UNITED STATES NAVAL ACADEMY

# DIVISION OF PROFESSIONAL DEVELOPMENT

DEPARTMENT OF SEAMANSHIP AND NAVIGATION

NAME: **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** SECTION: **\_\_\_\_\_\_\_**

INSTRUCTOR: **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** CPU: \_\_\_\_\_\_\_\_\_\_\_

NN310 ADVANCED NAVIGATION

**IN CLASS EXERCISE 2**

**ANSWER KEY**

# I. Materials Required:

# VMS

**II. Situation:**

You are the Navigator onboard USS FREEDOM (LCS 1). You are getting underway from Mayport Naval Station at 0900 (Q) on October 14th, 2018. You are scheduled to proceed outbound to an anchorage Southeast of the entrance to Mayport. Use the information provided below to build your Nav Plan in VMS. Answer all the additional follow on questions and input the necessary information into VMS.

***Save everything as the following: Your Last Name\_Your Section #.***

**SHIP CHARACTERISTICS**

## Navigational Draft: 22 feet

**Height of Eye (HOE): 40 feet**

## Height of Mast (HOM): 130 feet

**Ship Length: 453 feet**

**Hawespipe to Pelorus: 100 feet**

**Beam Width: 66 feet**

**III. Guidelines:**

Complete the following in VMS and fill out the answer sheet below. Properly saving your work is critical to your VMS PE #1 grade. Ask questions during this ICE if you are unsure how the saving process works for each step.

**Gazeteer**

|  |  |  |  |
| --- | --- | --- | --- |
| **Visual** | | **Radar** | |
| VA: Tank | 30°20′08.0"N 081°24′18.0"W | RA: Pier | 30°20′04.0"N 081°23′39.0"W |
| VB: Light | 30°23′10.0"N 081°23′53.0"W | RB: Penninsula | 30°23′50.0"N 081°23′31.0"W |
| VC: Light | 30°24′22.0"N 081°24′45.0"W | RC: Point | 30°24′14.0"N 081°24′11.0"W |
| VD: Light | 30°23′18.0"N 081°24′39.0"W | RD: Point | 30°23′50.0"N 081°24′16.0"W |
| VE: Light | 30°23′34.0"N 081°25′01.0"W | RE: Point | 30°23′33.0"N 081°24′33.0"W |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **VMS Track Data Sheet: Mayport, Florida** | | | | | | | | | |
| **WP #** | **LAT / LONG** | **LEG** | **TRUE** | **DIST (NM/yds)** | **SPD** | **TB (Tº)** | **TR (yds)** | **RDR** | **Off Track Limit** |  |
| **1** | 30°23′40"N 081°24′40"W |  |  |  |  |  |  |  |  |  |
| 1-2 |  |  | 5 |  |  | STD | 50 yds |
| **2** | **30°23’59’N**  **081°23’10’W** |  |
| 2-3 |  |  | 10 |  |  | STD | 50 yds |
| **3** | **30°23’36’N**  **081°19’29”W** |  |
| 3-4 |  |  | 10 | VB-**282.7** | RA-**4.57** | STD | 100 yds |
| **4** | 30°22′07"N 081°18′57"W |  |
| 4-5 | **224** | **1.58** | 10 | VB-**303.4** | RA-**3.18** | STD | 100 yds |
| **5** | 30°20′57"N 081°20′15"W |  |
| 5-Anchor | **305** | **1.93** | 10 |  |  | STD | 100 yds |
| **Anchor** | 30°22′01"N 081°22′00"W |  |
|

1. Use the Goto button to get to the entrance of Mayport at: 30°23′36"N 081°19′08"W, and set up VMS Display Features IAW the settings provided.
2. Record the steps you took to set the Lookahead Time and Added Breadth and include what parameters were set:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Lookahead time:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. Added Breadth: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. Alarm on Cautions (Circle): ON / OFF

1. Record the steps you took to set the Safety Depth and Safety Height and include what parameters were set:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Safety Depth: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. Safety Height: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Input the ten navigation aids given the gazeteer in a new layer. Save everything in the name format given above.
2. Input your outbound route based on the track data sheet given (generate your own waypoints for WPs 2 and 3 that are in compliance with the Rules of the Road) and fill out the blank boxes with the information from your route.
   1. Include a turn bearing and turn range for each turn. You select your aids when they are not given.
   2. Input two critical points:

CP1: “Crossing Line of Demarcation” following the second waypoint at: 30°23′55.0"N 081°22′31.0"W-Generate Warning-Alert 500 yards prior

CP2: “Pilot Drop Off” prior to waypoint three at: 30°23′43.0"N 081°20′37.0"W-Generate Alarm-Alert 1000 yards prior

* 1. Ensure your ETD matches the underway time given above.
  2. Put the correct speed for each waypoint.

1. Input your anchorage area with the given Head Bearing (VB), Drop Bearing (VA), Drop Range (RB).
   1. What is your Head Bearing? **305°T**
   2. What is your Drop Bearing? **226.5°T**
   3. What is your Drop Range? **2.24 NM**
   4. Put your inner ring at a range of 100 yards and your outer ring at a range of 500 yards.
      1. What is your anchorage depth (read from the DNC)? **29.9 ft**
   5. What is the Navy’s minimum and maximum amount of chain you need based on the anchorage depth?
      1. min: **149.3 ft**
      2. max: **209 ft**
   6. Set your scope of chain to the Navy’s minimum.
      1. What is your drag radius? **48.75 ft**
      2. What is your swing radius? **85.65 ft**
2. Find and write out the characteristics using the query tool for the following:
   1. 30°23′11.0"N 081°23′53.0"W:
      1. Light Nominal Range:\_\_\_\_\_\_\_\_\_\_\_\_\_
      2. Character of Lights:\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      3. Light Periodicity:\_\_\_\_\_\_\_\_\_\_\_\_\_
      4. Light Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      5. Degree of Visibility:\_\_\_\_\_\_\_\_\_\_\_\_
      6. Color Code Category:\_\_\_\_\_\_\_\_\_\_\_
   2. 30°23′35.0"N 081°19′08.0"W:
      1. Object Type:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      2. Navigation System Type:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      3. Light Nominal Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      4. Character of Lights:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      5. Topmark Characteristics:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      6. Structure Shape:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      7. Color Code Category:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What are the four different types of DNCs? Write them from largest scale to smallest scale.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What DNCs do you need for this route?

**H1508580; A1508580; COA15B; GEN15**

1. Name two dangers or cautions that are going to be on the leg leading to your anchorage?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the total duration of your route? **1:06** Total distance? **9.49NM**
2. Create a new navigation plan and associate your route plan, layer, and charts. Save it in the name format given above.