI \_\_\_\_\_  
Propulsion System \_\_\_\_\_ H.P. \_\_\_\_\_  
Boiler Manufacturer \_\_\_\_\_ Diesel Manufacturer \_\_\_\_\_  
Builder \_\_\_\_\_ Year Built \_\_\_\_\_  
US Gross Tonnage \_\_\_\_\_ US Net Tonnage \_\_\_\_\_  
International Tonnage \_\_\_\_\_ DWT \_\_\_\_\_  
Blades on Prop \_\_\_\_\_ Draft for 100% Prop Immersion \_\_\_\_\_  
Name of Master \_\_\_\_\_ Name of Chief Mate \_\_\_\_\_

OBTAIN a copy of the vessel's posted maneuvering characteristics diagram and place behind this page. With the maneuvering characteristics, describe your observations of how the ship maneuvered as compared to the maneuvering diagram

Comments pertinent to uniqueness of this ship and its particular operations during the period which the cadet was assigned and which should be considered with the grading parameters:



## Ship's Log - Keep Up to Date

Day	Activity
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Day	Activity
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	

Day	Activity
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	

Activities = At anchor, In Shipyard, Departing Port, Arriving Port, At Sea, UNREPinG, In Port Loading, In Port Discharging.

# **PART I - Navigation**

**INSTRUCTIONS** – Place these pages at the beginning of this Part in your Project.

1. During the entire time on board the commercial vessel you are required to maintain a NAVIGATION WORKBOOK for both terrestrial and celestial work. All work pertinent to navigation shall be worked directly into the NAVIGATION WORKBOOK. Do not work on scratch paper then copy to the workbook. This workbook should contain both celestial and terrestrial calculations.
2. The evaluators of the workbook fully understand your skill will increase during the voyage; therefore, do not hold back attempting a particular form of navigation for fear incorrect work will affect your grade. Poor results at first are a form of learning.
3. Masters on merchant ships usually assign Cadets to one half their time on Bridge watch so **daily** entries are expected.
4. Bad weather constrains celestial navigation. We know this; however, we expect daily navigation regardless, i.e., tides, currents, LAN computations, noon slips, and sunrise/sunset, precomps of stars and sun etc.
5. If you are assigned to a vessel constrained in rivers or inland waters, never venturing offshore, you ***are not*** exempt from this section. You are expected to fulfill all the requirements that are shown in this section for a vessel in inland waters never venturing offshore. ***In order to follow this inland waters program, you must have a note signed by the master stating that your vessel never ventured into offshore waters during the time period you were assigned to the vessel.***

## **NAVIGATION WORKBOOK FORMAT**

1. You are required to purchase the standardized NAVIGATION WORKBOOK and **universal plotting sheets** for the completion of the Navigation portion of the project. Substitutes are not authorized. These **plotting sheets** may be purchased at the Follet Book Store during normal business hours, and the workbook will be issued to you at our pre-departure meeting.
2. The results of all azimuths/amplitudes and observed geographic ranges shall be entered on the last page of the workbook. You must determine deviation of the standard magnetic compass with each azimuth or amplitude you observe. This practice is identical to maintaining a Compass Observation Book similar to that on the bridge. Follow the instructions given in Appendix VI for how to complete this section. You will not get credit for an azimuth or amplitude without recording the proper compass observation information in the back of the navigation workbook.
3. ***Use time diagrams for all celestial work.*** Diagrams are preprinted in the workbook.
4. The proof of your ability as a navigator lies in the professional manner in which the observations are recorded and plotted. Use of small area universal plotting sheets properly stapled to the appropriate daily page will provide proof of your skill. All individual observations, if taken, must be plotted.
5. We suggest you bring your own copy of the 2013 Nautical Almanac.
6. You are required to record your progress by making entries in the Celestial Navigation Sight Observation Tables found on pages 47 & 48. When completing a requirement, place the date and the Navigation Notebook page for that item in the appropriate box. ***Failure to use these tables will result in a 20 point reduction for the Navigation Part of the project.*** It is suggested that you attach these tables to your navigation workbook and make the entries as the sights and observations are performed.
7. ***EVERY ENTRY MUST HAVE ITS OWN DR POSITION.*** Note the time of that DR as well.
8. Precomputations of transits of planets are for its transit, not anytime, and must include Hc and exact time of that transit along with bearing N or S.

## SECTION A - PILOTING (15 Points)

- A. You must submit one voyage plan detailing your work for either:
1. A transit of at least one hour's length through pilotage waters or
  2. Making landfall, from first lights sighted until point of arrival.

Provide one or more charts detailing the above voyage plan. Cadets are encouraged to buy the chart(s) of an area frequented by the vessel before joining the ship. The voyage planning chart preparation shall include, but not be limited to, the labeling of ***the chart*** with:

ITEM	PILOTAGE	LANDFALL
a. Intended track lines with true courses.	X	X
b. Distance to run for each leg.	X	X
c. Waypoints identified by letter or numeral with total distance to go to end of transit.	X	X
d. Prominent navigation aids for visual bearings.	X	X
e. Optimal radar contours for radar fixing and parallel indexing. (When available)	X	
f. Parallel indexing information on each leg. (When available)	X	
g. Significant navigation events like passing a buoy close aboard or conspicuous hydrographic features.	X	X
h. Turn bearings on objects nearly ahead or astern on the next leg adjusted for the ship's advance and transfer at transit speed and water depth.	X	
i. Calculated stage of tide by table for each leg.	X	X
j. The minimum depth along the track on each leg.	X	
k. Minimum depth contours, all areas with depths less than the predetermined minimum depth, along the entire transit and mark the minimum depth contours with a bright high-lighter pen.	X	X
l. Graphic indication of expected set and drift of current on each leg.	X	X
m. Danger bearings if available and identify same on the chart.		
n. Emergency anchoring locations on the chart. (When available)	X	X
o. Areas on the chart where because of very shallow water or traffic, extra precautions must be observed and speed reductions considered.	X	
p. Computation of luminous and computed geographic visibility of each primary navigation light during approach and label arcs of visibility.		X
q. Locations where VHF communications with VTS (port authorities) are mandated.	X	X
r. Informational notations regarding but not limited to:		
▪ deceleration points if applicable,	X	X
▪ pilot boarding/embarkation locations if applicable,		X
▪ where to call the captain,		X
▪ test gear		X
▪ call out the gang	X	X
▪ tugs alongside	X	

REMEMBER: The above information **MUST BE DRAWN ON THE CHART** to count.

An accompanying SPREAD SHEET - for ready reference is also REQUIRED to accompany the chart work. A written narrative may be included, but is not required.

- B. Tidal height and predicted current at the docking/undock times **for each port and every time the port is visited** by the vessel and the minimum under keel clearance during the passage. PROVIDED that should your vessel visit the same ports repeatedly, only four different docking and four different undocking calculations for each port are required. Calculations are also required for the transit of your voyage plan.

**THESE CALCULATIONS MUST BE DONE BY TABLE:** A computer printout may accompany and back up each tide and current calculation, but the table work must be done. If your ship does not have a table, you can do these when you get back before the due date already listed, however, NO extension of time will be given for this.

## SECTION B - CELESTIAL NAVIGATION (30 Points)

- A. A Navigation Notebook is required for this section. Each notebook page will be labeled with the following:
- FOR EVERY PAGE USED:
1. ZT, Day and date in upper right corner.
  2. Vessel's DR for the work on that page, in upper left corner.
  3. Vessel's course and speed below DR.
  4. If more than one calculation on the page, then each calculation MUST HAVE ITS OWN DR with time of that DR.
- FOR EVERY PAGE THAT INCLUDES A FIX
5. Fix created from work in lower left corner (in latitude and longitude).
  6. Comparison GPS fix in lower right corner with comment on differences.
- B. REMEMBER! A good navigator is a neat navigator. You probably will be assigned a bridge watch at least four hours each day. **Do not restrict your navigation to those hours only.** A properly maintained navigation notebook should form a log of the vessel's travel by showing navigation for each day at sea. *If the weather makes celestial navigation impossible on a particular day, you must note it in your notebook, but still complete all available calculations. For example: sunrise; sunset; pre-computed morning and evening stars; LAN; noon slip; great circle/mercator sailing; etc.*
- C. The following list gives the minimum requirements by category for a notebook earning the grade of C. Students who fail to submit the minimum number of observations and calculations for each category will receive a failing grade for the celestial navigation section.

Celestial Navigation	Normal Min. Standard	<u>Inland Operating</u> Vessel Standard
	C	C
<b>Rising/Setting/Transit Phenomena Completed on daily page</b>		
Pre-compute A.M. Star Time (While underway)	6	10
Pre-compute Sunrise (While at underway)	6	10
Pre-compute any celestial body other than the sun @ transit (e.g., Venus)	1	1
Pre-compute time and hs of LAN (While underway)	10	10
Pre-compute Sunset (While underway)	6	10
Pre-compute PM Star Time (While underway)	6	10
<b>Compass Comparison: Completed on daily page and recorded on back page of Navigation Journal - Each computation DOES NOT COUNT if it is not put on the last page of your navigation journal. See Appendix for example.</b>		
Amplitude of sun and comparison	3	Optional

<b>Celestial Navigation</b>	<b>Normal Min. Standard C</b>	<b><u>Inland Operating</u> Vessel Standard C</b>
Azimuth of sun and comparison	8	10
Observation of a geographic range with Attending Compass Comparison	Optional	10
Azimuth of Polaris and comparison (If location allows)	1	1
Azimuth of Star and comparison	Optional	4
Amplitude of any celestial body other than the sun and comparison	Optional	Optional
<b>Celestial FIX: Completed on daily page</b>		
Latitude at LAN- <b><u>MUST BE PLOTTED!!</u></b>	4	Optional
LOP of Polaris - By calculation only (If location allows)	Optional	Optional
<b>Celestial FIX: Completed on daily page and submitted with <u>work documented on Universal Plotting Sheet</u></b>		
A.M. Star Fix (three or more stars) Plotted on Universal plotting sheet	Optional	Optional
P.M. Star Fix (three or more stars) Plotted on Universal plotting sheet	Optional	Optional
LOP of MOON Plotted on Universal plotting sheet	Optional	Optional
Set of Sun lines(three taken in rapid fire Succession each within less than one Minute of each other)Plotted on Universal plotting sheet	5	Optional
Two (2) A.M. (early & late AM) sunlines advanced to LAN, crossed with Latitude at LAN Use best of the three rapid fires for each sun line Plotted on Universal plotting sheet	2	Optional
Two (2) P.M. (early & late PM) sunlines retarded to LAN, crossed with Latitude at LAN Use best of the three rapid fires for each sun line Plotted on Universal plotting sheet	2	Optional

<b>Celestial Navigation</b>	<b>Normal Min. Standard C</b>	<b><u>Inland Operating</u> Vessel Standard C</b>
<b>Sailings: Completed on daily page</b>		
*Great Circle Sailings, noon to noon	1	1
*Mercator Sailings, noon to noon	1	1
Noon Position report including propeller Slip	2	Optional
 <b>Miscellaneous</b>		
Shipboard weather reports completed by the Cadet. Include within the Navigation Journal Either one page of <i>Ship's Weather Observation Form</i> , WSFORM B-81 (8-96) showing all three reports, or Three separate Report Slips	3 Reports	Optional

\*NOTE: Utilize noon to noon positions, that do not include course changes.  
 If on an Inland Vessel or a deep sea vessel that sails only on short runs or legs, then:  
 For the Great Circle and Mercator problems, utilize past outside voyages of the vessel, if available.  
 If there are none on record, state so, and construct your own using two different positions of your own choosing for each problem.

REMEMBER:            These numbers above are for a grade of C.  
                               To get better than a C you must do more of them.

NOTE:                    If you find a discrepancy between any of the quantities under this part, the safest course of action is to use the largest amount of observations.



## **PART II -VESSEL OPERATIONS**

INSTRUCTIONS – Place these pages at the beginning of this Part in your Project.

1. You are required to complete a VESSEL OPERATIONS Section in your sea project notebook. In this section you will make a complete analysis of the vessel. This part may well be the one portion of the Sea Project you wish to refer to in the future.

### VESSEL OPERATIONS FORMAT

1. The three-ring binder shall be subdivided in as many sections you feel are necessary.
2. Each page of the notebook shall include your name, the ships name, part and section you have created.
3. The thorough compiling of this notebook will indicate to the evaluator your personal ambitions, ability to compile data and presentation.

### STANDARDS FOR VESSEL OPERATIONS SECTION:

1. The absolute minimum you may submit in this portion of the Project is a complete discussion of and answer to each of the questions in the seven (7) sections of Part II, Vessel Operations. To adequately answer each question, the cadet is expected to observe/participate in the vessel's operation, research publications/prints onboard and confer with the Chief Mate, watch officers and occasionally the Master.
2. In addition to the *minimum standard*, cadets are encouraged to document through observations/experiences a more in depth analysis of the vessel's procedures, cargo operations, ship business, bridge equipment, etc., which reflects his/her efforts to maximize the unique learning experience called "commercial shipping."
3. The following should be brought to sea with you to fulfill the minimums:
  - a) American Merchant Seaman's Manual
  - b) Coastal Navigation and Celestial Navigation Notes
  - c) Either: Tanker Operations or Marine Cargo Operations
  - d) A Three-Ring Binder, page dividers and 100 sheets of paper
  - e) Colored pencils or markers
  - f) Plotting tools and/or drafting set
  - g) Plotting Sheets
  - h) Blank Computer Disks
  - i) Radar Plotting Sheets
  - j) Electronic Camera (Suggested)

## INSTRUCTIONS

1. You are required to answer the following questions in a separate and distinct portion of Sea Project Section. In addressing each question, the depth and breadth of your answers will affect the grades for each section. Don't mince words. If a question does not directly apply to your vessel, answer the question as to a normal merchant ship, then answer the question as to how your vessel handles this particular item. i.e.: Your ship might not have a Certificate of Inspection (MSC). But, describe what it is and answer the questions asked about the COI, then explain what your ship has and how it handles those same items of interest.
2. To answer these questions you will undoubtedly be required to have at least one conference with the Master in addition to further research. Make sure you set up an appointment with the master well in advance. Masters of vessels are very busy when arriving and departing ports. A good time to meet with the master is usually in the middle of an ocean leg of the voyage. **REMEMBER**, don't rely solely upon the master's interview for your answers.

## **SECTION A - SHIP'S BUSINESS (15 Points)**

Complete the following by explanation and drawings as required.

1. What is the purpose of the Certificate of Documentation? What are the trades for which your vessel is documented? Who issues the document? (Or equivalent for foreign flagged vessels).
2. What is the Official Logbook? Who maintains it? What entries are required by law? Where is it kept and what is done with it after the voyage? What is the difference between the Official Logbook and Company logbook (smooth log)? Describe logbook procedures for your vessel. Copy or sketch a sample (blank) page of your ship's company logbook, and include in this section. (Or equivalent for foreign flagged vessels). What is purpose of these numbers?
3. What is your ship's official number, issued by the USCG? What is its IMO number? Where are these numbers posted and why? Provide photos and/or sketches of both. (Or equivalent for foreign flagged vessels).
4. What are the principal national and international rules and regulations governing vessel security? What are the responsibilities of governments, companies and designated persons under these rules and regulations? What are the maritime security levels? Explain what each one means.
5. Describe as much as possible who performs the duties of the Vessel Security Officer and what are his/her duties/ Who is your vessel's Company Security Officer and what are his/her duties? Did you have security duties as a cadet? If so, explain. What instructions and guidance on the vessel security did you receive on board?
6. What security levels has your ship encountered while you were aboard? How would your ship be notified if a port's security level has changed? Is the crew of your vessel aware of current security levels? Do they take it seriously? Is there an active gangway watch? Have you witnessed, or has the ship previously been involved in a security threat? What are the basic security procedures that your vessel has available to it? What additional items are added as threat levels are increased? What is done during a security drill? What special security precautions are in place on your vessel? What happens aboard your ship or in a port facility when security levels change in a port?
7. Describe the procedure for signing on a crew member. In your discussion, address the merchant mariner document (Z-Card), STCW Certificate, Foreign Articles and the Certificate of Discharge. If serving aboard a foreign-flag vessel describe the equivalent documents and procedures.
8. Upon entry into the United States, what papers and documents must the Master have ready prior to arrival? What must he do if he is carrying a stowaway from a foreign port?
9. Did your vessel go foreign? Describe what actually occurred aboard that differed from a domestic voyage? Paperwork, Inspections, Port Officials, Delays, Security, Crew Changes, etc.

10. Name and describe all union(s) onboard and their representation structure on board. Describe how these unions work aboard, how the crew and officers feel about them, how they help or hinder relations and work. Is there segregation aboard?. If serving aboard a foreign vessel, describe the nationalities of officers and crew. Describe their working and non-working relationships and how cultural differences between ratings and officers (if any) helped or hindered operations. Describe how the foreign officers are assigned to the vessel: Unions, Ship management agencies or by companies. Describe their length of tours and vacations and general working conditions.
11. Discuss the shipboard familiarization procedures from signing on board until assuming his/her first watch under STCW and ISM. Do this for you as a cadet, and for a typical officer and crewman signing on.
12. Discuss the following documents: Note of Protest, Notice of Readiness, Certified Crew List, and Cargo Manifest. (Or equivalent for foreign flagged vessels).
13. What are the STCW95 regulations pertaining to rest periods, generally, and to your vessel and its operations specifically. Discuss measures taken on your vessel to deal with STCW rest period issues. How did the Capt. manage his mates to ensure the most rested officer would be on the bridge when the Mate was deeply fatigued from cargo ops?
14. Fully describe the vessel's Certificate of Inspection. Include a photocopy in your sea project. Who issues it? What are the requirements for posting? Describe the work necessary by the vessel to prepare for issuance of the certificate of inspection (COI). Why is it an important document? (Or equivalent for foreign flagged vessels).
15. Describe the ship's Pollution Response Plan? Who wrote it? What would your ship do in the event of a spill? Who is your QI? How would the call be made? Are there emergency procedures for other events? Provide copies if possible.

## **SECTION B - SHIP FAMILIARIZATION - GENERAL (15 Points)**

Complete this section by explanations and drawings/photographs as required/to demonstrate a thorough understanding of the topics.

1. Describe in detail (include copies of any plans) the vessel's mooring winches and anchor windlasses. What type of machines are they? Are they self-tensioning, split drum, hydraulic, electric, steam, and warping? Describe their operation and how they are maintained. List the steps required to operate the machines. Describe the training for new crewmembers joining the ship. How are lines tended during loading and discharging operations? Who is responsible for tending the lines? What is the heaving capacity of your winches and windlasses? What is the breaking strain of the lines that are on those winches? How much chain and anchor can the windlass heave? Can it pick the anchor and all the chain up, straight off the bottom? How fast can the windlass heave in the anchor? Describe the anchoring procedures for your vessel in shallow water, and deep water.
2. Describe the ship's steering gear. Obtain and include copies of general arrangement plans if possible. What do the regulations say regarding tankers and cargo vessels? Are they the same for both? How do they differ? Describe in detail the ship's change over procedures, emergency and manual. Describe in detail the ship's procedures for testing steering gear (pre-arrival & pre-departure). Who wrote the procedures? When are these operations done? What places aboard ship are they performed? Who does them? Supply a copy of the ship's procedures if available. Were those procedures posted, and where? Where can the vessel be steered from? Are there any navigational areas where special procedures (i.e., man in the steering gear flat) are followed. How does the bridge and engine room monitor the performance of the steering gear? (video cameras, alarms). Describe any failures that occurred while you were aboard, and actions taken. What is the maximum degrees your ship's rudder can turn? When the command is given for hard right or left, how far does the master want the rudder to go? Why?
3. Load lines regulations are an important consideration for cargo ships. How are drafts logged in the vessel's log book? By whom? When are they recorded? Provide an example (copy) or write exactly how your ship logs its departure and arrival drafts. (Word for Word). Sketch, describe and comment on all lines/symbols painted on the side of your ship? Does your ship have a changeable tonnage? Does it have two load lines. Which tonnage's (International or Domestic) are used for most of your ship's work? What do the pilot's require and why? Discuss differences in numbers for both systems for your vessel and why they are there.
4. Explain all emergency escape routes from all spaces on the ship. Include engine room spaces, steering gear, inside houses. Describe emergency lighting methods and markings of all escape routes. Which routes are marked, and why? In the engine room, describe the normal entry and exit points. Who uses these and when are they not used?
5. Describe your ship's propellers (diameter and pitch, right hand/left hand, material, removable blades). If a variable pitch, describe its operation and special precautions. If twin screw, describe special maneuvering and operations with them. Is spare kept aboard? If not where can ship obtain replacement?
6. Describe in detail the bow thruster(s) that your vessel was equipped with. Include manufacturer, type, horsepower, maneuvering effectiveness diagrams (bridge). Describe in detail the actual operation from call out of manpower to check and line up, to start up operation and securing details. How effective was the bow thruster(s) on your vessel. Describe any malfunctions or unusual operations with the thrusters.
7. Describe in detail what type of power plant your vessel was equipped with. How did it affect maneuvering and operation of the vessel? What was the Critical Range of RPMs if any? DIESEL: How were load up and load down procedures incorporated on a diesel equipped vessel? How did minimum

RPM (dead slow) affect your maneuvering on a diesel equipped vessel? OTHER - Azipod, Gas Turbine, Diesel Electric: Describe in detail the operation and control of your vessels propulsion? Where could it be controlled? What benefits were obtained from this type of propulsion system? Are there any drawbacks to the system? Describe its operation in detail. Describe any problems or unusual occurrences that happened while you were aboard.

8. Did your ship come under any Ballast Water Exchange requirements? Describe in detail, the procedures for ballast water exchange if required for your vessel. (Not only if it occurred while you were onboard). Provide a copy of any certificates and/or logbook entries associated with this operation.

## **SECTION C - SHIP FAMILIARIZATION BRIDGE EQUIPMENT (15 Points)**

1. Provide a copy (readable electronic photo or photocopy) of your vessel's posted maneuvering characteristics. Was this information used by your vessel's navigating officers?
2. Describe the installation and use of ECDIS aboard your vessel, if so equipped. Describe why your vessel is not completely qualified to sail without paper charts, (If it does not have an official ECDIS system). If not completely equipped for ECDIS, describe in detail all the equipment that your vessel has for electronic navigation: include charts, chart systems, radars, ECDIS type monitors. How are chart corrections done with the electronic charts? Who is responsible for correcting the electronic charts, and how are the corrections received? How does your vessel make use of electronic charts and ECDIS type monitors? What problems have been encountered with them, and what special precautions are in place with their use, if any?
3. Describe in detail the ship's magnetic compass(es), and the binnacle they sit in. Include manufacturer, position aboard ship, ability to view from helm, lights, covers etc. What type of compensation system did it have. Include pictures or sketches of the binnacle and its adjusting devices: Flinders Bar, Magnets, Quadrantal Spheres, etc. Detail how magnetic compasses are actually used in the day to day navigation of the vessel. When was last "swinging of the compass"? Did you observe? If so, detail the operation observed. If not, describe, from someone who was there, how the ship swung her compass for compensation purposes. Provide a copy of the Compass Deviation card(s) in place on your vessel for each magnetic compass mounted. Copy the log book entries that were made for the compass swinging and/or compensation.
4. Describe in detail the rate of turn indicator your vessel is fitted with. How was it used while aboard? Used for constant rate turns? Check on swing by helmsman? Etc.
5. Describe in detail the fathometer onboard. Who made it and what features did it have? Did it have a recording machine? How and when was the recording mode used? Was the paper initialed by officer starting it up? Was fathometer checked/tested as part of pre departure or pre-arrival equipment checks? How was the testing actually done, and how was the test logged? Any calibration done with the fathometer while aboard? When was it used? Were depth alarms used? Describe their use. Were problems with false alarms encountered? How were they overcome? What unit of measurement was commonly used: Meters, feet, fathoms. Were the fathometer readings normally checked against positions obtained by the officers? Where is(are) the sensor(s) located on the ship's hull?
6. Describe in detail the radars installed. Types, manufactures, ability to cross over. Where were scanners placed, and how did this limit their effectiveness? Were there any blind spots or problems/difficulties observed with the radars while you were aboard? How were radars used when at sea and in port? Who used which radars and why. How was long range scanning used when in reduced visibility? What scales were commonly used while at sea, making landfall, in reduced visibility and/or in pilotage waters? Was parallel indexing commonly used? Describe in detail the normal usage of the ship's radars: Were EBLs and/or Nav Lines used?
7. What type of weather fax machine did your vessel carry, if any? Who obtained wx faxes and when? What was the quality of these faxes, and were any difficulties observed when attempting to receive them? Did your vessel subscribe to a routing service that recommended a specific route based upon forecasted weather? Detail how vessel utilized this service. Detail ship's personnel's experience with the service. Did your ship file NOAA weather reports? If so who did it when? If not, why not?



8. Describe in detail the autopilot used aboard your ship. Manufacture, options, controls etc. Provide a photo or sketch labeling all controls and features. Who adjusted the autopilot? Did it have the capability of making pre computed course changes? When was the ship normally put on and taken off auto-pilot? When was it required to be off? Who is allowed to engage or disengage the autopilot? Did you observe this practice? Describe any unusual occurrences or operations of your vessel's autopilot
9. Was your vessel equipped with a Voyage Data Recorder? Describe its normal operation. Where is it located, what does it look like? What information does it record? How is the information sent, recorded, and/or stored?
10. Describe in detail any reduced visibility listening devices if fitted. (Big Ears). Describe how it was used in actual practice if observed. How is the reliability? If no special devices fitted, then describe normal procedure for achieving safe speed and posting of lookout, especially with regards to sound, during reduced visibility.
11. Describe in detail the Speed Log(s) provided aboard your ship. How many are there? Manufacturer, features, how many axis, how identifies motion? Bottom or water reading? How accurate is it? Where is(are) the sensor(s) physically located? What is the theory behind its operation? How is it actually used aboard ship? In pilotage waters, at sea, and when docking. Any special precautions for their use?
12. Describe the mooring diagrams used aboard your vessel. (Plans showing where lines go for tying up to a specific dock). How were they used? Were they reviewed prior to each docking? Who makes them? Provide a copy of those used for the ports your vessel visited. If your ship does not have them, make your own mooring diagrams. Show bitts, chocks, fairleads, winches on the ship, and where all the lines went ashore.
13. Describe in detail the equipment and use of AIS on your vessel's bridge. How is this piece of equipment integrated into the actual bridge equipment, and how is it actually used by the ship's officers in the safe navigation and maneuvering of the vessel. Describe any limitations and problems observed with the AIS system on your vessel. How did AIS affect your vessel's maneuvering and observation of the Rules of the Road.
14. Describe in detail, the ship's gyro compass or compass that was normally used for navigating: flux gate/ GPS etc. Provide photo if possible. Detail manufacturer, where and how mounted, observation practices: was compass checked before relieving the watch? What was the normal practice of checking this compass for error? Describe procedures for start up and shut down at the dock and at sea. Describe the transmission system and the repeaters. How many and where were they?  
  
Describe Course Recording device. Manufacturer, location, and how it was used on watches. Provide photo if possible. Was recorder initialed at any time? When and where and why?
15. Describe the bridge layout, indicating where all equipment is placed. Provide sketch, CAD drawing of layout, or copy of the layout showing where radars, ECDIC, helm, compasses, etc are located. Top view minimum. Can provide side view if necessary.

## **SECTION D - BRIDGE OPERATIONS (10 Points)**

1. Describe in detail the position fixing methods used as observed. Detail when they were used, and how frequently. Including but not limited to, compass checks, azimuths/amplitudes, comparisons to magnetic compass, computation and comparison of Deviation found to the table. Provide a copy of your ship's deviation table and a copy of a page from the Compass Observation Book (preferably with one of your entries in it). Did mates take visual bearings, radar fixes, GPS exclusively etc. How was ECDIS or electronic charts incorporated into the routine? How or did mates double check the GPS? How?
2. Describe in detail all tug operations with your vessel: Escort, docking, towing etc. What types of tugs were utilized, when and where? How were escorts provided? Who was in control of the tugs? What type of communications were required for escort tugs. Were any special precautions taken with any of the tugs? i.e.: bollard size and location vs. tugs horsepower? Describe the largest and the smallest horsepower tug that was used while you were aboard. Describe how tugs were made fast to your vessel by your vessel's crew. Did your ship use messengers, tugger winches etc, to pull the lines aboard? Describe any special safety precautions utilized while making tugs fast or letting them go. Describe the use of tugs (placement and lines put out), and why they were done that way.
3. Describe routine of anchor watches observed while aboard. How was anchored position picked out (when coming in) and how was it ensured that vessel was "on the spot" when dropping the anchor? Where was the watch and mate stationed? Was mate allowed to leave the bridge? What frequencies were monitored while at anchor. How was it ensured that vessel was not dragging anchor? GPS alarm, Rag on chain, watch, radar nav lines, ECDIS, electronic charts, visual bearings, radar ranges. What did deck watch do during anchor period?
4. Describe in detail any vessel interaction with a port control, VTS etc. Where were call in points, what information was required, what frequencies were communications made on, what was the time line for communications? Who was responsible for these communications? What authority did each of these port controls have over the vessel? Was vessel required to follow their directions, if not why?
5. Describe in detail the watch condition system used aboard your vessel for varying conditions.
6. Describe a typical piloting transit with pilot aboard: Who does what? Who remains on bridge? How are reliefs done under piloting situations? Who goes down to pick up or send off the pilot? Are watch conditions maintained, or allowed to slip for this operation? Who cons the ship? Is the watch officer informed who has the con and when it changes? Is this information logged? Is there a pre-arrival and pre-departure conference done with all the officers involved with the operation? If not, how is important information passed down? If there was a change in the voyage plan, how are the other navigating officers informed? Are turn bearings precomputed? Are wheel over points plotted and/or used? Are turning rates pre-calculated and/or used. Provide a sample of one of the ships piloting and one of its offshore voyage plans. Was a Master/Pilot exchange card completed prior to pilot boarding? If so, provide a copy of one used. How did the master conduct the master/pilot exchange of information, if indeed it was done? Describe the routine. Were tug escort conferences conducted? Describe those in detail.
7. Describe your vessel's company's requirements for under keel clearance (UKC). Did they have them? What were they? How was UKC calculated aboard ship? Did shoreside management issue clearances? Were there any UKCs issued by port authorities? What and When? What method does your vessel use to calculate squat? Provide a sample squat calculation for your vessel's transit of a shallow channel.

## **SECTION E - CARGO GEAR AND OPERATIONS (20 Points)**

**Complete only one** of the following five operations sections: (Tanker, Container, RORO/General Cargo Vessel, Passenger, or Inland) depending upon which is applicable to your vessel using explanation and drawings/photographs as required.

Should you have a question as to which class of vessel you are to complete, clarify that with the Department Chair before leaving on assignment, or via email or telephone after you are on the ship. If you are in doubt, and can not contact me at MMA, then **do both types of vessels.**

# CARGO OPERATIONS

## TANKER

1. Draw/sketch diagrams of the cargo and ballast systems both above and below deck. Include sizes of lines, types of valves, locations of suctions within tanks for ballast and cargo. Draw/sketch on deck and pumproom bunker piping.
2. Describe the general routine that occurs on board ship in preparing for the next load. Describe loading orders received. How are they sent, who receives them, in what form? What is included in them? Who determines how and where the cargo has to go for the voyage. Describe pre-voyage stress calculations. What type of stability program is in use, and who uses it? Describe the Preplanning operations done by the Chief Mate, including his drawing up the loading plan. Include write up on all paperwork associated with the pre-loading routing. Include copies (completed) of all paperwork done (DOI, Cargo Orders, etc.). Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).
3. Describe preloading/predischarging procedures. What checklists are used? What precautions are in place to detect and correct human errors? What company, USCG, local, and or shipboard regulations and procedures are used. Who checks line up and when? What method is used in marking, labeling valves and how are valve positions indicated on deck and in the control room. What methods are there to secure valves in one position or another? Include copies (completed) of all forms used, including but not limited to DOI form, all check lists, procedures, etc.
4. Describe topping off and stripping procedures in detail. How are they done? How are tanks gauged during the process? What is the order of topping off and stripping tanks? In topping off, what allowance is made for list and or trim corrections to ensure proper final ullages. What rates are used in loading and topping off? What discharge rates can your ship achieve, and what is normally used for a discharge rate during stripping? What type of communications are used? Describe the emergency substitute methods? Are stress calculations done prior, during and after the topping off and stripping?
5. Describe in detail the ship's tank gauging system. Include a schematic if electronic. How is the system tested? When and by whom are the systems tested? When do applicable USCG regulations require testing of the system? How is the system used in loading and discharging? How is it used for official gauging of the ship?
6. Describe in detail the shipboard procedure for inerting your vessel. (Monitoring, testing, setting alarm points). Describe in detail all equipment and meters used in inerting. Describe the processes for;
  - Initial inerting from a gas free ship
  - Inerting during discharge of cargo
  - Inerting, venting or vapor balance during loading operations
  - Inerting for hydrocarbon removal prior to gas freeing
  - Inerting for topping up pressure while at sea

## Venting/Purging and gas freeing procedures

7. Describe in detail your ship's Vapor Balance/Exchange System. Include hand-drawn diagrams of all piping. Include descriptions of: Deck Water Seal, isolation Valves, vent masts, pressure gages, vapor exchange risers, any compressors used, PV valves/bullets and PV breaker.
8. Describe in detail the type of Crude Oil Washing System that was onboard your vessel. If you had none, detail why none was aboard. What type of COW guns were supplied. Where were they located. Describe a shadow diagram for COW. What types of COW operations occurred on your vessel. Detail the types of washings, upper, lower, mid-level that were done. What were the liquid levels when starting each phase? What were the purposes: Change of cargo, Required for inspection, sludge control? Detail how COW operations were run: People in Charge, Pre-testing of lines, Start up , changing limits on machines, ensuring proper operation and rotation of machines, switching sets, monitoring liquid levels in tanks, stripping of tanks, switching of sets, finishing operations, draining of lines, logging of operations in Oil Discharge Record Book. Were there special requirements from the port or dock if you were COWing there? Was there any maintenance performed on COW equipment when there? Describe. Include any checklists associated with COW operations onboard and/or ashore.
9. Describe the procedures utilized for Tank Cleaning (non-COW) onboard your vessel for:  
Tank entry, Cargo Changes, Repairs.  
Describe: Washing methods: Butterworth, fixed, portable, drops.  
Preparation of equipment: Megging hoses  
Special tools used, non-sparking, saddles, wrenches etc  
Methods of ensuring removal of washings  
Where were slops pumped to?  
Where did slops eventually go?  
Use of Oil Record Book for recording operations.  
Use of gas testing equipment for pre-washing, washing and post watching pre-entry and during entry.
10. Did your ship come into ports that were sensitive to the release of hydrocarbon vapors? How did your vessel lessen tank pressure when pressures increased up to the limits of your Pressure Vacuum Valves? Describe procedures of any port authority or company monitoring personnel inspecting your vessel for release of vapors. Were there any accidental or deliberate releases of vapor while you were aboard? Describe conditions and incidents. Was your vessel required to test the IGS system for leakage? If so, when and how often? Who onboard was responsible for the inert gas operations? Who onboard actually started the gas plant and sent it to deck? Detail gas pressure set points of all equipment and describe why they are set to those pressures. Describe isolation procedures for tank cleaning and entry. Describe safety precautions for use of IGS. Describe operations when sending gas ashore or to a lightering vessel.
11. Were grounding cables used when alongside a dock or another vessel? Describe what a grounding cable is and how it should and/or was used. What was the actual practice found aboard your vessel?
12. Describe in detail the Oily-water monitor for your vessel. Describe the manufacturer, and all settings required by IMO. When and how is it used and tested? What is logged concerning its use? How reliable a device is it? Describe an operation with its use while you were aboard, if one occurs?

13. What type of framing system was use on your vessel? Where do the frame numbers start? Stem or Stern? Did your vessel require any special construction techniques to its framing? Describe the double bottoms and double hull on your vessel, if provided. Compare the size of them to the size required by the CFRs. What methods are there for filling, venting and pumping out these spaces? How are they protected from corrosion?
14. Describe the general construction of your ship: Hull Plating, Keel, Deck Plating, superstructure etc. Detail any unusual construction methods, doubling, riveting, aluminum/steel bonding, etc.
15. Was your vessel equipped with an emergency towing package? Describe in detail its construction, use of and any training required by ship's personnel for its use. Has it been used onboard your vessel before? If so, describe what happened from someone who observed it. If it is used or tested while you are aboard, describe its operation in detail.

# CARGO OPERATIONS

## LNG VESSEL

1. Draw/sketch diagrams of:  
The cargo system both above and below deck  
The ballast system above and below deck  
The nitrogen system  
LNG Spray cooling system  
Cargo pump and Emergency Cargo pump (if carried)  
Bunkering system  
FOR ALL ABOVE: Include sizes of lines, types of valves, locations of suctions within tanks for ballast and cargo. Also, if not constructed of mild steel, indicate what these items are constructed of.
2. Draw/sketch diagram of the ship's primary containment system. Include materials and method of construction. Describe fully, the types of tanks utilized to carry the cargo. Compare your ship's tanks to the other types of LNG cargo tanks Moss vs. Membrane and discuss the pros and cons of each. How does your ship's tank construction allow for thermal contraction and expansion? How is your tank insulated?
3. Draw/sketch diagram of the ship's secondary containment system. Include full description of how any leakage is detected and dealt with. Write up any observations of tank leakage while aboard. Describe how your vessel prevents the accumulation of gas vapors in the insulated area.
4. Describe in full the types of cargoes carried while you were aboard. What temperature and what pressure were they carried at? What was their vapor pressure, density, molecular formula, boiling point, specific gravity at boiling point, specific gravity of vapor at 0° Celsius? Are there any restrictions to types of cargoes that your vessel can carry?
5. Describe the vessel's vapor system. Explain its purpose. Why is it needed? How was it operated while you were aboard?
6. What type of power plant propelled your vessel? Was your vapor boil off used as fuel on your voyage? When? How is this accomplished? Provide sketch of piping system. What percentage of fuel could be gas. Compare efficiencies of burning boil off vs. straight fuel.
7. Describe the vessel's cool down system. Explain its purpose. Why is it needed? How was it operated while you were aboard?
8. Describe in detail the vessel's Emergency Shutdown System. Where are controls? How do they work, once activated? What do they control? Who can activate them? Can they be automatically activated? When are they tested? Describe the test procedures and schedule for testing if any?
9. Describe the general routine that occurs on board ship in preparing for the next load. Describe loading orders received. How are they sent, who receives them, in what form? What is included in them? Unless it is a full load, who determines how and where the cargo has to go for the voyage. Can your ship carry less than a full tank at sea? Are there sloshing precautions taken?



10. Describe pre-voyage stress calculations. What type of stability program is in use, and who uses it? Describe the Preplanning operations done by the Chief Mate, including his drawing up the loading plan. Include write up on all paperwork associated with the pre-loading routing. Include copies (completed) of all paperwork done (DOI, Cargo Orders, etc.). Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).
11. Describe the differences in crew and officers directly related to LNG vessels: Cargo Officers etc. Describe duties and responsibilities of all officers and crew on vessel.
12. Describe preloading/predischarging procedures. What checklists are used? What precautions are in place to detect and correct human errors? What company, USCG, local, international and or shipboard regulations and procedures are used. Who checks line up and when? What method is used in marking, labeling valves and how are valve positions indicated on deck and in the control room. What methods are there to secure valves in one position or another? Include copies (completed) of all forms used, including but not limited to DOI form, all check lists, procedures, etc.
13. Describe topping off and stripping procedures in detail. How are they done? How are tanks gauged during the process? What is the order of topping off and stripping tanks? If tanks are not stripped, how much heel is left in them? Does this amount vary? If so, why? In topping off, what allowance is made for list and or trim corrections to ensure proper final ullages. What rates are used in loading and topping off? What discharge rates can your ship achieve, and what is normally used for a discharge rate during stripping? What type of communications are used? Describe the emergency substitute methods? Are stress calculations done prior, during and after the topping off and stripping?
14. Describe all pressure relief systems associated with the cargo on your vessel? What spaces were protected with these devices? How was this protection accomplished? What types of PV Valves were used? Provide sketch, or labeled photo of all PV valves associated with the cargo system. What were their relief settings? Where did they vent to? Atmosphere, Tanks?
15. Describe all the precautions taken (by construction and operational procedures) to protect vessel from gas vapors. How is gas kept from getting into engine room, accommodations, on deck with crew. How are these areas monitored? What procedures are in place for entering spaces that might contain dangerous gasses?
16. Describe in detail the ship's tank gauging system. Include a schematic if electronic. How is the system tested? When and by whom are the systems tested? When do applicable USCG regulations require testing of the system? How is the system used in loading and discharging? How is it used for official gauging of the ship?
17. Special Operations: Describe in detail the procedures and actions taken (if observed) during tank entering, drying, cool-down, warm-up and purging. Describe in detail the procedures and actions taken during cargo line cool down.

18. Describe fully the procedures for cargo-arm hook up and release. What special precautions are taken at the cargo riser/arm area while discharging or loading to prevent the vessel from any accidental releases?
19. Describe any special training you got concerning LNG cargoes and the LNG vessel you were assigned. Describe fully the training, who gave it to you, who certified that you had actually acquired the necessary knowledge from that training, and how did they do it.
20. Describe in detail the shipboard procedure for inerting your vessel. (Monitoring, testing, setting alarm points). Describe in detail all equipment and meters used in inerting. Describe how the inert gas is produced, its components (percentages) and procedures for;
  - Initial inerting from a gas free ship
  - Venting/Purging and gas freeing procedures
21. Were grounding cables used when alongside a dock or another vessel? Describe what a grounding cable is and how it should and/or was used. What was the actual practice found aboard your vessel?
22. Describe in detail the Oily-water monitor for your vessel. Describe the manufacturer, and all settings required by IMO. When and how is it used and tested? What is logged concerning its use? How reliable a device is it? Describe an operation with its use while you were aboard, if one occurs?
23. What type of framing system was use on your vessel? Where do the frame numbers start? Stem or Stern? Where is the official number permanently affixed to your vessel? Did your vessel require any special construction techniques to its framing? Describe the double bottoms and double hull on your vessel, if provided. Compare the size of them to the size required by the CFRs. What methods are there for filling, venting and pumping out these spaces? How are they protected from corrosion? Describe the general construction of your ship: Hull Plating, Keel, Deck Plating, superstructure etc.
24. Describe the general construction of your ship: Hull Plating, Keel, Deck Plating, superstructure etc. Detail any unusual construction methods, doubling, riveting, aluminum/steel bonding, etc.

# CARGO OPERATIONS

## CONTAINER

1. What were your vessel's stack weight limitations and what were her lashing limits? Where was this information available? Sketch all container lashing profiles to be followed by the stevedores. Describe the procedure for securing the cargo for sea after the last container is loaded.
2. Assist the Mate in his scheduled lashing gear inventory. Provide a copy of same and discuss where the excess lashing gear is stowed. Discuss how semi-automatic twist locks work if available. Is there a scheduled maintenance plan for the lashing gear?
3. Discuss the computerized load program available on your vessel. Does the same program handle stability? How about Dangerous Cargo compatibility? Provide a copy of a final load plan complete with computed stability information.
4. Did you accompany the Mate or Chief Engineer on a cell guide damage survey? Why is this important to conduct a cell guide damage survey frequently? Did the Mate or Chief Engineer discover any fractures on deck in the vicinity of the hatch coamings? Discuss why these must be repaired ASAP.
5. What assistance was provided by shore-side layout staff regarding Dangerous Cargo Materials stowage? What is the Chief Mate responsible for and what reference books can he use? Discuss how much time the Mate must dedicate to Dangerous Cargo Manifest on your particular vessel.
6. Describe the ship procedures for loading refrigerated cargo. Include how the mate on watch records the locations, temperatures and explain how the mate can detect a problem with a refrigerated container.
7. What is the maximum list acceptable for cargo operations to continue.
8. Describe the bunkering operations for your vessel.
9. Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).
10. Describe, in detail, the duties of the third mate aboard the containership while loading and discharging cargoes.
11. Describe the hatch covers in detail if fitted. How are they opened, closed and secured. What is the weight limit for loading atop the hatch covers?
12. Describe the bilge pumping system within the cargo holds. How are containerships without hatches different in this regard?

# **CARGO OPERATIONS**

## **RORO/GENERAL**

1. Discuss the types of cargo gear aboard your vessel with a focus toward maximum lifting capabilities, holds or deck areas serviced by your cargo gear and types of cargo which could be lifted. Define the phrase, a self-sustaining ship.
2. Discuss necessary stability calculations prior to attempting a heavy lift. If your vessel has heavy lift capability, is there a heeling system available to offset list due to very heavy loads?
3. Discuss measures taken by stevedores to secure/lash cargo aboard your vessel.
4. Did you accompany the Mate or Chief Engineer on a damage survey? Why are frequent damage surveys important? Did the Mate or Chief Engineer discover any fractures on deck in the vicinity of the hatch coamings? Discuss why these must be repaired ASAP.
5. If aboard a ro/ro or partial ro/ro, discuss lash down points and all available types of vehicle tie downs. How many lashings are required for heavier vehicles? Cite an example such as a 40 ton military vehicle and discuss how much weight each lashing can be expected to hold.
6. Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).
7. Describe in detail the ventilation system aboard your vessel. What were the procedures used to operate, secure and ensure that it was functioning correctly?
8. Discuss any incidents that occurred while onboard, and how they were remedied.
9. Describe the ramp(s) if fitted. How were they raised and lowered? Capacity? Care and maintenance? Actual operations of? Problems encountered.
10. Describe the alteration of deck heights (if ship is fitted with movable decks). Why were decks altered? What precautions are taken when changing heights? What are the minimum and maximum number of decks on your vessel?
11. Describe in detail, all hatches, and cargo doors: their operation, how they were opened and secured. Regulations regarding their opening, and logging of same.

## **CARGO OPERATIONS PASSENGER VESSELS**

1. Draw/sketch diagrams of the water tight subdivisions used aboard your vessel. How do the actual subdivisions compare to those required in the CFRs?
2. Describe in detail, the construction, operation and use of the passenger ship's Water Tight Doors. Include ALL types, automatic and manual. Who is allowed to close the automatic type doors? Who is allowed to open them? When and how are they tested?
3. Describe in detail, the construction, operation and use of the passenger ship's Fire Doors. Include ALL types, automatic and manual. Who is allowed to close the automatic type doors? Who is allowed to open them? When and how are they tested?
4. Who is the ship's safety officer? Describe in detail the duties of the safety officer. What special training did he/she receive? What areas is the safety officer responsible for?
5. Who is the ship's Environmental Officer? Describe in detail the duties of the Environmental Officer. What special training did he/she receive? What areas are the Environmental Officer responsible for?
6. Describe the special STCW95 training required of maritime personnel working aboard a large passenger vessel, i.e., medical, crowd control, etc.
7. Draw/sketch diagrams of the vessel's fire detection system. Describe in detail, the type, construction, operation and use of the system. When and how is it tested?
8. Describe in detail, the stability conditions normally encountered on the vessel. Include calculations of GM and any special cases encountered. Does the ship utilize computer programs? How often is the stability calculated, and by whom? How is the status of the vessel's stability recorded/logged?
9. Describe the various unions encountered aboard your vessel, licensed, unlicensed and professional.
10. Describe bunkering procedures used aboard the vessel. What personnel are involved in the bunkering?
11. Describe the paperwork required of the master or purser when entering and/or departing port.
12. If your vessel has a special propulsion system, describe it and its operation in detail.
13. Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).

# **CARGO OPERATIONS**

## **INLAND OPERATING VESSELS - NOT UNDER ONE OF THE PREVIOUS 4 CATERGORIES**

1. Describe, in detail, the type of vessel you are assigned to.
2. Describe the original purpose of the construction of your vessel. Was it designed for the purpose it is being used for now? If not what was it used for. How was it altered to fit the purpose it is being used for presently?
3. Describe in detail the special construction of your vessel required for its present purpose.
4. Describe in detail the special operations your ship engaged in while you were assigned.
5. Does your vessel have any special maneuvering characteristics? Provide a copy of the maneuvering diagram that is posted on the bridge. Was this referred to by the conning officers and/or pilots? How did the actual ship respond compared to the diagram? What special techniques are utilized by the shiphandler for maintaining position, station keeping, docking, undocking, turning, etc.
6. Is your vessel equipped with any special directional control devices? : Bow thrusters, Stern thrusters, Dynamic Positioning Systems, Directional Controls, special helm devices etc. Describe these in full, and also describe their use as you observed.
7. If you vessel occasionally goes to sea, to transit to another port for work, or shipyard, what special precautions must the crew take to ready it for a sea passage? Safety, securing, hatches, ports etc.
8. Due to the construction of your vessel, what special safety precautions must be taken to protect the crew while undergoing "Cargo Operations"? Describe how these are enforced, crew attitudes towards them, and any incident you observed aboard the vessel.
9. Describe in detail the navigational equipment used to monitor the vessel's position while undergoing "Cargo Operations"
10. Describe in detail the "Cargo Handling" equipment used aboard the vessel. How was it operated? What does it do? How many people are needed to run it? What maintenance is required of it? Did it break down while you were aboard? Did it break down recently? Why, and how was it repaired?
11. If allowed the opportunity to shiphandle describe in detail handling characteristics and how the vessel responded to your commands.

## **SECTION F-      FIREFIGHTING & LIFESAVING**

***(15 points)***

Complete the following by explanation and drawings/photographs as required/necessary.

1. Describe the requirements for lifeboats, liferafts, and liferings aboard your vessel as required by CFR Subchapter W. Does your vessel comply fully with them, and if it differs, how and why?
2. During monthly lifeboat/safety inspections, accompany the ship's officer conducting these inspections. Record results and include a copy of paper work and examples of log entries.
3. Was your vessel equipped with a "Rapid-Release" off-the-stern type lifeboat? If so, detail its construction and equipment. Include details on davit data, testing, special training etc that would be required for a mate onboard a vessel with this special lifeboat. Describe special USCG regulations regarding these craft: When are they required to be released? How are they recovered? How many are required? Where must they be located? Did your vessel release the boat while you were aboard. Describe in detail the operation of that actual release, or one that a crew member can describe to you that occurred previously.
4. Supply (photocopy allowed here) a scale drawing using individual deck plans of all firefighting and lifesaving equipment on board your vessel. Indicate frame numbers on all drawings.
5. Provide a detailed hand drawing of all fixed CO<sub>2</sub> systems on your vessel; include all controls, labels, alarms, ventilation interface, etc.
6. Write up a complete synopsis of the Fire/Boat Drill for your vessel from the captain's and chief mate's planning of the drill to any required log entries, and company notification.
7. Identify who is the safety officer under ISM aboard your vessel and what his/her duties entail. Write up a short synopsis of a monthly safety meeting and detail all company paper work and notification relative to the safety meeting.
8. Explain in detail operations associated with and include copies of any forms relative to:
  - Tank entry procedures for your vessel.
  - Going aloft procedures for your vessel.
  - Lock out Tag out
  - Working over the side procedures for your vessel.
  - Any other operations that require permitting and or completion of forms.
9. Provide a detailed hand drawing of the:
  - Main fire system including the sea suction, fire pumps and all piping.
  - Fixed foam system including all hydrants, monitors, crossovers and storage tank/proportioning pump and valves. (If Fitted)
10. List the location of all the emergency Equipment Lockers aboard your vessel. List all the required equipment found in the locker. List all additional equipment found in the locker.
11. Describe all Personal Protective Equipment (PPE) required by your vessel's company. i.e.: Hard hats, safety shoes, gloves, long sleeves, safety glasses etc. How were these requirements enforced? Did the crew accept them, or was there resistance to them? What were the reasons behind the resistance?

12. Describe the USCG and FCC required GMDSS Equipment found aboard your vessel. What tests are required: daily, weekly and monthly, to ensure proper GMDSS equipment operation and describe in ***detail*** how they are done. How are repairs handled with this equipment? Does your vessel have a licensed person aboard who can repair it? How are normal messages handled? Does your ship have the capability to send and receive email? Was this ability extended to the crew? Who could send what and when? Does your vessel receive chart corrections, and/or notice to mariners over the satellite system? Did your ship receive any distress calls over the GMDSS system while you were aboard? How were they handled? How was the NAVTEX used for both weather and safety information. Were specific areas selected? Who set them? Did you have an opportunity to change areas while aboard? Was the information provided by NAVTEX of use to your vessel?
13. Describe in detail any special precautions taken for Piracy while aboard. If you did not have first hand experience with these, detail how your vessel handles traveling and working within waters that have a piracy threat.
14. Describe the Fast Rescue Craft aboard your vessel if so equipped. Was it used while aboard? Who maintains and tests it? What procedures are there for lowering and raising the craft? What is its capacity? What type of engine and Horse Power is it equipped? What is the top speed? Who aboard your vessel has Fast Rescue Craft certification?



## SECTION G - RULES OF THE ROAD (10 points)

1. Describe at least **FIVE** actual situations under varying conditions in which you observed the application of the steering and sailing rules. Provide a radar plotting sheet illustration of each situation showing the situation as seen from your radar scope. Include vectors of you and other vessels. Indicate scale radar is on. Attach a written report referencing time of day, sea room, number of vessels involved, visibility, and action taken. Specifically state which rule applied to the situation, how your ship handled that rule and the results of the action. You are encouraged to quote pertinent sections of the COLREGS in your discussion. Have each report initialed by officer of the watch on which the cited incident occurred with his/her comments.
2. Describe in detail your vessel's Rules of the Road equipment. Specifically address in your description the following:
  - Describe: the construction of lights; materials of cases and lenses; manufacturers; wattage of bulbs in different lights. How are lights powered? Which systems power the lights? Emergency power is found where? What if total loss of power occurs? What are minimum ranges of lights on your vessel? How are lights tested? When are they tested? How are these tests logged? Who logs them? What is normal practice of operation of these lights? What procedures are there should one of the lights burn out, or become damaged? Are there any special safety considerations?
  - Describe the construction of day shapes. List the day shapes your vessel has on board? Which shapes did you see used? How were they displayed? How are other shapes displayed? Who is responsible for the upkeep of the day shapes? Where are they stowed?
  - Describe sound signal apparatus on board – whistle, horn – their manufacturer, type (steam, air, etc.). When are they used in Rules of the Road situations? Describe the automatic sounding mechanisms. Describe the manual sound signaling apparatus aboard for making the prescribed sound signals. Regarding bells and gongs, describe their construction and use on board your vessel. Are there any automatic sound signaling devices aboard that mimic the bells and gongs? Describe it and its operation fully. Provide photo or sketch of bell and gong.

## APPENDIX I - Master's Evaluation

FROM: Chairman, Department of Marine Transportation  
TO: Master of Participating Vessel in Commercial Shipping Program  
SUBJ: Cadet Evaluation

Dear Captain:

I would like to thank you and your officers for your efforts in making this cadet's Sea Term a positive educational experience. The Department of Marine Transportation at Massachusetts Maritime Academy is working diligently toward "shipping out" a young man or woman with the best possible skills and attitude. Hopefully, a cadet with these qualities will be able to learn a great deal about your ship and the profession of a merchant marine officer while contributing to the vessel's operation.

To enhance the cadet's learning processes while on board, we have required that the cadet complete a Sea Term Project for grading upon return to the Academy. The Project stresses Navigation, Vessel Familiarization and Cargo Operations. It is independent in nature, guiding the cadet in gaining the most out of his or her time while aboard. We request that you take the above into consideration while completing the Academy's Placement Office Evaluation Form and the enclosed Marine Transportation Dept. Evaluation. The grade you award the cadet in this evaluation will be averaged as one quarter of the Sea Term grade. Due to the large percentage of the cadet's grade awarded by you, we request you offer him/her a mid-voyage evaluation to review performance and to allow for improvement, if required.

The assignment of this cadet within the watch or work schedule is your decision. We would like you to consider placing him/her on an eight-hour day minimum, possibly four hours on the bridge watch and the remainder on licensed type deck work. This particular arrangement will provide for maximum exposure to different functions aboard your ship. Other than under extraordinary circumstances, the cadet is expected to be assigned to your vessel for a minimum of 60 days.

The cadet has been tasked with completing several assessments while aboard your vessel, should you or your officers be willing to assist with them. If you or your officers are willing, we request that whoever performs an assessment of the cadet, first read, understand and agree to comply with the USCG **"Assessor's Manual for Conducting Mariner Assessments"**. The cadet has a copy for that purpose. Doing so will ensure that the cadet is properly assessed. We thank you in advance for any assessments that you or your crew are willing to perform.

I have tasked the cadet with the responsibility to arrange a time with you prior to his/her discharge for a review of your final evaluation. Please review your final evaluation with the cadet and provide him/her with a copy for their project. Please insert another copy into the envelope addressed to me, Craig Dalton, seal it, sign over the seal and place cellophane tape over your signature and then give this to the cadet as well.

Please mail the original evaluation, with any additional comments you might not have wanted to share with the cadet in the other envelope provided, to Ms. Mary Mulgrew, here at the academy. Any additional comments about our program, good or bad, would be greatly appreciated.

If you or your officers are in any way dissatisfied with the cadet's performance, please contact me immediately so that the appropriate action may be taken.

Sincerely,  
Captain Craig Dalton  
Chairman, Department of Marine Transportation  
Tel. 508-830-5000, Ext. 1951; email: cdalton@maritime.edu

# APPENDIX 1 - Master's Evaluation - MMA - MT - COMMERCIAL SHIPPING PROGRAM

Cadet Name \_\_\_\_\_ Vessel Name \_\_\_\_\_

Date Joined: \_\_\_\_\_ Date Discharged: \_\_\_\_\_ Days aboard \_\_\_\_\_

Please rate the above cadet in reference to the categories listed: ***Rate from 1 to 10 with 1 being worst and 10 being best.*** Please place a **N/A if not applicable** or **N/O for no opportunity to observe.**

**Personal Skills:** How did this cadet perform in the following personal skills compared to other cadets you have sailed with?

		Comments	Rating 1-10
1	Attitude		
2	Appearance		
3	Initiative		
4	Punctuality		
5	Orderliness		
6	Ability to work with unlicensed		
7	Ability to work with Officers		
8	Ability to Communicate Effectively		
9	Ability to solve problems		
10	Ability to seek help at proper time		
11	Ability to follow orders		
12	Ability for following through		
13	Creativity and Critical Thinking		
14	Interest in the job		
15	Ability to accept criticism		
16	Computer Skills		

**Professional skills:** How did this cadet perform in the following professional skills compared to other cadets you have sailed with?

		Comments	Rating 1-10
1	Safety		
2	Watchstanding - Overall		
3	Lookout		
4	Piloting - Terrestrial		
5	Celestial Navigation		
6	Rules of the Road		
7	Radar/ARPA		
8	ECDIS/AIS		
9	Radio - GMDSS - Coms		
10	Cargo - specify oil/dry or RoRo		
11	Seamanship Skills		
12	Shipboard Nomenclature		

You are encouraged to include any additional comments on the back of this form, or by attachments.

## APPENDIX II - Requirements for “Tankerman PIC” Eligibility: Experience

**Documentation of Service and Recency** requires presenting seaman discharges.

**Documentation of Transfers** requires presenting letters from either the company or vessel’s master stating the applicant has participated in transfer(s) of dangerous liquid cargoes. The service letters must include a list of transfer dates, number of transfers, classification of cargo (DL or LNG), kinds of transfers the candidate participated in, and the number of transfers that involved commencements or completions.

[Code of Federal Regulations]

[Title 46, Volume 1, Parts 1 to 40]

[Revised as of October 1, 1998]

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[Page 222]

### TITLE 46 - SHIPPING

#### CHAPTER I - COAST GUARD DEPARTMENT OF TRANSPORTATION

#### PART 13 – CERTIFICATION OF TANKERMEN – Table of Contents

##### Subpart B – Requirements for “Tankerman-PC” Endorsement

##### Sec. 13.203 Eligibility: Experience

Each applicant for a “Tankerman-PIC” endorsement for DL or LG shall meet the requirements of either paragraphs (a) and (b) or paragraph (c) of this section.

- (a) Each applicant shall present evidence of –
  - (1) At least 90 days of service as a licensed deck officer or a licensed engineering officer on one or more tankships or self-propelled tank vessels certified to carry DL or LG appropriate to the endorsement applied for;
  - (2) **At least 90 days of unlicensed or cadet service on deck or in the engine department on one or more tankships or self-propelled tank vessels certified to carry DL or LG appropriate to the endorsement applied for;** or
  - (3) A combination of the service in paragraphs (a)(1) and (2) of this section.
- (b) **Each applicant shall present evidence of participation, under the supervision of a “Tankerman-PIC,” in at least 10 transfers of liquid cargo in bulk of the classification desired on tankships or self- propelled tank vessels, including at least**

- (1) Five loadings, and five discharges;**
- (2) Two commencements of loading and two completions of loading; and**
- (3) Two commencements of discharge and two completions of discharge.**

- (c) Each applicant already holding an MMD endorsed “Tankerman-PIC” for DL and seeking an endorsement of LG, or the converse, shall –
- (1) Provide evidence of at least half the service required by paragraph (a) of this section; and
  - (2) Comply with paragraph (b) of this section, except that he or she need provide evidence of only three loadings and three discharges along with evidence of compliance with paragraphs (b)(2) and (3) of this section.
  - (3)

[CG 79-116, 60 FR 17142, Apr. 4, 1995, as amended by CGD 79-116, 62 FR 25134, May 8, 1997]



**Polar Tankers, Inc.**

3900 Kilroy Airport Way T. 562 290-1500  
Suite 210 F. 562 290-1780  
Long Beach, CA 90806

To: Officer in Charge – Marine Inspection – REC  
U.S. Coast Guard

From: \_\_\_\_\_ - Master  
M/T Polar Discovery

To Whom it May Concern,

\_\_\_\_\_ has observed the transfer of cargo and ballast on the dates indicated below while serving in the position of Deck Cadet aboard the Motor Tanker Polar Discovery. The Polar Discovery is classed +A1 E "Oil Carrier" by the American Bureau of shipping and carries Dangerous Liquid Cargoes.

Loads: 1/1/05  
1/19/05  
2/6/05  
\_\_\_\_\_  
\_\_\_\_\_

Discharges: 1/6/05  
1/10/05  
1/11/05  
1/27/05  
1/29/05

Commencements:  
1/1/05  
1/19/05

Completions:  
1/6/05  
1/27/05

\_\_\_\_\_ has demonstrated to my satisfaction to be fully capable of: supervising the transfer of liquid cargo, pre-transfer inspection and conference, execution of the declaration of inspection, connection of cargo hoses or loading arms, line-up of cargo system for loading or discharge, start of liquid flow during loading, start of cargo pumps and increase to normal working pressure, calculation of loading rates, monitoring and topping off of cargo tanks during loading, stripping of cargo tanks, ballasting and de-ballasting and securing of cargo systems.

Respectfully Submitted,

\_\_\_\_\_  
Master's full Name

\_\_\_\_\_  
License number

\_\_\_\_\_  
Master's signature & date

Polar Discovery

\_\_\_\_\_  
Vessel

1137026

\_\_\_\_\_  
Official number

85,387MT

\_\_\_\_\_  
Gross Tonnage



Company Name U.S. Shipping LLC Company Address P.O. Box 2945  
Edison, NJ 08818-2945

Tel: 1-800-470-9648

FAX: (732) 635-1918

Date: February 20, 2004

PROOF OF SERVICE LETTER  
 TANKERMAN-PIC ENDORSEMENT APPLICATION

To Whom It May Concern:

Per the requirements for application for the Tankerman - PIC endorsement as referenced in 46CFR 13.127 (a); 46CFR 13.203; and 46CFR 13.205, please be guided by the following:

Cadet \_\_\_\_\_ SSN \_\_\_\_\_, was

Assigned to the vessel ITB Philadelphia, from December 21, 2003

To February 20, 2004 and participated in: 14 transfers of the following bulk

Liquid oil and/or chemical product(s) from commencement through completion of the transfer(s):

DATE	PORT	PRODUCT	OPERATION
12/21/03 - 12/22/03	Port Everglades, FL	Low Sulphur Diesel, Premium and Reg. Gasoline	Commencement of Discharge and Stripping
12/25/03 - 12/26/03	Norco, LA	Low Sulphur Diesel, Premium and Reg. Gasoline	Commencement of Loading and Topping Off
12/31/03 - 12/31/03	Port Everglades, FL	Low Sulphur Diesel, Premium and Reg. Gasoline	Commencement of Discharge and Stripping
1/4/04 - 1/5/04	Norco, LA	Low Sulphur Diesel, Premium and Reg. Gasoline	Commencement of Loading and Topping Off
1/9/04 - 1/10/04	Port Everglades, FL	Low Sulphur Diesel, Premium and Reg. Gasoline	Commencement of Discharge and Stripping
1/13/04 - 1/15/04	Norco, LA	Low Sulphur Diesel, Premium and Reg. Gasoline	Commencement of Loading and Topping Off
1/18/04 - 1/19/04	Port Everglades, FL	Low Sulphur Diesel, Premium and Reg. Gasoline	Commencement of Discharge and Stripping
1/22/04 - 1/23/04	Norco, LA	L.S. Diesel, Jet Fuel, Premium and Regular Gasoline	Commencement of Loading and Topping Off
1/25/04 - 1/27/04	Port Everglades, FL	L.S. Diesel, Jet Fuel, Premium and Reg. Gasoline	Commencement of Discharge and Stripping
1/31/04 - 2/01/04	Norco, LA	L.S. Diesel, Premium and Regular Gasoline	Commencement of Loading and Topping off

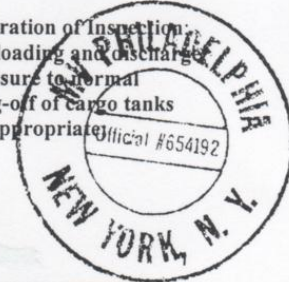
The above named Cadet satisfactorily demonstrated he/she is fully capable of supervising transfers of liquid cargo including [Cross out any item that does not apply.]:

- (1) Pre-transfer inspection;
- (2) Pre-transfer conference and execution of the Declaration of Inspection;
- (3) Connection of cargo hoses or loading arms;
- (4) Line-up of the cargo system for loading and discharge;
- (5) Start of liquid flow during loading;
- (6) Start of cargo pump and increase of pressure to normal discharge pressure;
- (7) Calculations of loading-rates;
- (8) Monitoring;
- (9) Topping-off of cargo tanks during loading;
- (10) Stripping of cargo tanks;
- (11) Ballasting and deballasting, if appropriate;
- (12) Disconnection of cargo hoses or loading arms; and Securing of cargo systems.

Mass. Maritime Academy  
 101 Academy Drive  
 Buzzards Bay, MA 02562  
 (508) 830-5040  
 FAX: (508) 830-5042

Sincerely,

Master



# APPENDIX III

## Commercial Shipping Program

### Grade Sheet Summary

**Name of Cadet:** \_\_\_\_\_

**Name of Vessel:** \_\_\_\_\_

	Points Available	Points Awarded
Journal	<b>5</b>	
Navigation		
Piloting	<b>15</b>	
Celestial Navigation	<b>30</b>	
Ship's Business	<b>15</b>	
Ship Familiarization - General	<b>15</b>	
Ship Familiarization - Bridge Equipment	<b>15</b>	
Bridge Operations	<b>10</b>	
Cargo Operations	<b>20</b>	
Fire Fighting & Lifesaving	<b>15</b>	
Rules of the Road	<b>10</b>	
Extra Credit		
Sea Project Score	<b>150</b>	
Masters Evaluation	<b>50</b>	
Total Score	<b>200</b>	
Total Score divided by 2	<b>100</b>	
Letter Grade		

Signature of Reviewing Office \_\_\_\_\_

Date \_\_\_\_\_



**Candidate Name**

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<b>Navigation Total</b>		
<b>Piloting Portion</b>		
<b><u>One Voyage Plan with Chart Submitted</u></b>	<b>MAX PTS 12</b>	
As a minimum, chart preparation shall include labeling of:		
ITEM	PILOTAGE	LANDFALL
a. Intended track lines with true courses.	X	X
b. Distance to run for each leg.	X	X
c. Waypoints identified by letter or numeral with total distance to go to end of transit.	X	X
d. Prominent navigation aids for visual bearings.	X	X
e. Optimal radar contours for radar fixing and parallel indexing. (When available)	X	
f. Parallel indexing information on each leg. (When available)	X	
g. Significant navigation events like passing a buoy close aboard or conspicuous hydrographic features.	X	X
h. Turn bearings on objects nearly ahead or astern on the next leg adjusted for the ship's advance and transfer at transit speed and water depth.	X	
i. Calculated stage of tide by table for each leg.	X	X
j. The minimum depth along the track on each leg.	X	
k. Minimum depth contours, all areas with depths less than the predetermined minimum depth, along the entire transit and mark the minimum depth contours with a bright high-lighter pen.	X	X
l. Graphic indication of expected set and drift of current on each leg.	X	X
m. Danger bearings if available and identify same on the chart.		
n. Emergency anchoring locations on the chart. (When available)	X	X
o. Areas on the chart where because of very shallow water or traffic, extra precautions must be observed and speed reductions considered.	X	
p. Computation of luminous and computed geographic visibility of each primary navigation light during approach and label arcs of visibility.		X
q. Locations where VHF communications with VTS (port authorities) are mandated.	X	X
r. Informational notations regarding but not limited to:		
▪ deceleration points if applicable,	X	X
▪ pilot boarding/embarkation locations if applicable,		
▪ where to call the captain,		X
▪ test gear		X
▪ call out the gang	X	X
▪ tugs alongside	X	
Tidal height and predicted current at the docking/undock time for each port visited by the vessel every time visited. No more than four for each docking or four undocking at any one port.	<b>MAX PTS 3</b>	

**Minimum numbers for Grade of C for Normal and Inland vessels are shown as shaded boxes**

Observation Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Observation Date															
Pre-compute A.M. Star Time						C Normal				C Inland					
Pre-compute Sunrise						C Normal				C Inland					
Pre-compute any celestial body other than the sun @ transit (e.g. Venus)	C Normal & Inland														
Pre-compute LAN time and altitude at LAN										C Normal & Inland					
Pre-compute Sunset						C Normal				C Inland					
Pre-compute PM Star time						C Normal				C Inland					
Amplitude of sun and comparison			C Normal												Optional For Inland
Azimuth of sun and comparison								C Normal		C Inland					
Observation of a geographic range and comparison										C Inland					Optional For Normal
Azimuth of Polaris and comparison	C Normal & Inland														
Azimuth of Star and comparison				C Inland											Optional For Normal
Amplitude of any celestial body other than the sun and comparison - <i>optional</i>															

**WRITE THE DATE AND THE NAVIGATION JOURNAL PAGE NUMBERS OF WHERE EACH OBSERVATION IS CALCULATED IN THE APPROPRIATE SQUARES ON THIS SHEET.**

**NOTE: A Grade of C (doing up to the shaded boxes on either of these two pages) will not give you maximum scores per category, only 75% of the maximum point values. See scoring pages that follow. You may do any of the optional items for EXTRA CREDIT.**

# Minimum numbers for Grade of C for Normal and Inland vessels are shown as shaded boxes

Observation #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Observation Date															
<b>Celestial LOP daily</b>	<b>ALL</b>	<b>CELES</b>	<b>TIAL</b>	<b>LOPS</b>	<b>MUST</b>	<b>BE</b>	<b>PLOT</b>	<b>TED</b>		<b>TO</b>	<b>RCVE</b>	<b>CRDT</b>			
Set of Three (3) Sun lines					<b>C Normal</b>									<b>Optional Inland</b>	
Latitude at LAN MUST BE PLOTTED				<b>C Normal</b>											<b>Optional Inland</b>
LOP of Moon - <i>Optional</i>															
LOP of Polaris <i>Optional</i>															
A.M. Star Fix (three or more stars) <i>Optional</i>															<b>Optional Inland</b>
P.M. Star Fix (three or more stars) <i>Optional</i>															<b>Optional Inland</b>
Two (2) AM sunlines advanced to LAN, crossed with Latitude at LAN.		<b>C Normal</b>													<b>Optional Inland</b>
Two (2) PM sunlines retarded to LAN, crossed with Latitude at LAN.		<b>C Normal</b>													<b>Optional Inland</b>
<b>Sailings</b>															
Great Circle Sailings, noon to noon	<b>C Normal &amp; Inland</b>														
Mercator Sailings, noon to noon	<b>C Normal &amp; Inland</b>														
Noon Position report including propeller Slip		<b>C Normal</b>													<b>Optional Inland</b>
<b>Miscellaneous</b>															
Shipboard wx reports completed by the cadet, as per inst. on Page 14.			<b>C Normal</b>												<b>Optional Inland</b>

**WRITE DATE AND THE NAVIGATION JOURNAL PAGE NUMBERS OF WHERE EACH OBSERVATION IS CALCULATED IN THE APPROPRIATE SQUARES ON THIS SHEET.** NOTE: A Grade of C (doing up to the shaded boxes on either of these two pages) will not give you maximum scores per category, only 75% of the maximum point values. See scoring pages that follow. You may do any of the optional items for EXTRA CREDIT.

Candidate Name

---

Min. Stand. -C- Normal	Min. Stand. -C- Inland	<b>Celestial Navigation</b>	MAX. PTS 30 (All As) Normal	MAX PTS 30 (All As) Inland	
		<b>Rising/Setting/Transit Phenomena</b>	Max. Pt Value	Max. Pt Value	Points Awarded
6	10	Pre-compute A.M. Star Time	1	3	
6	10	Pre-compute Sunrise	1	2	
1	1	Pre-compute any celestial body other than the sun @ transit (e.g. Venus)	1	2	
10	10	Pre-compute LAN and altitude at LAN	1	3	
6	10	Pre-compute Sunset	1	2	
6	10	Pre-compute PM Star time	1	3	
<b>Compass Comparison: Completed on daily page and recorded in back of Navigation Journal</b>					
3	Optional	Amplitude of sun and comparison	2		
8	10	Azimuth of sun and comparison	3	4	
Optional	10	Observation of a geographic range and comparison - <i>optional</i>		3	
1	1	Azimuth of Polaris and comparison	2	3	
Optional	4	Azimuth of Star and comparison		3	
Optional	Optional	Amplitude of any celestial body other than the sun and comparison - <i>optional</i>			
<b>Celestial LOPS</b>					
4	Optional	Sets of Three Sun lines - (within 1 minute of each other, plotted)	5		
4	Optional	Latitude at LAN - calculation of latitude FROM OBSERVATION - <b><i>MUST BE PLOTTED!!!!</i></b>	3		
Optional	Optional	LOP of Moon - <i>optional Plotted</i>			
Optional	Optional	LOP of Polaris			

<b>Min. Stand. -C- Normal</b>	<b>Min. Stand. -C- Inland</b>	<b>Celestial Fix submitted with <u>work documented on Universal Plotting Sheet</u></b>			
			Max. Pt Value	Max. Pt Value	Points Awarded
Optional	Optional	A.M. Star Fix (three or more stars)			
Optional	Optional	P.M. Star Fix (three or more stars)			
2	Optional	2 AM sunlines advanced to LAN, crossed with Latitude at LAN. Take best sunline from two different sets of three, to advance	3		
2	Optional	2 PM sunlines retarded to LAN, crossed with Latitude at LAN. Take best sunline from two different sets of three, to retard	3		
		<b>Sailings</b>			
1	1	Great Circle Sailings, noon to noon	1	1	
1	1	Mercator Sailings, noon to noon	1	1	
2	Optional	Noon Position report including propeller Slip	0.5		
		<b>Miscellaneous</b>			
3	Optional	Shipboard weather reports completed by the cadet. Include within the Navigation Journal one page of <i>Ship's Weather Observation Form</i> , FM-13-X-SHIP	0.5		
		<b>TOTAL POINTS AWARDED</b>	30	30	

**NOTE: The Maximum Points shown on the right side of the table is for A work, not the C work indicated by the minimum standard on the left.**

**If you did the minimum number of Great Circle Sailings (1) as shown above for a seagoing vessel, you would receive 0.75 points for that number, not the one maximum. You would have to do more than 1 Great Circle Sailing Problems in order to get the maximum 1 point.**

**Candidate Name**

---

<b>Ship's Business</b>	<b>MAX PTS 15</b>		
	Max. Pt. Value	Points Awarded	
What is the purpose of the Certificate of Documentation? What are the trades for which your vessel is documented? Who issues the document?	<b>1.0</b>		
What is the Official Logbook? Who maintains it? List the entries required by law. What is its ultimate disposition? What is the difference between Official Logbook and company logbook? Describe logbook procedures for your vessel. Copy or sketch a sample (blank) page of your ship's company logbook, and include in this section	<b>1.0</b>		
What is your ship's official number issued by the USCG? What is its IMO number? Where are these numbers posted and why? Provide photos and/or sketches of both. Purpose of both.	<b>1.0</b>		
What are the principal national and international rules and regulations governing vessel security? What are the responsibilities of governments, companies and designated persons under these rules and regulations? What are the maritime security levels? Explain what each one means.	<b>1.0</b>		
Describe as much as possible who performs the duties of the Vessel Security Officer and what are his/her duties? Who is your Company Security Officer and what are his/her duties. Did you have security duties as a cadet? If so, explain. What instructions and guidance on the vessel security did you receive on board?	<b>1.0</b>		
What security levels has your ship encountered while you were aboard? How would your ship be notified if a port's security level has changed? Is the crew of your vessel aware of current security levels? Do they take it seriously? Is there an active gangway watch? Have you witnessed, or has the ship previously been involved in a security threat? What are the basic security procedures that your vessel has available to it? What additional items are added as threat levels are increased? What is done during a security drill? What special security precautions are in place on your vessel? What happens aboard your ship or in a port facility when security levels change in a port?	<b>1.0</b>		
Describe the procedure for signing on a crewmember. In your discussion, address the merchant mariner document (Z-Card), STCW Certificate, Form C.G. 735-T (Master's Report of Seaman Shipped or Discharged), Foreign Articles and the Certificate of Discharge.	<b>1.0</b>		
Upon entry into the United States, what papers and documents must the Master have ready prior to arrival? What if he is carrying a stowaway from foreign?	<b>1.0</b>		
Did your vessel go foreign or inter-coastal? Describe what actually occurred aboard that differed from a domestic voyage? Paperwork, Inspections, Port Officials, Delays, Security, Crew Changes, etc.	<b>1.0</b>		
Name and describe all union(s) on board and their representation structure on board. Describe how these unions work aboard, how the crew and officers feel about them, how they help or hinder relations and work. Is there segregation aboard?	<b>1.0</b>		

<b>Ship's Business - CTD</b>	<b>MAX PTS 15</b>		
	Max. Pt. Value	Points Awarded	
Discuss the shipboard familiarization procedures from signing onboard until assuming his/her first watch under STCW and ISM. Do this for you as a cadet, and for a typical officer and crewman signing on.	<b>1.0</b>		
Discuss the following documents: Note of Protest, Notice of Readiness, Certified Crew List, and Cargo Manifest	<b>1.0</b>		
What are the STCW 95 regulations pertaining to rest periods, generally, and to your vessel and its operations specifically. Discuss measures taken on your vessel to deal with STCW rest period issues. How did the Capt. manage his mates to ensure the most rested officer would be on the bridge when the Mate was deeply fatigued from cargo ops?	<b>1.0</b>		
Fully describe the vessel's Certificate of Inspection. Who issues it? What are the requirements for posting? Describe the work necessary by the vessel in preparation for inspection for certification. Why is it an important document?	<b>1.0</b>		
Describe the ship's Pollution Response Plan? Who wrote it? What would your ship do in the event of a spill? Who is your QI? How would the call be made? Are there emergency procedures for other events? Provide copies if possible.	<b>1.0</b>		

**Candidate Name**

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<b>SHIP FAMILIARIZATION GENERAL</b>	<b>MAX PTS 15</b>		
	Max. Pt. Value	Points Awarded	
<p>Describe in detail (include copies of any plans) vessel's mooring winches and anchor windlasses. What types are there? Self-tensioning, split drum, hydraulic, electric, steam, warping? Describe operation and shipboard procedures. What training on them does a newly joining crew member receive? Who and how are lines tended during loading and discharging? What is the heaving capacity of your winches and windlass? What is the breaking strain of the lines that are on those winches? How much chain and anchor can the windlass heave? Can it pick the anchor and the entire chain straight up off the bottom? How fast can the windlass heave in the anchor? Describe the anchoring procedures for your vessel in shallow water and deep water.</p>	<b>3</b>		
<p>Describe the ship's steering gear. Obtain and include copies of general arrangement plans if possible. How do regulations affect tankers' steering gear, vs. cargo vessels? (Change over, duplication etc.) Describe in detail, ship's change over procedures, emergency and manual. Describe in detail ship's procedures for testing steering gear, (pre-arrival &amp; pre-departure). Who wrote the procedures? When are these operations done, where are they done, who does them? Supply a copy of the ship's procedures if available. Were those procedures posted, and where? Where can the vessel be steered from? Are there any navigational areas where special procedures (i.e. man in the steering gear flat) are followed? How does the bridge and engine room monitor the performance of the steering gear? (video cameras, alarms). Describe any failures that occurred while you were aboard, and actions taken. What is the maximum degrees your ship's rudder can turn? When the command is given for hard right or left rudder, how far does the master want the rudder put over? Why?</p>	<b>3</b>		
<p>Load lines. How are drafts logged in the vessel's log book? By who? When? Sketch, describe and comment on all lines/symbols painted on the side of your ship? Does your ship have a changeable tonnage? Does it have two load lines? Which tonnages (International or Domestic) are used for most of your ship's work? What do the pilot's require and why? Discuss differences in numbers for both systems for your vessel and why they are there</p>	<b>1.5</b>		
<p>Explain all emergency escape routes from all spaces on the ship. Include engine room spaces, steering gear, inside houses. Describe emergency lighting methods and markings of all escape routes. Which routes are marked? and why. In engine room, describe the normal entry and exit points. Who uses these and when are they not used?</p>	<b>1.5</b>		



<b>SHIP FAMILIARIZATION GENERAL Ctd.</b>	Max. Pt. Value	Points Awarded	
Describe your ship's propellers (diameter and pitch, right hand/left hand, material, replaceable blades). If a variable pitch, describe its operation and special precautions. If twin screw, describe special maneuvering and operations with them. Is spare kept aboard? If not where can ship obtain replacement?	<b>1.0</b>		
Describe in detail the bow thruster(s) that your vessel was equipped with. Include manufacturer, type, horsepower, maneuvering effectiveness diagrams (bridge). Describe in detail the actual operation from call out of manpower to check and line up, to start up operation and securing details. How effective was the bow thruster(s) on your vessel. Describe any malfunctions or unusual operations with the thrusters.	<b>1</b>		
Describe in detail what type of power plant your vessel was equipped with. How did it affect maneuvering and operation of the vessel? What was the Critical Range of RPMs if any? DIESEL: How were load up and load down procedures incorporated on a diesel equipped vessel? How did minimum RPM (dead slow) affect your maneuvering on a diesel equipped vessel? OTHER - Azipod, Gas Turbine, Diesel Electric: Describe in detail the operation and control of your vessels propulsion? Where could it be controlled? What benefits were obtained from this type of propulsion system? Are there any drawbacks to the system? Describe its operation in detail. Describe any problems or unusual occurrences that happened while you were aboard.	<b>3</b>		
Did your ship come under any Ballast Water Exchange requirements? Describe in detail, the procedures for ballast water exchange if required for your vessel. (Not only if it occurred while you were onboard). Provide a copy of any certificates and/or logbook entries associated with this operation.	<b>1.0</b>		

**Candidate Name**

---

<b>SHIP FAMILIARIZATION BRIDGE EQUIPMENT</b>	<b>MAX PTS 15</b>		
	Max. Pt. Value	Points Awarded	
Provide a copy (readable electronic photo or photocopy) of your vessel's posted maneuvering characteristics. Was this information used by your vessel's navigating officers?	<b>0.5</b>		
Describe the installation and use of ECDIS aboard your vessel, if so equipped. Describe why your vessel is not completely qualified to sail without paper charts, (If it does not have an official ECDIS system). If not completely equipped for ECDIS, describe in detail all the equipment that your vessel has for electronic navigation: include charts, chart systems, radars, ECDIS type monitors. How are chart corrections done with the electronic charts? Who is responsible for correcting the electronic charts, and how are the corrections received? How does your vessel make use of electronic charts and ECDIS type monitors? What problems have been encountered with them, and what special precautions are in place with their use, if any?	<b>1.5</b>		
Describe in detail the ship's magnetic compass(es), and the binnacle they sit in. Include manufacturer, position aboard ship, ability to view from helm, lights, covers etc. What type of compensation system did it have. Include pictures or sketches of the binnacle and its adjusting devices: Flinders Bar, Magnets, Quadrantal Spheres, etc. Detail how magnetic compasses are actually used in the day to day navigation of the vessel. When was last "swinging of the compass"? Did you observe? If so, detail the operation observed. If not, describe, from someone who was there, how the ship swung her compass for compensation purposes. Provide a copy of the Compass Deviation card(s) in place on your vessel for each magnetic compass mounted. Copy the log book entries that were made for the compass swinging and/or compensation.	<b>1.3</b>		
Describe in detail the rate of turn indicator your vessel is fitted with. How was it used while aboard? Used for constant rate turns? Check on swing by helmsman? Etc.	<b>0.5</b>		
Describe in detail the fathometer onboard. Who made it and what features did it have? Did it have a recording machine? How and when was the recording mode used? Was the paper initialed by officer starting it up? Was fathometer checked/tested as part of pre departure or pre-arrival equipment checks? How was the testing actually done, and how was the test logged? Any calibration done with the fathometer while aboard? When was it used? Were depth alarms used? Describe their use. Were problems with false alarms encountered? How were they overcome? What unit of measurement was commonly used: Meters, feet, fathoms. Were the fathometer readings normally checked against positions obtained by the officers? Where is(are) the sensor(s) located on the ship's hull?	<b>1</b>		

**Candidate Name**

<p><b>SHIP FAMILIARIZATION BRIDGE EQUIPMENT</b></p>	<p>Max. Pt. Value</p>	<p>Points Awarded</p>	
<p>Describe in detail the radars installed. Types, manufactures, ability to cross over. Where were scanners placed, and how did this limit their effectiveness? Were there any blind spots or problems / difficulties observed with the radars while you were aboard? How were radars used when at sea and in port? Who used which radars and why. How was long range scanning used when in reduced visibility? What scales were commonly used while at sea, making landfall, in reduced visibility and/or in pilotage waters? Was parallel indexing commonly used? Describe in detail the normal usage of the ship's radars: Were EBLs and/or Nav Lines used?</p>	<p><b>1.5</b></p>		
<p>What type of weather fax machine did your vessel carry, if any? Who obtained wx faxes and when? What was the quality of these faxes, and were any difficulties observed when attempting to receive them? Did your vessel subscribe to a routing service that recommended a specific route based upon forecasted weather? Detail how vessel utilized this service. Detail ship's personnel's experience with the service. Did your ship file NOAA weather reports? If so who did it when? If not, why not?</p>	<p><b>1</b></p>		
<p>Describe in detail the autopilot used aboard your ship. Manufacture, options, controls etc. Provide a photo or sketch labeling all controls and features. Who adjusted the autopilot? Did it have the capability of making pre computed course changes? When was the ship normally put on and taken off auto-pilot? When was it required to be off? Who is allowed to engage or disengage the autopilot? Did you observe this practice? Describe any unusual occurrences or operations of your vessel's autopilot</p>	<p><b>1.5</b></p>		
<p>Was your vessel equipped with a Voyage Data Recorder? Describe its normal operation. Where is it located, what does it look like? What information does it record? How is the information sent, recorded, and/or stored?</p>	<p><b>0.5</b></p>		
<p>Describe in detail any reduced visibility listening devices. (Big Ears). Describe how it was used in actual practice if observed. How is the reliability? If no special devices fitted, then describe normal procedure for achieving safe speed and posting of lookout, especially with regards to sound, during reduced visibility.</p>	<p><b>0.5</b></p>		
<p>Describe in detail the Speed Log(s) provided aboard your ship. How many are there? Manufacturer, features, how many axis, how identifies motion? Bottom or water reading? How accurate is it? Where is(are) the sensor(s) physically located? What is the theory behind its operation? How is it actually used aboard ship? In pilotage waters, at sea, and when docking. Any special precautions for their use?</p>	<p><b>1</b></p>		
<p>Describe the mooring diagrams used aboard your vessel. (Plans showing where lines go for tying up to a specific dock). How were they used? Were they reviewed prior to each docking? Who makes them? Provide a copy of those used for the ports your vessel visited. If your ship does not have them, make your own mooring diagrams. Show bits,</p>	<p><b>1</b></p>		

Candidate Name			
clocks, radars, and lines on the ship, and where all the lines went ashore.			
<b>SHIP FAMILIARIZATION BRIDGE EQUIPMENT - Ctd</b>	Max. Pt. Value	Points Awarded	
Describe in detail the equipment and use of AIS on your vessel's bridge. How is this piece of equipment integrated into the actual bridge equipment, and how is it actually used by the ship's officers in the safe navigation and maneuvering of the vessel. Describe any limitations and problems observed with the AIS system on your vessel. How did AIS affect your vessel's maneuvering and observation of the Rules of the Road.	<b>1</b>		
Describe in detail, the ship's gyro compass or compass that was normally used for navigating: flux gate/ GPS etc. Provide photo if possible. Detail manufacturer, where and how mounted, observation practices: was compass checked before relieving the watch? What was the normal practice of checking this compass for error? Describe procedures for start up and shut down at the dock and at sea. Describe the transmission system and the repeaters. How many and where were they?  Describe Course Recording device. Manufacturer, location, and how it was used on watches. Provide photo if possible. Was recorder initialed at any time? When and where and why?	<b>1.2</b>		
Describe the bridge layout, indicating where all equipment is placed. Provide sketch, CAD drawing of layout, or copy of the layout showing where radars, ECDIC, helm, compasses, etc are located. Top view (floor plan) minimum. Can provide side view if necessary.	<b>1</b>		

<b>BRIDGE OPERATIONS</b>	<b>MAX PTS 10</b>		
	Max. Pt. Value	Points Awarded	
Describe in detail the position fixing methods used as observed. Detail when they were used, and how frequently. Including but not limited to, compass checks, azimuths/amplitudes, comparisons to magnetic compass, computation and comparison of Deviation found to the table. Provide a copy of your ship's deviation table and a copy of a page from the Compass Observation Book (preferably with one of your entries in it). Did mates take visual bearings, radar fixes, GPS exclusively etc. How was ECDIS or electronic charts incorporated into the routine? How or did mates double check the GPS? How?	<b>2</b>		
Describe in detail all tug operations with your vessel: Escort, docking, towing etc. What types of tugs were utilized, when and where? How were escorts provided? Who was in control of the tugs? What type of communications were required for escort tugs. Were any special precautions taken with any of the tugs? i.e.: bollard size and location vs. tugs horsepower? Describe the largest and the smallest horsepower tug that was used while you were aboard. Describe how tugs were made fast to your vessel by your vessel's crew. Did your ship use messengers, tugger winches etc, to pull the lines aboard? Describe any special safety precautions utilized while making tugs fast or letting them go. Describe the use of tugs (placement and lines put out), and why they were done that way.	<b>2</b>		
Describe routine of anchor watches observed while aboard. How was anchored position picked out (when coming in) and how was it ensured that vessel was "on the spot" when dropping the anchor? Where was the watch and mate stationed? Was mate allowed to leave the bridge? What frequencies were monitored while at anchor. How was it ensured that vessel was not dragging anchor? GPS alarm, Rag on chain, watch, radar nav lines, ECDIS, electronic charts, visual bearings, radar ranges. What did deck watch do during anchor period?	<b>1.5</b>		
Describe in detail any vessel interaction with a port control, VTS etc. Where were call in points, what information was required, what frequencies were communications made on, what was the time line for communications? Who was responsible for these communications? What authority did each of these port controls have over the vessel? Was vessel required to follow their directions, if not why?	<b>0.5</b>		
Describe in detail the watch condition system used aboard your vessel for varying conditions.	<b>1</b>		
Describe a typical piloting transit with pilot aboard: Who does what? Who remains on bridge? How are reliefs done under piloting situations? Who goes down to pick up or send off the pilot? Are watch conditions maintained, or allowed to slip for this operation? Who cons the ship? Is the watch officer informed who has the con and when it changes? Is this information logged? Is there a pre-arrival and pre-departure conference done with all the officers involved with the operation? If not, how is important information passed down? If there was a change in the voyage plan, how are the other navigating officers informed? Are turn bearings precomputed? Are wheel over points plotted and/or used? Are turning rates pre-calculated and/or used. Provide a sample of one of the ships piloting and one of its offshore voyage plans. Was a Master/Pilot exchange card completed prior to pilot boarding? If so,	<b>2</b>		

<p>provide a copy of one used. How did the master conduct the master/pilot exchange of information, if indeed it was done? Describe the routine. Were tug escort conferences conducted? Describe those in detail.</p>			
<p>Describe your vessel's company's requirements for under keel clearance (UKC). Did they have them? What were they? How was UKC calculated aboard ship? Did shoreside management issue clearances? Were there any UKCs issued by port authorities? What and When? What method does your vessel use to calculate squat? Provide a sample squat calculation for your vessel's transit of a shallow channel.</p>	<b>1</b>		

**Candidate Name**

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<b>CARGO OPERATIONS TANKER</b>	<b>MAX PTS 20</b>		
	Max. Pt. Value	Points Awarded	
<p>Draw/sketch diagrams of the cargo and ballast systems both above and below deck. Include sizes of lines, types of valves, locations of suctions within tanks for ballast and cargo. Draw/sketch on deck and pumproom bunker piping.</p>	<b>3.5</b>		
<p>Describe the general routine that occurs on board ship in preparing for the next load. Describe loading orders received. How are they sent, who receives them, in what form? What is included in them? Who determines how and where the cargo has to go for the voyage. Describe pre-voyage stress calculations. What type of loadicator is in use, and who uses it? Describe the Preplanning operations done by the Chief Mate, including his drawing up the loading plan. Include write up on all paperwork associated with the pre-loading routing. Include copies (completed) of all paperwork done. (DOI, Cargo Orders, etc.) Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway.</p> <p>Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).</p>	<b>1.5</b>		
<p>Describe preloading/predischarging procedures. What checklists are used? Two man checks? What company, USCG, local, and or shipboard regulations and procedures are used? Who checks line up and when? What method is used in marking, labeling valves and how are valve positions indicated on deck and in the control room? What methods are there to secure valves in one position or another? Include copies (completed) of all forms used, including but not limited to DOI form, all check lists, procedures etc.)</p>	<b>1.5</b>		
<p>Describe topping off and stripping procedures in detail. How are they done? How are tanks gauged during the process? What is the order of topping off and stripping tanks? In topping off, what allowance is made for list and or trim corrections to ensure proper final ullages? What rates are used in loading and topping off? What discharge rates can your ship achieve, and what is normally used for a discharge rate during stripping? Communications used? Emergency substitute methods? Are stress calculations done prior, during and after the topping off and stripping?</p>	<b>1.5</b>		
<p>Describe in detail, the ship's tank gauging system. Include a schematic if electronic. How is the system tested? When and by who? When do applicable USCG regulations require testing of the system? How is the system used in loading and discharging? How is it used for official gauging of the ship?</p>	<b>1.5</b>		

**Candidate Name**

<p align="center"><b>CARGO OPERATIONS TANKER (cont.)</b></p>	<p align="center"><b>MAX PTS 20</b></p>		
	<p align="center">Max. Pt. Value</p>	<p align="center">Points Awarded</p>	
<p>Describe in detail the shipboard procedure for inerting your vessel. (Monitoring, testing, setting alarm points). Describe in detail all equipment and meters used in inerting. Describe the processes for;</p> <ul style="list-style-type: none"> <li>Initial inerting from a gas free ship</li> <li>Inerting during discharge of cargo</li> <li>Inerting, venting or vapor balance during loading operations</li> <li>Inerting for hydrocarbon removal prior to gas freeing</li> <li>Inerting for topping up pressure while at sea</li> <li>Venting/Purging and gas freeing procedure</li> </ul>	<b>1</b>		
<p>Describe in detail your ship's Vapor Balance/Exchange System. Include hand-drawn diagrams of all piping. Include descriptions of: Deck Water Seal, isolation Valves, vent masts, pressure gages, vapor exchange risers, any compressors used, PV valves/bullets and PV breaker.</p>	<b>1</b>		
<p>Describe in detail the type of Crude Oil Washing System that was onboard your vessel. If you had none, detail why none was aboard. What type of COW guns were supplied. Where were they located. Describe a shadow diagram for COW. What types of COW operations occurred on your vessel. Detail the types of washings, upper, lower, mid-level that were done. What were the liquid levels when starting each phase? What were the purposes: Change of cargo, Required for inspection, sludge control? Detail how COW operations were run: People in Charge, Pre-testing of lines, Start up , changing limits on machines, ensuring proper operation and rotation of machines, switching sets, monitoring liquid levels in tanks, stripping of tanks, switching of sets, finishing operations, draining of lines, logging of operations in Oil Discharge Record Book. Were there special requirements from the port or dock if you were COWing there? Was there any maintenance performed on COW equipment when there? Describe. Include any checklists associated with COW operations onboard and/or ashore.</p>	<b>1.5</b>		
<p>Describe the procedures utilized for Tank Cleaning (non-COW) onboard your vessel for: Tank entry, Cargo Changes, Repairs. Describe: Washing methods: Butterworth, fixed, portable, drops. Preparation of equipment: Megging hoses Special tools used, non-sparking, saddles, wrenches etc Methods of ensuring removal of washings. Where were slops pumped to? Where did slops eventually go? Use of Oil Record Book for recording operations. Use of gas testing equipment for pre-washing, washing and post watching pre-entry and during entry.</p>	<b>1.5</b>		



<b>CARGO OPERATIONS TANKER (cont.)</b>	<b>MAX PTS 20</b>		
	Max. Pt. Value	Points Awarded	
Did your ship come into ports that were sensitive to the release of hydrocarbon vapors? How did your vessel lessen tank pressure when pressures increased up to the limits of your Pressure Vacuum Valves? Describe procedures of any port authority or company monitoring personnel inspecting your vessel for release of vapors. Were there any accidental or deliberate releases of vapor while you were aboard? Describe conditions and incidents. Was your vessel required to test the IGS system for leakage? If so, when and how often? Who onboard was responsible for the inert gas operations? Who onboard actually started the gas plant and sent it to deck? Detail gas pressure set points of all equipment and describe why they are set to those pressures. Describe isolation procedures for tank cleaning and entry. Describe safety precautions for use of IGS. Describe operations when sending gas ashore or to a lightering vessel.	<b>1</b>		
Were grounding cables used when alongside a dock or another vessel? Describe what a grounding cable is and how it should and/or was used. What was the actual practice found aboard your vessel?	<b>0.5</b>		
Describe in detail the Oily-water monitor for your vessel. Describe the manufacturer, and all settings required by IMO. When and how is it used and tested? What is logged concerning its use? How reliable a device is it. Describe an operation with its use while you were aboard, if one occurs?	<b>1</b>		
What type of framing system was use on your vessel? Where do the frame numbers start? Stem or Stern? Did your vessel require any special construction techniques to its framing? Describe the double bottoms and double hull on your vessel, if provided. Compare the size of them to the size required by the CFRs. What methods are there for filling, venting and pumping out these spaces? How are they protected from corrosion?	<b>1.5</b>		
Describe the general construction of your ship: Hull Plating, Keel, Deck Plating, superstructure etc. Detail any unusual construction methods, doubling, riveting, aluminum/steel bonding, etc.	<b>1</b>		
Was your vessel equipped with an emergency towing package? Describe in detail its construction, use of and any training required by ship's personnel for its use. Has it been used onboard your vessel before? If so, describe what happened from someone who observed it. If it is used or tested while you are aboard, describe its operation in detail.	<b>0.5</b>		

<b>CARGO OPERATIONS LNG VESSEL</b>	<b>MAX PTS 20</b>		
	Max. Pt. Value	Points Awarded	
<p>Draw/sketch diagrams of:</p> <ul style="list-style-type: none"> <li>The cargo system both above and below deck</li> <li>The ballast system above and below deck</li> <li>The nitrogen system</li> <li>LNG Spray cooling system</li> <li>Cargo pump and Emergency Cargo pump (if carried)</li> <li>Bunkering system</li> </ul> <p>FOR ALL ABOVE: Include sizes of lines, types of valves, locations of suctions within tanks for ballast and cargo. Also, if not constructed of mild steel, indicate what these items are constructed of.</p>	<b>2.0</b>		
<p>Draw/sketch diagram of the ship's primary containment system. Include materials and method of construction. Describe fully, the types of tanks utilized to carry the cargo. Compare your ship's tanks to the other types of LNG cargo tanks Moss vs. Membrane and discuss the pros and cons of each. How does your ship's tank construction allow for thermal contraction and expansion? How is your tank insulated?</p>	<b>1.4</b>		
<p>Describe preloading/predischarging procedures. What Draw/sketch diagram of the ship's secondary containment system. Include full description of how any leakage is detected and dealt with. Write up any observations of tank leakage while aboard. Describe how your vessel prevents the accumulation of gas vapors in the insulated area.</p>	<b>1</b>		
<p>Describe in full the types of cargoes carried while you were aboard. What temperature and what pressure were they carried at? What was their vapor pressure, density, molecular formula, boiling point, specific gravity at boiling point, specific gravity of vapor at 0° Celsius? Are there any restrictions to types of cargoes that your vessel can carry?</p>	<b>1</b>		
<p>Describe the vessel's vapor system. Explain its purpose. Why is it needed? How was it operated while you were aboard?</p>	<b>1</b>		
<p>Describe in detail the shipboard procedure for inerting your vessel. (Monitoring, testing, setting alarm points). Describe in detail all equipment and meters used in inerting. Describe the processes for;</p> <ul style="list-style-type: none"> <li>Initial inerting from a gas free ship</li> <li>Inerting during discharge of cargo</li> <li>Inerting, venting or vapor balance during loading operations</li> <li>Inserting for hydrocarbon removal prior to gas freeing</li> <li>Inerting for topping up pressure while at sea</li> <li>Venting/Purging and gas freeing procedure</li> </ul>	<b>1</b>		
<p>What type of power plant propelled your vessel? Was your vapor boil off used as fuel on your voyage? When? How is this accomplished? Provide sketch of piping system. What percentage of fuel could be gas. Compare efficiencies of burning boil off vs. straight fuel.</p>	<b>0.7</b>		
<p>Describe the vessel's cool down system. Explain its purpose. Why is it needed? How was it operated while you were aboard?</p>	<b>1</b>		

**Candidate Name**

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<b>CARGO OPERATIONS LNG VESSEL</b>	<b>MAX PTS 20</b>		
	Max. Pt. Value	Points Awarded	
Describe in detail the vessel's Emergency Shutdown System. Where are controls? How do they work, once activated? What do they control? Who can activate them? Can they be automatically activated? When are they tested? Describe the test procedures and schedule for testing if any?	<b>0.5</b>		
Describe the general routine that occurs on board ship in preparing for the next load. Describe loading orders received. How are they sent, who receives them, in what form? What is included in them? Unless it is a full load, who determines how and where the cargo has to go for the voyage. Can your ship carry less than a full tank at sea? Are there sloshing precautions taken?	<b>1</b>		
Describe pre-voyage stress calculations. What type of stability program is in use, and who uses it? Describe the Preplanning operations done by the Chief Mate, including his drawing up the loading plan. Include write up on all paperwork associated with the pre-loading routing. Include copies (completed) of all paperwork done (DOI, Cargo Orders, etc.). Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).	<b>1.2</b>		
Describe the differences in crew and officers directly related to LNG vessels: Cargo Officers etc. Describe duties and responsibilities of all officers and crew on vessel.	<b>0.3</b>		
Describe preloading/predischarging procedures. What checklists are used? What precautions are in place to detect and correct human errors? What company, USCG, local, international and or shipboard regulations and procedures are used. Who checks line up and when? What method is used in marking, labeling valves and how are valve positions indicated on deck and in the control room. What methods are there to secure valves in one position or another? Include copies (completed) of all forms used, including but not limited to DOI form, all check lists, procedures, etc.	<b>1</b>		
Describe topping off /stripping procedures in detail. How are they done? How are tanks gauged during the process? What is the order of topping off and stripping tanks? If tanks are not stripped, how much heel is left in them? Does this amount vary? If so, why? In topping off, what allowance is made for list and or trim corrections to ensure proper final ullages. What rates are used in loading and topping off? What discharge rates can your ship achieve, and what is normally used for a discharge rate during stripping? What type of communications are used? Describe the emergency substitute methods? Are stress calculations done prior, during and after the topping off and stripping?	<b>1</b>		

**Candidate Name**

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<b>CARGO OPERATIONS LNG VESSEL</b>	<b>MAX PTS 20</b>		
	Max. Pt. Value	Points Awarded	
Describe all pressure relief systems associated with the cargo on your vessel? What spaces were protected with these devices? How was this protection accomplished? What types of PV Valves were used? Provide sketch, or labeled photo of all PV valves associated with the cargo system. What were their relief settings? Where did they vent to? Atmosphere, Tanks?	<b>1</b>		
Describe all the precautions taken (by construction and operational procedures) to protect vessel from gas vapors. How is gas kept from getting into engine room, accommodations, on deck with crew. How are these areas monitored? What procedures are in place for entering spaces that might contain dangerous gasses?	<b>0.7</b>		
Describe in detail the ship's tank gauging system. Include a schematic if electronic. How is the system tested? When and by whom are the systems tested? When do applicable USCG regulations require testing of the system? How is the system used in loading and discharging? How is it used for official gauging of the ship?	<b>0.7</b>		
Special Operations: Describe in detail the procedures and actions taken (if observed) during tank entering, drying, cool-down, warm-up and purging. Describe in detail the procedures and actions taken during cargo line cool down.	<b>0.3</b>		
Describe fully the procedures for cargo-arm hook up and release. What special precautions are taken at the cargo riser/arm area while discharging or loading to prevent the vessel from any accidental releases?	<b>0.5</b>		
Describe any special training you got concerning LNG cargoes and the LNG vessel you were assigned. Describe fully the training, who gave it to you, who certified that you had actually acquired the necessary knowledge from that training, and how did they do it.	<b>0.3</b>		
Describe in detail the shipboard procedure for inerting your vessel. (Monitoring, testing, setting alarm points). Describe in detail all equipment and meters used in inerting. Describe how the inert gas is produced, its components (percentages) and procedures for; Initial inerting from a gas free ship and Venting/Purging and gas freeing procedures.	<b>0.5</b>		
Were grounding cables used when alongside a dock or another vessel? Describe what a grounding cable is and how it should and/or was used. What was the actual practice found aboard your vessel?	<b>0.3</b>		
Describe in detail the Oily-water monitor for your vessel. Describe the manufacturer, and all settings required by IMO. When and how is it used and tested? What is logged concerning its use? How reliable a device is it? Describe an operation with its use while you were aboard, if one occurs?	<b>0.5</b>		
Describe the general construction of your ship: Hull Plating, Keel, Deck Plating, superstructure etc. Detail any unusual construction methods, doubling, riveting, aluminum/steel bonding, etc.	<b>0.5</b>		

<b>CARGO OPERATIONS LNG VESSEL</b>	<b>MAX PTS 20</b>		
	Max. Pt. Value	Points Awarded	
<p>What type of framing system was use on your vessel? Where do the frame numbers start? Stem or Stern? Where is the official number permanently affixed to your vessel? Did your vessel require any special construction techniques to its framing? Describe the double bottoms and double hull on your vessel, if provided. Compare the size of them to the size required by the CFRs. What methods are there for filling, venting and pumping out these spaces? How are they protected from corrosion? Describe the general construction of your ship: Hull Plating, Keel, Deck Plating, superstructure etc.</p>	<b>0.6</b>		

**Candidate Name**

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<b>CARGO OPERATIONS CONTAINER</b>	<b>MAX PTS 20</b>		
	Max. Pt. Value	Points Awarded	
What were your vessel's stack weight limitations and what were her lashing limits? Where was this information available? Sketch some typical container lashing profiles to be followed by the stevedores.	<b>2</b>		
Assist the Mate in his scheduled lashing gear inventory. Provide a copy of same and discuss where the excess lashing gear is stowed. Discuss how semi-automatic twist locks work if available. Is there a scheduled maintenance plan for the lashing gear?	<b>2</b>		
Discuss the computerized load program available on your vessel. Does the same program handle stability? How about Hazmat compatibility? Provide a copy of a final load plan complete with computed stability information.	<b>2</b>		
Did you accompany the Mate or Cheng, on a cell guide damage survey? Why is this important to conduct a cell guide damage survey frequently? Did the Mate or Cheng discover any fractures on deck in the vicinity of the hatch coamings? Discuss why these must be repaired ASAP.	<b>2</b>		
What assistance was provided by shore-side layout staff regarding Hazardous Materials stowage? What is the Chief Mate responsible for and what reference books can he use? Discuss how much time the Mate must dedicate to Hazmat on your particular vessel.	<b>2</b>		
Describe the ship's procedures for loading refrigerated cargo. Include how the mate on watch records the locations, temperatures, and explain how the mate can detect a problem with a refrigerated container.	<b>2</b>		
What is the maximum list acceptable for cargo operations to continue? Why? What was the maximum you experienced while aboard? What actions were taken to relieve the list?	<b>2</b>		
Describe the bunkering operations for your vessel.	<b>1</b>		
Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects)	<b>2</b>		
Describe, in detail, the duties of the third mate aboard the containership while loading and discharging cargoes.	<b>2</b>		
Describe the hatch covers in detail if fitted. How are they opened, closed and secured. What is the weight limit for loading atop the hatch covers?	<b>1</b>		
Describe the bilge pumping system within the cargo holds. How are containerships without hatches different in this regard?			

**Candidate Name**

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<b>CARGO OPERATIONS RORO/GENERAL</b>	<b>MAX PTS 20</b>		
	Max. Pt. Value	Points Awarded	
Discuss the types of cargo gear aboard your vessel with a focus toward maximum lifting capabilities, holds or deck areas serviced by your cargo gear and types of cargo which could be lifted. Define the phrase, a self-sustaining ship.	<b>2.5</b>		
Discuss necessary stability calculations prior to attempting a heavy lift. If your vessel has heavy lift capability, is there a heeling system available to offset list due to very heavy loads?	<b>1.5</b>		
Discuss measures taken by stevedores to secure/lash cargo aboard your vessel.	<b>2</b>		
Did you accompany the Mate or Cheng. on a damage survey? Why are frequent damage surveys important? Did the Mate or Cheng discover any fractures on deck in the vicinity of the hatch coamings? Discuss why these must be repaired ASAP.	<b>1</b>		
If aboard a ro/ro or partial ro/ro, discuss lash down points and all available types of vehicle tie downs. How many lashings required for heavier vehicles? Cite an example such as a 40 ton military vehicle and discuss how much weight each lashing can be expected to hold.	<b>2.5</b>		
Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).	<b>2</b>		
Describe in detail the ship's ventilation of the holds. How are holds ensured safe from fumes and exhausts? When are ventilators run and when are they secured? Who operates them? Do they receive any special training in their use and operation? Discuss any breakdowns that occurred and how they were resolved.	<b>2</b>		
Discuss any incidents that occurred onboard and how they were dealt with.	<b>1</b>		
Describe the ramp(s) if fitted. How were they raised and lowered? Capacity? Care and maintenance? Actual operations of? Problems encountered.	<b>2</b>		
Describe the alteration of deck heights (if ship is fitted with movable decks). Why were decks altered? What precautions are taken when changing heights? What are the minimum and maximum number of cargo decks on your vessel?	<b>2</b>		
Describe in detail, all hatches, and cargo doors: their operation, how they were opened and secured. Regulations regarding their opening, and logging of same.	<b>1.5</b>		

<b>CARGO OPERATIONS PASSENGER VESSELS</b>	<b>MAX PTS 20</b>		
	<b>Max. Pt. Value</b>	<b>Points Awarded</b>	
Draw/sketch diagrams of the water tight subdivisions used aboard your vessel. How do the actual subdivisions compare to those required in the CFRs?	<b>2</b>		
Describe in detail, the construction, operation and use of the passenger ship's water tight doors (WTD). Include ALL types onboard, automatic and manual. Who is allowed to close the automatic type doors? Who is allowed to open them? When and how are they tested?	<b>1.5</b>		
Describe in detail, the construction, operation and use of the passenger ship's Fire Doors. Include ALL types onboard, automatic and manual. Who is allowed to close the automatic type doors? Who is allowed to open them? When and how are they tested?	<b>1.5</b>		
Who is the ship's safety officer? Describe in detail the duties of the Safety Officer. What special training did he/she receive? What areas are the Safety Officer responsible for?	<b>2</b>		
Who is the ship's Environmental officer? Describe in detail the duties of the Environmental Officer. What special training did he/she receive? What areas are the Environmental Officer responsible for?	<b>1.5</b>		
Describe the special STCW95 training required of maritime personnel working aboard a large passenger vessel, i.e.: medical crowd control, etc.	<b>1.5</b>		
Draw/Sketch diagrams of the vessel's fire detection system. Describe in detail, the type, construction, operation and use of the system. When and how is it tested?	<b>2</b>		
Describe in detail how stability of your vessel is assured. Include pre-planning, during load, underway. Describe who is responsible, who does the calculations, equipment/programs used to calculate stability. Is data fed automatically to computer device. When and how is stability logged in your vessel's logbook. Include a copy of such an entry. What CFRs refer to the logbook entry of stability of your vessel. Describe the Required GM and any other special stability requirements of your vessel. Include, if possible a copy of a stability plan for one of your ports. Provide a copy of a completed stability plan for a loaded and a light voyage. If the long form is used, provide a copy of this. Does your vessel require any special stability considerations (loaded, unloaded, free surface effects etc).	<b>2</b>		
Describe the various unions encountered aboard your vessel, licensed, unlicensed and professional.	<b>1.5</b>		
Describe bunkering procedures used aboard the vessel. What personnel are involved in the bunkering?	<b>1.5</b>		
Describe the paperwork required of the master or purser when entering and/or departing port.	<b>1.5</b>		
If your vessel has a special propulsion system, describe it and its operation in detail	<b>1.5</b>		



**Candidate Name**

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<b>CARGO OPERATIONS INLAND OPERATION VESSEL</b>	<b>MAX PTS 20</b>		
	<b>Max. Pt. Value</b>	<b>Points Awarded</b>	
Describe, in detail, the type of vessel you are assigned to.	<b>2</b>		
Describe the original purpose of the construction of your vessel. Was it designed for the purpose it is being used for now? If not what was it used for. How was it altered to fit the purpose it is being used for presently?	<b>2</b>		
Describe in detail the special construction of your vessel required for its present purpose.	<b>2</b>		
Describe in detail the special operations your ship engaged in while you were assigned.	<b>2</b>		
Does your vessel have any special maneuvering characteristics? Provide a copy of the maneuvering diagram that is posted on the bridge. Was this referred to by the conning officers and/or pilots? How did the actual ship respond compared to the diagram? What special techniques are utilized by the shiphandler for maintaining position, station keeping, docking, undocking, turning, etc?	<b>2</b>		
Is your vessel equipped with any special directional control devices? : Bow thrusters, Stern thrusters, Dynamic Positioning Systems, Directional Controls, special helm devices etc. Describe these in full, and also describe their use as you observed.	<b>1.7</b>		
If your vessel occasionally goes to sea, to transit to another port for work, or shipyard, what special precautions must the crew take to ready it for a sea passage? Safety, securing, hatches, ports etc.	<b>1.5</b>		
Due to the construction of your vessel, what special safety precautions must be taken to protect the crew while undergoing "Cargo Operations"? Describe how these are enforced, crew attitudes towards them, and any incident you observed aboard the vessel.	<b>1.8</b>		
Describe in detail the navigational equipment used to monitor the vessel's position while undergoing "Cargo Operations"	<b>1.5</b>		
Describe in detail the "Cargo Handling" equipment used aboard the vessel. How was it operated? What does it do? How many people are needed to run it? What maintenance is required of it? Did it break down while you were aboard? Did it break down recently? Why and how was it repaired?	<b>2</b>		
If allowed the opportunity to shiphandle describe in detail handling characteristics and how the vessel responded to your commands.	<b>1.5</b>		

**Candidate Name**

---

<b>FIREFIGHTING &amp; LIFESAVING</b>	<b>MAX PTS 15</b>		
	Max. Pt. Value	Points Awarded	
Describe the requirements for lifeboats, liferafts, and liferings aboard your vessel as required by CFR Subchapter W. Does your vessel comply fully with them, and if it differs, how and why?	<b>1.5</b>		
During monthly lifeboat/safety inspections, accompany the ship's officer conducting these inspections. Record results and include a copy of paper work and examples of log entries.	<b>1</b>		
Was your vessel equipped with a "Rapid-Release" off-the-stern type lifeboat? If so, detail its construction and equipment. Include details on davit data, testing, special training etc that would be required for a mate onboard a vessel with this special lifeboat. Describe special USCG regulations regarding these craft: When are they required to be released? How are they recovered? How many are required? Where must they be located? Did your vessel release the boat while you were aboard. Describe in detail the operation of that actual release, or one that a crew member can describe to you that occurred previously.	<b>0.5</b>		
Supply (photocopy allowed here) a scale drawing using individual deck plans of all firefighting and lifesaving equipment on board your vessel. Indicate frame numbers on all drawings.	<b>1</b>		
Provide a detailed hand drawing of all fixed CO <sub>2</sub> systems on your vessel; include all controls, labels, alarms, ventilation interface, etc.	<b>1</b>		
Write up a complete synopsis of the Fire/Boat Drill for your vessel from the captain's and chief mate's planning of the drill to any required log entries, and company notification.	<b>1</b>		
Identify who is the safety officer under ISM aboard your vessel and what his duties entail. Write up a short synopsis of a monthly safety meeting and detail all company paper work and notification relative to the safety meeting.	<b>1.5</b>		
Explain and include copies of any forms relative to: Tank entry procedures for your vessel. Going aloft procedures for your vessel. Lock out tag out Working over the side procedures for your vessel. Any other operations that require permitting and or completion of forms.	<b>1</b>		
Provide a detailed hand drawing of the: •Main fire system including the sea suction, fire pumps and all piping. •Fixed foam system including all hydrants, monitors, crossovers and storage tank/proportioning pump and valves. (If Fitted)	<b>1.5</b>		
List the location of all the Emergency Equipment Lockers aboard your vessel. List all the required equipment found in the locker. List all additional equipment found in the locker.	<b>1</b>		

Candidate Name \_\_\_\_\_

<b>FIREFIGHTING &amp; LIFESAVING</b>	<b>MAX PTS 15</b>		
<b>(cont.)</b>	Max. Pt. Value	Points Awarded	
Describe all Personal Protective Equipment (PPE) required by your vessel's company. i.e.: Hard hats, safety shoes, gloves, long sleeves, safety glasses etc. How were these requirements enforced? Did the crew accept them, or was there resistance to them? What were the reasons behind the resistance?	<b>1.5</b>		
Describe the USCG and FCC required GMDSS Equipment found aboard your vessel. What tests are required: daily, weekly and monthly, to ensure proper GMDSS equipment operation and describe in <i>detail</i> how they are done. How are repairs handled with this equipment? Does your vessel have a licensed person aboard who can repair it? How are normal messages handled? Does your ship have the capability to send and receive email? Was this ability extended to the crew? Who could send what and when? Does your vessel receive chart corrections, and/or notice to mariners over the satellite system? Did your ship receive any distress calls over the GMDSS system while you were aboard? How were they handled? How was the NAVTEX used for both weather and safety information. Were specific areas selected? Who set them? Did you have an opportunity to change areas while aboard? Was the information provided by NAVTEX of use to your vessel?	<b>1.5</b>		
Describe in detail any special precautions taken for Piracy while aboard. If you did not have first hand experience with these, detail how your vessel handles traveling and working within waters that have a piracy threat.	<b>0.5</b>		
Describe the Fast Rescue Craft aboard your vessel if so equipped. Was it used while aboard? Who maintains and tests it? What procedures are there for lowering and raising the craft? What is its capacity? What type of engine and Horse Power is it equipped? What is the top speed? Who aboard your vessel has Fast Rescue Craft certification?	<b>0.5</b>		

Candidate Name \_\_\_\_\_

<b>RULES OF THE ROAD</b>	<b>MAX PTS 10</b>		
	Max. Pt. Value	Points Awarded	
<p>Describe at least <b>FIVE</b> actual situations under varying conditions in which you observed the application of the steering and sailing rules. Provide a radar plotting sheet illustration of each situation showing the situation as seen from your radar scope. Include vectors of you and other vessels. Indicate scale radar is on. Attach a written report referencing time of day, sea room, number of vessels involved, visibility, and action taken. Specifically state which rule applied to the situation, how your ship handled that rule and the results of the action. <u>You are encouraged to quote</u> pertinent sections of the COLREGS in your discussion. Have each report initialed by officer of the watch on which the cited incident occurred with his/her comments.</p>	<b>3.5</b>		
<b>Rules of the Road Equipment - Ship Specific</b>			
<p>Describe: the construction of lights; materials of cases and lenses; manufacturers; wattage of bulbs in different lights; if any oil lanterns are carried describe them. Where is fuel for them kept? How are lights powered? Which systems power the lights? Emergency power is found where? What if total loss of power occurs? What are minimum ranges of lights on your vessel? How are lights tested? When are they tested? How are these tests logged? Who logs them? What is normal practice of operation of these lights? What procedures are there should one of the lights burn out, or become damaged? Are there any special safety considerations?</p>	<b>2.5</b>		
<p>Describe the construction of day shapes. List the day shapes your vessel has on board? Which shapes did you see used? How were they displayed? How are other shapes displayed? Who is responsible for the upkeep of the day shapes? Where are they stowed?</p>	<b>2</b>		
<p>Describe sound signal apparatus on board – whistle, horn – their manufacturer, type (steam, air, etc.). When are they used in Rules of the Road situations? Describe the automatic sounding mechanisms. Describe the manual sound signaling apparatus aboard for making the prescribed sound signals. Regarding bells and gongs, describe their construction and use on board your vessel. Are there any automatic sound signaling devices aboard that mimic the bells and gongs? Describe it and its operation fully. Provide photo or sketch of bell and gong.</p>	<b>2</b>		

**APPENDIX IV**  
**Massachusetts Maritime Academy**  
**TABLE A-II/1 Specification of Minimum Standard of Competencies**  
**OFFICER IN CHARGE OF A NAVIGATIONAL WATCH**

STCW Competence	Knowledge, Understanding and Proficiency (KUP)	Assessment		Academy Course	Completed  Date
		Number	Task		
	<i>Steering Control System</i> – Adjustment of controls for optimum performance	OICNW-1- 6A	Steering gear test	MT 3371 / 3372	
	<i>Steering Control System-</i> Adjustment of controls for optimum performance	OICNW-1- 6B	Set weather controls	MT 3371 / 3372	
	<i>Echo Sounders</i> -- Ability to operate the equipment and apply the information correctly	OICNW-1- 4D	Echo Sounder Demo	MT 3371 / 3372	

**Massachusetts Maritime Academy**  
**TABLE A-II/1 Specification of Minimum Standard of Competencies**  
**OFFICER IN CHARGE OF A NAVIGATIONAL WATCH**  
**Control Sheet**

**ASSESSMENT NO.** OICNW-1-6A, MMA # 21A111A

**FUNCTION:** Navigation at the Operational Level

**COMPETENCE:** Plan and conduct a passage and determine position

**KNOWLEDGE, UNDERSTANDING & PROFICIENCY:** *Steering Control Systems* -- Adjustment of controls for optimum performance

**TASK:** Steering gear test

**PERFORMANCE CONDITION:** On a vessel or a full mission ship simulator.

**PERFORMANCE BEHAVIOR:** Conduct the pre-departure test of the vessel's steering gear.

**PERFORMANCE STANDARD:**

1. *The steering control system is turned on.*
2. *The steering gyro repeater is aligned with the master gyro-compass.*
3. *After the required warm up period, the controls for switching pumps and motors between the port and starboard steering systems are tested.*
4. *Both port and starboard steering systems are tested as follows:*
  - a. *When the control is switched to hand steering, the rudder is tested throughout its full range of motion.*
  - b. *When the control is switched to non follow-up, the rudder is tested throughout its full range of motion.*

**COURSE:** **MT 3371 / 3372**      **Junior Cruise/Commercial Cruise** - Designated  
 Shall be completed by MT 4371 Senior Cruise

By signing below indicating satisfactory completion of an assessment, the assessor also attests to the fact that he/she has read and understands the "Assessor's Manual for Conducting Mariner Assessments" Published by USCH Research and Development Center June 2000. The Mass Maritime Candidate has been provided a copy of this manual.

Candidate	SSN
Assessor	Position
Vessel or Course	License No.
	Date

**Massachusetts Maritime Academy**  
**TABLE A-II/1 Specification of Minimum Standard of Competencies**  
**OFFICER IN CHARGE OF A NAVIGATIONAL WATCH**  
**Control Sheet**

**ASSESSMENT NO.** OICNW-1-6B, MMA # 21A111B

**FUNCTION:** Navigation at the Operational Level

**COMPETENCE:** Plan and conduct a passage and determine position

**KNOWLEDGE, UNDERSTANDING & PROFICIENCY:** *Steering Control Systems* -- Adjustment of controls for optimum performance

**TASK:** Set weather controls

**PERFORMANCE CONDITION:** On a ship underway or a full mission ship simulator, while in auto-pilot.

**PERFORMANCE BEHAVIOR:** Set the rudder and weather controls that are most suitable for the weather and sea conditions.

**PERFORMANCE STANDARD:**

1. The weather control is set in accordance with the manufacturer's recommendations for the prevailing sea conditions.
2. The rudder control is set in accordance with the manufacturer's recommendations for the prevailing sea conditions for the area transited or simulated.
3. The rate of turn control (if fitted) is set in accordance with the standing orders.

**COURSE:** **MT 3371 / 3372**      **Junior Cruise/Commercial Cruise** - Designated  
Shall be completed by MT 4371 Senior Cruise - Deck

By signing below indicating satisfactory completion of an assessment, the assessor also attests to the fact that he/she has read and understands the "Assessor's Manual for Conducting Mariner Assessments" Published by USCH Research and Development Center June 2000. The Mass Maritime Candidate has been provided a copy of this manual.

\_\_\_\_\_  
Candidate

\_\_\_\_\_  
SSN

\_\_\_\_\_  
Assessor

\_\_\_\_\_  
Position

\_\_\_\_\_  
Vessel or Course

\_\_\_\_\_  
License No.

\_\_\_\_\_  
Date

July 2005, Rev.05, STCW Compliance Officer Rob Ford

**Massachusetts Maritime Academy**  
**TABLE A-II/1 Specification of Minimum Standard of Competencies**  
**OFFICER IN CHARGE OF A NAVIGATIONAL WATCH**  
**Control Sheet**

**ASSESSMENT NO.** OICNW-1-4D, MMA # 21A108A

**FUNCTION:** Navigation at the Operational Level

**COMPETENCE:** Plan and conduct a passage and determine position

**KNOWLEDGE, UNDERSTANDING & PROFICIENCY:** *Echo Sounders* -- Ability to operate the equipment and apply the information correctly

**TASK:** Use of echo sounder

**PERFORMANCE CONDITION:** On a ship underway using an echo sounder that meets IMO performance standards or a part task trainer that realistically simulates all the functions and controls of an echo sounder that meets IMO performance standards.

**PERFORMANCE BEHAVIOR:** Turn on, test, and operate the echo sounder.

**PERFORMANCE STANDARD:**

1. *The system was turned on.*
2. *The echo sounder was tested in accordance with manufacturer recommendations.*
3. *The correct GMT is noted on the echo sounder paper (if fitted).*
4. *The scale selected was the lowest appropriate for the vessel's draft and the depth of water of the area of transit.*
5. *The sensitivity was adjusted to obtain proper depth reading on the display and correct trace on the paper (if fitted).*

**COURSE:** MT 3371/3372 **Junior or Commercial Cruise - Designated**  
Shall be completed by MT 4371 Sea Term IV - Deck

By signing below indicating satisfactory completion of an assessment, the assessor also attests to the fact that he/she has read and understands the "Assessor's Manual for Conducting Mariner Assessments" Published by USCH Research and Development Center June 2000. The Mass Maritime Candidate has been provided a copy of this manual.

Candidate	SSN
Assessor	Position
Vessel or Course	License No. <span style="float: right;">Date</span>



# APPENDIX V

## STEERING RECORD

Cadet \_\_\_\_\_ Vessel \_\_\_\_\_  
SS # \_\_\_\_\_ Official # \_\_\_\_\_  
MMA Class of \_\_\_\_\_ Vessel Cond. \_\_\_\_\_  
(light, loaded, by the head)

CADET \_\_\_\_\_ HAS PHYSICALLY STEERED THE ABOVE VESSEL FROM \_\_\_\_\_ (time) UNTIL \_\_\_\_\_ (time) ON \_\_\_\_\_ (date). DURING THIS TIME, THE VESSEL WAS LOCATED \_\_\_\_\_

THE ABOVE CADET PROPERLY PERFORMED THE FOLLOWING:  
(Initial in ALL boxes that apply. Draw a line through any boxes that DO NOT apply).

- Properly Relieved the Helm.
- Steered during daylight hours - (15 mins. minimum. Stayed within 2° either side of course as recorded on course recorder)
- Steered during darkness - (15 mins. minimum. Stayed within 2° either side of course as recorded on course recorder)
- Steered using magnetic compass only - (15 mins. minimum. Stayed within 5° either side of course as recorded on course recorder)
- Steered on ranges
- Steered during Heavy Weather (Beaufort Force 8 and greater)
- Steered in a narrow channel
- Steered in shallow water (Depth less than or equal to 1.5 x draft)
- Steered using Non Follow up system
- Steered using Emergency system
- Described proper procedures for loss of steering
- Properly executed all helm orders as commanded
- Properly executed course changes of 10° or greater
- Shifted from autopilot to hand steering
- Shifted from hand steering to autopilot
- Other (Explain)

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Assessing Officer (Print Name)

\_\_\_\_\_  
Date

This record documents  
competencies as required under  
STCW Table A-II/4

\_\_\_\_\_  
Assessing Officer (Signature)

\_\_\_\_\_  
Assessing Officer's USCG License #

## APPENDIX VI

### BOB (Back of Book) or how to enter a compass observation

Date	ZT	Lat	Long	True Bear	Gyro Bear	Gyro Err	Gyro Head	True Head	Stand Head	Stand Err (CE)	Var	Stand Dev	Steer Head (CE)	Steer Err	Steer Dev	Body
7/23	1736	34.5N	070.2W	153.7°	156.0°	2.3°W	287.0°	284.7°	292.0°	7.3°W	0.8°W	6.5°W				Sun

Typically your vessel will not have a Steering Compass, only a combination steering and standard compass. If it does have both, then leave in the shaded three columns dealing with steering compass. You will have to complete those parts too. Otherwise, we will not use the Steering Compass Columns.

Cross out the Steering Deviation Column label and write in ZT Time. In this column you will enter the ZT, hour and minutes (not seconds) of the observation. This column is just to help get a rough idea of the time you took it, so you do not need to put in seconds.

Cross out the Steering Err label and write Deviation by Table

In the example above, your ship is on a pgc (per gyro course) of 287.0° checking 292.0° PSC

You take an azimuth or geographic range (Range on the shoreline) and it bears 156.0° pgc. It should have been bearing 153.7° True.

Computing your GE (Gyro Error) you get 2.3° W (Note tenths of degrees)

Now, taking your pgc heading of 287° and applying the 2.3° W GE to it, you find you are really on a True heading of 284.7° True.

Comparing this True heading to your PSC heading, you can find your compass error.

Once compass error is known, determine your actual variation from the chart (Make sure to adjust for the current year) and apply. This will leave you with your deviation which goes into the Stand Dev column

By using the ship's deviation table/chart compute what the table/chart says the deviation should be on the same magnetic heading, and enter it into the old Steering Err column which is now the Deviation by Table column.

How did the deviations compare?

**YOU MUST ENTER EVERY AZIMUTH, AMPLITUDE, RANGE, COMPASS OBSERVATION IN THE BACK OF THE BOOK, OR IT WILL NOT COUNT TOWARDS YOUR GOAL.**

## **APPENDIX VII**

CDR Letourneau,

Please ask all the cadets shipping out on Commercial Ships to give this survey to all the officers on their ships who have stood a watch within 3 years.

They can collect them back and submit them with their printed copies of their Sea Projects.

They will not be graded on this. If they come back with none it will not effect their grades. Or if they come back with a lot it will not effect their grades.

Thank them in advance.

CDR Dalton

## Sextant Use Survey

This survey is anonymous. Do not put your name on the survey form.

If you have taken this survey before, then please disregard. I do not want to count anyone twice and I would like to keep it totally anonymous.

The purpose of the survey is to investigate how frequently modern mariners, sailing with modern navigation equipment, utilize the sextant to help determine their vessels' positions. It is also to indicate the familiarity modern navigators with Sextant Navigation. All questions apply to your position as a watchstanding Officer in Charge of a Navigational Watch (OICNW) within the last three years.

Please answer each question as honestly as you can. Thank you for your assistance.

1. When was the last time you used the sextant to **observe and plot** any Line of Position?
  - a. Last Week
  - b. Last Month
  - c. Two to Six months ago
  - d. Seven Months to One year ago
  - e. One to Two Years Ago
  - f. Over two years ago
  - g. I have never used a sextant to observe and plot a line of position while an Officer in Charge of a Navigational Watch
  
2. Concerning the question above, what type Line of Position did you take and plot the last time you used the sextant? If you answered g to the question above, please skip questions 2 and 3 and go to question 4.

Circle any and all that you took **only** that very last time you referred to in question 1 above.

  - a. Sun Line
  - b. LAN (Local Apparent Noon)
  - c. Star
  - d. Planet
  
3. How accurate was this Line of Position that you took the very last time you used the sextant as in Questions 1 and 2? Within \_\_\_\_\_ Nautical miles of your real position.
  - a. 0 - ½
  - b. ½ - 1
  - c. 1 - 2
  - d. 2 - 3.
  - e. 3 - 4
  - f. Over 4 nautical miles
  - g. Can't Remember

4. How often would you estimate that you use the sextant to assist with finding your vessel's position when you are an Officer in Charge of a Navigational Watch?
- Regularly, every day
  - Usually once a week
  - About once a fortnight
  - About once a month
  - About once a year
  - I have never used a sextant since becoming an Officer in Charge of a Navigational Watch
5. How many times (if any) was it absolutely necessary to use the sextant to determine your vessel's position because there was no other more accurate positioning sources available with which to fix your vessel's position ?
- Once
  - Twice
  - Three times
  - Numerous Times
  - Never
4. When was the last time you used the sextant to obtain a Line of Position from Local Apparent Noon (LAN)?
- Last Week
  - Last Month
  - Two to Six months ago
  - Seven Months to One year ago
  - One to Two Years Ago
  - Over two years ago
  - I have never used a sextant while Officer in Charge of a Navigational Watch to obtain a Line of Position from Local Apparent Noon (LAN)
5. How accurate was this Local Apparent Noon Line of Position referred to in question 4 above? Within \_\_\_\_\_ Nautical miles of your real position. If you answered g above, skip this question and go on to question 6.
- 0 -  $\frac{1}{2}$
  - $\frac{1}{2}$  - 1
  - 1 - 2
  - 2 - 3.
  - 3 - 4
  - Over 4 nautical miles
  - Can't remember
6. When was the last time you used the sextant to Obtain a **Position** from two or more LOPS from the sun? i.e.: (Advancing one or more sunlines).
- Last Week
  - Last Month

- c. Two to Six months ago
  - d. Seven Months to One year ago
  - e. One to Two Years Ago
  - f. Over two years ago
  - g. I have never used a sextant while Officer in Charge of a Navigational Watch to obtain a position from two or more LOPs of the sun.
7. How accurate was this Position obtained from two or more LOPS from the sun referred to in question 6 above? Within \_\_\_\_\_ Nautical miles of your real position. If you answered g in the question above, please skip this question and go on to question 8.
- a. 0 -  $\frac{1}{2}$
  - b.  $\frac{1}{2}$  - 1
  - c. 1 - 2
  - d. 2 - 3.
  - e. 3 - 4
  - f. Over 4 nautical miles
  - g Can't remember
8. When was the last time you used the sextant to Obtain a **Position** from two or more stars/planets?
- a. Last Week
  - b. Last Month
  - c. Two to Six months ago
  - d. Seven Months to One year ago
  - e. One to Two Years Ago
  - f. Over two years ago
  - g. I have never used a sextant while an Officer in Charge of a Navigational Watch to obtain a position (Star Fix) from two or more stars/planets.
9. How accurate was this Position obtained from two or more stars/planets referred to in question 8 above? Within \_\_\_\_\_ Nautical miles of your real position. If you answered g to the question above, then please skip this question and go on to question 10.
- a. 0 -  $\frac{1}{2}$
  - b.  $\frac{1}{2}$  - 1
  - c. 1 - 2
  - d. 2 - 3.
  - e. 3 - 4
  - f. Over 4 nautical miles
  - g Can't remember
10. IF you had to use a sextant to take a sun line and plot an LOP today – Please circle one
- a. I would be able to immediately go out and take and plot the LOP
  - b. I would have to review the sextant procedures and methods of correcting the sextant before taking
  - c. I would be able to take the altitude but would have to review the process of calculations prior to plotting the LOP
  - d. I would not be able to take the LOP for some time as it has been a long time since I have used this knowledge

e. I have never taken an actual LOP before

11. If you had to take a sun line right now, how accurate would you expect a sun line that you took and plotted today likely be?

Within \_\_\_\_\_ Nautical miles of your real position.

- a. 0 - ½
- b. ½ - 1
- c. 1 - 2
- d. 2 - 3.
- e. 3 - 4
- f. Over 4 nautical miles

12. Have you used the sextant on board the GDF SUEZ NEPTUNE before?

- a. Yes
- b. No

13. If you did take an LOP or a fix using the sextant onboard the GDF SUEZ NEPTUNE, on what did you plot your fix?

- a. Paper Chart that was still available and corresponded to the area we were in
- b. Universal Plotting Sheet
- c. Large Plotting Sheet
- d. Other – Describe \_\_\_\_\_

14. Have you ever sailed on a “deep sea vessel” that did not have a ship’s sextant aboard? ( A sextant provided by the company that stays on the ship)

- a. Never
- b. Once or twice
- c. Very few times
- d. Occasionally
- e. Quite Frequently
- f. Always

15. Today, if you were on watch, **without any review or practice**, which of the following could you **immediately do and plot that was within 1 nautical mile** of your actual position:

Circle all that apply:

- a. Sun Line
- b. Local Apparent Noon
- c. Star Line (i.e.: LOP of Polaris)
- d. Moon Line (i.e.: LOP of Moon)
- e. Planet Line (i.e.: LOP of Venus)
- f. POSITION – FIX from two or more Sunlines
- g. POSITION – FIX from two or more stars/planets

16. Given good celestial conditions, on average, how accurate would you normally expect a FIX from a two or more stars to be? Please consider this for someone practiced and very familiar with the sextant and the calculations needed.

Within \_\_\_\_\_ nautical miles of your true position.

- a. 0 -  $\frac{1}{2}$
- b.  $\frac{1}{2}$  - 1
- c. 1 - 2
- d. 2 - 3.
- e. 3 - 4
- f. Over 4 nautical miles

17. In your professional career standing Officer of the Watch Bridge Watches, estimate the percentage of days, over the last year, where lack of cloud cover or weather would have allowed you to accurately take a Sun Line? (This depends upon where you sailed)

a. I could have taken sun lines on 0% \_\_\_\_\_ 100% of the days I sailed over the last year  
– Please fill in a percentage above.

18. In your professional career of standing Officer of the Watch Bridge Watches during sunrise and/or sunset, what percentage of your mornings or evenings would have allowed you to accurately shoot a Star Fix? Please state an amount within the space below (This depends upon where you sailed)

a. I could have taken star sights on 0% \_\_\_\_\_ 100% of the days I sailed over the last year and stood watches during sunset and or sunrise.  
- Please fill in a percentage above, OR circle:

b. Can not estimate as I do not stand watches during either sunrise or sunset.

19. Which of the following types of sights would you feel least comfortable taking today without any additional studies or practice? Select as many as appropriate.

- a. LOP of Sun
- b. LOP of Moon
- c. LOP of Stars
- d. LOP of Planet
- e. LAN
- f. Running fix of two Sun Lines
- g. Star fix using two or more stars

20. Which of the following are the most likely type of sight you could take today without practice or review to provide an accurate LOP or Fix without additional review and/or practice. Select as many as are appropriate

- a. LOP of Sun
- b. LOP of Moon
- c. LOP of Stars



- d. LOP of Planet
- e. LAN
- f. Running fix of two Sun Lines
- g. Star fix using two or more stars

21. Which Rank have you sailed in that apply to your responses to this survey (Last 2-3 years)

- a. Cadet
- b. 4<sup>th</sup> Officer
- c. 3<sup>rd</sup> Officer
- d. 2<sup>nd</sup> Officer
- e. Chief Officer
- f. Master

22. How long have you sailed as an Officer in Charge of a Navigational Watch?

- a. 0-1 year
- b. 1-2 years
- c. 2-3 years
- d. 3-4 years
- e. 4-5 years
- f. Greater than 5 years

23. Flags of vessels on which you sailed that apply to your responses. Please list all.

- a. UK
- b. French
- c. German
- d. Norwegian
- e. Italian
- f. US
- g. Panamanian
- h. Marshall Islands
- i. Other \_\_\_\_\_

**APPENDIX VIII**

**RECEIPT FOR SUBMITTAL OF PROJECT**

**On \_\_\_\_\_ Cadet \_\_\_\_\_ submitted his**

**Winter 2013 Commercial Shipping Sea Project, with material as indicated upon the Custody Control Sheet at the front of the project.**

**Received by \_\_\_\_\_**

**Printed**

**Signature**