ANALISIS PENGGUNAAN *DOUBLE* ECDIS DI MV. PAN ENERGEN

SKRIPSI

Untuk Memperoleh Gelar Sarjana Terapan Pelayaran pada Politeknik Ilmu Pelayaran Semarang

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PROGRAM STUDI DIPLOMA IV NAUTIKA

POLITEKNIK ILMU PELAYARAN

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MV. PAN ENERGEN

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MOTO DAN PERSEMBAHAN

1. *Bekti marang Gusti.*
2. *Talk less, do more.*

Persembahan:

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2. POS SM Co., Ltd dan *crewing* PT. Jasindo Duta Segara, selaku perusahaan tempat saya melakukan praktik laut.
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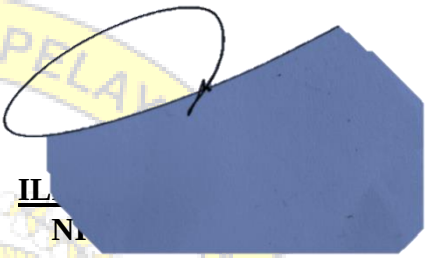

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ABSTRAKSI

HUDA, ILHAM FAISAL, 2023. NIT : 561911137160 N, "Analisis Penggunaan *Double* ECDIS di MV. Pan Energen". Program Studi Nautika, Politeknik Ilmu Pelayaran Semarang, Pembimbing I: Dr. Iskandar, S.H., M.T. Pembimbing II: M. Choeroni, S.ST.Pel, M.T.

Electronic Chart Display and Information System (ECDIS) merupakan teknologi modern dalam sistem navigasi di kapal yang sesuai dengan aturan International Maritime Organization (IMO) dan digunakan sebagai pengganti dari peta kertas. Pada awalnya MV. Pan Energen dilengkapi dengan 1 buah ECDIS dan peta kertas untuk navigasi. Pada saat *dry dock*, MV. Pan Energen menerima pemasangan 1 buah ECDIS lagi, sehingga saat ini memakai *double* ECDIS untuk bernavigasi. Karena kelebihan yang dimiliki oleh *double* ECDIS, mualim mengabaikan beberapa tugas saat bernavigasi. Akibatnya, timbul bahaya navigasi. Tujuan dari penelitian ini untuk mengetahui dampak dari penggunaan *double* ECDIS di kapal MV. Pan Energen dan untuk mengetahui kesesuaian penggunaan *double* ECDIS di MV. Pan Energen dengan standar penggunaan yang perusahaan tetapkan.

Penelitian ini menggunakan metode deskriptif kualitatif, dimana data yang didapatkan dari kapal MV. Pan Energen melalui observasi di atas kapal, wawancara, dan dokumentasi. Wawancara dilakukan kepada Nakhoda, Mualim I, Mualim II dan Mualim III sebagai informan terkait penggunaan *double* ECDIS. Penelitian ini menggunakan teknik triangulasi sebagai uji keabsahan data.

Double ECDIS memiliki dampak positif dan negatif. Dampak positif dari penggunaan *double* ECDIS yaitu meningkatkan efisiensi dalam bernavigasi, manajemen peta yang bagus, terintegrasi dengan alat-alat navigasi lain, serta dapat melihat semua informasi navigasi dapat pada layar ECDIS. Dampak negatifnya yaitu banyaknya informasi yang ditampilkan pada layar ECDIS dan dapat menimbulkan percaya berlebihan terhadap informasi yang ditampilkan *double* ECDIS.

Kata kunci: *double* ECDIS, mualim, penggunaan.

ABSTRACT

HUDA, ILHAM FAISAL, 2023. NIT : 561911137160 N, "*Analysis of the Application of Double ECDIS on the MV. Pan Energen*". Nautical Department Program, Diploma IV Program, Semarang Merchant Marine Polytechnic, Supervisor I: Dr. Iskandar, S.H., M.T., Supervisor II: M. Choeroni, S.ST.Pel, M.T

Electronic Chart Display and Information System (ECDIS) is a modern technology in ship navigation systems that complies with International Maritime Organization (IMO) regulations and is used as a replacement for paper maps. At first MV. Pan Energen is equipped with 1 ECDIS and paper maps for navigation. During dry dock, MV. Pan Energen received the installation of 1 more ECDIS, so it currently uses double ECDIS for navigation. Due to the advantages of double ECDIS, pilots neglect several tasks when navigating. As a result, navigation hazards arise. The aim of this research is to determine the impact of using double ECDIS on MV ships. Pan Energen and to determine the suitability of using double ECDIS in MV. Pan Energen with usage standards set by the company.

This research uses a qualitative descriptive method, where data is obtained from MV ships. Pan Energen through onboard observations, interviews and documentation. Interviews were conducted with the Master, Mualim I, Mualim II and Mualim III as informants regarding the use of double ECDIS. This research uses triangulation techniques as a test of data validity.

Double ECDIS has both positive and negative impacts. The positive impact of using double ECDIS is increasing efficiency in navigation, good map management, integration with other navigation tools, and being able to see all navigation information on the ECDIS screen. The negative impact is that there is a lot of information displayed on the ECDIS screen and this can lead to excessive trust in the information displayed by the double ECDIS.

Key words: *double* ECDIS, mualim, application

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BAB I

PENDAHULUAN

A. Latar Belakang

Dalam melaksanakan pelayaran, *electronic chart display and information system* (ECDIS) menjadi salah satu peralatan utama dalam menjalankan tugas bernavigasi. MV. Pan Energen dilengkapi dengan *doble* ECDIS sehingga memudahkan mualim dalam bernavigasi. Dengan adanya *doble* ECDIS, tidak dibutuhkannya peta kertas sebagai alat navigasi. Hal ini sangat memudahkan jika dibarengi dengan keterampilan dalam pengoperasiannya. Namun, akan menjadi masalah jika tidak terampil dalam menggunakannya.

Pada awalnya MV. Pan Energen menggunakan satu ECDIS dan peta kertas untuk bernavigasi. Akan tetapi, pada saat *dry docking* bulan Februari 2023 di Shanghai HRDD, China, MV. Pan Energen menerima satu ECDIS lagi sebagai pengganti peta kertas sehingga saat ini menggunakan *double* ECDIS. Kemudahan yang dimiliki *double* ECDIS membuat mualim lalai akan hal-hal yang harusnya tetap dilakukan walaupun adanya teknologi ini. Sebagai contohnya, mualim terlalu mempercayakan informasi *navigational* dari *notice to mariners* (NTM) yang hanya *update* setiap minggu. Akibatnya, mualim tidak memeriksa berita yang diterima dari alat navigasi lain, seperti *receiver* berita dari *navigation telex* (NAVTEX) dan *international maritime satellite* (INMARSAT-C). Contoh dari kejadian yang dialami selama di kapal yaitu

kapal memasuki *military training* area di area Okinawa, Japan. Ini sangat berbahaya karena kapal sewaktu-waktu bisa terkena rudal atau bom ketika *passing* area ini. Selain itu, di beberapa negara memberikan penalti berupa denda ke kapal yang memasuki *military training* area.

Menurut pengalaman peneliti selama melaksanakan praktik kapal MV. Pan Energen, pada kenyataannya mualim masih belum memahami penggunaan *double* ECDIS ketika *onboard*. Hal ini terjadi karena beberapa hal, diantaranya perbedaan tipe ECDIS yang digunakan mualim dengan tipe ECDIS kapal sebelumnya, tidak ada pelatihan ECDIS sebelum *onboard* dan sertifikat ECDIS *specific training* tidak dijadikan syarat untuk *onboard*. Hal ini berbahaya untuk keamanan navigasi kapal karena mualim membutuhkan waktu lebih lama untuk memelajari ECDIS yang ada di kapal. Dengan penggunaan *double* ECDIS, keamanan bernavigasi harusnya dapat ditingkatkan karena semua alarm yang berhubungan dengan alat yang terkoneksi dengan ECDIS dapat ditampilkan dalam *display* ECDIS. Selain itu, *update* NTM didapatkan setiap minggunya dan hanya dengan melakukan *instalasi* NTM, ke-2 ECDIS langsung diperbarui sesuai NTM terbaru.

ECDIS merupakan salah satu alat navigasi yang berfungsi sebagai sistem grafik elektronik untuk menampilkan peta selama pelayaran kapal. Alat ini menerima data dari beberapa peralatan navigasi lainnya, seperti *radio detection and ranging* (RADAR), *ecosounder*, *speed log*, *automatic identification system* (AIS), *anemometer*, dan *navtex*. Menurut Destariana

(2010), ECDIS adalah sarana yang berfungsi untuk memberikan data navigasi dan berperan sebagai cadangan bagi peralatan lainnya. Hal ini bertujuan untuk memenuhi standar yang telah ditentukan oleh regulasi SOLAS 1974 dan amandemennya, yakni V/19 & V/27. Karenanya, untuk memenuhi persyaratan tersebut, ECDIS harus memenuhi standar kinerja yang dikembangkan oleh IMO sebagaimana tercantum pada Bab V SOLAS 1974. Dengan informasi-informasi ini, ECDIS mempermudah mualim dalam memantau beberapa peralatan navigasi sekaligus.

Dengan adanya teknologi yang semakin berkembang, telah diciptakan beberapa sistem dan alat untuk mempermudah dalam bernavigasi khususnya *passage planning*. Sebagai contohnya dengan terciptanya suatu peta untuk menggantikan peta kertas, peta ini berbentuk digital atau lebih dikenal dengan peta elektronik atau *electronic navigational chart* (ENC). Peta elektronik mempunyai kemampuan luar biasa menyimpan data, mencari, menampilkannya kembali. Data ini semua berisi *geographic, hydrographic* dan informasi *geophysical* area, tata lalu lintas di laut, peraturan yang juga ditampilkan pada peta kertas. Peta elektronik atau yang biasa disebut dengan ENC hanya bisa ditampilkan di *hardware* bernama ECDIS.

Saat kapal sedang berlayar, ada seorang petugas yang bertanggungjawab atas keamanan navigasi kapal yang disebut mualim atau perwira jaga. Perwira jaga adalah perwira yang sedang melaksanakan dinas jaga di anjungan kapal bertugas mengawasi jalannya kapal dan

melakukan pengamatan pada alat navigasi yang ada di anjungan kapal. Dalam melakukan pelayaran diperlukan juga sebuah rencana pelayaran atau yang biasa disebut rancangan pelayaran atau *passage planning*. *Passage planning* merupakan hal yang sangat penting dalam menentukan rencana perjalanan kapal. Dalam melaksanakan *passage planning*, rute atau haluan kapal dibuat dalam peta kertas atau dibuat dalam suatu peta elektronik.

Selama pelayaran, anggota *deck* kapal memiliki tugas navigasi yang penting. Mereka bertanggung jawab untuk mengoperasikan alat navigasi, mengawasi peta laut, dan memastikan kapal berlayar dengan aman dan tepat menuju tujuan yang ditentukan. Dengan mengikuti aturan yang telah ditetapkan *International Maritime Organization* (IMO) selama melakukan tugas navigasi. Standar yang sudah ditetapkan tersebut yaitu *International Regulations for Preventing Collisions at Sea* (COLREG 1972) selama melaksanakan jaga di anjungan kapal. Dengan demikian, anggota *deck* kapal memiliki peran yang penting dalam menjaga keamanan dan kelancaran operasional kapal dalam berbagai situasi, baik saat berlabuh jangkar, sandar di dermaga, maupun dalam pelayaran. Berdasarkan permasalahan yang dialami pada saat praktik laut tersebut, peneliti merasa perlu diadakan penelitian dengan judul "**ANALISIS PENGGUNAAN *DOUBLE* ECDIS DI MV. PAN ENERGEN”**.

B. Fokus penelitian

Fokus penelitian merujuk pada serangkaian masalah yang dibahas dalam topik penelitian tertentu, dengan tujuan membantu penulis dalam mengumpulkan dan menganalisis data secara efektif dan sesuai tujuan penelitian. Dalam konteks penelitian ini, penulis memusatkan perhatiannya pada penggunaan *double* ECDIS di MV. Pan Energen.

C. Rumusan Masalah

Dengan mengacu pada uraian latar belakang yang telah dijelaskan sebelumnya, terdapat beberapa permasalahan yang menjadi fokus utama penelitian dalam skripsi ini, yaitu sebagai berikut:

1. Apa dampak dari penggunaan *double* ECDIS ?
2. Bagaimana kesesuaian penggunaan *double* ECDIS di MV. Pan Energen dengan standar penggunaan yang perusahaan tetapkan?

D. Tujuan Penelitian

Mengacu pada paparan latar belakang dan rumusan masalah, terdapat tiga tujuan utama yang menjadi landasan penyusunan skripsi ini, dengan harapan dapat memberikan manfaat bagi setiap pembaca, yaitu sebagai berikut:

1. Untuk mengetahui dampak dari penggunaan *double* ECDIS di kapal MV. Pan Energen.
2. Untuk mengetahui kesesuaian penggunaan *double* ECDIS di MV. Pan Energen dengan standar penggunaan yang perusahaan tetapkan.

E. Manfaat Hasil Penelitian

Manfaat dari penelitian yang dilakukan oleh penulis tidak hanya bermanfaat bagi dirinya sendiri, tetapi juga dapat berguna bagi pembaca. Berikut adalah manfaat dari penelitian yang dijabarkan dalam penyusunan skripsi ini:

1. Manfaat secara teoritis

   Penelitian ini ikut serta memberikan peran terhadap perkembangan ilmu pengetahuan serta dapat dijadikan referensi mengenai penggunaan *double* ECDIS.

2. Manfaat secara praktis

   a. Bagi peneliti

      Penelitian ini dibuat dengan tujuan agar menambah ilmu pengetahuan dan sebagai bahan masukan ketika penulis menuju dunia kerja di kapal yang menggunakan *double* ECDIS.

   b. Bagi PIP Semarang

      1). Menambah pengetahuan maupun referensi baru yang berguna bagi para calon pelaut yang akan melaksanakan kerja di atas kapal terutamanya di kapal yang menggunakan *double* ECDIS.

      2). Menambah referensi terbaru di bidang akademik yaitu di perpustakaan.

   c. Bagi mualim di kapal

      Sebagai salah satu sumber literatur untuk pengembangan

kompetensi mengenai alat navigasi khususnya *double* ECDIS. Penelitian ini dapat memberikan masukan bagi mualim untuk memperoleh pemahaman yang lebih baik tentang penggunaan *double* ECDIS dengan tujuan untuk meningkatkan keselamatan dan keamanan selama melakukan navigasi di atas kapal.

BAB II

KAJIAN TEORI

A. Deskripsi Teori

Dalam bab ini, penulis akan menguraikan beberapa teori yang relevan dan dapat digunakan sebagai dasar untuk menjelaskan masalah terkait secara sistematis, yang akan dibahas pada bab selanjutnya. Oleh karena itu, penulis akan memberikan penjelasan tentang definisi dan pengertian-pengertian yang berkaitan untuk mencapai pemahaman yang lebih jelas, dengan menyertakan kerangka berpikir dalam bab ini.

1. Penggunaan *double* ECDIS

   a. ECDIS

      Menurut Bowditch (2002: 199), ECDIS merupakan suatu sistem yang menampilkan informasi tentang pemetaan perairan atau hidrografi yang dapat digabungkan dengan informasi dari sistem penentuan posisi elektronik seperti RADAR, *global positioning system* (GPS), dan alat navigasi lainnya. Sedangkan menurut Supriyono (2015), ECDIS merupakan alat navigasi yang menggunakan komputer dengan kemampuan untuk menampilkan peta pada sebuah layar elektronik. Selain ENC, ECDIS juga secara otomatis menampilkan posisi dari kapal sendiri dan kapal lainnya. Sistem ini juga mampu melakukan koreksi peta secara otomatis, memberikan alarm secara otomatis jika terdapat bahaya navigasi, dan memberikan alarm jika terjadi kegagalan pada sistem.

b. *Mandatory* penggunaan ECDIS

Pada tanggal 1 Januari 2011 amandemen *Safety of Life at Sea* (SOLAS) sebagaimana tercantum pada resolusi IMO MSC.282(86) mulai berlaku. Ini termasuk sejumlah perubahan SOLAS *annex* V "*Safety of Navigation*". Peraturan 19 telah direvisi untuk memasukkan aturan penggunaan peralatan ECDIS. Aturan IMO yang tertuang dalam SOLAS *annex* V/19 mewajibkan kapal menggunakan ECDIS jika beroperasi di perairan internasional. Sesuai dengan SOLAS, setiap kapal yang terkena regulasi tersebut harus dipasangi ECDIS. Namun, waktu diberlakukan peraturan tersebut untuk berbagai jenis dan ukuran kapal berbeda atau tidak bersamaan. Ketentuan ini berlaku untuk kapal dengan ukuran sebagai berikut:

1). Kapal penumpang dengan ukuran GT ≥ 500 diwajibkan setelah 1 Juli 2012;

2). Kapal tanker ukuran GT ≥ 3000 diwajibkan setelah 1 Juli 2012;

3). Kapal kargo dan tanker dengan ukuran GT ≥ 10.000 diwajibkan setelah 1 Juli 2013;

4). Kapal kargo 3000 GT dan kapal tanker GT ≥ 10.000 diwajibkan 1 Juli 2014;

5). Kapal penumpang dengan ukuran GT ≥ 500 diwajibkan setelah 1 Juli 2012, dan survei pertama pada 1 Juli 2014;

6). Kapal tanker ukuran GT ≥ 3000 diwajibkan setelah 1 Juli 2012, dan di survei 1 Juli 2015;

7). Kapal kargo dan tanker dengan ukuran GT ≥ 50.000 diwajibkan terpasang setelah 1 Juli 2016;

8). Kapal kargo dan kapal tanker ukuran 20.000 GT dan kurang dari 50.000 GT diwajibkan terpasang setelah 1 Juli 2013 dan kemudian di survei pertama kali 1 Juli 2017;

9). Kapal kargo dan kapal tanker ukuran 10.000 GT dan kurang dari 20.000 GT diwajibkan terpasang 1 Juli 2013 dan disurvei setelah 1 Juli.

c. *Double* ECDIS

Sesuai *narine notice* NAV-001 Rev. 02/22, jika kapal menggunakan ECDIS harus dilengkapi dengan cadangan yang berupa peta laut atau berupa *backup* ECDIS guna memenuh SOLAS V/19. Untuk memenuhi aturan ini, MV. Pan Energen dilengkapi dengan peta kertas pada tahun 2012 sampai dengan 2021. Pada saat *dry dock* tahun 2022, MV. Pan Energen melakukan pemasangan *backup* ECDIS, sehingga saat ini kapal menggunakan *double* ECDIS. *Double* ECDIS adalah suatu metode yang digunakan untuk melaksanakan navigasi dengan menggunakan dua ECDIS dalam penerapannya. Metode ini biasanya dipergunakan oleh kapal-kapal baru. Menurut Bima Mahardika (2022:52), penggunaan *double* ECDIS akan memudahkan perwira jaga dalam navigasi. Metode ini lebih mudah

dibandingkan dengan menggunakan peta kertas yang sebelumnya digunakan. Selain itu, penggunaan *double* ECDIS juga lebih aman dalam pelayaran karena metode ini lebih akurat dan koreksi peta elektroniknya tepat dibandingkan dengan koreksi manual pada peta kertas. Selain itu, *double* ECDIS juga efisien dalam hal waktu kerja perwira navigasi. Karena perwira navigasi tidak perlu lagi memeriksa peta dengan detail untuk membuat rencana pelayaran dan melakukan koreksi peta. Sebuah rencana pelayaran dan koreksi peta elektronik dapat dibuat dengan cepat dan mudah menggunakan *double* ECDIS.

d. Kelebihan dan kekurangan ECDIS

ECDIS memiliki kelebihan dan kekurangan sebagai alat navigasi. Kelebihan alat tersebut tentunya sangat menguntungkan bagi mualim. Menurut Bowditch (2019:247), kelebihan ECDIS yaitu e*fficient, chart management yang b*agus, *display of information,* dan *integration.*

Efficient yang dimaksud yaitu dalam pembuatan rancangan pelayaran tidak hanya dapat membuat atau menyimpan satu rute saja, ECDIS mampu menyimpan rancangan pelayaran yang pernah dibuat. Dengan rancangan pelayaran yang tersimpan, mualim hanya perlu membuka lagi *passage plan* yang tersimpan untuk menggunakannya lagi. *Chart management yang* bagus berarti pemilihan peta saat membuat pelayaran yang akan digunakan pada *passage plan* dipilih secara digital dan otomatis sesuai rute yang dilewati kapal. Untuk

pembelian peta bisa lewat *email* atau langsung lewat ECDIS tersebut secara *online*, serta koreksi peta dapat dilakukan secara otomatis dan tidak perlu melakukan koreksi secara manual. *Display of information* bermaksud bahwa ECDIS menampilkan berbagai informasi navigasi pada satu monitor, termasuk daerah larangan berkaitan dengan *temporary and preliminary* (T&P) *navigational warning*, adanya kapal lain di sekitar, informasi dari alat navigasi yang terhubung dengan ECDIS juga dapat dilihat pada satu monitor. *Integration* berarti ECDIS mengintegrasikan peralatan navigasi seperti RADAR, AIS, *Echosounder,* GPS pada ECDIS sehingga peralatan tersebut dapat dilihat di ECDIS. Dengan kelebihan ini, mualim tidak perlu mengecek alat navigasi tersebut.

Dari berbagai kelebihan dalam penggunaan ECDIS, menurut Mahardika (2022:52) ada juga kekurangan dalam penggunaan ECDIS di atas kapal yaitu banyaknya informasi di layar dan simbol navigasi yang berbeda. Banyak informasi yang terdapat di layar ECDIS, mulai dari informasi bahaya navigasi, informasi dari alat yang terintegrasi dengan ECDIS dan informasi alarm. Informasi tersebut menimbulkan layar ECDIS terpenuhi oleh banyak informasi, apabila tidak bisa mengaturnya dengan baik akan menjadi pengganggu saat bernavigasi. Simbol yang berbeda pada ECDIS berarti adanya perbedaan simbol navigasi pada ECDIS berbeda dengan simbol navigasi yang terdapat pada peta kertas. Hal tersebut dapat mengakibatkan salah arti saat

bernavigasi, sehingga Perwira Jaga harus mengetahui arti dari setiap simbol yang terdapat pada ECDIS.

2. Dampak penggunaan *double* ECDIS

Penggunaan *double* ECDIS memberikan dampak positif dan negatif. Adapun menurut ahli dampak positif dari penggunaan *double* ECDIS. Dampak positif yang terjadi dari penggunaan *doble* ECDIS menurut Bima Mahardika (2022:53) adalah meningkatkan *save navigation,*efisiensi waktu, ramah lingkungan, dan hemat biaya.

Save navigation yang dimaksud yaitu ECDIS meningkatkan keamanan bernavigasi agar tingkat keselamatan navigasi terus meningkat dan mengurangi risiko adanya tubrukan kapal atau situasi bahaya lainnya. Hal tersebut dikarenakan sejumlah keuntungan yang diperoleh dari penggunaan *double* ECDIS. Koreksi peta yang lebih akurat dan teliti karena dilakukan secara otomatis tanpa koreksi peta secara manual layaknya yang dilakukan pada koreksi peta kertas. Selain itu, ECDIS dapat bekerja tanpa lelah, 24 jam sehari, 7 hari seminggu. Artinya, ECDIS secara konstan menunjukkan posisi kapal setiap waktu. Selain itu, ECDIS memberikan alarm jika terdapat bahaya navigasi yang terdeteksi sehingga mualim dapat bernavigasi dengan lebih aman.

Efisiensi waktu yang dimaksud yaitu pembelian peta elektronik melalui koneksi data atau lewat *e-mail* sehingga bisa membeli peta kapan pun dan dimana pun, tidak menunggu di pelabuhan untuk

membeli peta. Sehingga kapal bisa menerima *voyage instruction* dalam waktu yang mendadak. Seorang navigator berpengalaman pun masih membutuhkan waktu yang lama untuk membuat *passage plan* pada peta kertas. Namun, ECDIS membuat proses ini lebih cepat. Proses perencanaan dan pembuatan rute dilakukan lebih cepat karena beberapa tahap yang dilakukan pada pembuatan *passage plan* di peta kertas dapat dihilangkan ketika menggunakan *double* ECDIS. Dengan menggunakan *double* ECDIS, tugas yang sulit dan berisiko tinggi ini dapat dilakukan hanya dengan membutuhkan waktu yang singkat.

Dengan menggunakan *double* ECDIS menjadi ramah lingkungan karena *double* ECDIS secara mengurangi limbah dari peta kertas. Ketika sebuah peta kertas mengalami kerusakan, atau penarikan peta, maka peta kertas tersebut akan dibuang. Hal tersebut membuat peta kertas tidak ramah lingkungan dibandingkan dengan peta elektronik.

Keuntungan berikutnya yaitu hemat biaya, peta kertas harus dikirimkan secara fisik yang memerlukan biaya penanganan oleh agen, terutama jika dipesan pada menit-menit terakhir sebelum *departure*. Hal ini memerlukan biaya yang sangat besar seperti biaya jasa pengiriman. Semua ini dapat dihindari dengan menggunakan peta elektronik. Pembelian peta dilakukan dengan *online* melalui *email* atau lewat aplikasi pembeli peta.

Berikut dampak negatif yang diakibatkan dari penggunaan *double* ECDIS menurut Hedwarkar (2019, April 24) yaitu dapat menimbulkan ketulian alarm, ketergantungan berlebihan, bergantung pada jenis data input, membutuhkan keterampilan sesuai jenisnya, dan mualim menjadi lalai.

Ketulian alarm disebabkan karena alarm berbunyi terlalu sering dengan bunyi yang sama. Akibatnya, mualim dapat mengalami situasi berbahaya ketika mualim mematikan alarm tanpa membaca jenis alarm yang berbunyi. Hal ini berakibat fatal jika alarm yang berbunyi tersebut merupakan bahaya navigasi.

Ketergantungan berlebihan yang dimaksud yaitu dengan peralatan yang mudah digunakan, kecenderungan bagi para navigator untuk terlalu mengandalkannya. Sehingga meninggalkan alat navigasi lain seperti RADAR. Bergantung pada jenis data input maksudnya yaitu dengan adanya kualitas ECDIS yang sangat bagus, tetap juga kinerjanya masih sangat bergantung pada input data yang ada. Sebuah kapal bisa saja mematikan AIS-nya dan karenanya mungkin tidak ditampilkan di ECDIS. Oleh karena itu, sangat penting bagi navigator untuk terus mempertahankan kewaspadaan dan pengawasan dengan alat navigasi radar. Selain itu, Kesalahan input posisi dari GPS atau hilangnya sinyal GPS dapat berdampak buruk jika menggunakan ECDIS. Jika alarm ini tidak dibunyikan, akibatnya bisa sangat buruk. Oleh karena itu, sangat penting untuk memeriksa kinerja sensor dan

sering. Input lain seperti *gyro, anemometer, ecosounder,* dan *navtex* harus sering diperiksa fungsi alat tersebut untuk memastikan kelancaran pengoperasian.

Membutuhkan keterampilan sesuai jenisnya maksudnya yaitu jika bernavigasi menggunakan ECDIS, akan memerlukan tingkat ketrampilan yang berbeda, sesuai dengan *maker* ECDIS yang digunakan. Sekalipun fitur-fiturnya sama, masih perlu banyak *setting* hingga Perwira Jaga merasa nyaman dengan ECDIS tersebut. Berbeda dengan peta kertas, keterampilan yang harus dikuasai sekali saja.

3. Berhentinya The UK Hydrographic Office (UKHO) sebagai produsen peta kertas

   a. Berhenti sebagai produsen peta kertas

   Pada NTM *week 1/2023*, UKHO mengumumkan bahwa lembaga tersebut akan menarik diri dari produksi peta kertas pada tahun 2026, namun *notice* tersebut dibatalkan dan diundur menjadi tahun 2030. Lembaga ini akan sepenuhnya berhenti untuk memproduksi peta kertas. Tujuan dari lembaga tersebut adalah ingin fokus mengembangkan *digital navigation products and services*.

   b. Pengganti peta kertas

   Menurut Bowditch (2019:205), cara kerja ECDIS tergantung pada jenis data chart yang digunakan. *Electronic Navigational Chart* (ENC) dan *Raster Nautical Chart* (RNC) adalah jenis *chart* yang disetujui untuk digunakan pada ECDIS. Kedua jenis

chart tersebut dikeluarkan oleh *International Hydrographic Organization* (IHO) atau badan lain yang ditunjuk oleh IHO. Hanya ada dua jenis *chart* yang resmi disetujui untuk digunakan pada ECDIS, yaitu ENC dan RNC. Menurut Tetley dan Calcutt (2001:226), ENC menggunakan format data *vector*. Proses vektorisasi tersebut menyimpan fitur-fitur peta dalam bentuk layer atau lapisan-lapisan yang dapat dilukis kembali secara otomatis pada ukuran yang sesuai saat gambar diperbesar. Proses produksi *vector chart* memakan waktu dan biaya yang lebih mahal serta memerlukan proses verifikasi yang rumit dibandingkan dengan data raster. Oleh karena itu, *vector chart* adalah jenis data peta elektronik yang ditampilkan dalam bentuk digital. Fitur-fitur pada *vector chart* berupa garis, titik, dan warna yang dapat diperbesar tanpa mengurangi resolusi gambarnya. Menurut Tetley dan Calcutt (2001:225), RNC menggunakan data raster yang dihasilkan dengan cara memindai peta kertas dan replikanya berupa beberapa garis yang terdiri dari titik-titik yang berwarna. Dengan kata lain, RNC adalah versi elektronik dari peta kertas yang ditampilkan pada layar ECDIS.

4. Standar operasional prosedur (SOP) penggunaan *double* ECDIS

Susilowati (2017) mendefinisikan SOP sebagai dokumen yang menjelaskan proses operasional dengan cara yang benar, tepat, dan konsisten untuk mencapai hasil yang sesuai dengan standar peraturan yang berlaku. Di sisi lain, Kusumaningrum (2019) menyatakan bahwa

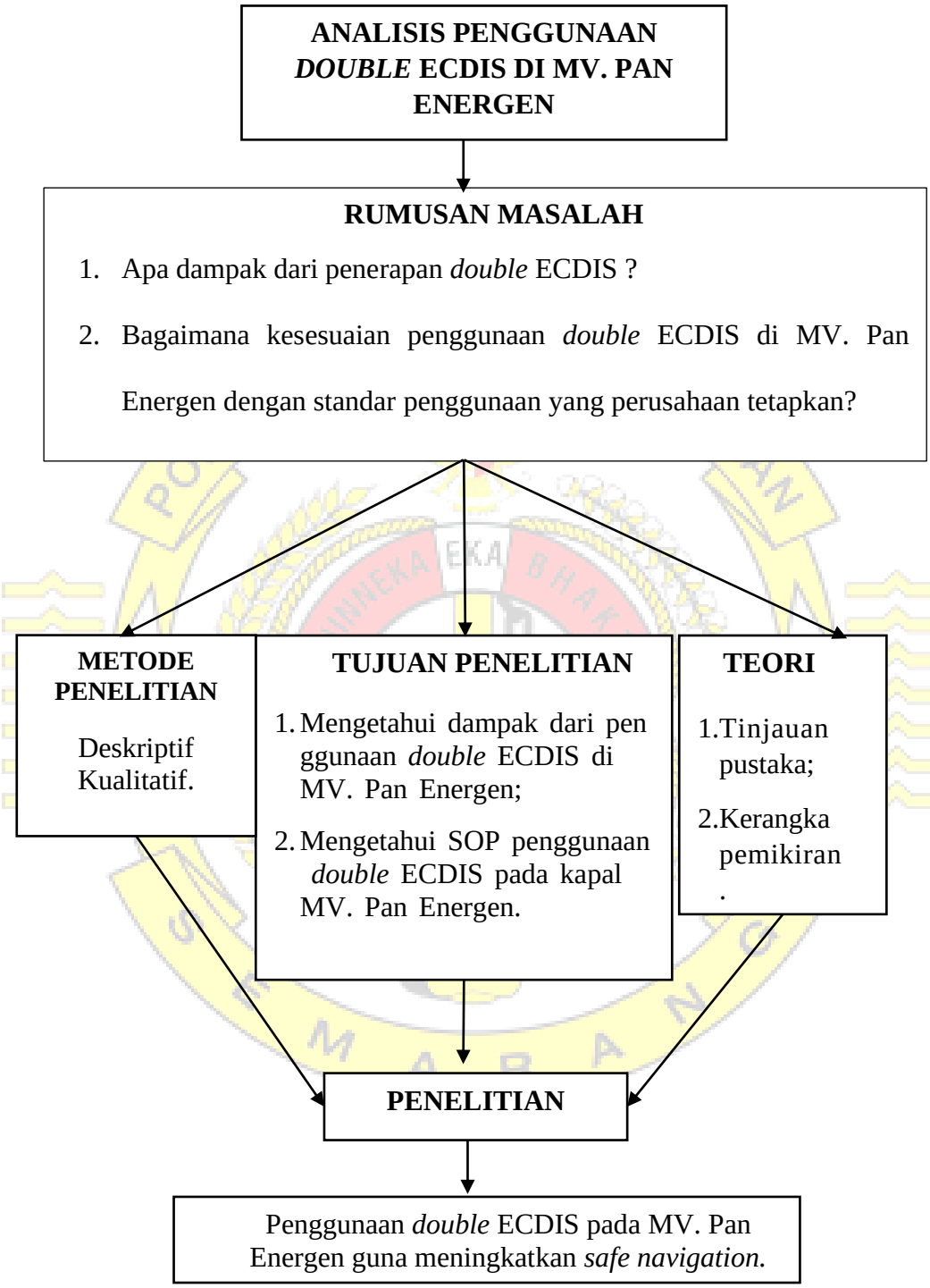
SOP adalah sekelompok instruksi atau petunjuk yang digunakan untuk melaksanakan pekerjaan sesuai dengan standar yang telah ditetapkan untuk mengatasi suatu masalah.

Setiap perusahaan memiliki tujuan tertentu yang ingin dicapai, sehingga perusahaan merancang SOP sebagai panduan kerja yang berisi aturan, prosedur, dan sistem yang terstruktur dengan jelas dan lengkap. Untuk memenuhi kebutuhan informasi antara perusahaan dan pihak kapal, suatu pedoman kerja telah disediakan oleh perusahaan. SOP mencakup format, pencatatan, dan prosedur yang digunakan sebagai dasar dan pedoman kerja agar proses kerja dapat berjalan dengan aman dan lancar, serta memberikan petunjuk tentang tata cara kerja yang benar. Oleh karena itu, dapat ditarik kesimpulan bahwa SOP berperan sebagai dasar, panduan, dan rujukan bagi pegawai di tempat kerja, yang membahas langkah-langkah atau tahapan kerja di perusahaan.

Ketika menggunakan ECDIS dalam navigasi, sangat penting untuk memiliki aturan dan pedoman yang jelas untuk digunakan dengan benar. Inilah mengapa SOP menjadi dasar panduan bagi perwira jaga untuk menjalankan tugas pengawasan di anjungan. Hal ini memiliki tujuan untuk memperkecil kemungkinan terjadinya tubrukan di laut. Agar penggunaan *double* ECDIS optimal, perusahaan telah menetapkan standar untuk penggunaan ECDIS. SOP ini akan mengatur prosedur penggunaan ECDIS yang tepat dan benar,

yang akan bermanfaat bagi *crew* kapal untuk menjaga navigasi yang aman. SOP penggunaan *double* ECDIS terdapat pada *form checklist pre-departure for master and backup* ECDIS (terlampir), ECDIS *configuration for master and backup* ECDIS (terlampir), dan ECDIS *manual book*.

B. Kerangka Pemikiran



Gambar 2.1 Kerangka Penelitian

Sumber: Dokumen Pribadi Penulis

BAB V

SIMPULAN DAN SARAN

A. Simpulan

Berdasarkan hasil penelitian yang telah dijelaskan oleh peneliti yang berkaitan dengan penggunaan *double* ECDIS di kapal MV. Pan Energen, maka dapat disimpulkan sebagai berikut:

1. *Double* ECDIS memiliki dampak positif dan negatif. Dampak positif dari penggunaan *double* ECDIS yaitu meningkatkan efisiensi dalam bernavigasi, manajemen peta yang bagus, terintegrasi dengan alat-alat navigasi lain, serta dapat melihat semua informasi navigasi dapat pada layar ECDIS. Dampak negatifnya yaitu banyaknya informasi yang ditampilkan pada layar ECDIS dan dapat menimbulkan percaya berlebihan terhadap informasi yang ditampilkan *double* ECDIS.
2. SOP penggunaan *double* ECDIS di MV. Pan Energen belum terlaksana dengan baik, akibatnya timbul bahaya navigasi yang membahayakan bagi keselamatan kapal.

B. Keterbatasan Penelitian

Peneliti memiliki keterbatasan dalam penyusunan penelitian ini yaitu tidak tersedianya manual book NAVTEX sebagai pedoman pelaksanaan navigasi kapal.

C. Saran

Berdasarkan simpulan di atas, maka peneliti memberikan saran sebagai berikut:

1. Sebaiknya penggunaan *double* ECDIS diperiksa oleh nakhoda secara teratur untuk menghindari dampak negatif dari penggunaan *double* ECDIS.
2. Sebaiknya maulim diberikan familiarisasi sebelum *onboard* dan edukasi secara teratur terkait SOP penggunaan *double* ECDIS agar *double* ECDIS digunakan sesuai aturan.

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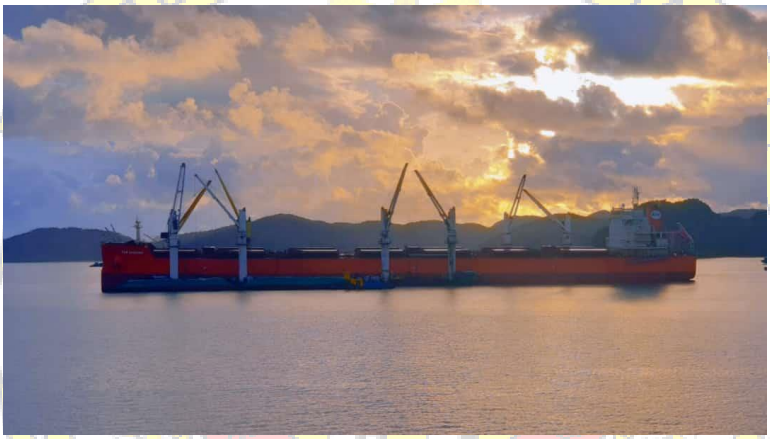
LAMPIRAN 1

Logo Perusahaan Kapal MV. PAN ENERGEN

Logo Perusahaan POS SM Co.,Ltd



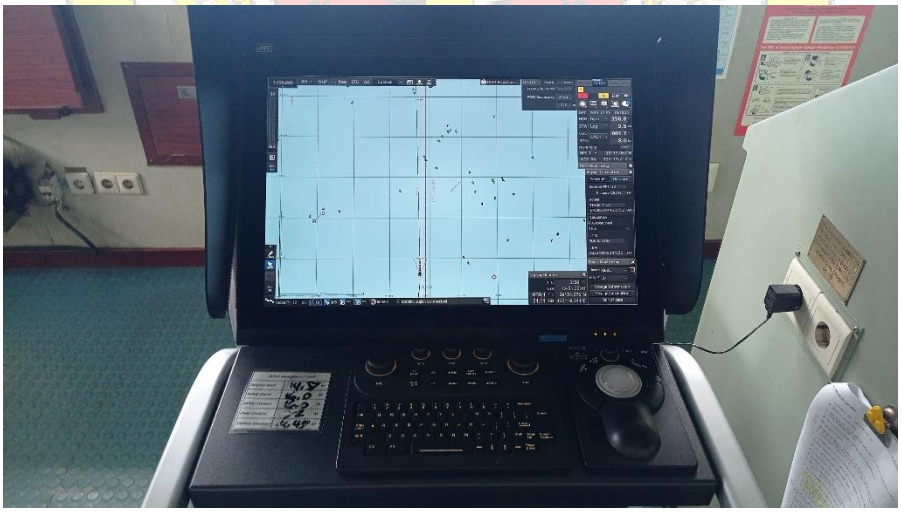
MV. Pan Energen

Perusahaan PT. Jasindo Duta Segara

LAMPIRAN 2

Gambar *double* ECDIS

Master ECDIS JRC-JAN 901B



Backup ECDIS JRC-JAN 9201

LAMPIRAN 3

Hasil wawancara

Tanggal : 9 Agustus 2022

Nama : Lee Gi Su

Jabatan : Nakhoda

Wawancara dengan Nakhoda MV. Pan Energen pada saat melaksanakan penelitian adalah sebagai berikut:

Peneliti : “Good morning sir, do you have time to answer my question?”

Nakhoda : “Sure, What’s your question?”

Peneliti : “What’s your opinion using full ECDIS?”

Nakhoda :“Verry good, we reduce to using paper for green global and also more safety using full ecdis than paper chart

Peneliti :“Do you have problem when using double ECDIS?”

Nakhoda : “Just little bit, sometime Mualim cannot operate the full ecdis”

Peneliti :“How about standard company when using backup dan master ECDIS, ?”

Nakhoda : “Not at all, but I try to applicate it”

Peneliti :“How about ECDIS familiarization checklist, pre-departure checklist for ecdis, configuration for ecdis, is that usefull?”

Nakhoda : “It’s very usefull to reduce human error when navigating on she. Also I can teach the Mualim who don’t know the some function of ECDSI”

Peneliti : “Thank you sir for your answer”

Nakhoda : “No problem ”

Hasil wawancara

Tanggal : 20 Agustus 2022

Nama : Aditya Juniawan

Jabatan : 1st Mualim MV. Pan Energen

Wawancara dengan 1st Mualim MV. Pan Energen pada adalah sebagai berikut:

Peneliti : "Selamat malem chief, mohon izin chief wawancara sebentar chief."

Mualim I : "Malem det, gimana?."

Peneliti : "Siap chief. Izin chief, saya ingin bertanya tentang pengubahan peta kertas dan ecdis, menjadi double ecdis, bagaimana pendapat chief tentang pengubahan itu?"

Mualim I :"Bagus lah det, kan jadi kita ngga pake kertas lagi, jadi kan sekarang lebih hemat kertas buat pengurangan penebangan pohon. Selain itu, jadi lebih aman si det, soalnya koreksi NTM lebih akurat daripada koreksi manual"

Peneliti :"Izin chief, bagaimana kendala yang dialami saat memakai double ECDIS?"

Mualim I : "Sejauh ini ngga ada kendala berarti sih det"

Peneliti :“Apakah pemakaian backup dan master ECDIS sudah sesuai SOP perusahaan, chief?”

Mualim I : “Belum det, Mualim sering lupa untuk plot posisi kapal setiap jam atau setiap 15 menit saat coastal navigasi, Mualim juga hanya memerhatikan informasi navigasi hanya lewat ECDIS, INM-C dan Navtex tidak diperhatikan, seperti kejadian yang memasuki military training area kemarin det, bahaya sekali itu ”

Peneliti :“Apakah ECDIS familiarization checklist, pre-departure checklist for ecdis, configuration for ecdis sangat membantu, chief?”

Mualim I : “Itu sangat membantu kita buat menghindari kelupaan sesuatu saat jaga atau saat bernavigasi, jadi semacam pengingat loh det”

Peneliti : “Siap chief, saya paham. Terimakasih banyak atas kesempatan sharingnya.”

Mualim I : “Oke det.”

Peneliti : “Siap chief.”

Hasil wawancara

Tanggal : 9 Agustus 2022

Nama : Candra Widya Tri Anggara

Jabatan : 2nd Mualim MV. Pan Energen

Wawancara dengan 2nd Mualim MV. Pan Energen adalah sebagai berikut:

Peneliti : "Selamat sore ken, mohon izin ken wawancara sebentar ken."

Mualim II : "Sore det, gimana det."

Peneliti : "Siap ken. Izin ken, saya ingin bertanya tentang pengubahan peta kertas dan ecdis, menjadi double ecdis, bagaimana pendapat ken tentang pengubahan itu?."

Mualim II :"Oh tentang itu det, jadi kan dock kemarin kita pasang backup ECDSI, saya sangat setuju tu sama pemasangan ECDIS ini, pekerjaan saya buat bikin passage plan jadi lebih cepat dan gampang, saya hanya perlu membuat 1 passage plan di *master* ecdis kemudian dicopy ke backup ecdis, selesai deh pembuatan passage plan. Selain itu, jadi hemat kertas det, kadang kan ngga sengaja peta kertas sobek, terus dibuang deh. Kadang juga ketika menerima NTM, ada order buat withdraw peta, jadi kan kita buang peta itu, kurang ramah lingkungan dong jadinya. Waktu kita menerima voyage instruction, kita juga sering dapetnya dadakan, 1 hari sebelum departure, kita baru dapet voyage order, kalo peta kertas

tidak bisa langsung beli peta dong, kita perlu nunggu buat petanya datang. Beda kalo pake ecdis, kita bisa beli peta kapan pun dan petanya langsung dating. Kalo ada bahaya navigasi juga ada alarm nya det, jadi kan kitab isa was-was saat bernavigasi. Begitu det.

Peneliti :“Izin ken, bagaimana kendala yang dialami saat memakai double ECDIS?”

Mualim II : “Sejauh ini saya belum menemukan kendala yang berarti det, untuk di master ecdis kadang lag, jadi saya restart ulang agar bisa running normal, saya juga masih perlu adaptasi dengan ECDIS jenis ini, saya baru pertamakali menggunakan ECDIS jenis ini soalnya, sebelumnya saya memakai ecdis merek Furuno di kapal kemarin, makanya saya butuh waktu buat adaptasi dengan ECDIS ini, itu saja paling det kendalanya”

Peneliti : “Apakah pemakaian backup dan master ECDIS sudah sesuai SOP perusahaan, ken?”

Mualim II : “Beberapa SOP belum terlaksana det, tetapi itu karena order dari Lurah, misalnya untuk mematikan echosounder terkoneksi dengan master ecdis, tujuannya melepas koneksi ini agar alarm tidak bunyi tentunya ini menyalahi aturan, tetapi karena Lurah yang memerintah, dilaksanakan.”

Peneliti :“Apakah ECDIS familiarization checklist, pre-departure checklist for ecdis, configuration for ecdis sangat membantu, ken?”

Mualim II : “Itu membantu sekali det buat saya mempersiapkan ecdis saat akan departure kapal, selain itu form itu sangat berguna buat mengecek apakah setting ecdis sudah sama atau belum, itu sangat berguna agar terhindar dari perbedaan setting ecdis yang digunakan”

Peneliti : “Siap ken, saya paham. Terimakasih banyak atas waktu dan ilmunya ken.”

Mualim II : “Oke det.”

Peneliti : “Siap ken.”

Hasil Wawancara

Tanggal : 10 Agustus 2022

Nama : Doni Sani Setiyawan

Jabatan : 3rd Mualim MV. Pan Energen

Wawancara dengan Mualim III di kapal MV. Pan Energen pada saat adalah sebagai berikut:

Peneliti : "Selamat pagi third, mohon izin meminta waktunya sebenar untuk wawancara third."

Mualim III : "Pagi juga dett, gimana det."

Peneliti : "Jadi gini third, saya ingin bertanya tentang pengubahan peta kertas dan ecdis menjadi double ecdis, bagaimana pendapat third tentang pengubahan itu?."

Mualim III :"Jadi det, kalo pendapat saya tentang itu ya bagus lah, jadi lebih gampang saya dalam bernavigasi, saya tidak perlu eplot di peta, langsung klik langsung auto plot posisi. Kalo Menurut saya lebih aman menggunakan ECDIS det, soalnya kalo ada bahaya navigasi langsung terjadi alarm."

Peneliti :"Izin third, bagaimana kendala yang dialami saat memakai ECDIS?"

Mualim III : “Kendala yang saya alami saat masuk traffic yang tinggi det, banyak alarm yang berbunyi, informasi dari ECDIS terlalu banyak yang tertampil di display, kaya peringatan CPA kapal, BCR dengan kapal lain, peringatan XTD kapal dan sebagainya”

Peneliti : “Apakah pemakaian backup dan master ECDIS sudah sesuai SOP perusahaan, third?”

Mualim III : “Jelas belum semuanya bisa terlaksana det, SOP yang dipakai hanya ke fitur-fitur yang sering dipakai saja, untuk fitur yang jarang dipakai, dimatikan. Kaya untuk master ECDIS dan backup ECDIS setting yang dipakai seingnya berbeda, makanya ada checklist buat menghindari perbedaan setting ecdis. Banyak juga Alarm yang harusnya bunyi karena bahaya navigasi juga beberapa dimatikan karena terlalu sering berbunyi alarm, kaya alarm echosounder itu dimatikan det saat di open sea dan dinyalakn hanya ketika di coastal navigasi, padahal nggatau kapan kita melewati area yang dangkal. Maka dari itu, kita harus paham dan harus menerapkan isi dari suatu peraturan yang sudah ditetapkan sepeti di checklist yang sudah b.”

Peneliti :“Apakah ECDIS familiarization checklist, pre-departure checklist for ecdis, configuration for ecdis sangat membantu, third?”

Mualim III : “Sangat membantu sekali det, familiarization checklist dan form checklis lainnya digunakan untuk mengingat apa yang seharusnya dilakukan saat menggunakan kedua ecdis. Soalnya kalo dilakukan

setting secara pribadi, sering terjadi perbedaan setting. Sealin itu, Lurah menggunakan form tersebut untuk mengukur kemampuan Mualim dalam menggunakan ECDIS. Nanti jika ada yang tidak bisa dalam memakai fiturnya. Lurah yang akan menngajari langsung, tambahan lagi det, karena praktisnya ECDIS ketika berlayar di open sea, kalo jaga malam membuat ngatuk det"

Peneliti : "Oke third, third terimakasih"

Mualim III : "Oke det."

LAMPIRAN 4

LAST PORT OF CALL

PORT OF CALL LIST

NAME OF SHIP	PAN ENERGEN	PORT OF ARRIVAL	TABONEO, INDONESIA
FLAG	MARSHALL ISLANDS	DATE OF ARRIVAL	ETA 26TH JULY 2022

NO.	NAME OF PORT	SECURITY LEVEL	DATE OF ARRIVAL	DATE OF DEPARTURE	REMARKS
1	Campha, Vietnam	1	12-Jul-22	19-Jul-22	Discharging (Coal)
2	Hay Point, Australia	1	15-Jun-22	27-Jun-22	Loading (Coal)
3	Hibikinada, Japan	1	30-May-22	3-Jun-22	Discharging (Coal)
4	Yokkaichi, Japan	1	18-May-22	28-May-22	Discharging (Coal)
5	Newcastle, Australia	1	18-Apr-22	1-May-22	Loading (Coal)
6	Gunsan, S.Korea	1	24-Mar-22	1-Apr-22	Discharging (Coal)
7	Yeosu, S.Korea	1	22-Mar-22	23-Mar-22	Discharging (Coal)
8	Samarinda, Indonesia	1	9-Mar-22	13-Mar-22	Loading (Coal)
9	Shanghai HRDD, China	1	15-Feb-22	2-Mar-22	Docking
10	Changjiangkou, China	1	14-Feb-22	15-Feb-22	Anchoring

MASTER OF MV. PAN ENERGEN

LAMPIRAN 5

NTM *WEEK* 01/22

[01/23]

ADMIRALTY Charts affected by the Publication List

ADMIRALTY Charts	ADMIRALTY Charts	ADMIRALTY Charts	International Charts
115	5141(10)	5600_10	INT 1503
1975	5141(11)	5600_11	INT 1560
2052	5141(12)	5605_14	
3747	5150(1)	5614_16	ADMIRALTY Publication
4936	5150(2)	5614_17	
4937	5150(3)	5614_18	NP 82
5141(1)	5150(4)	5614_19	
5141(2)	5150(5)	AUS 195	
5141(3)	5150(6)	AUS 293	
5141(4)	5150(7)	AUS 296	
5141(5)	5150(8)	Q 6099	
5141(6)	5150(9)	Q 6111	
5141(7)	5150(10)	SLB 102	
5141(8)	5150(11)		
5141(9)	5150(12)		

PAPER CHART SUNSET

The UKHO has announced its intention to withdraw from paper charts by the end of 2026. This decision has been taken to allow us to focus on our digital navigation products and services that meet the needs of today's and tomorrow's seafarers.

The withdrawal of paper charts will be done in a phased approach over a number of years. Charts withdrawn will be announced in this bulletin in advance.

We will provide more information in this bulletin as we begin the process.

For more information about our decision, timetable, and the impacts, please visit https://www.admiralty.co.uk/sunsetting-paper-charts

CHANGES TO REMAINING PAPER CHARTS

As the UKHO withdraws charts, as part of its sunset of paper charts, you should note the following;

1. We will not add detail from withdrawn charts to omission of detail areas on remaining smaller scale charts.
2. Remaining ADMIRALTY paper charts may not provide suitable scale charting for your purposes.
3. You are encouraged to obtain and use the best scale charting available for your purposes. These may be charts produced by local hydrographic offices. Please consult your Distributor for more information.

⊙ denotes chart available in the ADMIRALTY Raster Chart Service series.

LAMPIRAN 6

Assessment Record Education

POS	**Shipboard Education/*Training*/Drill Assessment Record**	Form Number	TRA – 03
		Revision Number	01
		Revision Date	2018.08.06

Vessel : PAN ENERGEN

Kind of *Education* : ECDIS Familiarization

Lecturer : Master

Date held : 29th August 2022 (1300-1400LT)

Position	Name	Signature	Evaluation	Position	Name	Signature	Evaluation
C/O	BAHTIAR BASUNG		Good				
2/O	CANDRA WIDYA TRI ANGGARA		Good				
3/O	DONI SANI SETIAWAN		Good				
A/O	ILHAM FAISAL HUDA		Good				

Details of *Education* 교육훈련 내용:

Educated ECDIS Familiarization to all Officer and Apperentis Officer at 26-41.7 S/154-02.1 E. Educated regarding to SHEQ-2.2 Ch 4.4.2. Found all in good order.

Evaluation of *Education* 교육훈련 평가

1. Evaluation method 평가방법

Evaluation method 평가방법	Sele-ction 선택	Rate 비율	Evaluator 평가자	Remark 비 고
Evaluation of Observation 관찰평가	√	40%	Lecturer	Attendance in education/training 출석(20%) Attitude during the education/training 태도(20%)
Interview 구술평가(*)	√	60%	"	Evaluation by interrogatory method 문답식
Practice test 실기평가(*)		60%	"	Evaluation by practice 현장실습
Written/Subject test 필답/과제 평가 (*)		60%	"	Evaluation by written/subject test

Lecturer's opinion (교육자 의견)

all good order

(*) : Choose the best one, among these methods.

2. Evaluation Levels : Excellence (*more than* 90), Good (75-89) Normal (60-74), Poor (*less than* 60)

3. A person with poor evaluation shall be re-educated until he gets the normal or higher.

Attachment 유첨(Yes□ / No□) :

PAN OCEAN Co., Ltd. M/V PAN ENERGEN MASTER MAJURO

Master Choi Bong Ki

■ SHEQ-2.2 Ch 4.2.9 / File No. B-18

LAMPIRAN 7

ECDIS *Familiarization Checklist*

POS	ECDIS Familiarization Checklist	Form Number	NAV – 42
		Revision Number	02
		Revision Date	2022.01.10

VESSEL NAME	PAN ENERGEN	RANK	2nd Officer
DATE	7th April 2023	NAME	Reynold Sidabutar

1. INITIAL PREPARATION		* Apply – W : OOW M : Manager (2/O & MASTER)				
NO	CHECK ITEM	APPLY	YES	NO	N/A	REMARK
1.1	Establish whether there are Bridge Instructions concerning the use of the equipment and ensure that these are followed 전자해도 사용에 관한 선교지침들이 있는지를 검증하고 이들이 준수되는지를 확인하라.	W				
1.2	Establish whether the equipment is a flag-approved ECDIS. If not, paper charts must be used as the primary charting system 전자해도가 기국 승인 제품인지 검증하라. 아니라면, 종이 해도가 주 해도 시스템으로 사용되어야 한다.	W				
1.3	Identify the primary ECDIS equipment and the facilities for back-up. If the back-up is a second ECDIS of a different type to that of the primary installation, then Sections 2 to 6 of this familiarization checklist must be repeated for both systems. 주 전자해도 장치와 백업을 위한 장치를 식별하라. 백업 전자해도가 주 전자해도 장치의 것과 다른 형식이라면, 이 친숙화 점검표의 2~6장은 두 가지 시스템을 위하여 반복되어야 한다.	W				*Primary : ☐ ECDIS ☐ Paper Chart *Back-up : ☐ ECDIS ☐ Paper Chart
1.4	Establish whether emergency charts are carried as a final level of back-up. If so, determine their location and their suitability for the voyage. 백업의 마지막 수준으로써 비상 해도가 비치되었는지를 검증하라. 그렇다면, 이들의 위치와 당해 항해를 위한 적합성을 숙지하라.	M				*If ENC is used, mark "N/A"

1.5	Establish whether an emergency computer such as a laptop running ECS software is available. If so determine its whereabouts and how to switch on and access the ECS package. ECS 소프트웨어를 기동하는 노트북 같은 비상 컴퓨터가 이용가능한지를 검증하라. 그렇다면 이것의 위치와 작동, ECS 패키지에 접속하는 법을 숙지하라.	M				*ECS(Electronic Chart System) 전자해도간이시스템 *If ECDIS is fitted, mark "N/A"
1.6	Establish whether there is an on-board familiarization training package for the equipment, whether as computer based training, an inbuilt training mode or as a book or digital image of a book (eg. PDF file). Use this before completing the check list items here 전자해도 장비에 대한 승인된 선상 친숙화 훈련과정이 있는지, CBT로써, 내장 훈련 모드 또는 교재 (예. PDF 파일) 같은 디지털 이미지 교재이건 간에, 검증하라. 본 점검표 항목들을 완료하기 전에 이것(교재 등)을 사용하라.	W				*If CBT is not available onboard, used this checklist. (CBT가 없을 경우 본 점검표로 대체)
1.7	Determine where the user manuals for ECDIS and its backup are located – an electronic version of these may be available on each unit 전자해도 또는 백업장치의 사용자 매뉴얼이 어디에 있는지를 숙지하라 - 이들의 전자문서들이 각각에 활용될 수도 있다.	W				
1.8	Establish whether any passwords are needed for the management of the system and, if so, obtain the details from the Master 이들 전자해도 시스템의 관리를 위해 비밀번호가 필요한 지를 검증하고, 그렇다면 MASTER로부터 상세한 사항을 얻어라.	M				☐ ARCS Pin code ☐ Permit Number
1.9	Determine where Base and Update CD/DVDs are stored on the ship BASE CD/DVD 및 UPDATE CD/DVD들이 선박의 어디에 있는지를 숙지하라	M				Position:
1.10	Determine the procedures to obtain additional chart permits 추가적인 해도 승인을 얻기 위한 절차를 숙지하라	W				

1.11	Determine and understand the position-fix systems that feed the ECDIS . Determine the method of switching between sources, such as primary and secondary position fix systems 전자해도에 연결된 선위측정장치를 숙지하고 이해하라. 가령 주(GPS1)와 보조 (GPS2) 선위측정장치 사이의 전환 방법을 숙지하라.	W				*If two GPS are not connected to ECDIS respectively, mark "N/A".
1.12	Determine what other systems feed into the ECDIS, such as radar (tracked targets and/or raw), AIS, water speed logs, echo sounders, etc. For each, establish the reference framework, eg. ground-, water- or ship-stabilized (relative) 가령, 레이더, AIS, 로그, 음향측심기 등과 같이 전자해도에 연결되어 정보를 제공하는 장치가 무엇인지 숙지하라. 각각에 대하여 참조 골격, 예를 들어, 대지, 대수 또는 상대, 진방위 등을 검증하라.	W				*Mandatory (Principle) Sensor ☐ GPS ☐ Gyro ☐ Speed log *Other Sensor ☐ Radar ☐ AIS ☐ ( )
1.13	Determine how to replace consumable parts of ECDIS (HDD, UPS, LCD, Fan and etc according to the manufacturer's instruction) ECDIS 소모품 교환 주기에 대하여 숙지하라 (HDD, UPS, LCD, Fan 등 메이커 권고에 따름)	M				

2. BASIC OPERATION		* Apply – W : OOW M : Manager (2/O & MASTER)				
NO	CHECK ITEM	APPLY	YES	NO	N/A	REMARK
2.1	Determine how to switch the ECDIS on and off 전자해도의 시동과 중지법을 숙지하라 (정상적인 LOG IN/OUT 방법)	W				
2.2	Establish the function(s), position and general operation of the physical controls and switches, including cursor control, and the access and selection of menu items, 커서 조정, 메뉴항목의 접근과 선택을 포함하는 물리적인 작동기 (키보드, 볼마우스)와 스위치들의 기능, 위치와 일반적인 작동을 숙지하라.	W				
2.3	Understand how to access the main menu and select menu options. 주 메뉴와 선택 메뉴 항목 옵션들의 사용법을 이해하라.	W				
2.4	Determine the methods for setting day/night viewing modes, brightness, contrast and colour correction (if available) 주/야간 화면 모드, 밝기, 대비, 색상 수정 설정법을 숙지하라.	W				
2.5	Determine how to switch between traditional and simplified symbology 전통적인 심볼 (기존 해도의심볼)과 약식 심볼(전자해도의 심볼)간의 전환법을 숙지하라.	W				
2.6	Determine how to put equipment in route-monitoring mode and route-planning mode 항로감시모드와 항로계획모드를 전자해도에 설정하는 법을 숙지하라	W				
2.7	Determine the methods for scrolling and zooming charts, including determining the current scale of displayed charts and setting the display to a particular scale 표시해도의 현재 축척 숙지와 화면을 특정 축척으로 설정하는 것을 포함하는 해도의 스크롤링과 확대 축소법을 숙지하라.	W				
2.8	Determine how to select the Display Base and Standard Display DISPLAY BASE AND STANDARD DISPLAY 선택법을 숙지하라.	W				

2.9	Determine how to add display other information from ENCs, including the display of All Other Information ALL OTHER INFORMATION의 표시를 포함하여 ENC로부터 다른 정보를 추가 표시하는 방법 (MARK, EVENT, MARINER'S NOTE등)을 숙지하라.	W				
2.10	Determine how to check that information concerning own ship, such as dimensions are correct 자선에 관한 정보, 가령, 제원이 정확한 지를 확인하는 법을 숙지하라. (MAX. DRAFT, BEAM, LENGTH, EPFS, CCRP 등)	W				*Display CCRP drawing around ECIDS CCRP정보를 전자해도 부근에 게시할 것
2.11	Determine how to select the safety contour and safety depth 안전 등심선과 안전 수심을 선택하는 법을 숙지하라. (Shallow(낮은 등심선) & Deep(깊은 등심선) Contour에 대해서도 숙지하라)	W				*Display information of Safety Contour and Depth 안전등심선 및 수심정보를 전자해도 부근에 게시할 것
2.12	Determine how to select two- or four-colour contour mode 2 또는 4 색상 등심선 모드를 선택하는 법을 숙지하라	W				
2.13	Determine how to select deep and shallow area display options 고수심 및 저수심 지역 표시를 선택하는 법을 숙지하라	W				
2.14	Determine how to set all other parameters concerning the safety domain 안전 범위에 관한 다른 모든 변수 설정법을 숙지하라	W				*Refer to 2.11
2.15	Establish how alarms and other alerts are given by the ECDIS and the procedure needed to acknowledge them 전자해도에 나타나는 경보음들과 다른 경고들이 어떻게 일어나는 지와 이들을 인지하는 것에 필요한 절차를 검증하라	W				☐ Mandatory alarm ☐ Sensor alarm ☐ Anchor watch alarm ☐ User alarm

3. ELECTRONIC CHARTS		* Apply – W : OOW M : Manager (2/O & MASTER)				
NO	**CHECK ITEM**	**APPLY**	**YES**	**NO**	**N/A**	**REMARK**
3.1	Determine how to access the chart directory and to identify whether charts are ENCs, RNCs or private data 해도 디렉토리에 접근하는 법과 해도가 ENC, RNC 혹은 사설 DATA인지를 식별하는 법을 숙지하라	W				☐ ENC ☐ RNC ☐ Private Data
3.2	Determine how to select a chart for display on the screen 스크린상의 표시를 위해 해도를 선택하는 법을 숙지하라	W				
3.3	Determine how to load new chart license keys 신해도의 라이선스 키번호를 LOAD하는 법을 숙지하라	M				
3.4	Determine how to load base data 기본 BASE DATA를 LOAD하는 법을 숙지하라	M				
3.5	Determine how to check the update status of loaded charts LOAD된 해도의 최신화 상태를 확인하는 법을 숙지하라	W				
3.6	Determine how to update charts using the normal cumulative update procedures 정상적인 누적 최신화 절차(Normal Cumulative Update Procedures)로 해도를최신화하는 법을 숙지하라.	M				
3.7	If applicable, determine how to apply non-cumulative or electronically-transmitted updates 적용된다면, NON-CUMULATIVE(T&P) 혹은 전자적으로 송신된 업데이트 정보를 적용하는 법을 숙지하라	M				
3.8	Determine how to apply manual updates 수동 최신화 적용법을 숙지하라 (T&P – EDIT, MANUAL UPDATE)	M				

4. NAVEGATION TOOLS AND FUNCTIONS		* Apply – W : OOW M : Manager (2/O & MASTER)				
NO	CHECK ITEM	APPLY	YES	NO	N/A	REMARK
4.1	Determine how to display the legend of general information 일반 정보의 표시방법을 숙지하라 (LAYOUT 방법)	W				
4.2	Determine how to select information about an object (Pick report) 물표에 관한 정보 선택법을 숙지하라 (TARGET 선택 - AIS, RADAR 등)	W				
4.3	Determine how Zone of Confidence (CATZOC) information can be displayed 정보의 신뢰도 (CATZOC, QOD) 정보가 어떻게 표시되는지 숙지하라. (ZOC = QOD (QUALITY OF DATA))	W				
4.4	Determine how to access the Presentation Library PRESENTATION LIBRARY에 접근하는 법을 숙지하라 (LIBRARY = INFORMATION)	W				
4.5	Determine what Marine Information Overlays are available and how to access them. (Radar and AIS covered in Section 6 below) 어떤 MARINE INFORMATION OVERLAYS가 이용 가능한지와 어떻게 이들에 접근하는 지를 숙지하라(NAVTEX, EGC 등)	W				
4.6	Determine the 'single operator action' needed to remove MIO from the display 화면으로부터 MIO를 제거하는 것에 필요한 'SINGLE OPERATOR ACTION (단축키)'을 숙지하라.	W				*MIO (Marine Information Overlays)
4.7	Determine the 'single operator action' needed to set the Standard Display setting STANDARD DISPLAY설정에 필요한 'SINGLE OPERATOR ACTION'을 숙지하라 (단축키)	W				
4.8	Determine how to view, add, edit and delete Mariners' Notes, Event Marks MARINERS' NOTES, EVENT MARKS를 표시, 추가, 편집, 삭제하는 법을 숙지하라 (기능활용)	W				

4.9	Determine how to access all navigational elements and parameters, such as past track, vectors, position lines, heading, own ship position offset, time adjustment, sounding depth, home position function, ports function, motion mode, azimuth mode and etc 모든 항해 요소들과 변수들, 가령, PAST TRACK, VECTORS, POSITION LINES, HEADING, OWN SHIP POSITION OFFSET, TIME ADJUSTMENT, SOUNDING DEPTH, HOME POSITION FUNCTION, PORTS FUNCTION, MOTION MODE, AZIMUTH MODE 등에 접근하는 법을 숙지하라	W				*LOP (Line Of Position)
4.10	Determine how to set up of detecting danger situation (Dangerous detection vector and sector, alarm for route monitoring, dangerous detection object and area, etc.) 위험 상황을 식별하기 위한 값을 설정하는 법을 숙지하라 (DANGEROUS DETECTION VECTOR AND SECTOR, ALARM FOR ROUTE MONITORING, DANGEROUS DETECTION OBJECT AND AREA 등)	M				
4.11	Establish the facilities provided for the measurement of range and bearing (eg. EBLs and VRMs) and determine their use 거리와 방위(예 EBLs and VRMs) 측정을 위해 제공된 기능들을 검증하고 이들의 사용을 숙지하라	W				*ERBL
4.12	Determine the method(s) used for inserting Parallel Index lines PARALLEL INDEX LINES 삽입을 위해 사용되는 방법을 숙지하라	W				
4.13	Determine what other navigational tools are available and how to access them (Anchor watch alarm, MOB, No go line, navigation log, volume of buzzer and etc) 어떤 다른 항해 TOOLS이 이용가능하고 이들에 어떻게 접근하는 지를 숙지하라 (ANCHOR WATCH ALARM, MOB 기능, NO GO LINE, NAVIGATION LOG, VOLUME OF BUZZER 등)	W				☐ Anchor watch alarm ☐ MOB ☐ ( )
4.14	Determine how to switch to using the back-up system. 백업 시스템을 어떻게 켜는지를 숙지하라	W				

5. ROUTE PLANNING		* Apply – W : OOW M : Manager (2/O & MASTER)				
NO	CHECK ITEM	APPLY	YES	NO	N/A	REMARK
5.1	Determine how to load existing routes and enable for editing 기존 항로를 LOAD하는 법과 편집을 하는 법을 숙지하라	M				
5.2	Determine how to initiate a new route plan 신 항로 계획을 위해 초기화하는 법을 숙지하라	M				
5.3	Determine how to set up of design parameters for route planning (route width, arrival circle radius (normal route), navigation line type (Great circle/ Rhumb Line) 항로 계획을 위한 기본값을 설정하는 법을 숙지하라 (ROUTE WIDTH, ARRIVAL CIRCLE RADIUS (NORMAL ROUTE), NAVIGATION LINE TYPE (GREAT CIRCLE/ RHUMB LINE)	M				
5.4	Determine how to initiate and plan alternate routes 대체항로(ALTERNATE ROUTE)를 초기화하고 계획하는 법을 숙지하라	M				*Alternate route = Change route
5.5	Determine how to save route plans 항로계획을 저장하는 법을 숙지하라	M				
5.6	Determine how to add, delete and adjust graphically the position of waypoints (table editing, graphic editing) 변침점들을 그래픽으로 추가, 삭제, 조정하는 법을 숙지하라 (TABLE EDITING, GRAPHIC EDITING)	M				
5.7	Determine how to add, edit and delete critical points 중요지점을 추가, 편집, 삭제하는 법을 숙지하라	M				
5.8	Determine how to display time varying objects relevant for the timing of the planned voyage 계획된 항해의 시기에 관계 있는 시간이 변화하는 개체를 표시하는 법을 숙지하라 (MONITORING시 지시되는 정보-NCRS, TWOP등, MONITORING MODE에서 시간/거리등을 DISPLAY 시켜라)	M				

5.9	Establish all the features available for planning routes, such as use of straight and curved segments and inserting pilotage aids 항로계획을 위한 모든 개체(features) 가령, 직선과 곡선의 사용과 도선 보조기구의 삽입을 검증하라 (도선보조기구 : TCS – ROT, RAD, SPD 등)	M				*ROT(Rate of Turn)
5.10	Determine the ship's procedures for displaying MSI , T&P Notices and other relevant notes into the voyage plan MSI, T&P NOTICES AND OTHER RELEVANT NOTES를 항해 계획에 표시하는 절차를 숙지하라	M				*MSI (Marine Safety Information)
5.11	Determine how to use the facilities for checking the planned route 계획된 항로를 점검하기 위한 기능사용법을 숙지하라 (SIMULATION, SAFETY CHECK등)	M				
5.12	Determine how to load the planned route and alternatives into the back-up system 계획항로와 대체항로를 백업시스템에 로드하는 법을 숙지하라 (ALT. → SWITCH)	M				*If one ECDIS is fitted, mark "N/A"

6. ROUTE MONITORING		* Apply – W : OOW M : Manager (2/O & MASTER)				
NO	CHECK ITEM	APPLY	YES	NO	N/A	REMARK
6.1	Determine how to load a pre-planned route 사전 계획된 항로를 Load 하는 법을 숙지하라	W				
6.2	Determine how to select the primary or an alternate route and how to distinguish between them on the display 주 항로와 대체항로를 선택하는 법과 화면상에서 이들 사이를 구분하는 법을 숙지하라	W				
6.3	Determine the single operator action that selects the charted display of own ship's position. 자선 위치가 표시된 화면을 선택하는 SINGLE OPERATOR ACTION (단축키)을 숙지하라.	W				*Own Center
6.4	Determine the available display orientation modes and how to switch between them (eg, North Up, Head Up, Course Up) 이용가능한 화면표시 모드와 이들 사이의 전환법을 숙지하라 (예, NORTH UP, HEAD UP, COURSE UP)	W				
6.5	Determine the available display motion modes and how to select them and change the parameters, such as the position of own ship on the display when Relative Motion is selected RELATIVE MOTION이 선택될 때 화면상에서 자선의 위치처럼, 이용가능 DISPLAY MOTION MODE와 이들을 선택하는 법과 변수들을 변경하는 법을 숙지하라	W				
6.6	If radar or AIS targets can be displayed on the ECDIS, determine what target vector modes are available and how to switch between and differentiate them 레이더 혹은 AIS 물표가 전자해도에 표시되면, 어떤 물표 벡터 형태들이 이용가능하고 이들을 전환하는 법과 차별하는 법을 숙지하라	W				

6.7	Determine how to create time labels along the ship's track 항적에 따라 시간표를 생성하는 법을 숙지하라 (TRACK 설정)	W				
6.8	Establish familiarity with the Route Monitoring display, including the display of position, heading, course, speed and time. 선위, 헤딩, 선속 및 시간의 표시를 포함한 ROUTE MONITORING 화면에 친숙화를 검증하라.	W				
6.9	Determine how to set the length of own ship's vector and intermediate time marks. 자선 벡터 길이와 중간의 시간표시를 설정하는 법을 숙지하라	W				
6.10	Determine how to display radar and AIS MIOs, if available 이용 가능하다면, 레이더와 AIS MIOs를 표시하는 법을 숙지	W				*MIO (Marine Information Overlays)
6.11	Determine how to use the ECDIS as the input to a track keeping autopilot. This will also need reference to the autopilot handbook. 항적 유지 AUTOPILOT의 입력으로써 전자해도 사용법을 숙지. 또한 AUTOPILOT HANDBOOK의 참조 필요(TCS 적용 시)	W				* Mark NA, if ECDIS has not TCS. (TCS 미 적용 시 N/A)
6.12	Determine how to input LOP to form the reference for an estimated position 예측 위치를 위한 참조를 형성하기 위해 LOP를 입력하는 법을 숙지하라	W				*LOP (Line Of Position)
6.13	Determine how to configure the ECDIS to use this reference (6.8) for subsequent EPs. 연속적인 EPs를 위한 본 점검표 참조(6.8)를 사용하기 위해 전자해도를 구성하는 법을 숙지하라	W				*EP (Estimated Position)
6.14	Determine how to use the review facilities of the voyage recorder (not essential knowledge prior to sailing) 항해 기록기의 검토기능을 사용하는 법을 숙지하라. (항해 전에 필수적인 지식은 아니다) - PLAYBACK 기능	M				☐ Every minute ☐ Every 4 hours ☐ 3 months

OFFICER	(SIGN)	MASTER	(SIGN)

LAMPIRAN 8

Standard Operation Procedure Checklist for ECDIS

POS	Standard Operating Procedure Checklist for ECDIS	Form Number	NAV – 12
		Revision Number	3
		Revision Date	2021.08.06

☐ Primary ECDIS ☐ Secondary ECDIS		Date	
Voy. No.		From / To	
Prepared by		Approved by Master	

ITEMS	REMARKS	SCREENSHOT & OTHER GUIDANCE	Y/N
*(*Checklist is to be used in conjunction with Company's procedures related to ECDIS & Navigation, ECDIS Operator's Manual, ECDIS publications & S 5.13F)* **(QHSE Sections and other Revision nos. and date are based on date of creation of Checklist and may be subject to change without notice. Please always refer to the latest applicable version)**	*(*Please fill in some brief descriptive comments in every box. Please do not provided only yes / no, as a response)*	*(*To be sent exactly in the same format as requested in the initial guidance email. If different format adopted, vessel may be requested to resend in correct format)*	*(Select Y if screenshot provided)*
VOYAGE DETAILS			
Please provide us following Voyage details: Departure Port (Name of Port and Country) & Arrival Port (Name of Port & Country), ETA and ETB for Arrival port and Ship's Current Time Zone.			
TOPIC 1 : DOCUMENTATION CHECK			
a) The vessel has a copy of the Latest Applicable Type Approval Certificate *(where the certificate shows that the software is compliant to S 52 Pl Ed 4.0 Standards)*		*The type approval certificate is issued by a 3rd party other than the maker and is different from the Document of Compliance, which is issued by the maker itself. Please send a copy of the appropriate Type Approval Certificate.*	
b) Evidence that all OOWs possess Generic (IMO 1.27 based) training & Maker Approved Type Specific Training Certificates			
c) Are the ECDIS operator, installation etc manuals as provided by maker available in hard or soft copy format. Is an installation/ service record / maintenance and usage record , file available.			
TOPIC 2 : SOFTWARE COMPLIANCE TO S 52 PL EDITION 4.0			
2. Has the ECDIS software been upgraded to be compatible to ENCs of S 52 - PL Edition 4.0 and can verify below:		Screenshot required. Please send in Chart 1 - Chart Display 1 & Chart Display 2 *(Please send each of these 2 test Charts as individual*	
a) New Type Approval certificate for upgraded ECDIS, as guided in 1a) above, must be on-board.			
b) Officers should be able to show PL 4 compatibility on ECDIS display screen *(the words PL 4.0 should be shown on screen)*			
c) The officers should be able to compare exactly ALL symbols of the Chart 1 as displayed on ECDIS screen as compared to Chart 1 in the IHO circular dated 14th May,2019 (QHSE Sec 5.6A) (*Care should be taken on setting items like date-dependent view, as described on pg.3 of circular, and chart boundaries, correctly)* ***(A record of these checks are saved in the form of ECDIS screenshots and a relevant entry is recorded in the Bridge Logbook/ NP133C)***			

d) The officers should be aware of all new features and capabilities available in the ECDIS, brought in by the upgrade of software compatible to PL Edition 4.0 standards.		*screenshot)* . Please ensure screenshots are taken after setting the date dependent view / chart viewing dates, as guided in IHO circular and then set back to normal once the checks are done.	
e) Is the bridge team aware that S 52 – PL edition 3.4 is obsolete, and that the older IHO Data Check Test *(based on two older IHO charts)* is now obsolete and discarded?			
TOPIC 3 : CYBER SECURITY			
3a. Are Cyber- Security measures in place for the ECDIS ? These should include but not be limited to usage physical locks, for USB ports and a dedicated ECDIS USB Stick / DVD which is scanned for viruses and kept exclusively for use with ECDIS.		Please show logged evidence that Weekly updates are applied at a staggered interval.	
3b.In case of dual ECDIS, applying permits and weekly updates in a staggered interval *(not to be done simultaneously)* but with a large time interval between both. The recommended interval should be a 24 Hour gap whenever possible e.g. Open Seas and can be reduced by the MASTER to a lesser interval (not below a minimum of 1 Hr) if the vessel is within coastal / port areas and ENCs need to be updated due to the nature of navigational transit.			
3c.In case of vessel equipped with two or more ECDIS, wherever the model allows for same, each ECDIS to be used as far as possible, a stand-alone unit / in disable sync mode. Synced machines increase the probability of transmission of viruses (or similar incompatible data which may affect the performance of the ECDIS) to simultaneously affect all machines. When kept as standalone units, the Bridge Team can avoid the issue to migrate instantly to the Back UP ECDIS			
TOPIC 4 : UNDERSTANDING SELECTION OF VOYAGE ENCS. WHAT IS A USAGE / NAVIGATION PURPOSE SCALE AND WHAT IS A LARGEST 'APPROPRIATE' SCALE ENC			
4. Are OOWs aware of USAGE BAND / NAVIGATIONAL PURPOSE SCALE of ENCs Are OOWs aware of selection of Largest Appropriate Scale of ENC and how to decide on the appropriate scale ENC for various parts of the voyage? Does the team understand also, how to use any voyage ENC within its usage range (understanding the dangers associated with Overscaling and Underscaling and ENC)? (Please also Refer to S 5.13F Sec 2 -D- Checklist Items 3 & 4, about procedure to be followed if appropriate scale ENC is not available particularly when approaching port.)		OOWs must study ECDIS Bulletin 04/20 to understand how to select Largest 'Appropriate Scale' ENC for different Sections of the voyage with due understanding of the Navigation Purpose of each ENC. *(e.g. Band 3 for coastal legs, 4 for Approach, 5 Harbour etc)* The Voyage ENC list must contain ENCs of appropriate scale as described. Same to be shared for review by all members of the Bridge Team.	
TOPIC 5 : SETTING UP ENC DISPLAY LAYERS & OBJECTS			
5a. What form of chart symbols are being used on the ENC? Paper Chart symbols or Simplified? Is the Bridge team aware of company requirement which needs Area/ Line Boundaries to be set to SYMBOLISED and not PLAIN? Is the team familiar with ENC display orientation and mode like TM , RM Chart Up North Up and other methods of display and panning ENC display.		Please send a screenshot confirming that Area / Line Boundaries are set to Symbolised Please also send a screenshot showing selection of chart display layers.	
5b. Is the Bridge team aware of the conditional nature of some symbols such as wreck, rock and obstruction and their display vary as per the value of Safety depth / Safety Contour set? Is the team aware of date-dependent view / chart viewing dates and it's effect of date- dependent symbols (which may appear/ disappear basis date range		Please send a screenshot showing settings of Date Depending View / Chart Viewing Dates. Acceptable if set on Auto or if its is on Manual then the date range should be correct for current voyage. Please check same in Route	

selected). Has the ECDIS been set up to 'highlight date-dependent object' (a magenta coloured 'd' symbol would appear next to such objects)		Planning Menu as well as Chart Display Menu, as may be applicable to your ECDIS.	
TOPIC 6: DEFAULT LAYER SELECTION, SCAMIN , OVERSCALE PATTERN, COLOUR SELECTION etc			
a) Are the staff aware not to use the ECDIS in the 'Base' or 'standard' layer mode? Have maximum relevant display layers been selected and put in use? (At no point can a Base and Standard layer be deselected. OOWS must set up other layers judiciously matching the navigation purpose, so maximum relevant information is visible BUT there isn't overclutter of information / obscuring of critical data)			
b). Are OOWs aware of SCAMIN Feature (nomenclature and setting methods are model dependent) and how and where to use same. Is the team aware of display patterns like SHALLOW PATTERN, OVERSCALE PATTERN etc ? The OOWs are changing colour pattern from DAY / NIGHT according to the time of the watch *(Using DAY Colours during night watch affects night vision and is not permitted)*			
TOPIC 7 : OBJECT INFO / PICK REPORT - INFORMATION SYSTEMS IN ECDIS			
7. Do OOWs understand that even when DISPLAY ALL is selected, not every bit of critical navigation information will be on Display? *(Important information like nature of restriction, prohibition, depth range value of areas dredged to same depth are not always visible on the chart display, layers and this information is hidden and requires interrogation. Such interrogation must be routinely done using the OBJECT INFO, PICK REPORT or similar Tool for seeking important underlaying information)*			
TOPIC 8 : ECDIS CONTOUR AND SATEY DEPTH CALCULATION AND SETTINGS			
8. Have the all contour setting been correctly fed in and these have been dynamically updated, in view of varying conditions including changing dynamic draft, CATZOC Values and Height of tide, at various parts of the voyage? *(Kindly use S 5.13F- SEC 2- E to assist in calculating same)* . **(Contour setting should be calculated and changed for different periods of the Voyage and be included for relevant legs in the voyage planning document. Contour setting change points must also be marked on the Voyage ENCs. Once settings are changed, please make an entry in the Bridge Logbook, recording these changes)**		Please send a screenshot of your contour settings as set within the ECDIS	
TOPIC 9 : PLANNING A PASSAGE NAVIGATING ACROSS A SAFETY CONTOUR			
9. Based on conditional settings for contours and safety depth, are the officers aware of how to plan a passage of the vessel to **navigate across a Safety Contour, as guided in company Sec 5.15.14 of the QHSE Manual - including the marking of Alarm Enabled Warning Lines and Shapes for No Go Areas (Important)**		**Please send Screenshots of the area of passage/ leg, where the planned route is entering Safety Contour, as guided in company manuals.** The screenshot should include Alarm enabled No go areas, which are drawn around bold black sounding and rock/ wreck / obstructions, (which have values lower than the safety depth.) (Remember to change to ECDIS contour settings to the	

		ones appropriate for that leg across safety contour, if is different from current settings, and only then take screenshots. Once screenshots are completed remember to revert to the contour settings for existing leg)	
TOPIC 10 : MARKINGS ON ENCs			
10. Are all marking on ENCs carried out as guided in S 5.13F- (Sec 2 and various other Secs 3-16, as relevant), particularly but not limited to, alarm enabled no go areas, parallel index lines, contingency anchorages, ATBAs, MARPOL Areas, Reporting points, abort points, ISPS Limits, Contours settings change points, Call Master , Speed Reduction and Limitations and similar Voyage specific markings ... etc.? Have all features of the User Map / User Editor / User Chart been understood and the appropriate overlay file been selected for relevant parts of the voyage ?		Please send a few screenshots of typical markings on ENC, including but not limited to Contingency Anchorages, no go areas, Call Master position, abort points etc	
TOPIC 11: ROUTE PLAN , LEG RELEVANCY AND CHECKING OF SAME			
11. Is the route made with leg appropriate settings (*correct Speed, ROT, Radius of Turn, XTL etc.*) Have cross track limits set, then changed and reset as guided by company policy and Voyage Planning document ? Was a ECDIS based route check carried out after preparing the Passage plan and was a visual check been done along the route? Has route check been repeated every week after applying weekly updates? If the route has been modified mid-voyage, has a fresh route check / visual check conducted ? (**After conducting route check each time, same must be recorded in Bridge log book)**		Please send a few screenshots of route plan, in tabular format (which shows Lat / Long , Speed, Radius of turn, ROT etc) of various parts of voyage.	
TOPIC 12: CATZOC INACCURACY			
12. Are the staff aware of the importance of 'Zone of Confidence'? Has CATZOC's depth inaccuracy been considered in contour settings as well as in UKC calculations as guided in QHSE Manual and Passage Plan. Has an RA been prepared and submitted towards limitations of UKC ambiguity on account of CATZOC *(if required and guided in Sec 14 of the Voyage plan)* . Also, has the team considered the levels of positional inaccuracies as also indicated by CATZOC, and has ensures that the vessel's planned track has been drawn with adequate safety margins from navigational hazards factoring in positional inaccuracies as well as limitations of position fixing e.g. GPS accuracy.		Please send a copy of R.A if applicable for the voyage	
TOPIC 13: LOOK AHEAD / GUARD ZONE (CHART ALERT MONITORING ALARM)			
13. Has vessel correctly put in the limits for the 'Look Ahead' or 'guard zone' function as per appropriate to the area vessel is navigating? Are the cross track limits set as per relevance? *(Consult Company procedures & S 5.13 F-Sec 2)* ***(Each time that these settings are changed, please make an entry in the Bridge Log book, recording these changes)***		Please send a screenshot of settings of your look ahead /guard zone/ chart alert area	
TOPIC 14 : PROPER APPRAISAL USING ALL AVAILABLE MEANS			
14. Has vessel carried out a proper appraisal for the passage using all available means including but not limited to, publications, local notices as well as reliable external			

resources like agent, Harbour Master, Pilot station etc.? Has a Risk Assessment been prepared *(If calculations in 14B, 14C or 14D lead to an automatic recommendation for same or for any other reasons as deemed necessary by the bridge team, due to Navigational reasons and limitations of the ECDIS and ENCs.)*			
TOPIC 15: ALARM MANAGEMENT			
15. Have all alarms and limits set appropriate to the vessel and changed routinely, as applicable, to stage of the voyage? Are OOWs been advised not to ignore/ off scan any alarms? Can OOWs correctly investigate nature of each alarm / alert & can evaluate which can be disregarded and which need intervention? Do OOWs understand differences between WARNING / CAUTION / INDICATION ? Are they familiar with all other alarms and settings like ANCHOR, POSN SHIFT, SENSOR FAILURE etc as well as ENC cautionary alerts like SSE, OVERLAPPING ENCs NON- OFFICIAL ENC DATA, ENC DATA Missing etc (ENC Based publications in shipboard library to be referred to for more details)		Please send a screenshot of your typical alarm log as well as for alarm setting Menu.	
TOPIC 16: ROUTE SECURITY AND MANAGEMENT			
16. Has the route been locked after being made active in Monitoring mode. Have associated user charts been linked to the Active Route ? Are the OOW familiar with Route Monitoring and Waypoint features, like Go to Waypoint, Actual XTL values, ETA calculation, ECC and ACC limits, WOP etc *(All terms and features may or may not be available on your ECDIS).*			
TOPIC 17: ENC / AVCS MAINTENANCE AND MANAGEMENT			
17. What are various ENC Updating procedures on ECDIS? Do OOWs understand and handle items like SA certificate, ENC permits and ENC Base and Update data ? Can all OOWs show the working procedure of AVCS Maintenance including T&P and MSI Corrections? Are all the ENCs of latest editions and updated until current week? Are Base DVDs / Online updating being received regularly? Are there any Permanent Warning messages or SSE Alert Messages or similar ENC warnings active on the ECDIS and has the team resolved same with consultation of the AVCS supplier / ECDIS Manual. Is the team familiar with handling of any software provided by the AVCS Vendor, to help with AVC Maintenance and Management? *(If latest ENC base latest editions and updates not available through online or email service on a weekly basis, than Latest Base DVDs and AIO CD must be ordered from AVCS Vendor)*		Please confirm that all ENCs are of latest Edition, have latest weekly updates and AIO is updated to latest week. Please mention the latest applicable week number. Please send us the latest permit.txt (or equivalent record if on PAYS or other similar system)	
TOPIC 18: T&P CORRECTIONS IN ENCS			
18. T&P corrections in ENCs - Most NHOs include same in Weekly updates and these ENCs are corrected automatically. Other NHOs *(and their ENCs)* require OOW to insert T&P corrections, manually. Are OOWs aware of the same and is the status list for all NHOs for same- Mar 2022 Edition *(available within AVCs DVDs, from the Admiralty Website or through the AVCS Vendor)* - printed & posted next to the ECDIS? Has AIO been kept updated through AIO CD and email updates?		We need screenshots to identify that the OOW is familiar in identifying which ENCs have T&P corrections, automatically included in Weekly Updates and which have the T&P corrections missing and need the OOW to insert same using MANUAL UPDATE Feature. Please send us multiple screenshots which include : 18a) Missing T&P Object inserted using Manual Update tool (with AIO Layer shut) 18b) For the same object, the AIO layer switched on and	

Have T&P corrections been recorded in NP 133C ENC Maintenance log ? **AIO is only the digital text of missing T&Ps and only a planning tool. OOW is to use AIO in planning mode, read text and plot the missing T& P using ONLY the MANUAL UPDATE feature for Chart and Navigational Objects. User chart/ map/editor should never be used for same. Also, AIO layer must be kept shut when ECDIS is in monitoring mode.** ***(Missing T&Ps must be inserted based on the textual Data of the AIO layer ONLY . A paper T&P correction file based on Weekly NTMs is to be maintained on board, as a back up to the AIO and for occasional cross-check of data contained in the AIO. Paper T&P file should not be used as main source of Missing T&P Corrections in ENC. This is because the AIO layer is designed for ENCs while Paper T&P Notices are designed for BA paper charts which may have different coverage and scale than the ENCs for the area)***		showing the digital text of the T or P 18c) For the same object AIO Layer switched on and the digital text showing the list of ENCs which are getting updated due to this AIO. **Please also provide the name on the ENC shown in all screenshots in adjoining remarks column. Please be reminded that a T&P correction may need to be applied using a Manual Update, more than once . This is because a Manual update is only inserted on a single ENC (which is selected) each time. The OOW may have to repeat same, each time, to insert it on every ENC, which is specially mentioned in AIO text as ENC 'affected' .** ***(If there is NO Missing T&P for your Voyage ENCs, please send a screenshot from any ENC from your vessel's portfolio where the T&P correction is done Manually. Please also send image Only of a missing T&P correction being inserted and DO NOT send one of an EP correction, which is an entirely different item)***	
TOPIC 19: PLOTTING OF NAVTEX, EGC AND MSI MESSAGES ON ENC			
19. Are Navtex, EGC and other MSI messages being plotted by manual updates? If Navtex text input is available into the ECDIS, OOWs must read the text and plot chart objects/ navigational symbols, wherever possible and not just leave the digital text. **If only digital text is available, the object must be plotted by Manual Update.** *(User Charts /Maps/ Editors, Mariner's Notes etc not to be used instead of Manual Updates)*		Please send a screenshot of an ENC showing Navtex / EGC correction inserted using manual update feature.	
TOPIC 20: POSITION MONITORING AND GPS POSITION VERIFICATION - COASTAL AREAS			
20. Are the OOWs aware of how to 'Manually' plot / record the GPS position onto ENCs (Using features like Event / Position Event / Record etc) ? Are the staff plotting manual visual /radar fixes on ECDIS in coastal waters, verifying GPS positions using multiple means, by methods and intervals, as guided by company policies? Can officer show on ENC and ECDIS Log book, when was last time a LOP Fix was applied? Are other measures like parallel indexing, Radar overlay (if available) being implemented? Please record these methods in Bridge log book while being implemented. *(Please refer to Section 5.4.13 - Position Monitoring, on this subject)*		Please send screenshots of position fixes made by manual fixing GPS position as well as radar / visual fixes. Please send screenshots showing parallel index lines along with distance off the course line being marked. Please send a screenshot of optional Radar overlay feature, if available.	
TOPIC 21: POSITION MONITORING AND GPS POSITION VERIFICATION - OPEN SEAS			
21. Are the OOWs aware how to verify accuracy and reliability of GPS positions in open seas by monitoring DOP and Signal / Noise Values in the GPS equipment and is the same being logged down, at least once a watch, in the Bridge log book ? Also, are celestial fixes being manually plotted on ENCs, at least once a month? *(Please refer to Section 5.4.13 - Position Monitoring, on this subject)*		Please send an image of the Bridge Log book where an entry has been made by OOW, showing the GPS DOP value experienced during the watch. Please send a screenshot of a sextant fix ,as plotted on the ENC.	

TOPIC 22: EXTERNAL SENSOR DATA			
22. Are the three mandatory sensors for True HDG / Water Speed / Position (Gyro / Log / GPS) feeding functional data to ECDIS at all times. Are OOWs aware of procedure of manually inputting heading / water speed / position in case of sensor data failure? Are OOWs aware how to Switch to DR mode?		Please send a supporting screenshot of the Sensor Menu / Page	
TOPIC 23: MISCELLANEOUS SENSOR FEEDS			
23. Beyond the 3 mandatory feeds, the ECDIS MAY have a feed from AIS / TT / RADAR / ECHO SOUNDER / ANEMOMETER etc. While these feeds may be optional features, if they have been provided OOW must be familiar with handling of settings related to same. Are the teams Familiar with AIS / TT settings including but not limited to DISPLAY / PRIORITY Filtering, AIS AUTO ACT, AIS- TT Association , Lost target Alarms and Dangerous Target CPA / TCPA alarms, Vector mode, length etc. Bridge Teams are reminded that these must be set appropriately and such overlays are only as AIDS to NAVIGATION and are NOT to be used as primary collision avoidance tools - ECDIS is not a collision Avoidance tool like the ARPA		Please send us a screenshot of AIS / TT settings Menu	
TOPIC 24: ECDIS USAGE IN HARBOUR / PILOTAGE			
24. Does the **Pilot card include** a) ECDIS model b) ENCs to be used during pilotage c) Details of MSI plotted for the area d) Back up details e) Important remarks like Safety Depth / Safety Contour and shallow contour values in pilotage waters as well the route as planned when navigating across the safety contour. Do the ENC have other pilotage related marking including items like speed reduction points, Contingency anchorage and similar. Have alternative Routes / Legs been created (if required and applicable) for different Pilotage approaches. **Pilots may not be familiar with your model of ECDIS. A quick reference sheet explaining critical features of the ECDIS must be provided. The OOWs aware that all this must be discussed with Pilot as part of Master Pilot Exchange and this exchange (wrt ECDIS) should also be additionally recorded as an entry in the Bridge Log book.**			
TOPIC 25: ECDIS BACK UP AND POWER SUPPLY. HARDWARE MAINTENANCE			
25. The Main ECDIS must have a backup which is either another ECDIS OR an appropriate folio of Paper Charts (As listed in SEQ Certificate Form E of the vessel) . Such a backup should be kept available to put to use within a period of time before the vessel could be in a critical situation, on account of Main ECDIS Failure. Also, the Main ECDIS should be able to 'sustain' a loss of electric power for up to 45 secs and should be able to be restored without operator intervention once the power resumes. (Note the ECDIS may not be operational for the period of up to 45 secs of power failure - that is acceptable since it has to sustain the power interruption for a period of up to 45 secs and is NOT mandatorily required to 'be operational' during that small period. Is the ECDIS receiving stable power supply and all power and data			

connections, fitting firmly ? Is manufacturer based maintenance being adhered to ? Are age/ running hours of replaceable parts like HDD known and replacements being considered as per maker's usage cycle recommendations? If there are any spares, installation and backup software disc etc available, are they kept safely and location is known to all? If there are passwords to the ECDIS has the Master device a Password management strategy for his / her bridge team.			
TOPIC 26: PLAYBACK , LOGBOOKS , RECORDS AND BACKUP OF DATA			
26. Is the Bridge team aware of features as well as limitations of own ECDIS in terms of savings and display settings of Past Track History, Logbooks and records as well as the correct operation of the Playback Function and Screenshot library (some models may not have all features while others have very limited items getting recorded - OOWs must be well familiar about the same) Does the team follow the procedure of Backing up User Created files like Routes / User Charts, Logs etc on a clean formatted USB stick prior to commencing a new voyage.		Please send a screenshot of the ECDIS logbook	
TOPIC 27: ECDIS AND ENC PUBLICATIONS AS PART OF SHIP'S STANDARD LIBRARY			
27. Is the NP 133C ENC maintenance record being maintained as per guidance? Are all ECDIS / ENC related publications available onboard? Please mention edition year for available for NP 231/232/5012/ 133C?. Does the bridge team have a copy of the latest ' readme.txt ' file as published by UKHO - if not please ask your AVCS supplier to provide same. Is the team aware of concepts like Withdrawn ENCs, Overlapping ENCs, Gaps in ENCS, non-ENC data indications, edge boundary errors etc. as described in these publications?		Please send a scan of the T&P maintenance record as entered into NP 133C - ENC and ECDIS Maintenance Record	

LAMPIRAN 9

Pre-departure Checklist For Master And Backup ECDIS

POS	**Pre-departure Checklist for Master and Backup ECDIS**	Form Number	NAV – 44
		Revision Number	00
		Revision Date	2015.11.30

Vessel Name:

Date
:

Please check following items before departure from berth or anchorage.

No.	Questions	Check
1. Safety Related Settings		
1)	Verify safety depth and safety contour settings	☐
2)	Confirm system unit (depths, distances, etc.) are appropriate	☐
3)	Verify accuracy of ECDIS sensors (gyro, log, GNSS, etc.)	☐
4)	Test and ensure audible alarm is turned on	☐
5)	Ensure look-ahead is set for prevailing conditions	☐
2. Route		
1)	Ensure route has been checked and approved	☐
2)	Ensure correct route is loaded for route monitoring	☐
3)	Ensure route data is selected for display	☐
4)	Ensure all relevant T&P information and mariner-added objects are displayed	☐
3. Display Settings		
1)	Ensure the ENC in use is the most appropriate	☐
2)	Ensure the ENC is displayed at the best scale (or autoscale function enabled if available)	☐
3)	Ensure correct display configuration for departure	☐
4)	Ensure appropriate palette, e.g. day/dusk/night presentation	☐
5)	Chart motion (if true motion, consider settings for TM reset)	☐
6)	Chart orientation (e.g. north up)	☐
7)	Verify RADAR image overlay (if available)	☐
8)	Consider activating predictor (if available)	☐
9)	Consider conning display when berthing/unberthing (if available)	☐
4. Target Settings		
1)	Set AIS and/or ARPA targets to be displayed as required	☐
2)	Configure vector lengths as appropriate	☐
3)	Determine whether true or relative vectors are being displayed	☐
5. ECDIS Alarms		
1)	Ensure that ECDIS alarms are switched ON and audible	☐

2)	Check that the alarms required for the voyage are configured correctly (including but not limited to XTD alarm, outside safety parameters alarm, WPT approach alarm)	☐
6. Safety Depth and Safety Contour		
1)	Verify that safety depth and safety contour have been calculated for the forthcoming voyage	☐
	(Safety Countour = Draft + UKC(incl. Squat + Safety Margin) - H.O.T (Height of Tide)	
6. ENC Parameters		
1)	Confirm that ENCs are available and up to date for the voyage	☐
2)	Confirm that ENC permits are valid for the duration of the voyage	☐
3)	Reassess any independent mariner selections that are active	☐
4)	Verify that the autoload function is enabled	☐
5)	Verify that the autoscale function is enabled	☐
6)	Set up the ENC orientation as required (☐ North up, ☐ Head up, ☐ Course up)	☐
7. Own Ship Track		
1)	Turn on track history and set to an appropriate interval and length	☐
8. Route Display		
1)	Ensure the correct route is loaded and available for the passage	☐
2)	Check whether waypoint selection is auto or manual (as required)	☐
3)	As appropriate	☐
9. Vessel Specific		
1)	As appropriate	☐

Master : _____

LAMPIRAN 10

Recommended Singel or Full ECDIS Configuration

POS	Recommended Singel Or Full ECDIS Configuration	Form Number	NAV – 43
		Revision Number	00
		Revision Date	2015.11.30

1. ECDIS CONFIGURATION FOR PILOTAGE AND CONFINED WATERS(도선 및 제한수역에서의 설정)

1) RECOMMENDED CONFIGURATION FOR PILOTAGE AND CONFINED WATERS
(도선 및 제한수역에서의 권장 설정)

CONFIG. (설정)	CHECK (점검사항)	ACTION (조치)
Time 시간	Check that System Time is configured correctly 시스템 시간이 정확히 설정되었는지 점검	→ Check that Ship's Time is correct in the ECDIS ECDIS상 선내 시간이 정확한지 확인 → Check that the correct Time Zone settings are applied 정확한 시간대가 적용되었는지 확인
Position Source Setup 위치 출처 설정	Check that the primary position fixing system is set up correctly 1차 선위 측정 시스템이 정확히 설정 되었는지 점검	→ Check that position displayed by ECDIS is correct by inputting a manual fix in the system 시스템에 수동 선위 값을 입력하여 ECDIS가 정확한지 확인 → Select the best available sensor as the Primary Position Source 최적의 센서를 1차 위치출처로 선택 → Select the best available Secondary Position Source 최적의 2차 위치출처를 선택 → Check Heading reading with heading displayed by ECDIS ECDIS 지시 값과 선수방위를 확인 → Check Log reading with speed displayed by ECDIS ECDIS 지시 값과 선속계 지시 값을 확인 → Set SOG or STW as speed source 대지속력(SOG) 혹은 대수속력(STW)를 속력기준으로 설정 → Confirm that Radar Information Overlay (RIO) is available and ensure that the ECDIS display and RIO match in all respects 레이더 정보 오버레이가 사용가능하며 ECDIS와 모든 면에서 일치하는지 확인
Select System Units 시스템 유닛 선택	Ensure that System Units are configured correctly 시스템 유닛이 정확히 설정되었는지 점검	→ Set up System Units for: 다음에 대한 시스템 유닛 설정: - Large Distance 원거리 - Small Distance 근거리 - Speed 선속 - Depth 수심

		- Time Zone 시간대

Main Chart Panel 주 전자해도 패널	Ensure that the Main Chart Panel is configured correctly 주 전자해도 패널이 정확히 설정되었는지 점검	→ Check that an appropriate level of data is available for the execution of navigation. 적절한 데이터 레벨이 항해수행을 위해 사용가능한지 확인 → Check that the Palette is configured to suit the conditions 팔레트가 주위환경에 적합한지 확인 → Check that the screen layout is appropriate for execution of navigation 스크린 레이아웃이 항해수행에 적합한지 확인 → Check that all relevant panels such as Route Data are open and available 경로 데이터와 같은 관련 패널이 열려 있고 사용가능한지 확인
Chart Setup 해도 설정	Ensure that the Chart is configured correctly 해도가 정확히 설정되어 있는지 점검	→ Check that the following parameters are configured: 다음과 같은 변수가 설정되었는지 점검 Chart Motion: Relative or True (configure Look Ahead if in True motion mode) Chart Orientation: North Up, Head Up or Course Up Chart Autoload: On Chart Autoscale: On Chart Priority: ENC
Layers Setup 레이어 설정	Ensure that the chart is configured correctly 레이어 디스플레이가 적절히 설정되었는지 점검	→ Check that the display of layers is configured appropriately: 레이어 디스플레이가 적절히 설정되었는지 확인 → Display Category: Standard + or Custom (or equivalent) 디스플레이 카테고리 표준 + 혹은 임의 (혹은 이와 상동) → Consider displaying the following layers: 다음과 같은 레이어의 표시를 고려한다 - Spot Soundings 구역 측심값 - Isolated Dangers 고립장해물 - Names 명칭 - Cables, Pipelines 케이블 및 파이프라인 - Buoys Names 부표 명칭 - Other Info. 기타 정보

<table>
<tr><td></td><td></td><td>- All Depth Contours 모든 등심선
- Seabed 해저질
- Scale Bar 축척 바 & NAVTEX</td></tr>
<tr><td>ENC Setup
ENC 설정</td><td>Ensure that the chart is configured correctly
해도가 정확히 설정 되었는지 점검</td><td>→ Check that the ENC is configured appropriately:
ENC가 적절히 설정되었는지 확인
<table>
<tr><td>Areas</td><td>Traditional symbology / Simplified symbology</td></tr>
<tr><td>Points</td><td>Simplified or Traditional symbology</td></tr>
<tr><td>Shallow Contour</td><td>Set appropriate value</td></tr>
<tr><td>Deep Contour</td><td>Set appropriate value</td></tr>
</table>
→ Consider setting the following options:
일부 사항을 다음과 같이 설정하는 것을 고려한다
<table>
<tr><td>Four Shades</td><td>On during the Day; Off at Night</td></tr>
<tr><td>Shallow Pattern</td><td>On</td></tr>
<tr><td>Use SCAMIN</td><td>On</td></tr>
<tr><td>Full Light Lines</td><td>Off during the Day; On at Night</td></tr>
<tr><td>Highlight Info</td><td>Off</td></tr>
<tr><td>Show Correction</td><td>On</td></tr>
<tr><td>M-Quality Objects</td><td>Off</td></tr>
<tr><td>National Names</td><td>Off</td></tr>
<tr><td>Show Outdated</td><td>Off</td></tr>
</table></td></tr>
<tr><td>Routes
경로</td><td>Ensure that the correct Route is loaded for Route Monitoring
정확한 경로가 ROUTE MONITORING에 불러져 있는지 점검</td><td>→ Check that XTD has been set to an appropriate value
XTD가 적절한 값으로 설정되었는지 확인
→ Set up ETA ETA 설정
Set up ETD ETD 설정
→ Confirm that the Route has been checked
경로 확인여부 점검
→ Protect the Route
경로 유지
→ Activate the Route for Monitoring
감시를 위한 경로 활성화
→ Load the Secondary Route in Route Editor if required.
필요 시 ROUTE EDITOR 상에서 2차 경로를 불러오기</td></tr>
</table>

<table>
<tr>
<td>Route Display Setup
경로 디스플레이 설정</td>
<td>Ensure that the display is configured for Route Monitoring
ROUTE MONITORING 의 디스플레이가 설정되었는지 점검</td>
<td>→ Configure the following parameters appropriately:
다음의 변수를 적절히 설정
<table>
<tr><td>Headline</td><td>On</td></tr>
<tr><td>COG Vector</td><td>On</td></tr>
<tr><td>HDG Vector</td><td>On</td></tr>
<tr><td>Scaled ship icon or Symbol</td><td>Scaled ship icon or Symbol</td></tr>
<tr><td>Align by</td><td>HDG</td></tr>
<tr><td>Course/Leg/Speed</td><td>On</td></tr>
<tr><td>XTD</td><td>On</td></tr>
<tr><td>Arrival Circle</td><td>Off</td></tr>
<tr><td>Radius</td><td>On</td></tr>
<tr><td>WPT Names</td><td>On</td></tr>
</table>
</td>
</tr>
<tr>
<td>Overlays
오버레이</td>
<td>Ensure that all relevant Overlays are loaded
모든 관련 오버레이가 불려져 있는지 점검</td>
<td>→ Check that the following Overlays are loaded and configured:
다음의 오버레이가 불러져 오고 설정되어 있는지 확인:
- Manual Corrections (load filename as appropriate)
수동 개정 (적합한 파일명 불러오기)
- Additional Information (load filename as appropriate)
추가정보 (적합한 파일명 불러오기)</td>
</tr>
<tr>
<td>Safety Alarms
안전 경보</td>
<td>Ensure the Audible Alarm is working correctly
청각 경보가 정확히 작동하는지 점검</td>
<td>→ Check that the Audible Alarm is On and Test it to ensure that it is working
청각 경보가 가동 중이고 정상 작동여부를 입증하기 위해 테스트 수행</td>
</tr>
<tr>
<td>Navigati-onal Alarms
항행 경보</td>
<td>Ensure that Navigational Alarms are configured correctly
항행 경보가 정확히 설정되어 있는지 점검</td>
<td>→ Check that the following Alarms are configured as necessary:
다음의 경보가 필요에 따라 설정되어 있는지 확인
<table>
<tr><td>Anti-Grounding Cone</td><td>On</td></tr>
<tr><td>Ahead</td><td>3 mins (set appropriate value)</td></tr>
<tr><td>Port</td><td>0.1 nm(set appropriate value)</td></tr>
<tr><td>Starboard</td><td>0.1 nm(set appropriate value)</td></tr>
<tr><td>Anti-Grounding Alarm</td><td>On</td></tr>
<tr><td>Nav Danger</td><td>On</td></tr>
<tr><td>Land Danger</td><td>On</td></tr>
<tr><td>Aids to Navigation</td><td>On</td></tr>
<tr><td>Safety Contour</td><td>On</td></tr>
</table>
</td>
</tr>
</table>

		Primary/Secondary Divergence	On (configure as necessary)
		Off Chart Alarm	On
		Sounder Alarm	On
		Sounder Depth	On
		Set Safety Depth	**Squat + Draught + Safety margin – HoT**
		Set Safety Contour	Appropriate Value
		Set Depth Alarm	Appropriate Value (eg set to Safety Depth)
Route Alarms 경로 경보	Ensure that Route Alarms are configured correctly 경로 경보가 정확히 설정되었는지 점검	→ Check that the following Alarms are configured appropriately: 다음과 같은 경보가 적절히 설정되었는지 확인	
		End of Route Alarm	Off
		Out of XTD Alarm	On
		Out of Schedule Alarm	Configure as necessary
		WPT Approach Alarm	On (set appropriate value)
		Off Leg Course Alarm	On (configure as necessary)

<table>
<tr>
<td>Area Alerts
구역 경보</td>
<td>Ensure that area Alerts are configured correctly
구역 경보가 정확히 설정 되었는지 점검</td>
<td>→ If the system in use allows Alarm configuration, check that the following Basic Area Alerts are configured as necessary:
사용중인 시스템에서 경보 설정이 가능한 경우 다음과 같은 기본 구역 경보가 필요에 따라 설정되었는지 확인
- Basic Areas
<table>
<tr><td>Traffic Separation Zone</td><td>On, Day and Night</td></tr>
<tr><td>Traffic SS Roundabout</td><td>On, Day and Night</td></tr>
<tr><td>Two-way Traffic Route</td><td>On, Day and Night</td></tr>
<tr><td>Recommended Traffic Lane</td><td>On, Day and Night</td></tr>
<tr><td>Fairway</td><td>On, Day and Night</td></tr>
<tr><td>Caution Area</td><td>On, Day and Night</td></tr>
<tr><td>Areas to be avoided</td><td>On, Day and Night</td></tr>
<tr><td>Seaplane Landing</td><td>On, Day and Night</td></tr>
<tr><td>Ice Area</td><td>On, Day and Night</td></tr>
<tr><td>Fishing Ground</td><td>On, Day and Night</td></tr>
<tr><td>Pipeline Area</td><td>On, Day and Night</td></tr>
<tr><td>Anchorage Area</td><td>On, Day and Night</td></tr>
<tr><td>Dumping Ground</td><td>On, Day and Night</td></tr>
<tr><td>Cargo Transshipment area</td><td>On, Day and Night</td></tr>
<tr><td>Marine Farm Culture</td><td>On, Day and Night</td></tr>
<tr><td>Environmentally Sensitive Area</td><td>On, Day and Night</td></tr>
<tr><td>Traffic SS Crossing</td><td>On, Day and Night</td></tr>
<tr><td>Precautionary Area</td><td>On, Day and Night</td></tr>
<tr><td>Deep water Route</td><td>On, Day and Night</td></tr>
<tr><td>Inshore Traffic Zone</td><td>On, Day and Night</td></tr>
<tr><td>Restricted Area</td><td>On, Day and Night</td></tr>
<tr><td>Offshore Production Area</td><td>On, Day and Night</td></tr>
<tr><td>Military Practice Area</td><td>On, Day and Night</td></tr>
<tr><td>Submarine Transit</td><td>On, Day and Night</td></tr>
<tr><td>Dredged Area</td><td>On, Day and Night</td></tr>
<tr><td>Fishing Prohibited</td><td>On, Day and Night</td></tr>
<tr><td>Cable Area</td><td>On, Day and Night</td></tr>
<tr><td>Anchoring Prohibited</td><td>On, Day and Night</td></tr>
</table>
</td>
</tr>
</table>

		Spoil Ground	On, Day and Night
		Incineration Area	On, Day and Night
		Particularly Sensitive Sea Area	On, Day and Night

→ Check that the following Additional Area Alerts are configured as necessary:

다음과 같은 추가 구역 경보가 필요에 따라 설정되었는지 확인

Additional Areas	On, Day and Night
International Maritime Boundary	On, Day and Night
Territorial Sea	On, Day and Night
Quarantine Anchorage	On, Day and Night
Swept Area	On, Day and Night
Harbour Limit	On, Day and Night
Explosive Dumping	On, Day and Night
Nature Reserve	On, Day and Night
Territorial Sea Base Line	On, Day and Night
Prohibited Area	On, Day and Night
Fishery Zone	On, Day and Night
Exclusive Economic Zone	On, Day and Night
Unsurveyed Area	On, Day and Night
Danger Line	On, Day and Night
Navtex Polygon	On, Day and Night

<table>
<tr>
<td>Way-point Selection
변침점 선정</td>
<td>Ensure that the correct Waypoint information is being displayed
정확한 변침점 정보가 표시되는지 점검</td>
<td>→ Check that the following are configured correctly
다음과 같은 사항이 정확히 설정되었는지 확인
<table>
<tr><td>Waypoint Selection</td><td>Auto or Manual</td></tr>
<tr><td>Arrival Circle</td><td>Auto or Manual</td></tr>
<tr><td>Radius</td><td>Auto or Manual</td></tr>
<tr><td>Track History</td><td>On (set appropriate value)</td></tr>
<tr><td>Secondary</td><td>On</td></tr>
</table>
</td>
</tr>
<tr>
<td>ECDIS Navigati-on Aids
ECDIS 항로 표지</td>
<td>Ensure that navigation aids are configured correctly
항로표지가 정확히 설정되었는지 점검</td>
<td>→ Check that the following are configured correctly:
다음과 같은 사항이 정확히 설정되었는지 점검
<table>
<tr><td>Predictor</td><td>On, configure as necessary</td></tr>
<tr><td>Manual Fixing</td><td>Available</td></tr>
</table>
</td>
</tr>
<tr>
<td>Targets
물표</td>
<td>Ensure that targets are configured Correctly
물표가 정확히 설정 되었는지 점검</td>
<td>→ Check that the following are configured correctly:
다음과 같은 사항이 정확히 설정되었는지 확인:
<table>
<tr><td>ARPA Contacts</td><td>On, Vectors On, Tracks Off</td></tr>
<tr><td>AIS Contacts</td><td>On, Vectors On, Tracks Off</td></tr>
<tr><td>CPA Alarm</td><td>Configure as necessary</td></tr>
<tr><td>TCPA Alarm</td><td>Configure as necessary</td></tr>
</table>
</td>
</tr>
<tr>
<td>Radar
레이더</td>
<td>Ensure that the preferred radar is selected
선호되는 레이더가 선택되었는지 점검</td>
<td>→ Check that RIO and ARPA targets can be displayed
레이더 정보 오버레이(RIO)와 ARPA 물표가 표시되는지 확인</td>
</tr>
<tr>
<td>Docking Mode Settings
도킹 모드 설정</td>
<td>Ensure that Docking Mode is configured correctly
도킹 모드가 정확히 설정되었는지 점검</td>
<td>→ Check that the following are configured correctly:
다음과 같은 사항이 정확히 설정되었는지 확인
<table>
<tr><td>DM Settings</td><td>1:7,500</td></tr>
<tr><td>Ship History</td><td>Step 15, Interval 1s</td></tr>
</table>
</td>
</tr>
<tr>
<td>Other
기타</td>
<td>Ensure that Other functions are configured correctly
기타 기능들이 정확히 설정되었는지 점검</td>
<td>→ Check that the following are configured correctly.
다음과 같은 사항이 정확히 설정되었는지 확인
<table>
<tr><td>EBL</td><td>On</td></tr>
<tr><td>VRM</td><td>On</td></tr>
</table>
</td>
</tr>
</table>

		Parallel Index Lines	Configure as required
		Environmental Data	Tidal Stream On, Current On
Vessel Setup 자선 설정	Ensure that Vessel data is set up correctly 자선정보가 정확히 설정되었는지 점검	→ Check that the following are configured correctly: 다음과 같은 사항이 정확히 설정되었는지 확인	
		Ship Position	Centre on Ship or displaced
		Chart	Select the Best Scale chart available
		Vectors	6 mins (set appropriate value)
		TCS Ship Condition	Loaded, Medium or Light (configure as required)

2) RECOMMENDED DISPLAY SETTINGS FOR PILOTAGE AND CONFINED WATERS – DAY
(도선 및 제한수역에서의 디스플레이 권장 설정 - 주간)

ITEM	SETTING
AIS	On
ARPA	On
EBL	On
VRM	On
Scale Bar	On
Range Rings	Off
Tide and Currents	On*
Spot Soundings	On
Isolated Dangers	On
Names	On
Cables and Pipelines	On
Buoys Names	On
Other Info	**On**
All Depth Contours	On
Seabed	**On**
Four Shades	**On**
Shallow Pattern	On
Use SCAMIN	**On**
Full Light Lines	**Off**
Highlight Info	Off

Show Correction	On
M-Quality Objects (ZOC)	Off
National Names	Off
Show Outdated	Off

* Consideration should be given to the use of official Tides and Current data where available
가능하다면 공식 해도·조류 데이터 사용에 대한 주의를 기할 것

3) RECOMMENDED DISPLAY SETTINGS FOR PILOTAGE AND CONFINED WATERS – NIGHT
(도선 및 제한수역에서의 디스플레이 권장 설정 - 야간)

ITEM	SETTING
AIS	On
ARPA	On
EBL	On
VRM	On
Scale Bar	On
Range Rings	Off
Tide and Currents	On*
Spot Soundings	On
Isolated Dangers	On
Names	On
Cables and Pipelines	On
Buoys Names	On
Other Info	**Off**
All Depth Contours	On
Seabed	**On**
Four Shades	**Off**
Shallow Pattern	On
Use SCAMIN	**On**
Full Light Lines	**On**
Highlight Info	Off
Show Correction	On
M-Quality Objects (ZOC)	Off
National Names	Off

Show Outdated	Off

* Consideration should be given to the use of official Tides and Current data where available
가능하다면 공식 해도·조류 데이터 사용에 대한 주의를 기할 것

2. ECDIS CONFIGURATION FOR COASTAL NAVIGATION AND OPEN OCEAN
(연안 및 대양에서의 설정)

1) RECOMMENDED CONFIGURATION FOR COASTAL NAVIGATION AND OPEN OCEAN
(연안 및 대양에서의 권장설정)

CONFIG. (설정)	CHECK (점검사항)	ACTION (조치)
Time 시간	Check that System Time is configured correctly 시스템 시간이 정확히 설정되었는지 점검	→ Check that Ship's Time is correct in the ECDIS ECDIS상 선내 시간이 정확한지 확인 → Check that the correct Time Zone settings are applied 정확한 시간대가 적용되었는지 확인
Position Source Setup 위치 출처 설정	Check that the primary position fixing system is set up correctly 1차 선위 측정 시스템이 정확히 설정 되었는지 점검	→ Check that position displayed by ECDIS is correct by inputting a manual fix in the system 시스템에 수동 선위 값을 입력하여 ECDIS가 정확한지 확인 → Select the best available sensor as the Primary Position Source 최적의 센서를 1차 위치출처로 선택 → Select the best available Secondary Position Source 최적의 2차 위치출처를 선택 → Check Heading reading with heading displayed by ECDIS ECDIS 지시 값과 선수방위를 확인 → Check Log reading with speed displayed by ECDIS ECDIS 지시 값과 선속계 지시 값을 확인 → Set SOG or STW as speed source 대지속력(SOG) 혹은 대수속력(STW)를 속력기준으로 설정 → Confirm that Radar Information Overlay (RIO) is available and ensure that the ECDIS display and RIO match in all respects 레이더 정보 오버레이가 사용가능하며 ECDIS와 모든 면에서 일치하는지 확인
Select System	Ensure that System Units are configured correctly	→ Set up System Units for: 다음에 대한 시스템 유닛 설정:

Units 시스템 유닛 선택	시스템 유닛이 정확히 설정되었는지 점검	- Large Distance 원거리 - Small Distance 근거리 - Speed 선속 - Depth 수심 - Time Zone 시간대

Main Chart Panel 주 전자해도 패널	Ensure that the Main Chart Panel is configured correctly 주 전자해도 패널이 정확히 설정되었는지 점검	→ Check that an appropriate level of data is available for the execution of navigation. 적절한 데이터 레벨이 항해수행을 위해 사용가능한지 확인 → Check that the Palette is configured to suit the conditions 팔레트가 주위환경에 적합한지 확인 → Check that the screen layout is appropriate for execution of navigation 스크린 레이아웃이 항해수행에 적합한지 확인 → Check that all relevant panels such as Route Data are open and available 경로 데이터와 같은 관련 패널이 열려 있고 사용가능한지 확인
Chart Setup 해도 설정	Ensure that the Chart is configured correctly 해도가 정확히 설정되어 있는지 점검	→ Check that the following parameters are configured: 다음과 같은 변수가 설정되었는지 점검 Chart Motion: Relative or True (configure Look Ahead if in True motion mode) Chart Orientation: North Up, Head Up or Course Up Chart Autoload: On Chart Autoscale: On Chart Priority: ENC
Layers Setup 레이어 설정	Ensure that the chart is configured correctly 레이어 디스플레이가 적절히 설정되었는지 점검	→ Check that the display of layers is configured appropriately: 레이어 디스플레이가 적절히 설정되었는지 확인 → Display Category: Standard + or Custom (or equivalent) 디스플레이 카테고리 표준 + 혹은 임의 (혹은 이와 상동) → Consider displaying the following layers: 다음과 같은 레이어의 표시를 고려한다 - Spot Soundings 구역 측심값

<table>
<tr><td></td><td></td><td>- Isolated Dangers 고립장해물
- Names 명칭
- Cables, Pipelines 케이블 및 파이프라인
- Buoys Names 부표 명칭
- Other Info. 기타 정보
- All Depth Contours 모든 등심선
- Seabed 해저질
- Scale Bar 축척 바 & NAVTEX</td></tr>
<tr><td>ENC Setup
ENC 설정</td><td>Ensure that the chart is configured correctly
해도가 정확히 설정 되었는지 점검</td><td>→ Check that the ENC is configured appropriately:
ENC가 적절히 설정되었는지 확인
<table>
<tr><td>Areas</td><td>Traditional symbology / Simplified symbology</td></tr>
<tr><td>Points</td><td>Simplified or Traditional symbology</td></tr>
<tr><td>Shallow Contour</td><td>Set appropriate value</td></tr>
<tr><td>Deep Contour</td><td>Set appropriate value</td></tr>
</table>
→ Consider setting the following options:
일부 사항을 다음과 같이 설정하는 것을 고려한다
<table>
<tr><td>Four Shades</td><td>On during the Day; Off at Night</td></tr>
<tr><td>Shallow Pattern</td><td>On</td></tr>
<tr><td>Use SCAMIN</td><td>On</td></tr>
<tr><td>Full Light Lines</td><td>Off during the Day; On at Night</td></tr>
<tr><td>Highlight Info</td><td>Off</td></tr>
<tr><td>Show Correction</td><td>On</td></tr>
<tr><td>M-Quality Objects</td><td>Off</td></tr>
<tr><td>National Names</td><td>Off</td></tr>
<tr><td>Show Outdated</td><td>Off</td></tr>
</table></td></tr>
<tr><td>Routes
경로</td><td>Ensure that the correct Route is loaded for Route Monitoring
정확한 경로가 ROUTE MONITORING에 불러져 있는지 점검</td><td>→ Check that XTD has been set to an appropriate value
XTD가 적절한 값으로 설정되었는지 확인
→ Set up ETA ETA 설정
Set up ETD ETD 설정
→ Confirm that the Route has been checked
경로 확인여부 점검
→ Protect the Route</td></tr>
</table>

		경로 유지 → Activate the Route for Monitoring 감시를 위한 경로 활성화 → Load the Secondary Route in Route Editor if required. 필요 시 ROUTE EDITOR 상에서 2차 경로를 불러오기

<table>
<tr>
<td>Route Display Setup
경로 디스플 레이 설정</td>
<td>Ensure that the display is configured for Route Monitoring
ROUTE MONITORING 의 디스플레이가 설정되었는지 점검</td>
<td>→ Configure the following parameters appropriately:
다음의 변수를 적절히 설정
<table>
<tr><td>Headline</td><td>On</td></tr>
<tr><td>COG Vector</td><td>On</td></tr>
<tr><td>HDG Vector</td><td>On</td></tr>
<tr><td>Scaled ship icon or Symbol</td><td>Scaled ship icon or Symbol</td></tr>
<tr><td>Align by</td><td>HDG</td></tr>
<tr><td>Course/Leg/Speed</td><td>On</td></tr>
<tr><td>XTD</td><td>On</td></tr>
<tr><td>Arrival Circle</td><td>Off</td></tr>
<tr><td>Radius</td><td>On</td></tr>
<tr><td>WPT Names</td><td>On</td></tr>
</table>
</td>
</tr>
<tr>
<td>Overlays
오버 레이</td>
<td>Ensure that all relevant Overlays are loaded
모든 관련 오버레이가 불려져 있는지 점검</td>
<td>→ Check that the following Overlays are loaded and configured:
다음의 오버레이가 불러져 오고 설정되어 있는지 확인:
- Manual Corrections (load filename as appropriate)
수동 개정 (적합한 파일명 불러오기)
- Additional Information (load filename as appropriate)
추가정보 (적합한 파일명 불러오기)</td>
</tr>
<tr>
<td>Safety Alarms
안전 경보</td>
<td>Ensure the Audible Alarm is working correctly
청각 경보가 정확히 작동하는지 점검</td>
<td>→ Check that the Audible Alarm is On and Test it to ensure that it is working
청각 경보가 가동 중이고 정상 작동여부를 입증하기 위해 테스트 수행</td>
</tr>
<tr>
<td>Navigati-onal Alarms
항행 경보</td>
<td>Ensure that Navigational Alarms are configured correctly
항행 경보가 정확히 설정되어 있는지 점검</td>
<td>→ Check that the following Alarms are configured as necessary:
다음의 경보가 필요에 따라 설정되어 있는지 확인
<table>
<tr><td>Anti-Grounding Cone</td><td>On</td></tr>
<tr><td>Ahead</td><td>6 mins (set appropriate value)</td></tr>
<tr><td>Port</td><td>0.2 nm(set appropriate value)</td></tr>
<tr><td>Starboard</td><td>0.2 nm(set appropriate value)</td></tr>
<tr><td>Anti-Grounding Alarm</td><td>On</td></tr>
<tr><td>Nav Danger</td><td>On</td></tr>
<tr><td>Land Danger</td><td>On</td></tr>
<tr><td>Aids to Navigation</td><td>On</td></tr>
</table>
</td>
</tr>
</table>

		Safety Contour: On Primary/Secondary Divergence: On (configure as necessary) Off Chart Alarm: On Sounder Alarm: On Sounder Depth: On Set Safety Depth: **Squat + Draught + UKC** Set Safety Contour: Appropriate Value Set Depth Alarm: Appropriate Value (eg set to Safety Depth)
Route Alarms 경로 경보	Ensure that Route Alarms are configured correctly 경로 경보가 정확히 설정되었는지 점검	→ Check that the following Alarms are configured appropriately: 다음과 같은 경보가 적절히 설정되었는지 확인 End of Route Alarm: Off Out of XTD Alarm: On Out of Schedule Alarm: Configure as necessary WPT Approach Alarm: On (set appropriate value) Off Leg Course Alarm: On (configure as necessary)
Area Alerts 구역 경보	Ensure that area Alerts are configured correctly 구역 경보가 정확히 설정되었는지 점검	→ If the system in use allows Alarm configuration, check that the following Basic Area Alerts are configured as necessary: 사용중인 시스템에서 경보 설정이 가능한 경우 다음과 같은 기본 구역 경보가 필요에 따라 설정되었는지 확인 - Basic Areas Traffic Separation Zone: On, Day and Night Traffic SS Roundabout: On, Day and Night Two-way Traffic Route: On, Day and Night Recommended Traffic Lane: On, Day and Night Fairway: On, Day and Night Caution Area: On, Day and Night Areas to be avoided: On, Day and Night Seaplane Landing: On, Day and Night Ice Area: On, Day and Night Fishing Ground: On, Day and Night Pipeline Area: On, Day and Night

		Anchorage Area	On, Day and Night
		Dumping Ground	On, Day and Night
		Cargo Transshipment area	On, Day and Night
		Marine Farm Culture	On, Day and Night
		Environmental Sensitive Area	On, Day and Night
		Traffic SS Crossing	On, Day and Night
		Precautionary Area	On, Day and Night
		Deep water Route	On, Day and Night
		Inshore Traffic Zone	On, Day and Night
		Restricted Area	On, Day and Night
		Offshore Production Area	On, Day and Night
		Military Practice Area	On, Day and Night
		Submarine Transit	On, Day and Night
		Dredged Area	On, Day and Night
		Fishing Prohibited	On, Day and Night
		Cable Area	On, Day and Night
		Anchoring Prohibited	On, Day and Night
		Spoil Ground	On, Day and Night
		Incineration Area	On, Day and Night
		Particularly Sensitive Sea Area	On, Day and Night
		→ Check that the following Additional Area Alerts are configured as necessary: 다음과 같은 추가 구역 경보가 필요에 따라 설정되었는지 확인	
		Additional Areas	On, Day and Night
		International Maritime Boundary	On, Day and Night
		Territorial Sea	On, Day and Night
		Quarantine Anchorage	On, Day and Night
		Swept Area	On, Day and Night
		Harbour Limit	On, Day and Night
		Explosive Dumping	On, Day and Night
		Nature Reserve	On, Day and Night
		Territorial Sea Base Line	On, Day and Night

		Prohibited Area	On, Day and Night
		Fishery Zone	On, Day and Night
		Exclusive Economic Zone	On, Day and Night
		Unsurveyed Area	On, Day and Night
		Danger Line	On, Day and Night
		Navtex Polygon	On, Day and Night

<table>
<tr>
<td>Way-point Selection
변침점 선정</td>
<td>Ensure that the correct Waypoint information is being displayed
정확한 변침점 정보가 표시되는지 점검</td>
<td>→ Check that the following are configured correctly
다음과 같은 사항이 정확히 설정되었는지 확인
<table>
<tr><td>Waypoint Selection</td><td>Auto or Manual</td></tr>
<tr><td>Arrival Circle</td><td>Auto or Manual</td></tr>
<tr><td>Radius</td><td>Auto or Manual</td></tr>
<tr><td>Track History</td><td>On (set appropriate value)</td></tr>
<tr><td>Secondary</td><td>On</td></tr>
</table>
</td>
</tr>
<tr>
<td>ECDIS Navigati-on Aids
ECDIS 항로 표지</td>
<td>Ensure that navigation aids are configured correctly
항로표지가 정확히 설정 되었는지 점검</td>
<td>→ Check that the following are configured correctly:
다음과 같은 사항이 정확히 설정되었는지 점검
<table>
<tr><td>Predictor</td><td>On, configure as necessary</td></tr>
<tr><td>Manual Fixing</td><td>Available</td></tr>
</table>
</td>
</tr>
<tr>
<td>Targets
물표</td>
<td>Ensure that targets are configured Correctly
물표가 정확히 설정 되었는지 점검</td>
<td>→ Check that the following are configured correctly:
다음과 같은 사항이 정확히 설정되었는지 확인:
<table>
<tr><td>ARPA Contacts</td><td>On, Vectors On, Tracks Off</td></tr>
<tr><td>AIS Contacts</td><td>On, Vectors On, Tracks Off</td></tr>
<tr><td>CPA Alarm</td><td>Configure as necessary</td></tr>
<tr><td>TCPA Alarm</td><td>Configure as necessary</td></tr>
</table>
</td>
</tr>
<tr>
<td>Radar
레이더</td>
<td>Ensure that the preferred radar is selected
선호되는 레이더가 선택 되었는지 점검</td>
<td>→ Check that RIO and ARPA targets can be displayed
레이더 정보 오버레이(RIO)와 ARPA 물표가 표시되는지 확인</td>
</tr>
<tr>
<td>Docking Mode Settings
도킹 모드 설정</td>
<td>Ensure that Docking Mode is configured correctly
도킹 모드가 정확히 설정되었는지 점검</td>
<td>→ Check that the following are configured correctly:
다음과 같은 사항이 정확히 설정되었는지 확인
<table>
<tr><td>DM Settings</td><td>1:7,500</td></tr>
<tr><td>Ship History</td><td>Step 15, Interval 1s</td></tr>
</table>
</td>
</tr>
<tr>
<td>Other
기타</td>
<td>Ensure that Other functions are configured correctly
기타 기능들이 정확히 설</td>
<td>→ Check that the following are configured correctly.
다음과 같은 사항이 정확히 설정되었는지 확인
<table>
<tr><td>EBL</td><td>On</td></tr>
<tr><td>VRM</td><td>On</td></tr>
</table>
</td>
</tr>
</table>

	정되었는지 점검	Parallel Index Lines	Configure as required
		Environmental Data	Tidal Stream On, Current On
Vessel Setup 자선 설정	Ensure that Vessel data is set up correctly 자선정보가 정확히 설정되었는지 점검	→ Check that the following are configured correctly: 다음과 같은 사항이 정확히 설정되었는지 확인	
		Ship Position	Centre on Ship or displaced
		Chart	Select the Best Scale chart available
		Vectors	6 mins (set appropriate value)
		TCS Ship Condition	Loaded, Medium or Light (configure as required)

2) RECOMMENDED DISPLAY SETTINGS FOR COASTAL AND OPEN OCEAN – DAY

(연안 및 대양에서의 디스플레이 권장설정 - 주간)

ITEM	SETTING
AIS	On
ARPA	On
EBL	On
VRM	On
Scale Bar	On
Range Rings	Off
Tide and Currents	On*
Spot Soundings	On
Isolated Dangers	On
Names	On
Cables and Pipelines	On
Buoys Names	On
Other Info	**Off**
All Depth Contours	On
Seabed	**Off**
Four Shades	**On**
Shallow Pattern	On
Use SCAMIN	**Off**
Full Light Lines	**Off**
Highlight Info	Off
Show Correction	On
M-Quality Objects (ZOC)	Off
National Names	Off
Show Outdated	Off

* Consideration should be given to the use of official Tides and Current data where available

가능하다면 공식 해도·조류 데이터 사용에 대한 주의를 기할 것

3) RECOMMENDED DISPLAY SETTINGS FOR COASTAL AND OPEN OCEAN – NIGHT
(연안 및 대양에서의 디스플레이 권장 설정 - 야간)

ITEM	SETTING
AIS	On
ARPA	On
EBL	On
VRM	On
Scale Bar	On
Range Rings	Off
Tide and Currents	On*
Spot Soundings	On
Isolated Dangers	On
Names	On
Cables and Pipelines	On
Buoys Names	On
Other Info	**Off**
All Depth Contours	On
Seabed	**Off**
Four Shades	**Off**
Shallow Pattern	On
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가능하다면 공식 해도·조류 데이터 사용에 대한 주의를 기할 것

DAFTAR RIWAYAT HIDUP

1. Nama : ILHAM FAISAL HUDA
2. Tempat, Tanggal lahir : KEBUMEN, 15 MEI 2000
3. Alamat : KALENG, PURING, KEBUMEN
4. Agama : ISLAM
5. Nama orang tua
   a. Ayah : DARINO
   b. Ibu : WAFIROTUN KHASANAH
6. **Riwayat Pendidikan**
   a. SD N 2 KALENG
   b. SMP N 1 KEBUMEN
   c. SMA N 1 KEBUMEN
7. **Pengalama Praktek Laut**

   Perusahaan : PT. Jasindo Duta Segara (POS SM)

   Alamat : Plaza Kelapa Gading Rukan Blok C No. 55, Jakarta Utara.