

**METRIC**  
MIL-H-89201/8 (DMA)  
29 April 1995  
SUPERSEDING  
MIL-H-89201  
31 AUG 1990

**ASSOCIATED DETAIL MILITARY SPECIFICATION**  
**HARBOR, APPROACH, AND COASTAL CHARTS**  
**AT SCALES 1:750,001 TO 1:1,000,000 (HAC 8)**

This specification is approved for use by the Defense Mapping Agency, and is available for use by all Departments, and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification defines detailed requirements for the Defense Mapping Agency's (DMA) Harbor, Approach, and Coastal Charts at scales of 1:750,001 to 1:1,000,000 (HAC 8).

1.2 Purpose. The purpose of this specification is to assure uniformity of treatment among mapping and charting elements, primarily DMA and its contractors, engaged in a coordinated production and maintenance program for this product. Feature requirements are stated in terms of DMA's Feature/Attribute Coding Standard (FACS), to maintain consistency between various DMA production methods. The use of FACS in this specification is not intended to imply any external digital data coding standard. FACS is the internal coding standard used by DMA's Digital Production System (DPS), which is the primary intended, but not exclusive, method for production of this product at this time. The Digital Geographic Information Exchange Standard (DIGEST) Feature Attribute Coding Catalog (FACC), not FACS, is the approved coding standard for the exchange of digital geographic data, as well as the standard for DMA's Vector Product Format product line. FACC may be included in, or replace FACS in a future edition of this specification.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, Defense Mapping Agency, ATTN: PR, ST A-13, 8613 Lee Highway, Fairfax, VA 22031-2137 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

AREA MCGT

DISTRIBUTION STATEMENT A. Approved for public release, distribution unlimited.

1.3 Security.

1.3.1 Security Classification. The security classification of the products generated by the use of these specifications will be the lowest category practicable. When it is necessary to assign a security classification to the product, it shall be in accordance with established national security procedures.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the current Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto, cited in the solicitation (see 6.2).

MILITARY SPECIFICATIONS

MIL-H-89201A(DMA) - General Military Specification for Harbor, Approach, and Coastal Charts (HAC-All Scales)

MILITARY STANDARDS

MIL-STD-2402(DMA) - MC&G Symbology for Graphic Products  
MIL-STD-2403(DMA) - MC&G Product Generation Rules  
MIL-STD-2408(DMA) - Mapping, Charting & Geodesy Glossary of Feature and Attribute Definitions

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

STANDCONTABLE 02 - Standard Conversion Table No. 2  
STANDCONTABLE 03 - Standard Conversion Table No. 3  
STANDCONTABLE 04 - Standard Conversion Table No. 4

(Copies of the above publications are available from the Defense Mapping Agency, ATTN: TIJ, ST A-10, Fairfax, VA 22031-2137).

Chart No. 1 - Nautical Chart Symbols and Abbreviations  
PUB. 9 - American Practical Navigator  
PUBS 110-116 (LLPUB) - List of Lights  
N M - Notice to Mariners (NM)  
PUB117 - Radio Navigation Aids  
SDPUB - Sailing Directions

(Copies of the above publications are available for DoD users from the Defense Mapping Agency Combat Support Center, 6001 MacArthur Boulevard, Bethesda, MD 20816-5001. Other users may obtain these

publications from the National Ocean Service, and its authorized sales agents).

## 2.2 Non-Government publications.

IHO Special Pub. 46 - Correction of Echo Soundings

(Copies of the above publication are available on disc or paper format, upon request, from the International Hydrographic Organization - Monaco)

NP139 - Echo Sounding Correction Tables (3rd or latest edition)

(Copies of the above publication are available from the British Admiralty, Taunton, U.K.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards) the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 Feature/Attribute data. Table I of this associated detail specification contains feature, feature attributes category, feature attribute category value, inclusion condition and specific rules necessary for the production of Harbor, Approach, and Coastal Charts, at scales of 1:750,001 to 1:1,000,000 (HAC 8).

3.2 Feature/Attribute category, inclusion conditions and product generation rules. The following is an explanation of the header format for Table I:

|                  |                                 |                  |
|------------------|---------------------------------|------------------|
| FCode (1)        | Feature (2)                     |                  |
| Feature type (3) |                                 |                  |
|                  | <u>Attributes</u>               |                  |
| ACode (4)        | Attribute (5)                   | <u>Rules (7)</u> |
|                  | <u>Inclusion conditions (6)</u> |                  |

(1) F(Feature)Code - Five digit alpha numeric, Feature Attribute Coding Standard (FACS) Code assigned to each feature (e.g. 1N010 - R/R Tracks). The first two digits identify the category and subcategory to which each feature belongs (e.g., 1 - Culture Category, N = Transportation R/R subcategory).

(2) Feature - Name of feature as specified in the FACS. A feature is a physical (e.g., Bridge) or conceptual (e.g., Route - Nautical) entity of the real world which has one or more set of coordinates to be included on a product.

(3) Feature Type - designation of a feature type.

Area - More than two sets of coordinates defining a closed area; areas may span more than one map sheet or geographic area requirement.

Line - Two or more coordinate sets defining a series of line segments.

Point - One set of coordinates.

If there is more than one Feature Type for the feature, then the ACode and Inclusion conditions are stated separately for each type.

(4) A(Attribute)Code - Three digit alpha or alpha numeric character (acronym) FACS code assigned to each attribute category which identifies the attribute category (e.g., EXS - Existence Category). Attribute categories are defined by mutually exclusive sets of attribute values which are feature dependent. Attribute values relative to product are normally contained in MIL-STD-2402 under column headed "SValue", a few exceptions are contained in the inclusion conditions.

(5) Attribute - Name of attribute category required by the feature as specified in the FACS. Attribute categories are characteristics in menu form relative to a specified feature or features.

(6) Inclusion conditions - Conditions under which the feature/attribute(s) are required by the product (e.g., R/R Yard, 1N080 FACS Code, is included on a particular product only if Length  $\geq$  450m). Conditions should be stated in boolean logic.

(7) Rule - 5 digit alpha-numeric code indicating rules (listed in MIL-STD-2403) which specify requirements for feature to satisfy final production format/requirements. APPENDIX A of this associated detail specification provides the rule numbers and rule text for each feature and feature type shown on the Harbor, Approach, and Coastal Chart.

#### 4. QUALITY ASSURANCE PROVISIONS

See MIL-H-89201A for quality assurance provisions for Harbor, Approach, and Coastal Charts.

#### 5. PACKAGING

See MIL-H-89201A for packaging requirements for Harbor, Approach, and Coastal Charts.

#### 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory).

6.1 Intended use. Harbor and Approach and Coastal Charts (HACs) are various scale charts used for plotting ship courses in ocean waters. HACs are produced to support the naval and maritime community.

6.2 Acquisition Requirement. See MIL-H-89201A.

6.3 First article. See MIL-H-89201A.

6.4 Supersession. These specifications supersede Table I of Military Specifications for Harbor, Approach, and Coastal Charts (HAC), MIL-H-89201, 31 August 1990.

6.5 Standardization agreements. Certain provisions of this specification may be subject to international standardization agreements. When amendment, revision, or cancellation of this specification is proposed that will modify the international agreement concerned, the preparing activity will take appropriate action through international standardization channels, including departmental standardization offices, to change the agreement or make other appropriate accommodations. See MIL-H-89201A.

6.6 Subject term (key word) listing.

Bathymetry  
Charting  
Defense Mapping Agency (DMA)  
Hydrography  
Marine  
Maritime  
MC&G (Mapping, Charting and Geodesy)  
Nautical  
Navigation

6.7 Changes from previous issue. Marginal notations are not used in this detail specification to identify changes with respect to the previous issue of Table I to MIL-H-89201 due to the extensiveness of the changes.

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
 CATEGORY: Culture (1)  
 SUBCATEGORY: Miscellaneous Features (1L)  
\*HAC 8\*HAC 8

1L020 BUILT-UP AREA  
 AREA

| <u>Attributes</u>                | <u>PG Rules</u> |
|----------------------------------|-----------------|
| ARA AREA COVERAGE ATTRIBUTE      | R-2021          |
| BAC BUILT-UP AREA CLASSIFICATION | R-2474          |
| DFS DISTANCE FROM SHORELINE      |                 |
| LEN LENGTH /DIAMETER             |                 |
| WID WIDTH                        |                 |

Inclusion Conditions:

BAC(BUILT-UP AREA CLASSIFICATION) 1(SPARSE TO MODERATE) or 2(DENSE)  
 and area >= 6.25 mm square (map scale)  
 and DFS(DISTANCE FROM SHORELINE) <= 9,997 m

POINT

| <u>Attributes</u>                | <u>PG Rules</u> |
|----------------------------------|-----------------|
| ARA AREA COVERAGE ATTRIBUTE      | -None           |
| BAC BUILT-UP AREA CLASSIFICATION |                 |
| DFS DISTANCE FROM SHORELINE      |                 |
| LEN LENGTH /DIAMETER             |                 |

Inclusion Conditions:

BAC(BUILT-UP AREA CLASSIFICATION) 1(SPARSE TO MODERATE) or 2(DENSE)  
 and area < 6.25 mm square (map scale)  
 and DFS(DISTANCE FROM SHORELINE) <= 9,997 m

\*HAC 8\*HAC 8

1R030 NAVAIDS (AERONAUTICAL)

POINT

| <u>Attributes</u>                   | <u>PG Rules</u> |
|-------------------------------------|-----------------|
| DFS DISTANCE FROM SHORELINE         | L-4722          |
| EXS EXISTENCE CATEGORY              | L-4782          |
| NST RADIO NAVIGATION /COMMUNICATION |                 |
| RGE TRANSMITTER EFFECTIVE RANGE     |                 |

Inclusion Conditions:

NST(RADIO NAVIGATION/COMMUNICATIONS) 2(CONSOL) or 17(NON-DIRECTIONAL RADIOBEACON (NDB))  
 and RGE(TRANSMITTER EFFECTIVE RANGE) >= 50 nautical miles  
 and EXS(EXISTENCE CATEGORY) 33(CONTINUOUS OPERATION)  
 and DFS(DISTANCE FROM SHORELINE) <= 9,997 m

\*HAC 8\*HAC 8

1T080 TOWER (COMMUNICATION)

POINT

| <u>Attributes</u>                   | <u>PG Rules</u> |
|-------------------------------------|-----------------|
| NST RADIO NAVIGATION /COMMUNICATION | D-7011          |
|                                     | L-4722          |
|                                     | L-4737          |
|                                     | T-0824          |

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
 CATEGORY: Culture (1)  
 SUBCATEGORY: Communication /Transmission (1T)

1T080 TOWER (COMMUNICATION) (Cont.)  
 POINT

Inclusion Conditions:

NST(RADIO NAVIGATION/COMMUNICATION) 2(CONSOL) or 3(DECCA) or 7(LORAN) or 8(OMEGA)

\*HAC 8\*HAC 8

2A010 COASTAL SHORELINE  
 LINE

| <u>Attributes</u>           | <u>PG Rules</u> |
|-----------------------------|-----------------|
| ACC ACCURACY CATEGORY       | D-7010          |
| SLT SHORELINE TYPE CATEGORY | R-1200          |
| VDC VERTICAL DATUM CATEGORY | R-2738          |

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

2A020 FORESHORE  
 AREA

| <u>Attributes</u>             | <u>PG Rules</u> |
|-------------------------------|-----------------|
| LEN LENGTH /DIAMETER          | R-2825          |
| LOC LOCATION /ORIGIN CATEGORY | R-2826          |
| WID WIDTH                     | R-3708          |

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 8(AT SHORELINE)  
 and width  $\geq$  0.5 mm (map scale)  
 OR LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)  
 and length  $\geq$  3 mm (map scale)

POINT

| <u>Attributes</u>             | <u>PG Rules</u> |
|-------------------------------|-----------------|
| LEN LENGTH /DIAMETER          | R-2825          |
| LOC LOCATION /ORIGIN CATEGORY | R-2911          |
|                               | R-3708          |
|                               | R-3709          |

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)  
 and length  $<$  3 mm (map scale)

\*HAC 8\*HAC 8

2A040 OPEN WATER (EXCEPT INLAND)  
 AREA

| <u>Attributes</u>     | <u>PG Rules</u> |
|-----------------------|-----------------|
| NO ATTRIBUTE REQUIRED | O-3407          |
|                       | O-3435          |
|                       | R-2870          |
|                       | R-2871          |

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Coastal Hydro (2A)

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**2A040 OPEN WATER (EXCEPT INLAND) (Cont.)**  
**AREA**

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

**2C010 BUOY**  
**POINT**

| <u>Attributes</u>                 | <u>PG Rules</u> | <u>PG Rules</u> | <u>PG Rules</u> |
|-----------------------------------|-----------------|-----------------|-----------------|
| BF1 BROADCAST FREQUENCY (1)       | D-7013          | L-4841          | R-2295          |
| BF2 BROADCAST FREQUENCY (2)       | L-4709          | L-4843          | R-2849          |
| BR1 BEACON RANGE (1)              | L-4711          | L-4844          | R-2884          |
| BR2 BEACON RANGE (2)              | L-4737          | L-4846          | R-2885          |
| CHA LIGHT CHARACTERISTIC CATEGORY | L-4759          | L-4850          | R-2886          |
| COL CHARACTER OF LIGHT            | L-4761          | L-4853          | R-2887          |
| LVR LIGHT VISIBILITY RANGE        | L-4766          | L-4858          | R-2993          |
| MLR MULTIPLE LIGHT RANGES         | L-4835          | L-4875          | R-2997          |
| NAM NAME CATEGORY                 | L-4836          | L-4876          | S-1403          |
| RA1 RADIO AID (1)                 | L-4840          | O-3414          | T-0845          |
| RA2 RADIO AID (2)                 |                 |                 |                 |
| SSC STRUCTURE SHAPE CATEGORY      |                 |                 |                 |

Inclusion Conditions:

SSC(STRUCTURE SHAPE CATEGORY) 90(SUPERBUOY (ODAS)) or 91(SUPERBUOY (LANBY)) or 92(SUPERBUOY (TANKER)) or 93(LIGHTSHIP)

\*HAC 8\*HAC 8

**2C030 ELECTRONIC BEACON**  
**POINT**

| <u>Attributes</u>           | <u>PG Rules</u> | <u>PG Rules</u> |
|-----------------------------|-----------------|-----------------|
| BF1 BROADCAST FREQUENCY (1) | D-7013          | L-4853          |
| BF2 BROADCAST FREQUENCY (2) | L-4737          | O-3400          |
| BR1 BEACON RANGE (1)        | L-4783          | O-3414          |
| BR2 BEACON RANGE (2)        | L-4835          | T-0804          |
| RA1 RADIO AID (1)           | L-4836          | T-0854          |
| RA2 RADIO AID (2)           | L-4844          | T-0855          |
|                             | L-4850          |                 |

Inclusion Conditions:

RA1(RADIO AID (1)) 17(CIRCULAR RADIOBEACON (RC)) or 48(AERONAUTICAL RADIOBEACON, NON-DIRECTIONAL (AERO RC)) or 49(RADIOBEACON, TYPE UNKNOWN (R BN)) or 51(CONSOL)  
 OR RA2(RADIO AID (2)) 17(CIRCULAR RADIOBEACON (RC)) or 48(AERONAUTICAL RADIOBEACON, NON-DIRECTIONAL (AERO RC)) or 49(RADIOBEACON, TYPE UNKNOWN (R BN)) or 51(CONSOL)

\*HAC 8\*HAC 8

**2C050 LIGHT**  
**POINT**

| <u>Attributes</u>           | <u>PG Rules</u> | <u>PG Rules</u> | <u>PG Rules</u> |
|-----------------------------|-----------------|-----------------|-----------------|
| BF1 BROADCAST FREQUENCY (1) | D-7013          | L-4836          | L-4876          |
| BF2 BROADCAST FREQUENCY (2) | L-4711          | L-4840          | O-3400          |
| BR1 BEACON RANGE (1)        | L-4737          | L-4841          | O-3414          |
| BR2 BEACON RANGE (2)        | L-4759          | L-4843          | R-2295          |
| COL CHARACTER OF LIGHT      | L-4760          | L-4844          | R-2849          |
| EXS EXISTENCE CATEGORY      | L-4761          | L-4850          | R-2884          |
| HLT HYDROGRAPHIC LIGHT TYPE | L-4762          | L-4853          | R-2887          |

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Navaids (2C)

**2C050 LIGHT (Cont.)****POINT**

| <u>Attributes</u>          | <u>PG Rules</u> | <u>PG Rules</u> | <u>PG Rules</u> |
|----------------------------|-----------------|-----------------|-----------------|
| LVR LIGHT VISIBILITY RANGE | L-4783          | L-4858          | T-0821          |
| MLR MULTIPLE LIGHT RANGES  | L-4835          | L-4875          | T-0853          |
| RA1 RADIO AID (1)          |                 |                 |                 |
| RA2 RADIO AID (2)          |                 |                 |                 |

Inclusion Conditions:

HLT(HYDROGRAPHIC LIGHT TYPE) 0(UNKNOWN) or 1(SECTORED LIGHT) or 2(OTHER) or 6(LIGHTED BEACON)  
 and LVR(LIGHT VISIBILITY RANGE) >= 15 nautical miles  
 and EXS(EXISTENCE CATEGORY) 33(CONTINUOUS OPERATION)

\*HAC 8\*HAC 8

**2D000 MISCELLANEOUS UNDERWATER FEATURE AREA**

| <u>Attributes</u>                          | <u>PG Rules</u> | <u>PG Rules</u> |
|--|-----------------|-----------------|
| ACC ACCURACY CATEGORY                      | L-4700          | O-3411          |
| DAT DATE CATEGORY                          | L-4702          | R-2221          |
| DDA DESCRIPTION OF DANGER                  | L-4707          | R-2222          |
| EXS EXISTENCE CATEGORY                     | L-4708          | R-2800          |
| HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION | L-4722          | R-2806          |
| HDP HYDROGRAPHIC DEPTH                     | L-4729          | R-2916          |
| LEN LENGTH /DIAMETER                       | L-4730          | R-3704          |
| SFC SEA FLOOR FEATURE CATEGORY             | L-4807          | R-3708          |
| VDC VERTICAL DATUM CATEGORY                | L-4808          |                 |
| VDR VERTICAL DATUM RECORD                  |                 |                 |
| WID WIDTH                                  |                 |                 |

Inclusion Conditions:

SFC(SEA FLOOR FEATURE CATEGORY) 1(UNKNOWN (OBSTRUCTION)) or 2(OTHER) or 3(FISH HAVEN)  
 and length >= 4 mm (map scale)

**POINT**

| <u>Attributes</u>                          | <u>PG Rules</u> | <u>PG Rules</u> |
|--|-----------------|-----------------|
| ACC ACCURACY CATEGORY                      | D-1909          | L-4891          |
| DAT DATE CATEGORY                          | L-4700          | O-3411          |
| DDA DESCRIPTION OF DANGER                  | L-4702          | R-2221          |
| EXS EXISTENCE CATEGORY                     | L-4707          | R-2222          |
| HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION | L-4708          | R-2806          |
| HDP HYDROGRAPHIC DEPTH                     | L-4722          | R-2916          |
| LEN LENGTH /DIAMETER                       | L-4729          | R-3704          |
| SFC SEA FLOOR FEATURE CATEGORY             | L-4730          | R-3708          |
| VDC VERTICAL DATUM CATEGORY                | L-4808          | R-3709          |
| VDR VERTICAL DATUM RECORD                  | L-4872          | S-1401          |
| WID WIDTH                                  |                 |                 |

Inclusion Conditions:

SFC(SEA FLOOR FEATURE CATEGORY) 1(UNKNOWN (OBSTRUCTION)) or 2(OTHER) or 3(FISH HAVEN)  
 and length < 4 mm (map scale)  
 OR SFC(SEA FLOOR FEATURE CATEGORY) 4(WELL) or 5(SUBMERGED PRODUCTION PLATFORM)

\*HAC 8\*HAC 8

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
 CATEGORY: Hydrography (2)  
 SUBCATEGORY: Dangers and Underwater Features (2D)  
\*HAC 8\*HAC 8

2D010 BREAKERS  
 AREA

| <u>Attributes</u>             | <u>PG Rules</u> |
|-------------------------------|-----------------|
| LEN LENGTH /DIAMETER          | L-4705          |
| LOC LOCATION /ORIGIN CATEGORY | L-4722          |
|                               | R-2800          |
|                               | R-2911          |

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 8(AT SHORELINE)  
 and length >= 5 mm (map scale)

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 POINT

| <u>Attributes</u>             | <u>PG Rules</u> |
|-------------------------------|-----------------|
| ACC ACCURACY CATEGORY         | L-4700          |
| DAT DATE CATEGORY             | L-4706          |
| EXS EXISTENCE CATEGORY        | L-4707          |
| LEN LENGTH /DIAMETER          | L-4708          |
| LOC LOCATION /ORIGIN CATEGORY | L-4722          |
|                               | L-4730          |
|                               | L-4808          |
|                               | O-3411          |
|                               | S-1404          |

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)  
 OR LOC(LOCATION/ORIGIN CATEGORY) 8(AT SHORELINE)  
 and length < 5 mm (map scale)

\*HAC 8\*HAC 8

2D030 DISCOLORED WATER  
 AREA

| <u>Attributes</u>      | <u>PG Rules</u> |
|------------------------|-----------------|
| ACC ACCURACY CATEGORY  | L-4700          |
| DAT DATE CATEGORY      | L-4707          |
| EXS EXISTENCE CATEGORY | L-4708          |
| LEN LENGTH /DIAMETER   | L-4722          |
|                        | L-4730          |
|                        | L-4808          |
|                        | O-3411          |
|                        | R-2287          |
|                        | R-2911          |
|                        | R-3708          |

Inclusion Conditions:

Length >= 4 mm (map scale)

-----  
 POINT

| <u>Attributes</u>      | <u>PG Rules</u> | <u>PG Rules</u> |
|------------------------|-----------------|-----------------|
| ACC ACCURACY CATEGORY  | L-4700          | L-4809          |
| DAT DATE CATEGORY      | L-4707          | O-3411          |
| EXS EXISTENCE CATEGORY | L-4708          | R-2287          |
| LEN LENGTH /DIAMETER   | L-4722          | R-2911          |
|                        | L-4730          | R-3708          |
|                        | L-4808          |                 |

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**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Dangers and Underwater Features (2D)

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**2D030 DISCOLORED WATER (Cont.)**  
**POINT**

Inclusion Conditions:

Length < 4 mm (map scale)

\*HAC B\*HAC B

**2D050 FOUL GROUND**  
**AREA**

| <u>Attributes</u>                          | <u>PG Rules</u> | <u>PG Rules</u> |
|--|-----------------|-----------------|
| ACC ACCURACY CATEGORY                      | L-4700          | L-4807          |
| DAT DATE CATEGORY                          | L-4702          | L-4808          |
| EXS EXISTENCE CATEGORY                     | L-4707          | O-3411          |
| HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION | L-4708          | R-2221          |
| HDP HYDROGRAPHIC DEPTH                     | L-4722          | R-2222          |
| LEN LENGTH /DIAMETER                       | L-4729          | R-2800          |
| VDC VERTICAL DATUM CATEGORY                | L-4730          | R-2806          |
| VDR VERTICAL DATUM RECORD                  |                 |                 |

Inclusion Conditions:

Length >= 4 mm (map scale)

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**POINT**

| <u>Attributes</u>                          | <u>PG Rules</u> | <u>PG Rules</u> |
|--|-----------------|-----------------|
| ACC ACCURACY CATEGORY                      | D-1909          | L-4808          |
| DAT DATE CATEGORY                          | L-4700          | L-4872          |
| EXS EXISTENCE CATEGORY                     | L-4702          | L-4891          |
| HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION | L-4707          | O-3411          |
| HDP HYDROGRAPHIC DEPTH                     | L-4708          | R-2221          |
| LEN LENGTH /DIAMETER                       | L-4722          | R-2222          |
| VDC VERTICAL DATUM CATEGORY                | L-4729          | R-2806          |
| VDR VERTICAL DATUM RECORD                  | L-4730          | R-3709          |
| WID WIDTH                                  |                 |                 |

Inclusion Conditions:

Length < 4 mm (map scale)

\*HAC B\*HAC B

**2D110 PLATFORM**  
**POINT**

| <u>Attributes</u>                   | <u>PG Rules</u> |
|-------------------------------------|-----------------|
| CHA LIGHT CHARACTERISTIC CATEGORY   | L-4706          |
| NST RADIO NAVIGATION /COMMUNICATION | L-4722          |
|                                     | L-4730          |
|                                     | T-0800          |

Inclusion Conditions:

All required

\*HAC B\*HAC B

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)

**CATEGORY:** Hydrography (2)

**SUBCATEGORY:** Dangers and Underwater Features (2D)

\*HAC 8\*HAC 8

**2D120 REEF  
AREA**

| <u>Attributes</u>                          | <u>PG Rules</u> | <u>PG Rules</u> | <u>PG Rules</u> |
|--|-----------------|-----------------|-----------------|
| ACC ACCURACY CATEGORY                      | D-1910          | L-4807          | R-2221          |
| COD CERTAINTY OF DELINEATION               | L-4700          | L-4808          | R-2222          |
| DAT DATE CATEGORY                          | L-4702          | L-4809          | R-2802          |
| EXS EXISTENCE CATEGORY                     | L-4707          | L-4811          | R-2806          |
| HDH HYDROGRAPHIC DRYING HEIGHT             | L-4708          | L-4813          | R-2915          |
| HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION | L-4709          | O-3411          | R-3708          |
| HDP HYDROGRAPHIC DEPTH                     | L-4722          | R-2210          | R-9040          |
| MCP MATERIAL COMPOSITION PRIMARY           | L-4730          | R-2215          |                 |
| NAM NAME CATEGORY                          |                 |                 |                 |
| VDC VERTICAL DATUM CATEGORY                |                 |                 |                 |
| VDR VERTICAL DATUM RECORD                  |                 |                 |                 |
| VRC VERTICAL REFERENCE CATEGORY            |                 |                 |                 |

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

**2D130 ROCK  
POINT**

| <u>Attributes</u>                          | <u>PG Rules</u> | <u>PG Rules</u> | <u>PG Rules</u> |
|--|-----------------|-----------------|-----------------|
| ACC ACCURACY CATEGORY                      | D-1909          | L-4763          | R-2294          |
| DAT DATE CATEGORY                          | L-4700          | L-4808          | R-2806          |
| EXS EXISTENCE CATEGORY                     | L-4702          | L-4872          | R-2916          |
| HDH HYDROGRAPHIC DRYING HEIGHT             | L-4707          | O-3411          | R-3707          |
| HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION | L-4708          | R-2210          | R-3708          |
| HDP HYDROGRAPHIC DEPTH                     | L-4709          | R-2221          | R-3709          |
| MCP MATERIAL COMPOSITION PRIMARY           | L-4722          | R-2222          | T-0836          |
| NAM NAME CATEGORY                          | L-4730          |                 |                 |
| SOH SEVERITY OF HAZARD                     |                 |                 |                 |
| VDC VERTICAL DATUM CATEGORY                |                 |                 |                 |
| VDR VERTICAL DATUM RECORD                  |                 |                 |                 |
| VRC VERTICAL REFERENCE CATEGORY            |                 |                 |                 |

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

**2D180 WRECK  
POINT**

| <u>Attributes</u>                          | <u>PG Rules</u> | <u>PG Rules</u> | <u>PG Rules</u> |
|--|-----------------|-----------------|-----------------|
| ACC ACCURACY CATEGORY                      | D-1900          | L-4730          | R-2806          |
| AOO ANGLE OF ORIENTATION                   | D-1909          | L-4808          | R-2916          |
| DAT DATE CATEGORY                          | L-4700          | L-4809          | R-3708          |
| EPA EXPOSED PORTION ATTRIBUTE              | L-4702          | L-4872          | R-3709          |
| EXS EXISTENCE CATEGORY                     | L-4707          | L-4891          | S-1400          |
| HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION | L-4708          | O-3411          | T-0801          |
| HDP HYDROGRAPHIC DEPTH                     | L-4722          | R-2221          | T-0809          |
| LEN LENGTH /DIAMETER                       | L-4729          | R-2222          | T-0810          |
| SOH SEVERITY OF HAZARD                     |                 |                 |                 |
| VDC VERTICAL DATUM CATEGORY                |                 |                 |                 |
| VDR VERTICAL DATUM RECORD                  |                 |                 |                 |
| VRC VERTICAL REFERENCE CATEGORY            |                 |                 |                 |

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
 CATEGORY: Hydrography (2)  
 SUBCATEGORY: Dangers and Underwater Features (2D)

2D180 WRECK (Cont.)  
 POINT

Inclusion Conditions:

All required

\*HAC B\*HAC B

2E010 DEPTH CURVE  
 LINE

| <u>Attributes</u>                | <u>PG Rules</u> | <u>PG Rules</u> |
|----------------------------------|-----------------|-----------------|
| ACC ACCURACY CATEGORY            | L-4733          | R-2814          |
| CRV DEPTH CURVE OR CONTOUR VALUE | L-4734          | R-2827          |
| UNI UNITS CATEGORY               | L-4776          | R-2828          |
|                                  | O-3407          | R-2870          |
|                                  | O-3408          | R-2871          |
|                                  | O-3421          | R-2874          |
|                                  | O-3435          | R-2875          |
|                                  | R-2201          | R-2876          |
|                                  | R-2812          | R-2882          |
|                                  | R-2813          |                 |

Inclusion Conditions:

Depth curve interval: 20, 30, 50, 100, 200, 300, 400, 500, 1000 and 2000 meters,  
 or as shown on hydrographic source charts.

\*HAC B\*HAC B

2E020 SOUNDING  
 POINT

| <u>Attributes</u>              | <u>PG Rules</u> | <u>PG Rules</u> | <u>PG Rules</u> |
|--------------------------------|-----------------|-----------------|-----------------|
| ACC ACCURACY CATEGORY          | D-1903          | R-2224          | R-9021          |
| DAT DATE CATEGORY              | D-1912          | R-2807          | R-9022          |
| EXS EXISTENCE CATEGORY         | D-1913          | R-2863          | R-9023          |
| HDH HYDROGRAPHIC DRYING HEIGHT | L-4700          | R-2864          | R-9024          |
| HDP HYDROGRAPHIC DEPTH         | L-4702          | R-2865          | R-9025          |
| SND SOUNDING CATEGORY          | L-4707          | R-2867          | R-9026          |
| SVC SOUNDING VELOCITY          | L-4708          | R-2908          | R-9027          |
| VDC VERTICAL DATUM CATEGORY    | L-4710          | R-9011          | R-9028          |
| VDR VERTICAL DATUM RECORD      | L-4711          | R-9012          | R-9029          |
|                                | O-3403          | R-9013          | R-9030          |
|                                | O-3405          | R-9014          | R-9031          |
|                                | O-3406          | R-9015          | R-9032          |
|                                | O-3411          | R-9016          | R-9033          |
|                                | O-3438          | R-9018          | R-9036          |
|                                | R-2207          | R-9019          | T-0822          |
|                                | R-2222          | R-9020          | T-0823          |

Inclusion Conditions:

All required

\*HAC B\*HAC B

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Bottom Features (2F)  
\*HAC 8\*HAC 8

**2F010 BOTTOM CHARACTERISTICS**  
**POINT**

| <u>Attributes</u>                        | <u>PG Rules</u> | <u>PG Rules</u> |
|--|-----------------|-----------------|
| CSM SECONDARY MATERIAL CHARACTERISTICS   | L-4701          | R-2285          |
| MCC MATERIAL COMPOSITION CHARACTERISTICS | L-4706          | R-2815          |
| MCP MATERIAL COMPOSITION PRIMARY         | L-4784          | R-2883          |
| MCS MATERIAL COMPOSITION SECONDARY       | R-2282          | R-2890          |
| MCU MATERIAL COMPOSITION UNDERLYING      | R-2283          | R-2892          |
| TXT TEXT ATTRIBUTE                       | R-2284          |                 |
| UMC UNDERLYING MATERIAL CHARACTERISTICS  |                 |                 |

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

**2H020 CANAL**  
**LINE**

| <u>Attributes</u>            | <u>PG Rules</u> |
|------------------------------|-----------------|
| EXS EXISTENCE CATEGORY       | L-4702          |
| HDP HYDROGRAPHIC DEPTH       | L-4885          |
| RPA REQUIRED FOR PORT ACCESS | R-2745          |
| WID WIDTH                    |                 |

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 32 (NAVIGABLE)

\*HAC 8\*HAC 8

**2H075 INLAND SHORELINE**  
**LINE**

| <u>Attributes</u>                    | <u>PG Rules</u> |
|--------------------------------------|-----------------|
| ACC ACCURACY CATEGORY                | D-7010          |
| AHC ASSOCIATED HYDROGRAPHIC CATEGORY | R-2739          |
| SLT SHORELINE TYPE CATEGORY          |                 |

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

**2H080 LAKE /POND**  
**AREA**

| <u>Attributes</u>            | <u>PG Rules</u> |
|------------------------------|-----------------|
| HYC HYDROGRAPHIC CATEGORY    | A-0063          |
| LEN LENGTH /DIAMETER         | L-4704          |
| NAM NAME CATEGORY            | L-4709          |
| RPA REQUIRED FOR PORT ACCESS | L-4722          |
| WID WIDTH                    | L-4821          |
|                              | L-4822          |
|                              | R-2745          |
|                              | R-3673          |

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Inland Water (2H)

---

**2H080 LAKE /POND (Cont.)**  
**AREA**

Inclusion Conditions:

RPA(REQUIRED PORT ACCESS) 1 (ACCESS REQUIRED)  
 OR HYC(HYDROGRAPHIC CATEGORY) 8 (PERENNIAL/PERMANENT)  
 and width >= 10 mm (map scale)  
 OR HYC(HYDROGRAPHIC CATEGORY) 8 (PERENNIAL/PERMANENT)  
 and feature is needed to connect included drainage features

\*HAC 8\*HAC 8

**2H140 RIVER /STREAM**  
**AREA**

| <u>Attributes</u>             | <u>PG Rules</u> |
|-------------------------------|-----------------|
| ACC ACCURACY CATEGORY         | D-1911          |
| HYC HYDROGRAPHIC CATEGORY     | L-4770          |
| NAM NAME CATEGORY             | L-4824          |
| RPA REQUIRED FOR PORT ACCESS  | R-2299          |
| SLT SHORELINE TYPE CATEGORY   | R-2745          |
| TID TIDAL /NON-TIDAL CATEGORY | R-2747          |
| WID WIDTH                     | R-3673          |
|                               | S-1500          |
|                               | T-0840          |

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 8 (PERENNIAL/PERMANENT)  
 and WID(WIDTH) >= 1 mm (map scale)

**LINE**

| <u>Attributes</u>            | <u>PG Rules</u> |
|------------------------------|-----------------|
| HYC HYDROGRAPHIC CATEGORY    | D-1911          |
| LEN LENGTH /DIAMETER         | L-4743          |
| NAM NAME CATEGORY            | R-2745          |
| RPA REQUIRED FOR PORT ACCESS | T-0838          |
| WID WIDTH                    | T-0839          |
|                              | T-0840          |

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 8 (PERENNIAL/PERMANENT)  
 and width < 1 mm (map scale)

\*HAC 8\*HAC 8

**2I030 LOCK**  
**POINT**

| <u>Attributes</u>            | <u>PG Rules</u> |
|------------------------------|-----------------|
| RPA REQUIRED FOR PORT ACCESS | L-4823          |
|                              | R-2371          |
|                              | R-2745          |
|                              | R-2935          |

---

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Miscellaneous Inland Water (2I)

---

**2I030 LOCK (Cont.)**  
**POINT**

Inclusion Conditions:

RPA(REQUIRED PORT ACCESS) 1(Access REQUIRED)

\*HAC 8\*HAC 8

**2J065 ICE SHELF**  
**AREA**

Attributes  
 NO ATTRIBUTE REQUIRED

PG Rules  
 R-2256  
 R-2804  
 R-9037

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

**2J100 SNOW FIELD /ICE FIELD**  
**AREA**

Attributes  
 SIC SNOW /ICE CATEGORY  
 WID WIDTH

PG Rules  
 R-2800  
 R-9037

Inclusion Conditions:

Width >= 10 mm (map scale)

\*HAC 8\*HAC 8

**3A030 SPOT ELEVATION**  
**POINT**

Attributes  
 ACC ACCURACY CATEGORY  
 ELA ELEVATION ACCURACY  
 ZVL Z VALUE

PG Rules  
 L-4719  
 L-4720  
 L-4722  
 L-4737  
 R-2206  
 R-2281  
 R-2896  
 T-0843

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

**4B135 ISLAND**  
**AREA**

Attributes  
 LEN LENGTH /DIAMETER  
 NAM NAME CATEGORY  
 WID WIDTH

PG Rules  
 L-4704  
 L-4709  
 R-2736  
 T-0858

---

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
**CATEGORY:** Physiography (4)  
**SUBCATEGORY:** Landforms (4B)

---

**4B135 ISLAND (Cont.)**  
**AREA**

Inclusion Conditions:

Length >= 0.2 mm (map scale)

---

**POINT**

Attributes

LEN LENGTH /DIAMETER  
 NAM NAME CATEGORY

PG Rules

L-4709  
 R-2736  
 T-0858

Inclusion Conditions:

Length < 0.2 mm (map scale)

\*HAC 8\*HAC 8

**4B180 VOLCANO**  
**AREA**

Attributes

ACC ACCURACY CATEGORY  
 DAT DATE CATEGORY  
 EXS EXISTENCE CATEGORY  
 LOC LOCATION /ORIGIN CATEGORY  
 NAM NAME CATEGORY

PG Rules

L-4700  
 L-4707  
 L-4708  
 L-4709  
 L-4722  
 O-3411

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 6(BELOW WATER SURFACE)

\*HAC 8\*HAC 8

**6A000 ADMINISTRATIVE BOUNDARY**  
**LINE**

Attributes

ACC ACCURACY CATEGORY  
 BST BOUNDARY STATUS TYPE  
 NM3 NAME 3  
 NM4 NAME 4  
 USE USE STATUS

PG Rules

L-4707  
 L-4713  
 L-4746  
 L-4879  
 R-2497  
 R-2801  
 R-2836  
 R-2838  
 R-2844

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL) or 32(INSULAR)

\*HAC 8\*HAC 8

**6A020 ARMISTICE LINE**  
**LINE**

Attributes

NM3 NAME 3  
 NM4 NAME 4

PG Rules

L-4713  
 R-2801  
 R-2838  
 R-2844

---

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
 CATEGORY: Demarcation (6)  
 SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

---

6A020 ARMISTICE LINE (Cont.)  
 LINE

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

6A030 CEASE-FIRE LINE  
 LINE

Attributes  
 NO ATTRIBUTE REQUIRED

PG Rules  
 L-4714  
 R-2801  
 R-2838  
 R-2844

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

6A040 CLAIM LINE  
 LINE

Attributes  
 NM3 NAME 3  
 TXT TEXT ATTRIBUTE

PG Rules  
 L-4714  
 R-2801  
 R-2838  
 R-2844

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

6A050 INTERNATIONAL MARITIME BOUNDARY  
 LINE

Attributes  
 NM3 NAME 3  
 NM4 NAME 4  
 TXT TEXT ATTRIBUTE

PG Rules  
 L-3803  
 R-2756

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

6A060 DEFACTO BOUND. /OTHER LINE OF SEPARATION  
 LINE

Attributes  
 ACC ACCURACY CATEGORY  
 NM3 NAME 3  
 NM4 NAME 4  
 TXT TEXT ATTRIBUTE  
 USE USE STATUS

PG Rules  
 L-4707  
 L-4713  
 R-2276  
 R-2801  
 R-2838  
 R-2844

---

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
 CATEGORY: Demarcation (6)  
 SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

---

6A060 DEFACTO BOUND. /OTHER LINE OF SEPARATION (Cont.)  
 LINE

Inclusion Conditions:

USE(USE STATUS) 23 (INTERNATIONAL)

~~\*HAC B\*HAC B~~

6A070 DEMILITARIZED ZONE  
 AREA

Attributes  
 NO ATTRIBUTE REQUIRED

PG Rules  
 L-4714  
 R-2800  
 R-2801  
 R-2838  
 R-2844

Inclusion Conditions:

All required

~~\*HAC B\*HAC B~~

6A170 ZONE OF OCCUPATION  
 AREA

Attributes  
 NM3 NAME 3

PG Rules  
 L-4714  
 R-2800  
 R-2801  
 R-2838  
 R-2844

Inclusion Conditions:

All required

~~\*HAC B\*HAC B~~

6C035 DIRECTION OF BUOYAGE INDICATOR  
 POINT

Attributes  
 DOP DIRECTION OF FLOW

PG Rules  
 L-3804  
 R-2757

Inclusion Conditions:

All required

~~\*HAC B\*HAC B~~

6C090 MARITIME LIMIT  
 AREA

Attributes  
 AOO ANGLE OF ORIENTATION  
 COD CERTAINTY OF DELINEATION  
 HOC HYDROGRAPHIC ORIGIN CATEGORY  
 LEN LENGTH /DIAMETER  
 MLT MARITIME LIMIT TYPE  
 NAM NAME CATEGORY  
 TXT TEXT ATTRIBUTE  
 WID WIDTH

PG Rules  
 L-4008  
 L-4715  
 L-4722  
 L-4751  
 L-4752  
 L-4753  
PG Rules  
 R-2290  
 R-2800  
 R-2985  
 R-2987  
 R-3703  
 T-0842

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TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
 CATEGORY: Demarcation (6)  
 SUBCATEGORY: Boundaries /Limits /Zones (Hydrographic) (6C)

6C090 MARITIME LIMIT (Cont.)  
 AREA

Inclusion Conditions:

MLT(MARITIME LIMIT TYPE) 1(OTHER) or 5(UNSURVEYED) or 18(OIL/GAS FIELD)

LINE

| <u>Attributes</u>       | <u>PG Rules</u>  |
|-------------------------|------------------|
| MLT MARITIME LIMIT TYPE | L-4714<br>R-2762 |

Inclusion Conditions:

MLT(MARITIME LIMIT TYPE) 25(U.S. EXCLUSIVE ECONOMIC ZONE (EEZ))

POINT

| <u>Attributes</u>          | <u>PG Rules</u> |
|----------------------------|-----------------|
| MLT MARITIME LIMIT TYPE    | L-4709          |
| NAM NAME CATEGORY          | L-4722          |
| PBV PILOT BOARDING VEHICLE |                 |

Inclusion Conditions:

-MLT(MARITIME LIMIT TYPE) 19(PILOT BOARDING AREA)

\*HAC 8\*HAC 8

6C150 RESTRICTED AREA  
 POINT

| <u>Attributes</u>                | <u>PG Rules</u> |
|----------------------------------|-----------------|
| DTC DANGER /OBSTRUCTION CATEGORY | -None           |
| LEN LENGTH /DIAMETER             |                 |
| WID WIDTH                        |                 |

Inclusion Conditions:

DTC(DANGER/OBSTRUCTION CATEGORY) 17(ANCHORING PROHIBITED)

\*HAC 8\*HAC 8

9C040 MAGNETIC DISTURBANCE AREA  
 AREA

| <u>Attributes</u>            | <u>PG Rules</u>  |
|------------------------------|------------------|
| COD CERTAINTY OF DELINEATION | L-4705           |
| VAV VARIATION ANOMALY VALUE  | L-4722<br>L-4737 |

Inclusion Conditions:

All required

\*HAC 8\*HAC 8

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)

CATEGORY: General (9)

SUBCATEGORY: Miscellaneous (9D)

\*HAC 8\*HAC 8

9D012 MISCELLANEOUS CULTURAL FEATURE  
AREA

| <u>Attributes</u> |                             | <u>PG Rules</u> |
|-------------------|-----------------------------|-----------------|
| COC               | CONSPICUOUS OBJECT CATEGORY | L-4705          |
| NAM               | NAME CATEGORY               | L-4709          |
| TXT               | TEXT ATTRIBUTE              | L-4722          |
| WID               | WIDTH                       |                 |

Inclusion Conditions:

Width >= 0.8 mm (map scale)

-----  
LINE

| <u>Attributes</u> |                             | <u>PG Rules</u> |
|-------------------|-----------------------------|-----------------|
| COC               | CONSPICUOUS OBJECT CATEGORY | L-4709          |
| LEN               | LENGTH /DIAMETER            | L-4743          |
| NAM               | NAME CATEGORY               |                 |
| TXT               | TEXT ATTRIBUTE              |                 |
| WID               | WIDTH                       |                 |

Inclusion Conditions:

Width < 0.8 mm  
and length >= 0.8 mm (map scale)

-----  
POINT

| <u>Attributes</u> |                             | <u>PG Rules</u> |
|-------------------|-----------------------------|-----------------|
| COC               | CONSPICUOUS OBJECT CATEGORY | L-4709          |
| LEN               | LENGTH /DIAMETER            | L-4722          |
| NAM               | NAME CATEGORY               |                 |
| TXT               | TEXT ATTRIBUTE              |                 |

Inclusion Conditions:

Length < 0.8 mm (map scale)

\*HAC 8\*HAC 8

9D040 NAMED LOCATION  
AREA

| <u>Attributes</u> |                            | <u>PG Rules</u> |
|-------------------|----------------------------|-----------------|
| CSI               | CATEGORY/SUBCATEGORY INDEX | L-3608          |
| NAM               | NAME CATEGORY              | L-3609          |
| PPL               | POPULATED PLACE CATEGORY   | L-4827          |
|                   |                            | R-2845          |

Inclusion Conditions:

All required

-----  
LINE

| <u>Attributes</u> |                            | <u>PG Rules</u> |
|-------------------|----------------------------|-----------------|
| CSI               | CATEGORY/SUBCATEGORY INDEX | L-3608          |
| NAM               | NAME CATEGORY              | L-3609          |
| PPL               | POPULATED PLACE CATEGORY   | L-4827          |
|                   |                            | R-2845          |

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TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000)  
 CATEGORY: General (9)  
 SUBCATEGORY: Miscellaneous (9D)

9D040 NAMED LOCATION (Cont.)  
 LINE

Inclusion Conditions:

All required

POINT

| <u>Attributes</u>              | <u>PG Rules</u> |
|--------------------------------|-----------------|
| CSI CATEGORY/SUBCATEGORY INDEX | L-3608          |
| NAM NAME CATEGORY              | L-3609          |
| PPL POPULATED PLACE CATEGORY   | L-4827          |
|                                | R-2845          |

Inclusion Conditions:

All required

\*HAC B\*HAC B

9D045 TEXT DESCRIPTION  
 AREA

| <u>Attributes</u>               | <u>PG Rules</u> |
|---------------------------------|-----------------|
| LAB LABEL OF THE FEATURE        | L-3809          |
| VRC VERTICAL REFERENCE CATEGORY | L-4893          |

Inclusion Conditions:

All required

LINE

| <u>Attributes</u>               | <u>PG Rules</u> |
|---------------------------------|-----------------|
| LAB LABEL OF THE FEATURE        | L-3809          |
| VRC VERTICAL REFERENCE CATEGORY | L-4893          |

Inclusion Conditions:

All required

POINT

| <u>Attributes</u>               | <u>PG Rules</u> |
|---------------------------------|-----------------|
| LAB LABEL OF THE FEATURE        | L-3809          |
| VRC VERTICAL REFERENCE CATEGORY | L-4893          |

Inclusion Conditions:

All required

\*HAC B\*HAC B

## APPENDIX A

## HARBOR, APPROACH, AND COASTAL CHART (HAC 8) PRODUCT RULES

## 10. SCOPE

10.1 Scope. This Appendix provides information about the product rules necessary for the production of Harbor, Approach, and Coastal Charts, at scales of 1:750,001 to 1:1,000,000. The information contained herein is intended for compliance.

## 20. APPLICABLE DOCUMENTS

20.1 Government documents.

20.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the current Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto, cited in the solicitation (see 6.2).

## MILITARY SPECIFICATIONS

MIL-H-89201A(DMA) - General Military Specification for Harbor, Approach, and Coastal Charts (HAC-All Scales)

## MILITARY STANDARDS

MIL-STD-2402(DMA) - MC&G Symbology for Graphic Products  
 MIL-STD-2403(DMA) - MC&G Product Generation Rules  
 MIL-STD-2408(DMA) - Glossary of Mapping, Charting & Geodesy  
 Feature and Attribute Definitions

20.2 Order of precedence. In the event of a conflict between the text of this appendix and either Table I of this specification, or MIL-STD-2403 cited above, the Table I and MIL-STD-2403 take precedence.

## 30. PRODUCT RULES

30.1 Classification of rules. Rules are classified into the following types:

- a. Displacement
- b. Labeling
- c. Override
- d. Representation
- e. Suppression
- f. Thinning

30.2 Appendix organization This appendix lists the rule numbers and rule text for each feature type (area, line and point) of each FACS feature listed in Table I of this specification.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURE: BUILT-UP AREA...1L020 (AREA)****BUILT-UP AREA...1L020 (AREA)**

**R-2021** If two or more outlined areas merge (coalesce at map scale), they shall be enclosed in a single common area outline. Dividing outlines shall not be shown.

**R-2474** Omit Built-up Area outline where coincident with other linear features.

**BUILT-UP AREA...1L020 (POINT)****NAVAIDS (AERONAUTICAL)...1R030 (POINT)**

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**L-4782** If NST=002, label "Consol"  
If NST=017, label "Aero RC"

**TOWER (COMMUNICATION)...1T080 (POINT)**

**D-7011** A feature with attribute value of COC=002 (Not Conspicuous) shall not displace a feature with attribute value of COC=001 (Conspicuous).

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**L-4737** Feature name /label shall be positioned parallel to lines of latitude and readable left to right.

**T-0824** Thinning order with highest priority for retention (a):

(a) Towers associated with electronic navigational overprints (rates). NST=002, 003, 007 and 008 are required if their respective rate is overprinted; i.e., if LORAN rates are overprinted on the chart, then LORAN towers (1T080, NST=007) are required.

(b) When the same type of communications towers (1T080) overprint each other, retain in the following priority:

- (1) COC=001
- (2) NST=002, 003, 007 and 008, if no electronic rate overprint is shown on chart.
- (3) COC=002

**COASTAL SHORELINE...2A010 (LINE)**

**D-7010** Shoreline (2A010 and 2H075) shall be broken for 0.2mm on each side of the following graphic elements:

- 1U040 Aircraft Facility Beacon, Posicut #199
- 2C030 Electronic Beacon, Posicut #92
- 2C050 Light, Posicut #199
- 2C055 Marker, rectangle
- 2C060 Visual Beacon, Posicut #85

Shoreline is not broken for other posicuts or labels associated with these symbols. Instead, type shall be placed either in the water or on land, so that it does not cross the shoreline.

**FEATURE: COASTAL SHORELINE...2A010 (LINE)**

- R-1200** Mean High Water (VDC=007) is the preferred vertical datum for shoreline portrayal. When Mean High Water is not available, the shoreline will be delineated by whatever means possible. There may never be a segment of missing shoreline (by definition, the line where a land mass is in contact with a body of open water).
- R-2738** For products that portray the vegetation (Category 5) features mangrove (5C030, VEG=019), swamp (5D030), or marsh (5D040), shoreline type SLT=006 (Mangrove) shall be shown when adjacent to mangrove, and SLT=008 (Marsh, Swamp) shown when adjacent to a swamp or marsh. If those vegetation features are not shown on the product, the minimum length of SLT 006 and 008 shall be 20 mm at chart scale.

**FORESHORE...2A020 (AREA)**

- R-2825** Delete dot portion of the symbol that is within 0.5 mm, at chart scale, of the shoreline (2A010 or 2H075).
- R-2826** Features with the same code, separated by less than 2 mm at chart scale, shall be combined into one areal feature.
- R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

**FORESHORE...2A020 (POINT)**

- R-2825** Delete dot portion of the symbol that is within 0.5 mm, at chart scale, of the shoreline (2A010 or 2H075).
- R-2911** When two or more identical symbols overprint each other, delete the portions that overlap and show as one symbol with an outline of the combined area of the symbols.
- R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.
- R-3709** The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.

**OPEN WATER (EXCEPT INLAND)...2A040 (AREA)**

- O-3407** An inset plan covering an area within a chart is screened to the same depth curve as that used on the chart, regardless of the scale of the plan.
- O-3435** The depth curve (2E010) to which a blue water tint is shown is established by a representation rule. If for some reason this specified depth curve is not the curve most significant for navigation in the area, the cartographer shall select the depth curve most significant for navigation, and use that depth curve for blue water tint portrayal.

In some instances, it may be desirable to show two water tints, for example, a Blue 31% tint from the shoreline to the 20 meter depth curve, and a Blue 12% tint from the 20 meter depth curve to the 30 meter depth curve. In this case, a SPC-48253 Blue 31% 45° angle screen is used for the darker tint, and a SPC-48253 Blue 12% 75° angle screen is used for the lighter tint.

When using open window negatives for printing, extending the 12% Blue open window from the second significant depth curve all the way to the shoreline, rather than just to the darker blue tint, will eliminate the potential for a white halo where the two blue screens meet, if registration is not exact.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURE: OPEN WATER (EXCEPT INLAND)...2A040 (AREA)**

- R-2870** Show water tint (Blue SPC-48253, 31% screen, at 45°) from the shoreline (2A010 or 2H075) to the 30 meter depth curve (2E010, CRV=030) and all offshore areas shallower than 30 meters (inside a 30 meter depth curve). Blue tint is deleted from inland hydrographic features (2H), in those areas that are deeper than 30 meters (outside the 30 meter depth curve).
- R-2871** Charts in areas recognized as likely routes for supertankers (draft of 18 - 28 meters) shall show water tint from the shoreline (2A010 or 2H075) to the 30 meter depth curve (2E010, CRV=030) and all offshore areas inside the 30 meter depth curve. Shipping routes for supertankers are indicated in the IMO Publication Ship's Routeing Manual - Part C "Deep Water Routes", and DMA Sailing Directions. To further emphasize dangers existing for ships with drafts up to 30 meters, depths of less than 30 meters seaward of the 30 meters depth curve shall carry a blue screen, e.g., single sounding or several soundings in an area. Areas deeper than 30 meters shall not show blue tint.

**BUOY...2C010 (POINT)**

- D-7013** When aids to navigation (2C) overprint hydrographic dangers (2D), or depth curves (2E010), the following displacement criteria applies:
- If the aid to navigation is a fixed aid (2C030 Electronic Beacon, 2C050 Light, or 2C060 Visual Beacon), and the 2D symbol is a point symbol, delete the 2D point symbol. Show both if the 2D symbol is an area symbol.
  - If the aid to navigation is a buoy (2C010), the 2D symbol's danger curve, i.e., the dotted perimeter line, if present, is broken for the buoy symbol (excluding type).
  - If a point danger symbol contains a central graphic element, such as a + or posicut 104, 110, 114, etc., the buoy symbol is displaced off the danger symbol's central graphic element. The displacement shall be as little as possible to resolve the overprint. (For IALA cardinal buoys, see rule D-1914.)
  - The above criteria refers to the graphic portion of symbols only. All type and labels are movable around the graphic elements to avoid overprints. If the 2D symbol's central HDP type must be moved, it shall be placed outside the danger circle, and enclosed in parentheses.
  - Depth Curves (2E010) are broken for aids to navigation and dangers, and the type associated with these symbols.
- L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.
- L-4711** Strings of windows may be placed on two lines to avoid overprints.
- L-4737** Feature name /label shall be positioned parallel to lines of latitude and readable left to right.
- L-4759** Yellow, abbreviated 'Y', shall be substituted for Orange 'Or' or Amber 'Am' when describing light color in the Character of Light attribute (COL).
- L-4761** If the only light color is white, omit color from COL. e.g., 'F1 6s 12 m 8M' is a white light.
- L-4766** The name (NAM) of a buoy (2C010) shall be shown in quotes (i.e., "Heron").
- L-4835** If RA1=000 (Unknown) or 050 (None), do not show RA1 label, and do not show Posicut #86 (7.1 mm diameter purple circle).
- L-4836** If RA2=000 (Unknown) or 050 (None), do not show RA2 label.
- L-4840** If RA1=005 (Directional Radiobeacon), 014 (Rotating Radiobeacon), 017 (Circular Radiobeacon), 048 (Aeronautical Radiobeacon, Non-directional), or 049 (Radiobeacon, Type Unknown), and BF1 is not 000 (Unknown), and BF1 < 285 or BF1 > 325; delete RA1 window and do not show Posicut #86 (7.1 mm diameter purple circle).
- L-4841** If RA2=005 (Directional Radiobeacon), 014 (Rotating Radiobeacon), 017 (Circular Radiobeacon), 048 (Aeronautical Radiobeacon, Non-directional), or 049 (Radiobeacon, Type Unknown), and BF2 is not 000 (Unknown), and BF2 < 285 or BF2 > 385, delete RA2 window.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURE: BUOY...2C010 (POINT)**

- L-4843** If RA1 does not equal an attribute listed for a particular symbol, omit Posicut #86 (7.1 mm diameter purple circle) and the RA1 label.
- L-4844** If RA2 does not equal an attribute listed for a particular symbol, omit the RA2 label.
- L-4846** If CHA=023 (Unlighted), delete COL, PER, EOL, and LVR windows, and delete Posicut #94 (Light flare posicut).
- L-4850** Abbreviations and labels for RA1 and RA2:
- If RA1 or RA2 is:
- 004 Radio Direction Finding Station, abbreviate "RG"
- 005 Directional Radiobeacon, abbreviate "RD"
- 010 Racon, label "Racon"
- 014 Rotating Radiobeacon, abbreviate "RW"
- 017 Circular Radiobeacon, abbreviate "RC"
- 045 QTG Station, abbreviate "R"
- 046 Coast Radar Station, abbreviate "Ra"
- 047 Ramark, label "Ramark"
- 048 Aeronautical Radiobeacon, Non-directional, abbreviate "Aero RC"
- 049 Radiobeacon, Type Unknown, abbreviate "R Bn"
- 051 Consol, label "Consol"
- L-4853** If there is only one radio aid at a feature, it shall take its value from the RA1 attribute and RA2 shall have the value 050 (None).
- L-4858** When LVR or has a known value and it is not zero (0), the numerical value for LVR shall be immediately followed by a capital letter "M" printed in the same type as LVR (i.e., 10 M). When no light range is shown, do not show the "M".
- L-4875** If there is more than one visibility range at a light, the attribute MLR is used in place of LVR attribute.
- L-4876** The MLR label (i.e., 21-15 or 12/15) shall be shown in place of the LVR label on the symbology if there is more than one visibility at a light.
- O-3414** Shown only electronic aids with ranges (BR1 and BR2) of 25 miles or greater and which have frequencies (BF1 or BF2) of 285 to 325 kHz.
- R-2295** If a radio aids circle (Posicut #86) is shown on a symbol, it shall be centered on the origin of the symbol. Since they are a different color, TMC topmark posicuts may overprint the radio aid circle. The radar reflector (Posicut #93), if shown, shall be positioned outside the radio aids circle, preferably near the top of the symbol. The fog signal (Posicut #59), if shown, shall preferably be positioned concentric with the radio aids circle, with its middle arc even with the radio aids circle, which may be broken for 0.2 mm on both sides of the fog signal posicut. The fog signal posicut may be shown in any direction from the navigational aid, to avoid overprints, or moved completely outside the radio aids circle, if necessary.
- R-2849** Light flares (Posicut No. 94) shall be oriented in order as follows:
- (1) So that it does not overprint on the feature or a legend associated with that feature (except for the 7.1 mm diameter circle representing a radio aid to navigation, which the flare may overprint).
  - (2) So it does not overprint other chart data (i.e., soundings, pipelines, submarine cables, etc.)
  - (3) So that the wide end of the flare is pointed toward the legend of the light, or to seaward along the line, in the case of clearing lines (2C020), and clearing lines (2C040).
- R-2884** The point of the light flare (Posicut No. 94) shall be 1 mm from the dot or small circle representing the position of the feature.
- R-2885** Seasonal buoys shall be shown without mention of their seasonal nature.
- R-2886** The slope of a buoy (2C010), which is normally 25° from vertical, may be varied from 5° to 45° from vertical to avoid overprints.
- R-2887** Reserve fog signals shall not be shown on product.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURE: BUOY...2C010 (POINT)**

- R-2993** If SSC=090 (Superbuoy: ODAS) or 091 (Superbuoy: LANBY), do not show feature on charts at scales smaller than 1:750,000 (HAC 8-9) if feature is within 120 miles of land.
- R-2997** If SSC is:            Use Posicut:
- 080 Pillar Buoy (Open), use Posicut #150
  - 081 Pillar Buoy (Filled), use Posicut #151
  - 082 Pillar Buoy (Vertical Stripes), use Posicut #152
  - 083 Spar Buoy, use Posicut #153
  - 084 Can Buoy (Open), use Posicut #154
  - 085 Can Buoy (Filled), use Posicut #155
  - 086 Cone Buoy (Open), use Posicut #156
  - 087 Cone Buoy (Filled), use Posicut #157
  - 088 Spherical Buoy (Vertical Stripes), use Posicut #158
  - 089 Spherical Buoy, use Posicut #159
  - 090 Superbuoy (ODAS), use Posicut #160
  - 091 Superbuoy (LANBY), use Posicut #162
  - 092 Superbuoy (Tanker), use Posicut #161
  - 093 Lightship, use Posicut #162
  - 094 Lightfloat (Open), use Posicut #163
  - 095 Barrel/Tonne Buoy, use Posicut #164
  - 096 Mooring Buoy, use Posicut #165
  - 097 Diamond Shaped Buoy, use Posicut #167
  - 102 Lightfloat (Filled), use Posicut #219

**8-1403** If a channel is marked by a feature but because of the product scale individual features overprint or are closer than 3 mm, replace the features with the legend "Buoyed channel" (for 2C010) or "Channel marked by beacons" (for 2C060). Legend will be aligned with the channel.

**T-0845** If superbuoys (2C010, SSC=090 (Superbuoy-ODAS), 091 (Superbuoy-LANBY), 092 (Superbuoy-Tanker), 093 (Lightship), 094 (Lightfloat-Open), or 102 (Lightfloat-Filled)) overprint other buoys (2C010 with other SSC values), thin by first deleting buoys other than those with SSC values of 090 through 094, or 102).

**ELECTRONIC BEACON...2C030 (POINT)**

- D-7013** When aids to navigation (2C) overprint hydrographic dangers (2D), or depth curves (2E010), the following displacement criteria applies:
- a. If the aid to navigation is a fixed aid (2C030 Electronic Beacon, 2C050 Light, or 2C060 Visual Beacon), and the 2D symbol is a point symbol, delete the 2D point symbol. Show both if the 2D symbol is an area symbol.
  - b. If the aid to navigation is a buoy (2C010), the 2D symbol's danger curve, i.e., the dotted perimeter line, if present, is broken for the buoy symbol (excluding type).
  - c. If a point danger symbol contains a central graphic element, such as a + or posicut 104, 110, 114, etc., the buoy symbol is displaced off the danger symbol's central graphic element. The displacement shall be as little as possible to resolve the overprint. (For IALA cardinal buoys, see rule D-1914.)
  - d. The above criteria refers to the graphic portion of symbols only. All type and labels are movable around the graphic elements to avoid overprints. If the 2D symbol's central HDP type must be moved, it shall be placed outside the danger circle, and enclosed in parentheses.
  - e. Depth Curves (2E010) are broken for aids to navigation and dangers, and the type associated with these symbols.
- L-4737** Feature name /label shall be positioned parallel to lines of latitude and readable left to right.
- L-4783** Label placement hierarchy:
- (1) On land, one line,
  - (2) On land, two lines, word spellings not split.
  - (3) In water, one line.
- L-4835** If RA1=000 (Unknown) or 050 (None), do not show RA1 label, and do not show Posicut #86 (7.1 mm diameter purple circle).

**FEATURE: ELECTRONIC BEACON...2C030 (POINT)**

- L-4836** If RA2=000 (Unknown) or 050 (None), do not show RA2 label.
- L-4844** If RA2 does not equal an attribute listed for a particular symbol, omit the RA2 label.
- L-4850** Abbreviations and labels for RA1 and RA2:
- If RA1 or RA2 is:
- 004 Radio Direction Finding Station, abbreviate "RG"
  - 005 Directional Radiobeacon, abbreviate "RD"
  - 010 Racon, label "Racon"
  - 014 Rotating Radiobeacon, abbreviate "RW"
  - 017 Circular Radiobeacon, abbreviate "RC"
  - 045 QTG Station, abbreviate "R"
  - 046 Coast Radar Station, abbreviate "Ra"
  - 047 Ramark, label "Ramark"
  - 048 Aeronautical Radiobeacon, Non-directional, abbreviate "Aero RC"
  - 049 Radiobeacon, Type Unknown, abbreviate "R Bn"
  - 051 Consol, label "Consol"
- L-4853** If there is only one radio aid at a feature, it shall take its value from the RA1 attribute and RA2 shall have the value 050 (None).
- O-3400** If an electronic beacon (2C030) is within 2 mm, at chart scale, of a light (2C050, HLT=000, 001, or 002), the electronic beacon shall not be shown and the light shall be changed to include the electronic beacon as a part of the light. The RA1 and RA2 attributes of the electronic beacon (2C030) will be added to the RA1 and RA2 attributes of the light (2C050). The electronic beacon and the light are not combined if the light is a moire effect light (HLT=003) or a strip light (HLT=004). In this case, show both the light and the electronic beacon as separate symbols.
- O-3414** Shown only electronic aids with ranges (BR1 and BR2) of 25 miles or greater and which have frequencies (BF1 or BF2) of 285 to 325 kHz.
- T-0804** Delete electronic navigation beacons (RA1 or RA2) with a range (BR1 or BR2) less than 25 nautical miles.
- T-0854** If RA1=005 (Directional Radiobeacon), 014(Rotating Radiobeacon), 017(Circular Radiobeacon), 048(Aeronautical Radiobeacon-Non-directional), 049(Radiobeacon, type unknown), or 51(Consol), and the broadcast frequency (BF1) is known (not equal to 000), but BF1 < 285 kHz or BF1 > 325 kHz, do not show the feature.
- T-0855** If RA2=005 (Directional Radiobeacon), 014(Rotating Radiobeacon), 017(Circular Radiobeacon), 048(Aeronautical Radiobeacon, Non-directional), 049(Radiobeacon, type unknown), or 51(Consol), and the broadcast frequency (BF2) is known (not equal to 000), but BF2 < 285 kHz or BF2 > 325 kHz, do not show the RA2 portion of the feature.

**LIGHT...2C050 (POINT)**

- D-7013** When aids to navigation (2C) overprint hydrographic dangers (2D), or depth curves (2E010), the following displacement criteria applies:
- a. If the aid to navigation is a fixed aid (2C030 Electronic Beacon, 2C050 Light, or 2C060 Visual Beacon), and the 2D symbol is a point symbol, delete the 2D point symbol. Show both if the 2D symbol is an area symbol.
  - b. If the aid to navigation is a buoy (2C010), the 2D symbol's danger curve, i.e., the dotted perimeter line, if present, is broken for the buoy symbol (excluding type).
  - c. If a point danger symbol contains a central graphic element, such as a + or posicut 104, 110, 114, etc., the buoy symbol is displaced off the danger symbol's central graphic element. The displacement shall be as little as possible to resolve the overprint. (For IALA cardinal buoys, see rule D-1914.)
  - d. The above criteria refers to the graphic portion of symbols only. All type and labels are movable around the graphic elements to avoid overprints. If the 2D symbol's central HDP type must be moved, it shall be placed outside the danger circle, and enclosed in parentheses.
  - e. Depth Curves (2E010) are broken for aids to navigation and dangers, and the type associated with these symbols.

**FEATURE: LIGHT...2C050 (POINT)**

- L-4711** Strings of windows may be placed on two lines to avoid overprints.
- L-4737** Feature name /label shall be positioned parallel to lines of latitude and readable left to right.
- L-4759** Yellow, abbreviated "Y", shall be substituted for Orange "Or" or Amber "Am" when describing light color in the Character of Light attribute (COL).
- L-4760** When more than one light (2C050) is at the same point, the information about those lights shall be listed, one above the other, in the order that they appear in the DMA Light List. Only one Light flare and light dot shall be shown to represent those lights.
- When there is no room to stack the light legends (for example, if a legend overprints other information, features, or text), the legends may be listed horizontally (or horizontally and stacked if more than two) separated by a comma(s). They shall be listed in order of range, as they appear in the DMA Light List.
- L-4761** If the only light color is white, omit color from COL. e.g., "Fl 6s 12 m 8M" is a white light.
- L-4762** A light with two ranges (MLR) shall be displayed separated by a slash, e.g., 14/12M. A light with more than two ranges shall have the greatest and least ranges separated by a hyphen, e.g., 22-18M.
- L-4783** Label placement hierarchy:  
 (1) On land, one line,  
 (2) On land, two lines, word spellings not split.  
 (3) In water, one line.
- L-4835** If RA1=000 (Unknown) or 050 (None), do not show RA1 label, and do not show Posicut #86 (7.1 mm diameter purple circle).
- L-4836** If RA2=000 (Unknown) or 050 (None), do not show RA2 label.
- L-4840** If RA1=005 (Directional Radiobeacon), 014 (Rotating Radiobeacon), 017 (Circular Radiobeacon), 048 (Aeronautical Radiobeacon, Non-directional), or 049 (Radiobeacon, Type Unknown), and BF1 is not 000 (Unknown), and BF1 < 285 or BF1 > 325; delete RA1 window and do not show Posicut #86 (7.1 mm diameter purple circle).
- L-4841** If RA2=005 (Directional Radiobeacon), 014 (Rotating Radiobeacon), 017 (Circular Radiobeacon), 048 (Aeronautical Radiobeacon, Non-directional), or 049 (Radiobeacon, Type Unknown), and BF2 is not 000 (Unknown), and BF2 < 285 or BF2 > 385, delete RA2 window.
- L-4843** If RA1 does not equal an attribute listed for a particular symbol, omit Posicut #86 (7.1 mm diameter purple circle) and the RA1 label.
- L-4844** If RA2 does not equal an attribute listed for a particular symbol, omit the RA2 label.
- L-4850** Abbreviations and labels for RA1 and RA2:  
 If RA1 or RA2 is:  
 004 Radio Direction Finding Station, abbreviate "RG"  
 005 Directional Radiobeacon, abbreviate "RD"  
 010 Racon, label "Racon"  
 014 Rotating Radiobeacon, abbreviate "RW"  
 017 Circular Radiobeacon, abbreviate "RC"  
 045 QTG Station, abbreviate "R"  
 046 Coast Radar Station, abbreviate "Ra"  
 047 Ramark, label "Ramark"  
 048 Aeronautical Radiobeacon, Non-directional, abbreviate "Aero RC"  
 049 Radiobeacon, Type Unknown, abbreviate "R Bn"  
 051 Consol, label "Consol"
- L-4853** If there is only one radio aid at a feature, it shall take its value from the RA1 attribute and RA2 shall have the value 050 (None).

**FEATURE: LIGHT...2C050 (POINT)**

- L-4858** When LVR or has a known value and it is not zero (0), the numerical value for LVR shall be immediately followed by a capital letter "M" printed in the same type as LVR (i.e., 10 M). When no light range is shown, do not show the "M".
- L-4875** If there is more than one visibility range at a light, the attribute MLR is used in place of LVR attribute.
- L-4876** The MLR label (i.e., 21-15 or 12/15) shall be shown in place of the LVR label on the symbology if there is more than one visibility at a light.
- O-3400** If an electronic beacon (2C030) is within 2 mm, at chart scale, of a light (2C050, HLT=000, 001, or 002), the electronic beacon shall not be shown and the light shall be changed to include the electronic beacon as a part of the light. The RA1 and RA2 attributes of the electronic beacon (2C030) will be added to the RA1 and RA2 attributes of the light (2C050). The electronic beacon and the light are not combined if the light is a moire effect light (HLT=003) or a strip light (HLT=004). In this case, show both the light and the electronic beacon as separate symbols.
- O-3414** Shown only electronic aids with ranges (BR1 and BR2) of 25 miles or greater and which have frequencies (BF1 or BF2) of 285 to 325 kHz.
- R-2295** If a radio aids circle (Posicut #86) is shown on a symbol, it shall be centered on the origin of the symbol. Since they are a different color, TMC topmark posicuts may overprint the radio aid circle. The radar reflector (Posicut #93), if shown, shall be positioned outside the radio aids circle, preferably near the top of the symbol. The fog signal (Posicut #59), if shown, shall preferably be positioned concentric with the radio aids circle, with its middle arc even with the radio aids circle, which may be broken for 0.2 mm on both sides of the fog signal posicut. The fog signal posicut may be shown in any direction from the navigational aid, to avoid overprints, or moved completely outside the radio aids circle, if necessary.
- R-2849** Light flares (Posicut No. 94) shall be oriented in order as follows:  
 (1) So that it does not overprint on the feature or a legend associated with that feature (except for the 7.1 mm diameter circle representing a radio aid to navigation, which the flare may overprint).  
 (2) So it does not overprint other chart data (i.e., soundings, pipelines, submarine cables, etc.)  
 (3) So that the wide end of the flare is pointed toward the legend of the light, or to seaward along the line, in the case of clearing lines (2C020), and clearing lines (2C040).
- R-2884** The point of the light flare (Posicut No. 94) shall be 1 mm from the dot or small circle representing the position of the feature.
- R-2887** Reserve fog signals shall not be shown on product.
- T-0821** Omit lights (2C050) with ranges (LVR) less than 15 miles, unless the light is an offshore aid (on islet, rock, etc.), or the light is farther than 10 miles from a light with a range (LVR) greater than 15 miles, or the light has a radio navigation aid on it.
- T-0853** When two lights (2C050) have the dot (Posicut #199) overprinting or spaced closer than 2 mm, delete the light with the least range (LVR). If the two lights form a clearing line (2C020) or leading line (2C040), show both characteristics, in a combined legend, for example: "2FR" for two fixed red lights", or "OcR & Oc" for an occulting red light and an occulting white light.

**MISCELLANEOUS UNDERWATER FEATURE...2D000 (AREA)**

- L-4700** Use the following abbreviations for ACC and EXS values:  
 If ACC=002, label "PA"  
 If ACC=003, label "PD"  
 If EXS=002, label "ED"  
 If EXS=003, label "Rep"
- L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

**FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (AREA)**

- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.
- L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.
- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.  
 (A) Minimum distance from symbol - 1 mm.  
 (B) Maximum distance from symbol before choosing the next highest priority:  
 #1 4 mm measured to the West end  
 #2 4 mm measured to the North side (top)  
 #3 4 mm measured to the East end  
 #4 4 mm measured to the South side (bottom)
- L-4729** If symbols overprint each other, labels are condensed as follows:  
 (1) If the labels are identical, only one is retained.  
 (2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.
- L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:  
 Hydro  
 power  
 plant
- L-4807** Type shall be placed in the following preference:  
 (a) Placed on one horizontal line centered in feature.  
 (b) Broken into multiple horizontal lines, centered in feature, with a 1 mm space between lines.  
 (c) Placed on one line outside feature. Use Rule L-4722 for placement. If present, HDP shall always be positioned inside area.  
 (d) Placed on two lines to avoid overprints. Use Rule L-4722 for placement. If present, HDP shall always be placed inside area.
- L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).
- O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.  
 PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.  
 ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

**FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (AREA)**

- R-2221** HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001. HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004). HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008). HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001). HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).
- R-2222** VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.
- R-2800** When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.
- R-2806** If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.
- R-2916** Dangers with danger curves (dotted lines) around them which fall inside other danger areas with danger curves around them, shall have the inner dotted line deleted.
- R-3704** HDI=010 (Depth Known by Wire Drag) is not applicable when SFC=003 (Fish Haven).
- R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

**MISCELLANEOUS UNDERWATER FEATURE...2D000 (POINT)**

- D-1909** If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posicut, or graphic in the center of symbol shall be displaced seaward until they no longer overprint the shoreline. If the danger curve (dotted perimeter line) overprints the shoreline, that portion of the dotted perimeter line falling on land shall be deleted.
- L-4700** Use the following abbreviations for ACC and EXS values:  
 If ACC=002, label "PA"  
 If ACC=003, label "PD"  
 If EXS=002, label "ED"  
 If EXS=003, label "Rep"
- L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.
- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.
- L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

**FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (POINT)**

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**L-4729** If symbols overprint each other, labels are condensed as follows:

(1) If the labels are identical, only one is retained.

(2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.

**L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:

Hydro  
power  
plant

**L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

**L-4872** HDP label shall be centered in the circle.

**L-4891** Variable type size for HDP values enclosed by danger curves (dotted circles):  
If HDP < 10, (a single digit principal digit), apply 7 point type to the principal digit, and 5 point type to the subscript, if there is one. If HDP >= 10 (a double digit principal digit), apply 6 point type to the principal digit, and 5 point type to the subscript, if there is one.

**O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.

PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.

ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

**R-2221** HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.

HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004).

HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).

HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).

HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

**FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (POINT)**

- R-2222** VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.
- R-2806** If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.
- R-2916** Dangers with danger curves (dotted lines) around them which fall inside other danger areas with danger curves around them, shall have the inner dotted line deleted.
- R-3704** HDI=010 (Depth Known by Wire Drag) is not applicable when SFC=003 (Fish Haven).
- R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.
- R-3709** The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.
- S-1401** When two or more point obstruction (2D000, SFC=001) symbols, (dotted lines) overprint, and the attribute values are identical, one symbol shall be placed in the center of the group and shall be labeled with the number of obstructions in the group, e.g., 2 Obstr's, 3 Obstr's, etc. Type is 6 point Swiss 742 italic, in color Black SPC-58600.

**BREAKERS...2D010 (AREA)**

- L-4705** Labeling areas, in order of preference:
- (1) Centered in area on one line in the area, type is horizontal, reading left to right.
  - (2) Centered in area on one line in the area, oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
  - (3) Centered in area on two approximately equal lines, without splitting a word, type is horizontal, reading left to right.
  - (4) Centered on two approximately equal lines without splitting a word, type is oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
  - (5) Use Rule L-4722 for type placement if the area is too small to place the type inside the area.
- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center..
- (A) Minimum distance from symbol - 1 mm.
  - (B) Maximum distance from symbol before choosing the next highest priority:
    - #1 4 mm measured to the West end
    - #2 4 mm measured to the North side (top)
    - #3 4 mm measured to the East end
    - #4 4 mm measured to the South side (bottom)
- R-2800** When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.
- R-2911** When two or more identical symbols overprint each other, delete the portions that overlap and show as one symbol with an outline of the combined area of the symbols.

**BREAKERS...2D010 (POINT)**

**FEATURE: BREAKERS...2D010 (POINT)**

- L-4700** Use the following abbreviations for ACC and EXS values:  
 If ACC=002, label "PA"  
 If ACC=003, label "PD"  
 If EXS=002, label "ED"  
 If EXS=003, label "Rep"
- L-4706** If the attribute value is not known, or the attribute value for none or not applicable, delete window and condense remaining windows.
- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.
- L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.
- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.  
 (A) Minimum distance from symbol - 1 mm.  
 (B) Maximum distance from symbol before choosing the next highest priority:  
 #1 4 mm measured to the West end  
 #2 4 mm measured to the North side (top)  
 #3 4 mm measured to the East end  
 #4 4 mm measured to the South side (bottom)
- L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:  
                   Hydro  
 - power  
                   plant
- L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).
- O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.  
 PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.  
 ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

- B-1404** If two or more point breakers (2D010) fall within 15 mm of each other, show one symbol in the center of the group.

**DISCOLORED WATER...2D030 (AREA)**

- L-4700** Use the following abbreviations for ACC and EXS values:  
 If ACC=002, label "PA"  
 If ACC=003, label "PD"  
 If EXS=002, label "ED"  
 If EXS=003, label "Rep"
- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

**FEATURE: DISCOLORED WATER...2D030 (AREA)**

**L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:

Hydro  
power  
plant

**L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

**O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.

PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.

ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

**R-2287** Discolored water (2D030) shall not be placed on a chart unless circumstances indicate the probable existence of shoal water.

**R-2911** When two or more identical symbols overprint each other, delete the portions that overlap and show as one symbol with an outline of the combined area of the symbols.

**R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

**DISCOLORED WATER...2D030 (POINT)**

**L-4700** Use the following abbreviations for ACC and EXS values:

- If ACC=002, label "PA"
- If ACC=003, label "PD"
- If EXS=002, label "ED"
- If EXS=003, label "Rep"

**L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

**L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

**FEATURE: DISCOLORED WATER...2D030 (POINT)**

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:

Hydro  
power  
plant

**L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

**L-4809** When two or more identical features fall within 10 mm of each other, one legend with plural description shall be shown, with type placed as close as possible to the center of the group without overprinting features.

**O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.

PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.

ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

**R-2287** Discolored water (2D030) shall not be placed on a chart unless circumstances indicate the probable existence of shoal water.

**R-2911** When two or more identical symbols overprint each other, delete the portions that overlap and show as one symbol with an outline of the combined area of the symbols.

**R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

**FOUL GROUND...2D050 (AREA)**

**L-4700** Use the following abbreviations for ACC and EXS values:

- If ACC=002, label "PA"
- If ACC=003, label "PD"
- If EXS=002, label "ED"
- If EXS=003, label "Rep"

**L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

**L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

**L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

**FEATURE; FOUL GROUND...2D050 (AREA)**

- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.  
 (A) Minimum distance from symbol - 1 mm.  
 (B) Maximum distance from symbol before choosing the next highest priority:  
 #1 4 mm measured to the West end  
 #2 4 mm measured to the North side (top)  
 #3 4 mm measured to the East end  
 #4 4 mm measured to the South side (bottom)
- L-4729** If symbols overprint each other, labels are condensed as follows:  
 (1) If the labels are identical, only one is retained.  
 (2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.
- L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:  
     Hydro  
     power  
     plant
- L-4807** Type shall be placed in the following preference:  
 (a) Placed on one horizontal line centered in feature.  
 (b) Broken into multiple horizontal lines, centered in feature, with a 1 mm space between lines.  
 (c) Placed on one line outside feature. Use Rule L-4722 for placement. If present, HDP shall always be positioned inside area.  
 (d) Placed on two lines to avoid overprints. Use Rule L-4722 for placement. If present, HDP shall always be placed inside area.
- L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).
- O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.
- Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.
- Definitions**  
 PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.  
 PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.  
 ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.
- R-2221** HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.  
 HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004). HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).  
 HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).  
 HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

**FEATURE: FOUL GROUND...2D050 (AREA)**

- R-2222** VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.
- R-2800** When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.
- R-2806** If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

**FOUL GROUND...2D050 (POINT)**

- D-1909** If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posicut, or graphic in the center of symbol shall be displaced seaward until they no longer overprint the shoreline. If the danger curve (dotted perimeter line) overprints the shoreline, that portion of the dotted perimeter line falling on land shall be deleted.
- L-4700** Use the following abbreviations for ACC and EXS values:  
 If ACC=002, label "PA"  
 If ACC=003, label "PD"  
 If EXS=002, label "ED"  
 If EXS=003, label "Rep"
- L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.
- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.
- L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.
- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.  
 (A) Minimum distance from symbol - 1 mm.  
 (B) Maximum distance from symbol before choosing the next highest priority:  
 #1 4 mm measured to the West end  
 #2 4 mm measured to the North side (top)  
 #3 4 mm measured to the East end  
 #4 4 mm measured to the South side (bottom)
- L-4729** If symbols overprint each other, labels are condensed as follows:  
 (1) If the labels are identical, only one is retained.  
 (2) If the labels are not identical, they shall be condensed in: to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.
- L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:  
 Hydro  
 power  
 plant
- L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).
- L-4872** HDP label shall be centered in the circle.
- L-4891** Variable type size for HDP values enclosed by danger curves (dotted circles):  
 If HDP < 10, (a single digit principal digit), apply 7 point type to the principal digit, and 5 point type to the subscript, if there is one. If HDP >= 10 (a double digit principal digit), apply 6 point type to the principal digit, and 5 point type to the subscript, if there is one.

**FEATURE: FOUL GROUND...2D050 (POINT)**

**O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.

PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.

ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

**R-2221** HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001. HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004). HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).

HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).

HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

**R-2222** VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

**R-2806** If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

**R-3709** The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.

**PLATFORM...2D110 (POINT)**

**L-4706** If the attribute value is not known, or the attribute value for none or not applicable, delete window and condense remaining windows.

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

#1 4 mm measured to the West end

#2 4 mm measured to the North side (top)

#3 4 mm measured to the East end

#4 4 mm measured to the South side (bottom)

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURE: PLATFORM...2D110 (POINT)**

**L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:

Hydro  
power  
plant

**T-0800** If Platforms (2D110) <= 3 mm apart at chart scale:

HAC 1 & 2 - Do not thin.

HAC 3 - use one symbol to represent three.

HAC 4 - use one symbol to represent five.

HAC 5 - use one symbol to represent seven.

HAC 6 - use one symbol to represent eight.

HAC 7 - 9 - (a) use most seaward platforms only (b) include all platforms seaward of the 30 meter depth curve (2E010).

Thinning hierarchy by order of omission:

(1) CHA=023

(2) CHA=023, NAM, SST

(3) CHA=023, NST=010

(4) CHA=023, NAM, NST=010, SST

(5) CHA=021

(6) CHA=021, NAM, SST

(7) CHA 021, NST=010

(8) CHA 021, NAM, NST=010, SST

Thin #1 first, #2 second, etc, if they are all #8 select those around the perimeter to help define the limits of the field.

**REEF...2D120 (AREA)**

**D-1910** If rock symbol (point 2D130) is shown inside a reef symbol (area 2D120) overprints the shoreline (2A010 or 2H075), displace the rock symbol seaward, so that it no longer overprints the shoreline. If necessary, displace the dotted perimeter line of the reef seaward, so it does not overprint the rock symbol.

**L-4700** Use the following abbreviations for ACC and EXS values:

If ACC=002, label "PA"

If ACC=003, label "PD"

If EXS=002, label "ED"

If EXS=003, label "Rep"

**L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

**L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

**L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

**L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

#1 4 mm measured to the West end

#2 4 mm measured to the North side (top)

#3 4 mm measured to the East end

#4 4 mm measured to the South side (bottom)

**L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:

Hydro  
power  
plant

**FEATURE: REEF...2D120 (AREA)**

- L-4807** Type shall be placed in the following preference:
- (a) Placed on one horizontal line centered in feature.
  - (b) Broken into multiple horizontal lines, centered in feature, with a 1 mm space between lines.
  - (c) Placed on one line outside feature. Use Rule L-4722 for placement. If present, HDP shall always be positioned inside area.
  - (d) Placed on two lines to avoid overprints. Use Rule L-4722 for placement. If present, HDP shall always be placed inside area.
- L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).
- L-4809** When two or more identical features fall within 10 mm of each other, one legend with plural description shall be shown, with type placed as close as possible to the center of the group without overprinting features.
- L-4811** The drying height (HDH) shall be shown if it is known, for reefs that uncover (2D120, VRC=008). Type shall be placed over the highest point of the reef, if possible. If the reef is too small to place HDH inside the area, it shall be placed alongside the area in parentheses. If "Co" is required by symbol, MCP=019, type shall be positioned under HDH.
- L-4813** Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".
- O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.  
 PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.  
 ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

- R-2210** Rocks (2D130, MCP=066) and isolated coral heads (2D130, MCP=019) within submerged reefs (2D120) shall be charted using the appropriate rock symbol. When depths over selected rocks are shown, an overall depth over the reef is not required, since the depth over the reef is shown by the depth of the shallowest rock. Where it is not possible to chart depth information for separate rocks, the shallowest depth over the reef shall be shown by HDP or HDH on reef (2D120).
- R-2215** Symbol consists of arcs and Vs along the area perimeter. If the reef edge symbol overprints the shoreline, the symbol is deleted for that section that overprints.

**FEATURE: REEF...2D120 (AREA)**

- R-2221** HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001. HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004). HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008). HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001). HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).
- R-2222** VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.
- R-2802** Where symbols with the same feature code but different values of VRC are adjacent to each other, the boundary of the feature that is the highest in the vertical plane shall be shown, and the boundary of the feature that is lower shall be deleted. For example, the feature-above water is shown whole, while the feature that covers and uncovers has that portion of its symbol perimeter that overprints the higher feature deleted.
- R-2806** If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.
- R-2915** The minimum size of a reef (2D120) that covers and uncovers (VRC=008) shall be 2 mm diameter. The minimum size of a reef that is under water (VRC=004) shall be 3 mm. If the reef at chart scale is smaller than these minimum sizes, it shall be shown as a rock (2D130).
- R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.
- R-9040** If a hole exists inside of an area feature, and the width of the hole is greater than 3 mm at chart scale, the hole is shown as an open space inside the surrounding feature. If the hole is 3 mm wide or less, the hole is deleted and absorbed into the surrounding area feature.

**ROCK...2D130 (POINT)**

- D-1909** If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posicut, or graphic in the center of symbol shall be displaced seaward until they no longer overprint the shoreline. If the danger curve (dotted perimeter line) overprints the shoreline, that portion of the dotted perimeter line falling on land shall be deleted.
- L-4700** Use the following abbreviations for ACC and EXS values:  
 If ACC=002, label "PA"  
 If ACC=003, label "PD"  
 If EXS=002, label "ED"  
 If EXS=003, label "Rep"
- L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.
- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

**FEATURE: ROCK...2D130 (POINT)**

- L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.
- L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.
- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.  
 (A) Minimum distance from symbol - 1 mm.  
 (B) Maximum distance from symbol before choosing the next highest priority:  
 #1 4 mm measured to the West end  
 #2 4 mm measured to the North side (top)  
 #3 4 mm measured to the East end  
 #4 4 mm measured to the South side (bottom)
- L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:  
 Hydro  
 power  
 plant
- L-4763** The MCP label for rock (MCP=066) shall be "R", and the label for coral (MCP=019) shall be "Co" Labels are shown without quote marks, or periods.
- L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).
- L-4872** HDP label shall be centered in the circle.
- O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.  
 PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.  
 ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

- R-2210** Rocks (2D130, MCP=066) and isolated coral heads (2D130, MCP=019) within submerged reefs (2D120) shall be charted using the appropriate rock symbol. When depths over selected rocks are shown, an overall depth over the reef is not required, since the depth over the reef is shown by the depth of the shallowest rock. Where it is not possible to chart depth information for separate rocks, the shallowest depth over the reef shall be shown by HDP or HDH on reef (2D120).

**FEATURE: ROCK...2D130 (POINT)**

- R-2221** HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001. HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004). HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008). HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001). HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).
- R-2222** VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.
- R-2294** Submerged rocks (2D120, VRC=004) with known depths (HDI=009 or 010) of 30.0 meters or less are considered dangerous (SOH=001) if the depth (HDP) of the rock is shallower than the corresponding depth area, as defined by the adjacent depth curves. They are considered not dangerous (SOH=002) if the depth of the rock falls within the corresponding depth area. For example, on a chart showing 10, 20, and 30 meter depth curves, a rock with a depth of 12.0 meters would be considered dangerous (SOH=001) if it fell in between the 20 and 30 meter depth curves, but would be considered not dangerous (SOH=002) if it fell between the 10 and 20 meter depth curves.
- R-2806** If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.
- R-2916** Dangers with danger curves (dotted lines) around them which fall inside other danger areas with danger curves around them, shall have the inner dotted line deleted.
- R-3707** If an uncovering rock (2D130, VRC=008) falls inside the foreshore (2A020), show the rock center symbol without the blue tint or dotted circle.
- R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.
- R-3709** The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.
- T-0836** When central graphic symbols of hydrographic dangers, excluding the danger curve (dotted line) overprint or coalesce, they shall be thinned, with preference given to retaining those dangers with the shallower depth (HDP), if it is known. Danger curves shall not be affected by this rule.

**WRECK...2D180 (POINT)**

- D-1900** If two graphic interior point symbols (HDI=012 and SOH=001) or (VRC=001 or 008, and EPA=001, 002 or 005) overprint, displace both symbols outward until they no longer overprint.

**FEATURE: WRECK...2D180 (POINT)**

- D-1909** If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posicut, or graphic in the center of symbol shall be displaced seaward until they no longer overprint the shoreline. If the danger curve (dotted perimeter line) overprints the shoreline, that portion of the dotted perimeter line falling on land shall be deleted.
- L-4700** Use the following abbreviations for ACC and EXS values:  
 If ACC=002, label "PA"  
 If ACC=003, label "PD"  
 If EXS=002, label "ED"  
 If EXS=003, label "Rep"
- L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.
- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.
- L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.
- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.  
 (A) Minimum distance from symbol - 1 mm.  
 (B) Maximum distance from symbol before choosing the next highest priority:  
 #1 4 mm measured to the West end  
 #2 4 mm measured to the North side (top)  
 #3 4 mm measured to the East end  
 #4 4 mm measured to the South side (bottom)
- L-4729** If symbols overprint each other, labels are condensed as follows:  
 (1) If the labels are identical, only one is retained.  
 (2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.
- L-4730** Labels may be stacked, readable top to bottom to avoid overprints, e.g.:  
 Hydro  
 power  
 plant
- L-4808** Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).
- L-4809** When two or more identical features fall within 10 mm of each other, one legend with plural description shall be shown, with type placed as close as possible to the center of the group without overprinting features.
- L-4872** HDP label shall be centered in the circle.
- L-4891** Variable type size for HDP values enclosed by danger curves (dotted circles):  
 If HDP < 10, (a single digit principal digit), apply 7 point type to the principal digit, and 5 point type to the subscript, if there is one. If HDP  $\geq$  10 (a double digit principal digit), apply 6 point type to the principal digit, and 5 point type to the subscript, if there is one.

**FEATURE: WRECK...2D180 (POINT)**

**0-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.

PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.

ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

**R-2221** HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001. HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004). HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).

HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).

HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

**R-2222** VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

**R-2806** If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

**R-2916** Dangers with danger curves (dotted lines) around them which fall inside other danger areas with danger curves around them, shall have the inner dotted line deleted.

**R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

**R-3709** The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.

**S-1400** When two or more stranded wreck symbols (2D180, EPA=003 or 004) overlap, one symbol shall be placed in the center of the group and shall be labeled with the number of stranded wrecks in the group, e.g., "2 Wrecks", "3 Wrecks", etc. Type is Swiss 742 italic, 6 point, in color Black SPC-58600.

**FEATURE: WRECK...2D180 (POINT)**

- T-0801** If more than five wrecks (2D180), other than stranded (VRC=001 or 008), fall within an area less than 20 mm x 20 mm, individual wreck symbols are not shown. Instead, a generalized danger line (dotted line) shall be shown surrounding the area, and the area shall be labeled as follows: "Numerous wrecks", "Numerous Wks", "Wks" Condense label as necessary to place it inside the danger line. Type is Swiss 742, 6 point upper and lower case italic, in color Black SPC-58600.
- T-0809** Delete wrecks (2D180) inside the 30 meter depth curve (2E010, CRV=30) contiguous to the shoreline (2A010 or 2H075).
- T-0810** Where two or more wrecks (2D180), except stranded wrecks (VRC=001 or 008), overprint each other:  
 (1) If only the danger lines (dotted lines) overprint, delete the danger lines that are inside the outer perimeter danger lines.  
 (2) If two HDP depths overprint, retain the shallowest depth and the danger line surrounding the wrecks.

**DEPTH CURVE...2E010 (LINE)**

- L-4733** Depth curves (2E010) shall be labeled with the numeral in the same unit of measurement as the soundings (2E010). The term "meters" shall not be part of the label.
- L-4734** Depth Curve (2E010) labels:  
 (1) Break curve the width of the label plus 1 mm on each side. Orient label parallel to curve, centered in window, readable left to right, or bottom to top, if curve is vertical.  
 (2) Start labels at the middle of the curve, space every 12 cm. Labels may be moved any distance to avoid overprints, except on a closed curve where an overprint cannot be avoided. If the overprint is another Depth Curve, break the curve. Label every curve at least once if length of curve is 10 mm greater than window and does not close.
- L-4776** Depth curves (2E010) which surround a single sounding (2E020) shall not be labeled if the length of the depth curve is less than 20 mm.
- O-3407** An inset plan covering an area within a chart is screened to the same depth curve as that used on the chart, regardless of the scale of the plan.
- O-3408** When accurate depth curves (2E010, ACC=001) taken directly from source charts are shown on a product that has been enlarged by a factor greater than two, compared to the scale of the source chart, e.g., 1:50,000 source on a product larger than 1:25,000, the depth curve's accuracy shall be ACC=002. When approximate depth curves (2E010, ACC=002) taken directly from source charts are shown on a product that has been reduced by a factor greater than two compared to the source source chart, e.g., 1:50,000 source on a product smaller than 1:100,000, the depth curve accuracy shall be ACC=001. When depth curves taken from source charts are enlarged or reduced by a factor equal to or less than two, they shall retain the same accuracy as the source chart.
- O-3421** If other curves are selected for portrayal (based on published source material), use the CRV values that are equal to the values of the curves on the source material.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURE: DEPTH CURVE...2E010 (LINE)**

**O-3435** The depth curve (2E010) to which a blue water tint is shown is established by a representation rule. If for some reason this specified depth curve is not the curve most significant for navigation in the area, the cartographer shall select the depth curve most significant for navigation, and use that depth curve for blue water tint portrayal.

In some instances, it may be desirable to show two water tints, for example, a Blue 31% tint from the shoreline to the 20 meter depth curve, and a Blue 12% tint from the 20 meter depth curve to the 30 meter depth curve. In this case, a SPC-48253 Blue 31% 45° angle screen is used for the darker tint, and a SPC-48253 Blue 12% 75° angle screen is used for the lighter tint.

When using open window negatives for printing, extending the 12% Blue open window from the second significant depth curve all the way to the shoreline, rather than just to the darker blue tint, will eliminate the potential for a white halo where the two blue screens meet, if registration is not exact.

**R-2201** The depth curve (2E010) to which water tint is shown may be interpolated from soundings shown on nautical chart sources in order to develop the required open water blue tint. If this is done the curve shall be approximate (ACC=002). For depth curves other than this curve, Rule R-2876 shall apply.

**R-2812** In delineating depth curves (2E010), the line shall be positioned as near as possible to the deeper side of the sounding value without touching. The depth curve shall not be broken for the Sounding value.

**R-2813** Depth curves (2E010) that coalesce on steep slopes shall show only the deepest and shoalest curves. Where space is limited in "steep to channels" portrayal of the deepest curve is preferred. In other general areas where space is limited because of scale, the shoalest curve shall be shown with the deep curves broken. Where a blue tint invades a steep slope, the curve delimiting the blue tint must be shown.

**R-2814** Small depressions within shallow areas shall not be surrounded by a depth curve (2E010) if less than three soundings (2E020) fall within the curve.

**R-2827** When published nautical charts in meters are used as source material for DMA charts, the DMA charts shall retain the depth curves (2E010) shown on the published chart source. Occasionally foreign sources will portray soundings (2E020) which are the same value as the depth curve seaward of the depth curve. In this event, the depth curve is broken and a dashed approximate curve (2E010, ACC=002) is extended seaward around the sounding(s).

**R-2828** Foreign charts showing soundings and depth curves in fathoms, that are used as source material for nautical charts, shall have the sounding converted to meters, and have the depth curves converted to meters as follows:

-1 fathom curve shall be retained, and labeled 2

-3 fathom curve shall be retained, and labeled 5.

This policy shall be followed only when the soundings seaward of the curve are greater than the value of the curve. When the above conversion is not practical, an approximate depth curve (2E010, ACC=002) shall be delineated and dashed (approximate) lines displayed. Indefinite (approximate) depth curves shall replace fathom curves of depths other than above.

**R-2870** Show water tint (Blue SPC-48253, 31% screen, at 45°) from the shoreline (2A010 or 2H075) to the 30 meter depth curve (2E010, CRV=030) and all offshore areas shallower than 30 meters (inside a 30 meter depth curve). Blue tint is deleted from inland hydrographic features (2H), in those areas that are deeper than 30 meters (outside the 30 meter depth curve).

**FEATURE: DEPTH CURVE...2E010 (LINE)**

- R-2871** Charts in areas recognized as likely routes for supertankers (draft of 18 - 28 meters) shall show water tint from the shoreline (2A010 or 2H075) to the 30 meter depth curve (2E010, CRV=030) and all offshore areas inside the 30 meter depth curve. Shipping routes for supertankers are indicated in the IMO Publication Ship's Routeing Manual - Part C "Deep Water Routes", and DMA Sailing Directions. To further emphasize dangers existing for ships with drafts up to 30 meters, depths of less than 30 meters seaward of the 30 meters depth curve shall carry a blue screen, e.g., single sounding or several soundings in an area. Areas deeper than 30 meters shall not show blue tint.
- R-2874** If the shoal sounding (2E020) and selected depth curves (2E010) will adequately portray a danger, it is not necessary for the complete sequence of depth curves to be shown around an isolated pinnacle.
- R-2875** Accurate depth curves (2E010, ACC=001) shall be shown when the sounding data from which they are interpolated has a density of  $\leq 10$  mm maximum spacing, at the product chart scale before soundings have been thinned. When this sounding density is  $> 10$  mm maximum spacing, any interpolated depth curves shall be approximate (ACC=002).
- R-2876** In areas of the chart where the primary source of hydrographic data is a foreign nautical chart, and that foreign chart does not show any depth curves, depth curves (2E010) shall not be interpolated, and soundings (2E020) alone shall be used to depict the bottom topography.
- R-2882** In rapidly changing areas where surveys with different dates adjoin but do not agree, gaps in depth curves (2E010) shall be left to indicate data discrepancy to the user. Gap width shall be commensurate with chart scale and the area covered by the sources.

**SOUNDING...2E020 (POINT)**

- D-1903** Soundings shall normally be plotted in their true positions. If a selected sounding overprints other important detail, such as aids to navigation (2C) or dangers (2D), a different sounding is selected, if possible. If the selected sounding is the shallower than any other sounding around it, it must be shown. In this case, it is shown as an "out of position" sounding and a leader line is used to show the true position of the sounding. Leader line shall be 3-25 mm in length.
- D-1912** Soundings (2E020) shall be displaced seaward when they overprint the shoreline (2A010 or 2H075) until they no longer overprint.
- D-1913** If a channel (deep area between two shallow areas) is too narrow to place a sounding (2E020) in, and the sounding is the shallowest depth in the channel between the two shallow areas, place the sounding alongside the channel, in parentheses.
- L-4700** Use the following abbreviations for ACC and EXS values:  
 If ACC=002, label "PA"  
 If ACC=003, label "PD"  
 If EXS=002, label "ED"  
 If EXS=003, label "Rep"
- L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.
- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.
- L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.
- L-4710** Strings of windows shall be placed on one line, reading left to right, or bottom to top if the axis is vertical.
- L-4711** Strings of windows may be placed on two lines to avoid overprints.

**FEATURE: SOUNDING...2E020 (POINT)**

**O-3403** If soundings (2E020) shown on a DMA product chart are taken from a graphic source chart/survey that has been enlarged by a factor greater than two, for example, soundings on a 1:50,000 source chart shown on a DMA chart at a scale larger than 1:25,000, then those soundings shall be shown as slant soundings (SND=001 shall be shown as SND=008, SND=002 shall be shown as SND=009, SND=006 shall be shown as SND=004, and SND=007 shall be shown as SND=010).

When this override occurs, the chart shall show the following note, wording as appropriate, in the margin of the chart. See "Notes and Cautions" section of product specification for information regarding note portrayal.

## NOTE

Soundings in slant figures are from smaller scale charts.

**O-3405** Some foreign charting agencies (and the IHO standard) use vertical (upright hairline) type for questionable soundings and slant type for normal soundings. This is the opposite of what DMA and NOS show on U.S. charts. When a sounding (2E020) is shown as a slant type sounding on a source, but that source was produced by a charting agency that uses slanted type to show normal soundings, the sounding type on the DMA chart shall be vertical, i.e., SND=006 (Ordinary), SND=001 (Drying Height-Vertical), SND=002 (No Bottom-Vertical), or SND=007 (Doubtful-Vertical).

**O-3406** Sounding data that is unreliable, based on notes or cautions on the source material, or some other information known to the compiler, shall be attributed to show slanted or italic type (2E020, SND=004, 008, 009, or 010), depending on the type of sounding. A note explaining the reason for the slant soundings shall be given in the margin or land area. See "Notes and Cautions" section of product specifications.

**O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

## Definitions

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.

PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.

ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

**O-3438** If a chart shows a mixture of soundings (2E020) from different sources that utilize different vertical (sounding/hydrographic) datums, the sounding datum quoted in the margin of the chart shall be the highest of the datums used.

**R-2207** Soundings (2E020) that are 200 meters deep or deeper shall be corrected for sound velocity using NP-139 Tables (SVC=003). Sound velocity measurements (SVC=004) shall be used in place of NP-139 Tables if they are considered more reliable than the averaged values shown in the NP-139 Tables. Soundings that are less than 200 meters deep shall be corrected for sound velocity using sound velocity measurements (SVC=004) if data is available. If it is not possible to correct soundings for sound velocity, and assumed speeds of sound are used (SVC=000, 001 or 002), uncorrected soundings are identified in the source diagram.

**FEATURE: SOUNDING...2E020 (POINT)**

- R-2222** VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.
- R-2224** HDH is used when SND=001 (Drying Height), or 008 (Drying Height (Slant)). HDP is used for all other values of SND.
- R-2807** The rounding off of decimeters between 21 and 30.5 meters shall be as follows:  
Decimeters between 3 and 7 shall be shown as 5, e.g., depths from 21.3 through 21.7 shall be shown as 21.5. Decimeters 1, 2, 8, and 9, shall be rounded off to the nearest meter, e.g., 21.1 and 21.2 shall be shown as 21, and 21.8 and 21.9 shall be shown as 22.
- R-2863** Sounding density shall be greatest (6 mm - 15 mm average spacing) between the 30 meter depth curve (2E010, CRV=030, UNI=013) and the 50 meter depth curve (2E010, CRV=050, UNI=013), and for all isolated shoals less than 30 meters deep (see Rule T-0822). In areas outside the 50 meter depth curve, sounding density shall be in accordance with Rule T-0822.
- R-2864** Areas with soundings shallower than the depth range of maximum density that are not contiguous to the shoreline shall show a sounding density of  $\leq 10$  mm average spacing.
- R-2865** In well surveyed areas, where sounding density on the source is  $\leq 5$  mm average spacing, sounding density shall be  $> 20$  mm average spacing and depth curves (2E010) relied on to portray the bottom topography.
- R-2867** In areas where depth information is inadequate on large scale charts, small scale charts of the same areas shall show a markedly uneven spacing for soundings.
- R-2908** The position of a sounding (2E020) on a DMA or NOS chart is the center of mass of the principal digit, excluding the subscript. Soundings on foreign source material do not necessarily show the center of mass of the principal digit as the position of the sounding. The standard practice of the charting authority that produced the source shall be followed to determine the position of the sounding on the foreign source.
- R-9011** CONTROLLING DEPTHS OF CHANNELS: A sounding (2E020) shall be shown to indicate the controlling depth of a natural channel. The controlling depth of a channel is the least depth in the shallowest part of a natural channel, analogous to the highest point in a pass between two mountains.
- R-9012** DEEPEST PATH ALONG A NATURAL CHANNEL: A line of soundings (2E020) is shown to indicate the deepest water through a natural channel, analogous to the lowest part of a valley floor.
- R-9013** SOUNDINGS ALONG TRACKS AND ROUTES: A line of soundings (2E020) should be shown along tracks that ships must follow, such as a leading line (2C040), radar guided track (6C130), or route (6C165). If no soundings exist directly along the track, the closest ones shall be shown.
- R-9014** DEEPS: Deep soundings (2E020) should be shown. Deep are local lows; soundings that are deeper than surrounding soundings. Soundings that are approximately 20% or more deeper than the surrounding soundings are considered important. Soundings between 10% and 20% deeper than surrounding soundings may be important, depending on the characteristics of the bottom, for example, in flat areas.
- R-9015** SOUNDINGS AT CHANGES IN SLOPE: Soundings (2E020) shall be shown to indicate significant changes of slope of the bottom. Soundings that are more than 5% shallower than the surface interpolated from surrounding shoals, deeps, depth curves (2E010), and other soundings (2E020), should be shown. Soundings that are more than 10% deeper than the surface interpolated from surrounding shoals, deeps, depth curves and other soundings should also be shown.

**FEATURE; SOUNDING...2E020 (POINT)**

- R-9016** SOUNDINGS NEAR DEPTH CURVES: Soundings (2E020) shown close to depth curves (2E010), i.e., closer than 25 mm, serve to support the depth curve, especially when there is no depth curve label nearby, or for short depth curves that do not have a label. Depth curves (2E010) showing long, narrow extensions of deeper water into shallow water from the depth curve's normal smoothed curve should be supported by soundings along and near the end of the extension, if there is space, without soundings overprinting depth curves.
- R-9018** SOUNDINGS IN DANGEROUS AREAS: As scale is reduced from the source to the product chart, soundings (2E020) may be omitted between groups of rocks (2D130) or reefs (2D120), when there is no well defined passage between them, or if detail has been generalized in the area. Where there is a well defined passage through the dangerous area, soundings should be shown.
- R-9019** SOUNDINGS CLOSE TO AND THE SAME VALUE AS A DEPTH CURVE: Soundings (2E020) that are the same value of the depth curve (2E010) on the shallow side of the curve, and soundings that are only one unit (fathom or meter) deeper than the curve and shown on the deeper side of the depth curve, should not be shown if they are closer than 3 mm to the depth curve, because they do not contribute any useful information to the mariner.
- R-9020** NO BOTTOM SOUNDINGS: No bottom soundings (2E020, SND=002) should be shown only if no other sounding data is available within 30 mm at chart scale.
- R-9021** Fill soundings (2E020) shall be shown in flat or deep areas between shoals. Fill soundings are shown in a somewhat regular pattern of less dense (15 to 30 mm spacing) soundings that do not have significant changes in slope.
- R-9022** Soundings 2E020 that are the least depths in proximity to known or potential navigational routes are placed very close together to increase the amount of detail presented to the chart user. They should not generally be placed closer than about 6 mm at chart scale.
- R-9023** Soundings (2E020) in shoal areas, natural channels and hazardous areas should be sufficiently close together so these areas are highlighted by a dense pattern of soundings. Sounding spacing should be 10 to 15 mm. Soundings around a shoal should be less than 10 mm spacing.
- R-9024** In areas where depth curves (2E010) are less than 10 mm apart, the number of soundings (2E020) should be reduced, because the function of showing the shape of the bottom has been taken over by the depth curves. Significant deviations (5% higher or 10% lower) from the slope indicated by the depth curves must still be shown by soundings.
- R-9025** A least depth sounding (2E020) must be shown for each shoal on the chart. When selecting soundings from larger scale source for inclusion on a smaller scale product, it may become necessary to generalize a series of shoals into one shoal. When this is required, the shallowest sounding from the group is selected to represent the least depth over the generalized shoal.
- R-9026** If two adjacent shoal soundings (2E020) have the same depth (HDP), the one shown first is the one closest to the nearest or most prominent navigational route.
- R-9027** For any group of soundings (2E020) with equal depth values (HDP), the most seaward one is shown. The most seaward sounding is the one closest to the deeper depth curve (2E010), or closest to the next deeper sounding.
- R-9028** If two shoal soundings (2E020) of equal depth (HDP) are found in an isolated shoal area (shallow area surrounded by a depth curve that closes on itself), the farthest seaward of equal shoal soundings must be shown.
- R-9029** If a shoal sounding (2E020) is at the same depth as a depth curve (HDP of 2E020 = CRV of 2E010), the depth curve is shown around the sounding. If two or more soundings have the same depth as the depth curve, the curve is shown around all of them. Additional deeper soundings at 10 or 15 mm spacing are shown outside the depth curve to indicate the slope of the sea bottom around the shoal.

**FEATURE: SOUNDING...2E020 (POINT)**

- R-9030** Deep soundings (2E020) that are shown, but not surrounded by a depth curve (2E010), should be surrounded by a group of irregularly spaced soundings. Soundings shown around deeps should be spaced at a greater distance than for a comparably sized shoal, i.e., 15 to 20 mm.
- R-9031** The structure of natural channels should be shown by a pattern of soundings (2E020) with enough density to delineate both the width and the depth of the navigable portion. Selected soundings must be the least depth in the immediate area they are to represent.
- R-9032** When soundings (2E020) from a recent survey reveal that a satisfactory junction between the new data and existing data cannot be made, a blank band approximately 5 mm wide at chart scale should be left around the limits of the more recent survey. A note should be shown stating that hydrography is from an older survey. Example: "Hydrography to eastward is from surveys in 1934"
- R-9033** All hydrographic detail may be removed from certain areas undergoing continual and rapid change, such as ocean inlets and openings between barrier islands if showing soundings (2E020) is considered to present an unsafe representation between chart editions. The area shall be tinted with blue tint (see Rules R-2869 to R-2871 as applicable to the specific product). A note should be shown stating that hydrography is under continual change: for example: "Area of continuous change"
- R-9036** SHOALS: All shoal soundings (2E020) must be shown. A shoal sounding is a local high; a sounding that is shallower than any other sounding around it. Shoal soundings may be placed very close together, but generally not less than 6 mm spacing. The density of soundings shown around shoals should be increased to less than 15mm spacing, so the increased density of soundings draw attention to the presence of the shoal.
- T-0822** Soundings (2E020) are thinned according to the following hierarchy. Those soundings at the top of the list are deleted last, and those soundings at the bottom of the list are deleted first. See the referenced representation rules for more information about each category of sounding.
1. Controlling depths (see R-9011)
  2. The deepest path along a navigable channel (see R-9012)
  3. Soundings along tracks and routes (see R-9013)
  4. Deeps (see R-9014)
  5. Soundings at changes of slopes (see R-9015)
  6. Soundings supporting depth curves (see R-9016)
  7. Soundings in slips and around piers (see R-9017)
  8. Soundings other than 1-7 above
  9. Soundings inside dangerous areas (see R-9018)
  10. Soundings close to and the same value as a depth curve (see R-9019)
  11. No bottom soundings (see R-9020)
- T-0823** Soundings (2E020) shown on smaller scale charts in an area shall be a subset selected from those soundings shown on larger scale charts in the area.

**BOTTOM CHARACTERISTICS...2F010 (POINT)**

**FEATURE: BOTTOM CHARACTERISTICS...2F010 (POINT)****L-4701** Abbreviations for Bottom Characteristics are:

For the material (MCP, MCS, MCU)

000-Unknown no abbreviation, drop window if material is unknown or not present.

|                  |       |  |
|------------------|-------|--|
| 001-Ash          | Ash   |  |
| 006-Boulders     | Bo    |  |
| 011-Chalk        | Ck    |  |
| 012-Cinders      | Cn    |  |
| 013-Cirripedia   | Cir   |  |
| 014-Clay         | Cy    |  |
| 016-Cobble       | Cb    |  |
| 019-Coral        | Co    |  |
| 020-Coral Head   | Co Hd |  |
| 022-Diatoms      | Di    |  |
| 027-Foraminifera | Fr    |  |
| 028-Fucus        | Fu    |  |
| 033-Globigerina  | Gl    |  |
| 034-Grass        | Grs   |  |
| 035-Gravel       | G     |  |
| 037-Ground       | Gd    |  |
| 043-Lava         | Lv    |  |
| 045-Madrepores   | Md    |  |
| 046-Manganese    | Mn    |  |
| 047-Marl         | Ml    |  |
| 049-Mattes       | Ma    |  |
| 052-Mud          | M     |  |
| 053-Mussels      | Ms    |  |
| 055-Ooze         | Oz    |  |
| 056-Oysters      | Oy    |  |
| 058-Pebbles      | P     |  |
| 059-Polyzoa      | Po    |  |
| 061-Pteropods    | Pt    |  |
| 062-Pumice       | Pm    |  |
| 063-Quartz       | Qz    |  |
| 064-Radiolaria   | Rd    |  |
| 066-Rock         | R     |  |
| 069-Sand         | S     |  |
| 070-Schist       | Sch   |  |
| 071-Scoria       | Sc    |  |
| 072-Sea Tangle   | Stg   |  |
| 073-Seaweed      | wd    |  |
| 074-Shells       | Sh    |  |
| 075-Shingles     | Sn    |  |
| 076-Silt         | Si    |  |
| 081-Spicules     | Spi   |  |
| 082-Sponge       | Sp    |  |
| 086-Stones       | St    |  |
| 090-Tufa         | T     |  |

For the characteristic of the material (MCC, CSM, UMC)

000-unknown no abbreviation, drop window when material characteristic is unknown.

|                |     |  |
|----------------|-----|--|
| 009-broken     | bk  |  |
| 010-calcareous | ca  |  |
| 015-coarse     | c   |  |
| 021-decayed    | dec |  |
| 025-fine       | f   |  |
| 026-flinty     | fly |  |
| 032-glacial    | ga  |  |
| 036-gritty     | gty |  |
| 038-ground     | grd |  |
| 039-hard       | h   |  |
| 042-large      | l   |  |
| 066-rocky      | rky |  |
| 067-rotten     | rt  |  |
| 078-small      | sm  |  |
| 079-soft       | so  |  |
| 080-speckled   | spk |  |
| 084-sticky     | sy  |  |

**FEATURE: BOTTOM CHARACTERISTICS...2F010 (POINT)**

|               |      |
|---------------|------|
| 085-stiff     | sf   |
| 087-streaky   | str  |
| 089-tenacious | ten  |
| 091-uneven    | unev |
| 093-varied    | vard |
| 094-volcanic  | v    |
| 100-medium    | m    |

If UMC=000 and MCU=000, delete the slash between MCS and UMC.

- L-4706** If the attribute value is not known, or the attribute value for none or not applicable, delete window and condense remaining windows.
- L-4784** String of windows shall be placed horizontally on one line.
- R-2282** The mobile bottom (2F010, MCC=051) sand wave symbol should be used primarily in close association with the most significant soundings (2E020), usually the shallowest sounding in each area of mobile bottom/sand waves area. The use of the sandwave symbol draws attention to the most significant depths, and also indicates the degree of unreliability of the figure charted.
- R-2283** When frequently repeated surveys show some variation in least depth soundings (2E020) within areas of sandwaves (2F010, MCC=051), the shallowest one found over a period of years should be charted. This blending of details of surveys from different dates must be carried out with care; In particular, long term deepening over time must not be overlooked.
- R-2284** The extent of mobile bottom/sandwave areas (2F010, MCC=051), if known and considered navigationally significant, may be indicated by the legend "Sandwaves". The legend should be placed over areas where the depths may be critical to surface navigation, and used in conjunction with the sandwave symbol associated with the most significant soundings. Type style for the legend is 6 point U/L italic. Color is Black SPC-58600 solid.
- R-2285** Areas of sandwave/mobile bottom (2F010, MCC=051) shown on the chart are further explained by the following Caution, shown in the margin. See Notes and Cautions section of product specifications.

**CAUTION**

Sandwaves build up during particular states of weather and tide. Surveys may not have been made in those conditions, so the chart may not show the minimum depths possible.

- R-2815** A particular bottom characteristic (2F010) should not be deleted unless it is the same as one within 50 mm. A particular bottom characteristic shall be deleted if it is the same as another bottom characteristic located within 50 mm of it. Bottom characteristics should not be displaced from their original positions just to show them below soundings. They may be displaced up to 5 mm from their original position to avoid overprinting other point symbols.
- R-2883** Where the underlying material is known to differ from the surface layer, the symbol window string for the surface layer (MCC and MCP) and the symbol window string of the underlayer (UMC and MCU) shall be written in that order, on one line, separated by a slash '/'. If UMC or MCU is unknown, delete those window(s) and the slash.
- R-2890** Where mixtures of materials occur, the symbol window string of the predominant material (MCC, MCP) shall be shown first, followed by the symbol window string of the secondary material (CSM, MCS), on one line, separated by a space. If no secondary material is present delete windows for CSM and MCS. If a third characteristic/material is present in the mixture, this is shown by the TXT label, using the standard abbreviations in rule L-4701; otherwise TXT is not shown.
- R-2892** In water deeper than 100 meters, only show primary material composition (MCP) of bottom characteristics (2F010). Bottom characteristics shall be shown, if known, on all shoals and in anchorage areas (2B010). Elsewhere they shall be selected to show variations in the composition of the seabed. In uniform areas, bottom characteristics shall be shown at an approximately 50 mm interval, if data is available.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURE: CANAL...2H020 (LINE)****CANAL...2H020 (LINE)**

**L-4702** Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

**L-4885** If the controlling depth (HDP) is unknown, delete the legend "Controlling Depth (HDP)m"

**R-2745** A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

**INLAND SHORELINE...2H075 (LINE)**

**D-7010** Shoreline (2A010 and 2H075) shall be broken for 0.2mm on each side of the following graphic elements:

- 1U040 Aircraft Facility Beacon, Posicut #199
- 2C030 Electronic Beacon, Posicut #92
- 2C050 Light, Posicut #199
- 2C055 Marker, rectangle
- 2C060 Visual Beacon, Posicut #85

Shoreline is not broken for other posicuts or labels associated with these symbols. Instead, type shall be placed either in the water or on land, so that it does not cross the shoreline.

**R-2739** Inland shoreline (2H075) shall only be included if its associated inland hydrographic feature is included on the product.

**LAKE /POND...2H080 (AREA)**

**A-0063** Include if feature needed to connect included drainage features (2H ).

**L-4704** Type size per area size at map /chart scale:

- 06 point - WID < 14 mm and LEN < 55 mm
- 08 point - WID >= 14 mm and < 28 mm; LEN >= 55 mm and < 82 mm
- 10 point - WID >= 28 mm and < 44 mm; LEN >= 82 mm and < 118 mm
- 12 point - WID >= 44 mm and < 62 mm; LEN >= 118 mm and < 158 mm
- 14 point - WID >= 62 mm and < 84 mm; LEN >= 158 mm and < 198 mm
- 16 point - WID >= 84 mm and < 104 mm; LEN >= 198 mm and < 240 mm
- 18 point - WID >= 104 mm and LEN >= 240 mm

Where WID and LEN measurements are inconsistent, the larger type size shall be used.

**L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**FEATURE: LAKE /POND...2H080 (AREA)**

**L-4821** Descriptive type or name shall be positioned in the following priority:  
 (1) Horizontal within area feature, if the type will fit entirely within the area. If type consists of more than one word, it may be split into several lines if necessary.

(2) Use Rule L-4722 if type will not fit in area.

**L-4822** If width < 30 mm at chart scale, do not show name.

**R-2745** A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

**R-3673** Do not show land tint in the symbol. If attribute HYC is present, do not show land tint if HYC=008 (Perennial).

**RIVER /STREAM...2H140 (AREA)**

**D-1911** If a conspicuous (COC=001) point symbol coalesces (less than 0.2mm from) with a line symbol, or the boundary of an area symbol, the line or area boundary is displaced around the conspicuous point symbol. If a non-conspicuous (COC=002) point symbol coalesces (less than 0.2mm away from) with a line symbol or boundary of an area symbol, the non-conspicuous point symbol is displaced away from the line or area boundary symbol until it no longer coalesces.

**L-4770** Labeling areas based on width:

| Type Size: | If Width Is:     |
|------------|------------------|
| 08 point   | < 8 mm           |
| 10 point   | >= 8 mm < 18 mm  |
| 12 point   | >= 18 mm < 30 mm |
| 14 point   | >= 30 mm         |

Type is centered in area and repeated every 10 cm.

**L-4824** Name shall be positioned in the center of that part of a feature appearing on a chart, i.e., centered from bank to bank, and centered from mouth to neckline. Type shall run parallel to center line, reading left to right, or bottom to top if feature is vertical. Type may be moved sideways to avoid overprints or sharp bends (>= 5°).

**R-2299** Rivers (2H140) under the influence of the rise and fall of the tide (TID=002) shall have their banks delineated at the high water line. Inland of tidal influence (TID=001), average water level shall be shown for perennial rivers (HYC=008), and flood stage shall be shown for intermittent (HYC=006), or dry (HYC=003) rivers.

**FEATURE: RIVER /STREAM...2H140 (AREA)**

**R-2745** A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

**R-2747** Where area features transition to line features, for example, where an area river changes to a line river, the minimum width area symbol shall be tapered to a point so that it transitions smoothly into a line symbol.

**R-3673** Do not show land tint in the symbol. If attribute HYC is present, do not show land tint if HYC=008 (Perennial).

**S-1500** Symbolize the casement portions (Left Bank / Right Bank) of the feature using the ACC and SLT attributes of the individual river or canal banks in conjunction with the inland shoreline (2H075) symbology. The AHC attribution of the inland shoreline (2H075) shall correspond to the HYC attribution of the associated water body as follows: HYC 008 = AHC 001, HYC 006 = AHC 002, and HYC 003 = AHC 003.

**T-0840** Streams shall only be shown to the limits of relief (3A010).

**RIVER /STREAM...2H140 (LINE)**

**D-1911** If a conspicuous (COC=001) point symbol coalesces (less than 0.2mm from) with a line symbol, or the boundary of an area symbol, the line or area boundary is displaced around the conspicuous point symbol. If a non-conspicuous (COC=002) point symbol coalesces (less than 0.2mm away from) with a line symbol or boundary of an area symbol, the non-conspicuous point symbol is displaced away from the line or area boundary symbol until it no longer coalesces.

**L-4743** If feature type is linear, the label hierarchy is:  
 (1) Label shall be placed 1 mm above feature, centered.  
 (2) Top of label shall be placed 1 mm below feature, centered.  
 (3) Label may be displaced along the feature; use two labels if feature length 150 mm or greater.  
 (4) Do not label across shoreline (2A010 or 2H075).

**R-2745** A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

**FEATURE: RIVER /STREAM...2H140 (LINE)**

- T-0838** Line feature River Streams (2H140) shall not be shown unless they are:
- Continuations of area feature River/Streams, or
  - Flow directly into the sea or into inland waterway features (2H020 Canal, 2H080 Lake/Pond, or 2H140 River/Stream) that are required for port access (RPA=001). These minor streams shall only be shown inland to the point where they become obscured by intervening relief/terrain.
- T-0839** If more than three intermittent streams (2H140, HYC=006) fall within 50 mm of each other, show only the longest one.
- T-0840** Streams shall only be shown to the limits of relief (3A010).

**LOCK...2I030 (POINT)**

- L-4823** Label shall be placed horizontally on land on the right or upper bank, opposite where the symbol line meets the bank. If it conflicts with other detail, it may be placed on the left or lower bank, or entirely within the stream. It shall not overprint banks.
- R-2371** The point of the Lock or Sluice Gate symbol shall be positioned pointing upstream.
- R-2745** A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.
- A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).
- A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).
- R-2935** Where locks (2I030) overprint shoreline (2A010, 2H075), canal (2H020), or river/stream (2H140), these features shall be deleted where overprint occurs. Locks shall not be shown if the associated water feature is not included on the product.

**ICE SHELF...2J065 (AREA)**

- R-2256** The open water tint shall not be shown within an ice shelf (2J065).
- R-2804** When an area symbol or cased line symbol overprints the shoreline, shoreline is deleted.
- R-9037** Do not show land tint inside symbol.

**SNOW FIELD /ICE FIELD...2J100 (AREA)**

- R-2800** When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.
- R-9037** Do not show land tint inside symbol.

**SPOT ELEVATION...3A030 (POINT)**

- L-4719** If the ZVL type associated with a spot elevation (3A030) on the island will fit inside the island without overprinting the shoreline (2A010 or 2H075), place the elevation (ZVL) type on land.
- L-4720** If the ZVL type associated with the spot elevation (3A030) on the island will not fit inside the island without overprinting the shoreline (2A010 or 2H075), place the elevation (ZVL) type in the water adjacent to the island and in parentheses. Do not overprint the shoreline.

**FEATURE: SPOT ELEVATION...3A030 (POINT)**

- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.  
 (A) Minimum distance from symbol - 1 mm.  
 (B) Maximum distance from symbol before choosing the next highest priority:  
 #1 4 mm measured to the West end  
 #2 4 mm measured to the North side (top)  
 #3 4 mm measured to the East end  
 #4 4 mm measured to the South side (bottom)
- L-4737** Feature name /label shall be positioned parallel to lines of latitude and readable left to right.
- R-2206** Spot elevations (3A030) shall be shown at the highest point of islands (4B135). If the width of the island is less than 5 mm, the dot or point symbol shall be deleted and the number shown by itself. If the number will not fit on land, it shall be placed in the water enclosed by parentheses, for example "(5)".
- R-2281** Spot elevations (3A030) shall be shown on the summits of hills and mountains.
- R-2896** The location of the contour feature (3A030) must be visible from seaward.
- T-0843** If the designated location is not visible from seaward, omit spot elevations (3A030).

**ISLAND...4B135 (AREA)**

- L-4704** Type size per area size at map /chart scale:  
 06 point - WID < 14 mm and LEN < 55 mm  
 08 point - WID  $\geq$  14 mm and < 28 mm; LEN  $\geq$  55 mm and < 82 mm  
 10 point - WID  $\geq$  28 mm and < 44 mm; LEN  $\geq$  82 mm and < 118 mm  
 12 point - WID  $\geq$  44 mm and < 62 mm; LEN  $\geq$  118 mm and < 158 mm  
 14 point - WID  $\geq$  62 mm and < 84 mm; LEN  $\geq$  158 mm and < 198 mm  
 16 point - WID  $\geq$  84 mm and < 104 mm; LEN  $\geq$  198 mm and < 240 mm  
 18 point - WID  $\geq$  104 mm and LEN  $\geq$  240 mm  
 Where WID and LEN measurements are inconsistent, the larger type size shall be used.
- L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.
- R-2736** Islands (4B135) within river/stream (2H140) and lake/ponds (2H080) that are not required for port access (RPA=002), may be deleted, if length is less than 10 mm at chart scale.
- T-0858** Thinning Criteria for Islands (4B135):  
 a. If numerous small islands (length < 2 mm at chart scale) fall close inshore, on a chart intended for offshore/coastal navigation, those islands may be generalized to show a representative pattern, retaining those islands most seaward.  
 b. If any two point islands fall within 1 mm of each other at chart scale, retain only the most seaward one, unless unusual circumstances require both to be shown, for example, both are named and described in Sailing Direction publications.  
 c. If a point island falls within 1 mm of the shoreline (2A010 or 2H075) delete the point island, unless unusual circumstances require both to be shown, for example, both are named and described in Sailing Direction publications.

**ISLAND...4B135 (POINT)**

- L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.
- R-2736** Islands (4B135) within river/stream (2H140) and lake/ponds (2H080) that are not required for port access (RPA=002), may be deleted, if length is less than 10 mm at chart scale.

**FEATURE: ISLAND...4B135 (POINT)****T-0858** Thinning Criteria for Islands (4B135):

- a. If numerous small islands (length < 2 mm at chart scale) fall close inshore, on a chart intended for offshore/coastal navigation, those islands may be generalized to show a representative pattern, retaining those islands most seaward.
- b. If any two point islands fall within 1 mm of each other at chart scale, retain only the most seaward one, unless unusual circumstances require both to be shown, for example, both are named and described in Sailing Direction publications.
- c. If a point island falls within 1 mm of the shoreline (2A010 or 2H075) delete the point island, unless unusual circumstances require both to be shown, for example, both are named and described in Sailing Direction publications.

**VOLCANO...4B180 (AREA)****L-4700** Use the following abbreviations for ACC and EXS values:

- If ACC=002, label "PA"
- If ACC=003, label "PD"
- If EXS=002, label "ED"
- If EXS=003, label "Rep"

**L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

**L-4708** Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

**L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**O-3411** Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

**Definitions**

PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.

PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.

ED - Existence Doubtful = Indicates the possible existence of the feature, the actual existence of which has not been established.

**ADMINISTRATIVE BOUNDARY...6A000 (LINE)**

**L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

**FEATURE: ADMINISTRATIVE BOUNDARY...6A000 (LINE)**

- L-4713** Boundary label names shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. When two names are required they shall be centered with respect to one another. Names shall be centered on the inland portion of the boundary, but may be moved parallel to the boundary  $\leq 4$  mm to avoid overprints.
- L-4746** Possession of islands and island groups shall be shown by placing the country name in parentheses below the island name or island group name. If all of the islands in an Island group belong to one country, the country name shall be placed under the island group name only. If islands within the same island group belong to different countries, the country name shall be placed under each island name, and not under the island group name. Islands administered jointly by two countries shall show both country names, separated by a dash, e.g., (UK-US). Country names shall be abbreviated in the manner approved by the Board of Geographic Names. Type size for country names shall be  $\frac{2}{3}$  the size of the island name or island group name, but shall not be less than 5 point.
- L-4879** If *BST=001* (Definite), delete the *BST* label.
- R-2497** In areas where there is no defined boundary between two countries (*BST=004*), center *NM3* and *NM4* in the approximate area on their respective sides of the label "NO DEFINED BOUNDARY". Pairs of labels may be repeated if necessary for large areas, but pairs should be positioned far enough apart so that they **DO NOT** imply a specific division line between the two countries.
- R-2801** If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.
- R-2836** Charts that cover Canadian or Mexican waters and include U.S. waters show the same international boundaries (6A000, *USE=023*) shown on National Ocean Service (NOS) charts. Boundaries are not shown in open waters area.
- R-2838** Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.
- R-2844** When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a *FACS* Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**ARMISTICE LINE...6A020 (LINE)**

- L-4713** Boundary label names shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. When two names are required they shall be centered with respect to one another. Names shall be centered on the inland portion of the boundary, but may be moved parallel to the boundary  $\leq 4$  mm to avoid overprints.
- R-2801** If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.
- R-2838** Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

**FEATURE: ARMISTICE LINE...6A020 (LINE)**

**R-2844** When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**CEASE-FIRE LINE...6A030 (LINE)**

**L-4714** Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.

**R-2801** If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

**R-2838** Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

**R-2844** When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**CLAIM LINE...6A040 (LINE)**

**L-4714** Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.

**R-2801** If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

**R-2838** Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

**R-2844** When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**INTERNATIONAL MARITIME BOUNDARY...6A050 (LINE)**

**L-3803** Position type 3 mm away from line on each side, reading left to right, or bottom to top if line is vertical. Position country names adjacent to each other, and TXT label to the right of NM3 label.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURES: INTERNATIONAL MARITIME BOUNDARY...6A050 (LINE)**

- R-2756** When the US-Russia International Maritime Boundary is shown on the map/chart, a legend "See note" shall be shown next to the boundary, and the following note shown in the margin of the map/chart, or if necessary, in any open water area:

## NOTE

Maritime boundary provisionally applied  
pending formal exchange of instruments  
of ratification.

**DEFACTO BOUND. /OTHER LINE OF SEPARATION...6A060 (LINE)**

- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.
- L-4713** Boundary label names shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. When two names are required they shall be centered with respect to one another. Names shall be centered on the inland portion of the boundary, but may be moved parallel to the boundary  $\leq 4$  mm to avoid overprints.
- R-2276** If a boundary is not recognized by the U.S. Department of State as an official international boundary, but falls under the category of "Other Line of Separation", and the type of boundary is not portrayed by another Subcategory 6A FACS feature, the TXT attribute is used to label the line in accordance with Geonames/Boundary guidance; e.g. "Administrative Line", "Provisional Administrative Line."
- R-2801** If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.
- R-2838** Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.
- R-2844** When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**DEMILITARIZED ZONE...6A070 (AREA)**

- L-4714** Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.
- R-2800** When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.
- R-2801** If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.
- R-2838** Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

**FEATURE: DEMILITARIZED ZONE...6A070 (AREA)**

**R-2844** When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**ZONE OF OCCUPATION...6A170 (AREA)**

**L-4714** Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.

**R-2800** When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

**R-2801** If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

**R-2838** Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

**R-2844** When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**DIRECTION OF BUOYAGE INDICATOR...6C035 (POINT)**

**L-3804** The note "GENERAL DIRECTION OF BUOYAGE ON THIS CHART" is generally shown, reading horizontally, near the stem of the arrow, but it may be omitted in congested areas.

**R-2757** The standard size "Direction of Buoyage" symbol may be reduced in size to 75% or 50% for use in congested areas.

**MARITIME LIMIT...6C090 (AREA)**

**L-4008** If NAM = unknown, omit NAM window.

**FEATURE: MARITIME LIMIT...6C090 (AREA)****L-4715** Type sizes for Maritime Limits and areas:

- 8 point - < 8 sq. cm.
- 10 point -  $\geq$  8 and < 12 sq. cm.
- 12 point -  $\geq$  12 and < 24 sq. cm.
- 14 point -  $\geq$  24 and < 100 sq. cm.
- 8 point -  $\geq$  100 sq. cm.

Type placement for areas  $\geq$  100 sq. cm. to < 500 sq. cm.

Two labels are shown on approximately opposite sides of the area, preferably top and bottom.

Type placement for areas  $\geq$  500 sq. cm.

Labels are placed at approximately 250 mm. interval around the perimeter of the feature.

Do not place labels around sharp corners (interior angle  $<135^\circ$ ), or along chart neatlines. Place type 1 mm away and parallel to area limit line, reading left to right, or bottom to top if limit line is vertical. Type is placed on the INSIDE of the area.

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**L-4751** Maritime Limit type "Unsurveyed Area" (6C090 MLT=005) shall be labeled with legends spaced every 50 mm along the boundary line, with type positioned 1 mm away from the line. Labels should be on the inside of the area reading from right to left, or bottom to top if boundary is vertical. Do not place text around sharp corners.**L-4752** Label for oilfield with unknown limits (6C090, MLT=018, COD=002) shall be placed parallel to south neatline in center of area. It may be moved up or down, right or left, up to 30 mm to avoid overprints with platforms.**L-4753** Type placement for areas < 100 sq. cm. Type shall be centered in area reading from left to right.

If longer of two axes is North-South  $\pm$  20 degrees or East-West  $\pm$  20 degrees, type is parallel to south neatline.

(a) If  $LEN < WID$  times two, type shall be placed on two approximately equal lines without splitting words.

(b) If  $LEN \geq WID$  times two, and major axis is East-West  $\pm$  20 degrees, type shall be placed on one line.

(c) If  $LEN \geq WID$  times two, and major axis is North-South  $\pm$  20 degrees, type shall be placed with each word on a separate line.

If longer of two axes is more than 20 degrees from either North-South or East-West, and  $LEN < WID$  times two, type shall be parallel to south neatline and on two approximately equal lines without splitting words

If longer of two axes is more than 20 degrees from either North-South or East-West, and  $LEN \geq WID$  times two, type shall be placed parallel to the major axis on one line. e to be placed inside area, place type outside area, using Rule L-4722.

**R-2290** When MLT=001 (Other), HOC shall be 005 (Natural) if the limit is associated with depths or other physical obstructions. HOC shall be 004 (Man-made) when the limit has no permanent physical obstructions.**R-2800** When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.**R-2985** Minimum width for maritime limit symbols (6C090), other than pilot boarding areas (MLT=019), shall be 4 mm at chart scale.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:750,001 - 1:1,000,000) PRODUCT RULES

**FEATURE: MARITIME LIMIT...6C090 (AREA)**

R-2987 If oil or gas fields (6C090, MLT=018) appear on a chart, the following note is shown in the margin or land area.

**NOTE****OIL AND GAS FIELDS**

The limit of development areas are charted around certain fields. Vessels, subsea craft and divers may be engaged in constructing and servicing installations within these areas. Other vessels are strongly advised to keep outside the charted limits. Platforms and tanker moorings generally show all or some of the following Lights: Mo (U) W 15s 10 or 15M, Mo (U) R 15s 2M, aircraft obstruction Lights; and sound fog signals: Mo (U) 30s. Unauthorized navigation is prohibited within 500 meters of structures, and of subsea production wells marked by buoys. Maneuvering tankers should be given a wide berth.

This note is not combined with other notes. Type 9 point (title) and 7 point (text) Swiss 742.

Color is Black SPC-58600.

R-3703 HOC and TXT attributes are used when MLT=001 (Other). TXT shall be worded in the form of a label that will appear on the symbol for MLT=001. PBV is used when MLT=019 (Pilot Boarding Area). COD and NAM are used when MLT=018 (Oil /Gas Field). OPS is used when MLT=004 (Spoil Area), or when MLT=015 (Dumping Ground for Hazardous Material). PRO is used when MLT=015 (Dumping Ground for Hazardous Material). If PRO is 019 (Other), a TXT label replaces the PRO label, and is used to label the hazardous material being dumped.

T-0842 If entire area feature is within the blue tinted area inside the specified depth curve (2E010) or depth contour (2E015), do not show this feature.

**MARITIME LIMIT...6C090 (LINE)**

L-4714 Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.

R-2762 DMA Charts showing the US Exclusive Economic Zone shall show this limit in the same geographic position as shown by the authoritative NOS source.

**MARITIME LIMIT...6C090 (POINT)**

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**RESTRICTED AREA...6C150 (POINT)****MAGNETIC DISTURBANCE AREA...9C040 (AREA)**

**FEATURE: MAGNETIC DISTURBANCE AREA...9C040 (AREA)****L-4705** Labeling areas, in order of preference:

- (1) Centered in area on one line in the area, type is horizontal, reading left to right.
- (2) Centered in area on one line in the area, oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
- (3) Centered in area on two approximately equal lines, without splitting a word, type is horizontal, reading left to right.
- (4) Centered on two approximately equal lines without splitting a word, type is oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
- (5) Use Rule L-4722 for type placement if the area is too small to place the type inside the area.

**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**L-4737** Feature name /label shall be positioned parallel to lines of latitude and readable left to right.**MISCELLANEOUS CULTURAL FEATURE...9D012 (AREA)****L-4705** Labeling areas, in order of preference:

- (1) Centered in area on one line in the area, type is horizontal, reading left to right.
- (2) Centered in area on one line in the area, oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
- (3) Centered in area on two approximately equal lines, without splitting a word, type is horizontal, reading left to right.
- (4) Centered on two approximately equal lines without splitting a word, type is oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
- (5) Use Rule L-4722 for type placement if the area is too small to place the type inside the area.

**L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.**L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.

(A) Minimum distance from symbol - 1 mm.

(B) Maximum distance from symbol before choosing the next highest priority:

- #1 4 mm measured to the West end
- #2 4 mm measured to the North side (top)
- #3 4 mm measured to the East end
- #4 4 mm measured to the South side (bottom)

**MISCELLANEOUS CULTURAL FEATURE...9D012 (LINE)****L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.**L-4743** If feature type is linear, the label hierarchy is:

- (1) Label shall be placed 1 mm above feature, centered.
- (2) Top of label shall be placed 1 mm below feature, centered.
- (3) Label may be displaced along the feature; use two labels if feature length 150 mm or greater.
- (4) Do not label across shoreline (2A010 or 2H075).

**MISCELLANEOUS CULTURAL FEATURE...9D012 (POINT)****L-4709** If attribute NAM is unknown, delete window and condense the remaining windows.

**FEATURE: MISCELLANEOUS CULTURAL FEATURE...9D012 (POINT)**

- L-4722** Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.  
 (A) Minimum distance from symbol - 1 mm.  
 (B) Maximum distance from symbol before choosing the next highest priority:  
 #1 4 mm measured to the West end  
 #2 4 mm measured to the North side (top)  
 #3 4 mm measured to the East end  
 #4 4 mm measured to the South side (bottom)

**NAMED LOCATION...9D040 (AREA)**

- L-3608** Symbolized populated places shall be classified and labeled in accordance with five (5) categories which are to be determined as follows:  
 1. When complete and up-to-date population figures are available, they shall serve as the basis for the 5 categories.  
 2. The population figures of a town with the addition of enhanced importance due to being administrative centers, junctions of important Roads, rail center or another significant value to a military user.  
 3. When population figures are not available or are incomplete, the size of the Built-up Areas shall be a guide to basic classification.  
 4. Classification of populated places by class shall be shown by type size.  
 5. Population breakdown and the relative importance breakdown equivalent in culturally developed area:  
 1st class > 500,000.or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case  
 2nd class > 50,000 to <= 500,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case  
 3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower  
 4th class > 5,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower  
 5th class <= 5,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case
- L-3609** Population breakdown and the relative importance equivalent in an area not developed culturally:  
 1st class > 100,000..or 1st importance (PL 1) 14 Pt Bold Condensed Upper Case  
 2nd class > 50,000 to <= 100,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case  
 3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower  
 4th class > 2,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower  
 5th class <= 2,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case
- L-4827** Geographic names shall not be placed along the axis of deepest water in a confined area, such as a channel, fairway, etc.
- R-2845** On charts which contain names that do not necessarily reflect the officially recognized political status, the following disclaimer is shown when specified by the Board of Geographic Names.

Geographic names or their spellings do not necessarily reflect recognition of the political status of the area by the United States Government.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**NAMED LOCATION...9D040 (LINE)**

**FEATURE: NAMED LOCATION...9D040 (LINE)**

- L-3608** Symbolized populated places shall be classified and labeled in accordance with five (5) categories which are to be determined as follows:
1. When complete and up-to-date population figures are available, they shall serve as the basis for the 5 categories.
  2. The population figures of a town with the addition of enhanced importance due to being administrative centers, junctions of important Roads, rail center or another significant value to a military user.
  3. When population figures are not available or are incomplete, the size of the Built-up Areas shall be a guide to basic classification.
  4. Classification of populated places by class shall be shown by type size.
  5. Population breakdown and the relative importance breakdown equivalent in culturally developed area:
    - 1st class > 500,000.or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case
    - 2nd class > 50,000 to <= 500,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case
    - 3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower
    - 4th class > 5,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower
    - 5th class <= 5,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case
- L-3609** Population breakdown and the relative importance equivalent in an area not developed culturally:
- 1st class > 100,000..or 1st importance (PL 1) 14 Pt Bold Condensed Upper Case
  - 2nd class > 50,000 to <= 100,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case
  - 3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower
  - 4th class > 2,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower
  - 5th class <= 2,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case
- L-4827** Geographic names shall not be placed along the axis of deepest water in a confined area, such as a channel, fairway, etc.
- R-2845** On charts which contain names that do not necessarily reflect the officially recognized political status, the following disclaimer is shown when specified by the Board of Geographic Names.
- Geographic names or their spellings do not necessarily reflect recognition of the political status of the area by the United States Government.
- Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**NAMED LOCATION...9D040 (POINT)**

**FEATURE: NAMED LOCATION...9D040 (POINT)**

- L-3608** Symbolized populated places shall be classified and labeled in accordance with five (5) categories which are to be determined as follows:
1. When complete and up-to-date population figures are available, they shall serve as the basis for the 5 categories.
  2. The population figures of a town with the addition of enhanced importance due to being administrative centers, junctions of important Roads, rail center or another significant value to a military user.
  3. When population figures are not available or are incomplete, the size of the Built-up Areas shall be a guide to basic classification.
  4. Classification of populated places by class shall be shown by type size.
  5. Population breakdown and the relative importance breakdown equivalent in culturally developed area:
    - 1st class > 500,000.or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case
    - 2nd class > 50,000 to <= 500,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case
    - 3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower
    - 4th class > 5,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower
    - 5th class <= 5,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case
- L-3609** Population breakdown and the relative importance equivalent in an area not developed culturally:
- 1st class > 100,000..or 1st importance (PL 1) 14 Pt Bold Condensed Upper Case
  - 2nd class > 50,000 to <= 100,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case
  - 3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower
  - 4th class > 2,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower
  - 5th class <= 2,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case
- L-4827** Geographic names shall not be placed along the axis of deepest water in a confined area, such as a channel, fairway, etc.
- R-2845** On charts which contain names that do not necessarily reflect the officially recognized political status, the following disclaimer is shown when specified by the Board of Geographic Names.

Geographic names or their spellings do not necessarily reflect recognition of the political status of the area by the United States Government.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

**TEXT DESCRIPTION...9D045 (AREA)**

- L-3809** Type style for labels:
- Features that are on the land, or above the surface of the water at high water (VRC=001) shall be labeled with vertical type. Included in this category are fixed aids to navigation in water areas.
  - Features that are below the surface of the water at high water (VRC=004 or 008), and floating aids to navigation (Buoys), shall be labeled with italic type.
- L-4893** If feature is in ruins, and not portrayed as a ruins (1L200), or by an EXS label, add the label "Ru" to the feature.

**TEXT DESCRIPTION...9D045 (LINE)**

**FEATURE: TEXT DESCRIPTION...9D045 (LINE)****L-3809** Type style for labels:

- Features that are on the land, or above the surface of the water at high water (VRC=001) shall be labeled with vertical type. Included in this category are fixed aids to navigation in water areas.
- Features that are below the surface of the water at high water (VRC=004 or 008), and floating aids to navigation (Buoys), shall be labeled with italic type.

**L-4893** If feature is in ruins, and not portrayed as a ruins (1L200), or by an EXS label, add the label "Ru" to the feature.

**TEXT DESCRIPTION...9D045 (POINT)****L-3809** Type style for labels:

- Features that are on the land, or above the surface of the water at high water (VRC=001) shall be labeled with vertical type. Included in this category are fixed aids to navigation in water areas.
- Features that are below the surface of the water at high water (VRC=004 or 008), and floating aids to navigation (Buoys), shall be labeled with italic type.

**L-4893** If feature is in ruins, and not portrayed as a ruins (1L200), or by an EXS label, add the label "Ru" to the feature.

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## CONCLUDING MATERIAL

Custodians:  
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Preparing activity:  
DMA - MP

(Project MCGT-0136)

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1; 2 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

**NOTE:** This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

|   |   |                                     |
|---|---|-------------------------------------|
| <b>I RECOMMEND A CHANGE</b>   | 1. DOCUMENT NUMBER<br>MIL-H-89201/8 (DMA)   | 2. DOCUMENT DATE (YYMMDD)<br>950429 |
| 3. DOCUMENT TITLE<br>Military Specification for Harbor, Approach, and Coastal Charts, 1:750,001 to 1:1,000,000                  |   |                                     |
| 4. NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed)</i> |   |                                     |
| 5. REASON FOR RECOMMENDATION  |   |                                     |
| 6. SUBMITTER  |   |                                     |
| a. NAME <i>(Last, First, Middle Initial)</i>  | b. ORGANIZATION   |                                     |
| c. ADDRESS <i>(Include Zip Code)</i>  | d. TELEPHONE <i>(Include Area Code)</i><br>(1) Commercial<br>(2) AUTOVON<br><i>(If applicable)</i>  | 7. DATE SUBMITTED<br>(YYMMDD)       |
| 8. PREPARING ACTIVITY   |   |                                     |
| a. NAME<br>Defense Mapping Agency<br>ATTN: ATIS, MS A-10  | b. TELEPHONE <i>(Include Area Code)</i><br>(1) Commercial<br>(703) 285-92 38  | (2) AUTOVON<br>356-92 38            |
| c. ADDRESS <i>(Include Zip Code)</i><br><br>8613 Lee Highway<br>Fairfax, VA 22031-2137  | IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:<br><br>Defense Quality and Standardization Office<br>5203 Leesburg Pike, Suite 1403, Falls Church, VA. 22041-3466<br>Telephone (703) 756-2340 AUTOVON 289-2340 |                                     |