

**METRIC**

MIL-H-89201/6 (DMA)  
29 April 1995  
SUPERSEDING  
MIL-H-89201  
31 AUG 1990

**ASSOCIATED DETAIL MILITARY SPECIFICATION**

**HARBOR, APPROACH, AND COASTAL CHARTS**

**AT SCALES 1:350,001 TO 1:600,000 (HAC 6)**

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 1:350,001 to 1:600,000 (HAC 6).

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 1:350,001 to 1:600,000 (HAC 6).

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 (1:350,001 - 1:600,000)  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Miscellaneous Features (1L)  
\*HAC 6\*HAC 6

**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
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)

-----  
**POINT**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	-None
BAC	BUILT-UP AREA CLASSIFICATION	
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)

\*HAC 6\*HAC 6

**1L160 PIPELINE /PIPE**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
DEP	DEPTH BELOW SURFACE LEVEL	L-4743
EXS	EXISTENCE CATEGORY	L-4862
HSB	HEIGHT ABOVE SEA BOTTOM	O-3427
LEN	LENGTH /DIAMETER	R-2208
LOC	LOCATION /ORIGIN CATEGORY	R-2818
PLT	PIPELINE TYPE	R-2937
PRO	PRODUCT CATEGORY	

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 11(ON SEA BOTTOM) or 12(SUSPENDED OR ELEVATED ABOVE SEA BOTTOM)  
 and PLT(PIPELINE TYPE) 1(TRANSPORT)  
 OR LOC(LOCATION/ORIGIN CATEGORY) 10(BELOW SEA BOTTOM)  
 and PLT(PIPELINE TYPE) 1(TRANSPORT)  
 and EXS(EXISTENCE CATEGORY) 28(OPERATIONAL)

\*HAC 6\*HAC 6

**1Q040 BRIDGE /OVERPASS /VIADUCT**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
DAT	DATE CATEGORY	L-4815
EXS	EXISTENCE CATEGORY	L-4863
LEN	LENGTH /DIAMETER	O-3437
OWO	OVER WATER OBSTRUCTION	R-2744
		R-2804
		R-9035

-----

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Associated Transportation (1Q)

---

**1Q040 BRIDGE /OVERPASS /VIADUCT (Cont.)**  
**LINE**

Inclusion Conditions:

OWO(OVER WATER OBSTRUCTION) 1(FEATURE CROSSES NAVIGABLE WATER)  
 and length >= 5 mm (map scale)

\*HAC 6\*HAC 6

**1R030 NAVAIDS (AERONAUTICAL)**  
**POINT**

Attributes

DFS DISTANCE FROM SHORELINE  
 EXS EXISTENCE CATEGORY  
 NST RADIO NAVIGATION /COMMUNICATION  
 RGE TRANSMITTER EFFECTIVE RANGE

PG Rules

L-4722  
 L-4782

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 6\*HAC 6

**1T005 CABLE**  
**LINE**

Attributes

EXS EXISTENCE CATEGORY  
 LOC LOCATION /ORIGIN CATEGORY  
 USE USE STATUS

PG Rules

R-2211  
 R-2212  
 R-2818

Inclusion Conditions:

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

\*HAC 6\*HAC 6

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

Attributes

COC CONSPICUOUS OBJECT CATEGORY  
 DFS DISTANCE FROM SHORELINE  
 GUG GUYED OR UNGUYED CATEGORY  
 HGT HEIGHT ABOVE SURFACE LEVEL  
 NST RADIO NAVIGATION /COMMUNICATION

PG Rules

D-7011  
 L-3805  
 L-4722  
 L-4737  
 O-3431  
 O-3434  
 R-2746  
 T-0824  
 T-0857

---

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Communication /Transmission (1T)

---

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

Inclusion Conditions:

COC(CONSPICUOUS OBJECT CATEGORY) 1(CONSPICUOUS)  
 OR NST(RADIO NAVIGATION/COMMUNICATION) 2(CONSOL) or 3(DECCA) or 7(LORAN) or 8(OMEGA)  
 OR COC(CONSPICUOUS OBJECT CATEGORY) 2(NOT CONSPICUOUS)  
 and DFS(DISTANCE FROM SHORELINE) <= 3,000 m  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) >= 10 m

\*HAC 6\*HAC 6

**2A010 COASTAL SHORELINE**  
**LINE**

Attributes

ACC ACCURACY CATEGORY  
 SLT SHORELINE TYPE CATEGORY  
 VDC VERTICAL DATUM CATEGORY

PG Rules

D-7010  
 R-1200  
 R-2738

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**2A020 FORESHORE**  
**AREA**

Attributes

LEN LENGTH /DIAMETER  
 LOC LOCATION /ORIGIN CATEGORY  
 WID WIDTH

PG Rules

R-2825  
 R-2826  
 R-3708

Inclusion Conditions:

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

---

**POINT**

Attributes

LEN LENGTH /DIAMETER  
 LOC LOCATION /ORIGIN CATEGORY

PG Rules

R-2825  
 R-2911  
 R-3708  
 R-3709

Inclusion Conditions:

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

\*HAC 6\*HAC 6

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

Attributes

NO ATTRIBUTE REQUIRED

PG Rules

O-3407  
 O-3435  
 R-2869  
 R-2871

---

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Coastal Hydro (2A)

---

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

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**2B040 BREAKWATER**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	L-4725
VRC	VERTICAL REFERENCE CATEGORY	L-4743

Inclusion Conditions:

Length >= 3 mm (map scale)

\*HAC 6\*HAC 6

**2B140 JETTY**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	-None
VRC	VERTICAL REFERENCE CATEGORY	

Inclusion Conditions:

Length >= 3 mm (map scale)

and VRC(VERTICAL REFERENCE CATEGORY) 1 (ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER))

\*HAC 6\*HAC 6

**2B170 OFFSHORE LOADING FACILITY**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	L-4705
NAM	NAME CATEGORY	L-4709
WID	WIDTH	L-4722
		R-9035

Inclusion Conditions:

Width >= 0.8 mm (map scale)

---

**LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	L-4709
NAM	NAME CATEGORY	L-4860
WID	WIDTH	R-9035

---

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Ports and Harbors (2B)

**2B170 OFFSHORE LOADING FACILITY (Cont.)**  
**LINE**

Inclusion Conditions:

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

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
CHA LIGHT CHARACTERISTIC CATEGORY	L-4709
LEN LENGTH /DIAMETER	L-4722
NAM NAME CATEGORY	R-2849
USE USE STATUS	
WID WIDTH	

Inclusion Conditions:

Length < 0.8 mm (map scale)

\*HAC 6\*HAC 6

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

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>	<u>PG Rules</u>
BF1 BROADCAST FREQUENCY (1)	D-1914	L-4840	L-4875
BF2 BROADCAST FREQUENCY (2)	D-7013	L-4841	L-4876
CHA LIGHT CHARACTERISTIC CATEGORY	L-4709	L-4842	R-2295
COL CHARACTER OF LIGHT	L-4711	L-4843	R-2849
LVR LIGHT VISIBILITY RANGE	L-4737	L-4844	R-2884
MLR MULTIPLE LIGHT RANGES	L-4759	L-4845	R-2885
NAM NAME CATEGORY	L-4761	L-4846	R-2886
PER PERIOD OF LIGHT	L-4766	L-4850	R-2887
RA1 RADIO AID (1)	L-4767	L-4853	R-2997
RA2 RADIO AID (2)	L-4789	L-4856	S-1403
SSC STRUCTURE SHAPE CATEGORY	L-4835	L-4858	T-0845
	L-4836		

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

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

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
BF1 BROADCAST FREQUENCY (1)	D-7013	L-4844
BF2 BROADCAST FREQUENCY (2)	L-4709	L-4850
BR1 BEACON RANGE (1)	L-4737	L-4853
BR2 BEACON RANGE (2)	L-4783	O-3400
NAM NAME CATEGORY	L-4835	T-0854
RA1 RADIO AID (1)	L-4836	T-0855
RA2 RADIO AID (2)		

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Navaids (2C)

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

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**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-4835	L-4876
BF2 BROADCAST FREQUENCY (2)	L-4709	L-4836	L-4888
COL CHARACTER OF LIGHT	L-4711	L-4840	O-3400
EXS EXISTENCE CATEGORY	L-4737	L-4841	R-2295
HLT HYDROGRAPHIC LIGHT TYPE	L-4759	L-4842	R-2849
LVR LIGHT VISIBILITY RANGE	L-4760	L-4843	R-2884
MLR MULTIPLE LIGHT RANGES	L-4761	L-4844	R-2887
NAM NAME CATEGORY	L-4762	L-4850	R-2889
PER PERIOD OF LIGHT	L-4783	L-4853	R-2920
RA1 RADIO AID (1)	L-4788	L-4856	T-0821
RA2 RADIO AID (2)	L-4792	L-4858	T-0853
	L-4793	L-4875	

Inclusion Conditions:

HLT(HYDROGRAPHIC LIGHT TYPE) 0(UNKNOWN) or 1(SECTORED LIGHT) or 2(OTHER) or 6(LIGHTED BEACON)  
 and EXS(EXISTENCE CATEGORY) 33(CONTINUOUS OPERATION)

\*HAC 6\*HAC 6

**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

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Dangers and Underwater Features (2D)

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

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
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 6\*HAC 6

**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)

**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 6\*HAC 6

**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

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Dangers and Underwater Features (2D)

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

R-3708

Inclusion Conditions:

Length &gt;= 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	

Inclusion Conditions:

Length &lt; 4 mm (map scale)

\*HAC 6\*HAC 6

**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 &gt;= 4 mm (map scale)

**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		

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Dangers and Underwater Features (2D)

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

Inclusion Conditions:

Length < 4 mm (map scale)

\*HAC 6\*HAC 6

**2D060 KELP**  
**AREA**

Attributes

ARA AREA COVERAGE ATTRIBUTE  
 LEN LENGTH /DIAMETER

PG Rules

D-1907  
 R-2913

Inclusion Conditions:

Length >= 5 mm (map scale)

**POINT**

Attributes

LEN LENGTH /DIAMETER

PG Rules

D-1907

Inclusion Conditions:

Length < 5 mm (map scale)

\*HAC 6\*HAC 6

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

Attributes

CHA LIGHT CHARACTERISTIC CATEGORY  
 NST RADIO NAVIGATION /COMMUNICATION

PG Rules

L-4706  
 L-4722  
 L-4730  
 T-0800

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**2D120 REEF**  
**AREA**

Attributes

ACC ACCURACY CATEGORY  
 COD CERTAINTY OF DELINEATION  
 DAT DATE CATEGORY  
 EXS EXISTENCE CATEGORY  
 HDH HYDROGRAPHIC DRYING HEIGHT  
 HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION  
 HDP HYDROGRAPHIC DEPTH  
 MCP MATERIAL COMPOSITION PRIMARY  
 NAM NAME CATEGORY  
 VDC VERTICAL DATUM CATEGORY  
 VDR VERTICAL DATUM RECORD  
 VRC VERTICAL REFERENCE CATEGORY

PG Rules

D-1910  
 L-4700  
 L-4702  
 L-4707  
 L-4708  
 L-4709  
 L-4722  
 L-4730

PG Rules

L-4807  
 L-4808  
 L-4809  
 L-4811  
 L-4813  
 O-3411  
 R-2210  
 R-2215

PG Rules

R-2221  
 R-2222  
 R-2802  
 R-2806  
 R-2915  
 R-3708  
 R-9040

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Dangers and Underwater Features (2D)

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

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**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 6\*HAC 6

**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-0808
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			

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**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-2869
	O-3408	R-2871
	O-3421	R-2874

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Depth Information (2E)

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

O-3435	R-2875
R-2201	R-2876
R-2812	R-2882
R-2813	

Inclusion Conditions:

Depth curve interval: 10, 20, 30, 50, 100, 200, 300, 400, 500, 1000, and 2000 meters, or as shown on hydrographic source charts

\*HAC 6\*HAC 6

**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-2862	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 6\*HAC 6

**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 6\*HAC 6

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)

**CATEGORY:** Hydrography (2)

**SUBCATEGORY:** Tide and Current Information (2G)

~~\*HAC 6\*HAC 6~~

**2G030 TIDAL STREAM DATA POINT  
POINT**

Attributes

NAM NAME CATEGORY

PG Rules

R-2906

Inclusion Conditions:

All required

~~\*HAC 6\*HAC 6~~

**2H020 CANAL  
LINE**

Attributes

EXS EXISTENCE CATEGORY

HDP HYDROGRAPHIC DEPTH

RPA REQUIRED FOR PORT ACCESS

WID WIDTH

PG Rules

L-4702

L-4885

R-2745

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 32(NAVIGABLE)

~~\*HAC 6\*HAC 6~~

**2H075 INLAND SHORELINE  
LINE**

Attributes

ACC ACCURACY CATEGORY

AHC ASSOCIATED HYDROGRAPHIC CATEGORY

SLT SHORELINE TYPE CATEGORY

PG Rules

D-7010

R-2739

Inclusion Conditions:

All required

~~\*HAC 6\*HAC 6~~

**2H080 LAKE /POND  
AREA**

Attributes

HYC HYDROGRAPHIC CATEGORY

LEN LENGTH /DIAMETER

NAM NAME CATEGORY

RPA REQUIRED FOR PORT ACCESS

WID WIDTH

PG Rules

A-0063

L-4704

L-4709

L-4722

L-4821

L-4822

R-2745

R-3673

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 6\*HAC 6~~

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Inland Water (2H)  
\*HAC 6\*HAC 6

**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 6\*HAC 6

**2I030 LOCK  
 POINT**

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

Inclusion Conditions:

RPA(REQUIRED PORT ACCESS) 1(Access REQUIRED)

\*HAC 6\*HAC 6

**2J065 ICE SHELF  
 AREA**

<u>Attributes</u>	<u>PG Rules</u>
NO ATTRIBUTE REQUIRED	R-2256
	R-2804
	R-9037

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

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
 CATEGORY: Hydrography (2)  
 SUBCATEGORY: Snow /Ice (2J)

---

2J065 ICE SHELF (Cont.)  
 AREA

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

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 6\*HAC 6

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 6\*HAC 6

4B135 ISLAND  
 AREA

Attributes

LEN LENGTH /DIAMETER  
 NAM NAME CATEGORY  
 WID WIDTH

PG Rules

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

Inclusion Conditions:

Length >= 0.2 mm (map scale)

---

POINT

Attributes

LEN LENGTH /DIAMETER  
 NAM NAME CATEGORY

PG Rules

L-4709  
 R-2736  
 T-0858

---

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Physiography (4)  
**SUBCATEGORY:** Landforms (4B)

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

Inclusion Conditions:

Length < 0.2 mm (map scale)

\*HAC 6\*HAC 6

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

<u>Attributes</u>		<u>PG Rules</u>
ACC	ACCURACY CATEGORY	L-4700
DAT	DATE CATEGORY	L-4707
EXS	EXISTENCE CATEGORY	L-4708
LOC	LOCATION /ORIGIN CATEGORY	L-4709
NAM	NAME CATEGORY	L-4722
		O-3411

Inclusion Conditions:

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

\*HAC 6\*HAC 6

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

<u>Attributes</u>		<u>PG Rules</u>
ACC	ACCURACY CATEGORY	L-4707
BST	BOUNDARY STATUS TYPE	L-4713
NM3	NAME 3	L-4746
NM4	NAME 4	L-4879
USE	USE STATUS	R-2497
		R-2801
		R-2836
		R-2838
		R-2844

Inclusion Conditions:

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

\*HAC 6\*HAC 6

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

<u>Attributes</u>		<u>PG Rules</u>
NM3	NAME 3	L-4713
NM4	NAME 4	R-2801
		R-2838
		R-2844

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)

**CATEGORY:** Demarcation (6)

**SUBCATEGORY:** Boundaries /Limits /Zones (Topographic) (6A)

\*HAC 6\*HAC 6

**6A030 CEASE-FIRE LINE**

**LINE**

Attributes

NO ATTRIBUTE REQUIRED

PG Rules

L-4714

R-2801

R-2838

R-2844

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**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 6\*HAC 6

**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 6\*HAC 6

**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

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL)

\*HAC 6\*HAC 6

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Demarcation (6)  
**SUBCATEGORY:** Boundaries /Limits /Zones (Topographic) (6A)  
\*HAC 6\*HAC 6

**6A070 DEMILITARIZED ZONE  
 AREA**

<u>Attributes</u>	<u>PG Rules</u>
NO ATTRIBUTE REQUIRED	L-4714 R-2800 R-2801 R-2838 R-2844

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**6A170 ZONE OF OCCUPATION  
 AREA**

<u>Attributes</u>	<u>PG Rules</u>
NM3 NAME 3	L-4714 R-2800 R-2801 R-2838 R-2844

Inclusion Conditions:

All required

\*HAC 6\*HAC 5\*HAC 6\*HAC 6

**6C035 DIRECTION OF BUOYAGE INDICATOR  
 POINT**

<u>Attributes</u>	<u>PG Rules</u>
DOF DIRECTION OF FLOW	L-3804 R-2757

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**6C040 DREDGED CHANNEL /DREDGED AREA  
 AREA**

<u>Attributes</u>	<u>PG Rules</u>
ATN AIDS TO NAVIGATION	L-4702
DAN DESCRIPTION OF AIDS TO NAVIGATION	L-4747
DAT DATE CATEGORY	L-4748
HDP HYDROGRAPHIC DEPTH	R-2205
MAS MAINTENANCE STATUS	R-2222
VDC VERTICAL DATUM CATEGORY	R-2278
VDR VERTICAL DATUM RECORD	R-2800
WID WIDTH	R-2840 R-2986 V-1067

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Demarcation (6)  
**SUBCATEGORY:** Boundaries /Limits /Zones (Hydrographic) (6C)

**6C040 DREDGED CHANNEL /DREDGED AREA (Cont.)**  
**AREA**

Inclusion Conditions:

Width >= 1 mm (map scale)

**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ATN AIDS TO NAVIGATION	L-4702
DAN DESCRIPTION OF AIDS TO NAVIGATION	L-4743
DAT DATE CATEGORY	L-4748
HDP HYDROGRAPHIC DEPTH	R-2209
LEN LENGTH /DIAMETER	R-2222
MAS MAINTENANCE STATUS	R-2278
VDC VERTICAL DATUM CATEGORY	R-2840
VDR VERTICAL DATUM RECORD	V-1067
WID WIDTH	

Inclusion Conditions:

Width < 1 mm (map scale)

\*HAC 6\*HAC 6

**6C075 INSHORE TRAFFIC ZONE**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
LEN LENGTH /DIAMETER	L-4749
TSP TRAFFIC SCHEME PART	O-3426
WID WIDTH	R-2852

Inclusion Conditions:

TSP(TRAFFIC SCHEME PART) 3(SEPARATION ZONE AREA)

**LINE**

<u>Attributes</u>	<u>PG Rules</u>
TSP TRAFFIC SCHEME PART	L-4749
	O-3426
	R-2852

Inclusion Conditions:

TSP(TRAFFIC SCHEME PART) 2(OUTER BOUNDARY) or 4(SEPARATION ZONE LINE)

\*HAC 6\*HAC 6

**6C090 MARITIME LIMIT**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
AOO ANGLE OF ORIENTATION	L-4008	R-2290
COD CERTAINTY OF DELINEATION	L-4715	R-2800
HOC HYDROGRAPHIC ORIGIN CATEGORY	L-4722	R-2985
LEN LENGTH /DIAMETER	L-4750	R-2987
MLT MARITIME LIMIT TYPE	L-4751	R-3703
NAM NAME CATEGORY	L-4752	T-0842
OPS OPERATIONAL STATUS	L-4753	
PBV PILOT BOARDING VEHICLE		
PRO PRODUCT CATEGORY		

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Demarcation (6)  
**SUBCATEGORY:** Boundaries /Limits /Zones (Hydrographic) (6C)

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

TXT TEXT ATTRIBUTE  
 WID WIDTH

PG RulesPG RulesInclusion Conditions:

Length  $\geq$  20 mm (map scale)  
 and MLT(MARITIME LIMIT TYPE) 19((PILOT BOARDING AREA)  
 OR MLT(MARITIME LIMIT TYPE) 1(OTHER) or 5(UNSURVEYED AREA) or 15(DUMPING GROUND FOR HAZARDOUS  
 MATERIAL) or 17(INCINERATION AREA) or 18(OIL/GAS FIELD)

**LINE**Attributes

MLT MARITIME LIMIT TYPE

PG Rules

L-4714  
 R-2762

Inclusion Conditions:

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

**POINT**Attributes

LEN LENGTH /DIAMETER  
 MLT MARITIME LIMIT TYPE  
 NAM NAME CATEGORY  
 PBV PILOT BOARDING VEHICLE

PG Rules

L-4709  
 L-4722

Inclusion Conditions:

MLT(MARITIME LIMIT TYPE) 19(PILOT BOARDING AREA)  
 and length  $<$  20 mm (map scale)

\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 5\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6

**6C110 MINE DANGER AREA****AREA**Attributes

AOO ANGLE OF ORIENTATION  
 COD CERTAINTY OF DELINEATION  
 EXS EXISTENCE CATEGORY  
 LEN LENGTH /DIAMETER  
 MAS MAINTENANCE STATUS  
 WID WIDTH

PG Rules

L-4715  
 L-4722  
 L-4753  
 L-4756  
 O-3413  
 R-2800  
 R-2809

Inclusion Conditions:

COD(CERTAINTY OF DELINEATION) 1(LIMITS AND INFO KNOWN)  
 and EXS(EXISTENCE CATEGORY) 1(DEFINITE)  
 and length  $\geq$  4 mm (map scale)  
 OR COD(CERTAINTY OF DELINEATION) 2(LIMITS AND INFO UNKNOWN)  
 OR EXS(EXISTENCE CATEGORY) 3(REPORTED)

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Demarcation (6)  
**SUBCATEGORY:** Boundaries /Limits /Zones (Hydrographic) (6C)

**6C110 MINE DANGER AREA (Cont.)**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COD CERTAINTY OF DELINEATION	L-4722
EXS EXISTENCE CATEGORY	O-3413
LEN LENGTH /DIAMETER	R-2809
MAS MAINTENANCE STATUS	

Inclusion Conditions:

Length < 4 mm (map scale)  
 and COD(CERTAINTY OF DELINEATION) 1(LIMITS AND INFO KNOWN)  
 and MAS(MAINTENANCE STATUS) 1(MAINTAINED)

\*HAC 6\*HAC 6

**6C120 PROHIBITED AREA**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
AOO ANGLE OF ORIENTATION	L-4715
LEN LENGTH /DIAMETER	L-4722
WID WIDTH	L-4753
	R-2800

Inclusion Conditions:

Length >= 4 mm (map scale)

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
LEN LENGTH /DIAMETER	L-4722

Inclusion Conditions:

Length < 4 mm (map scale)

\*HAC 6\*HAC 6

**6C150 RESTRICTED AREA**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
AOO ANGLE OF ORIENTATION	L-4715	R-2800
DTC DANGER /OBSTRUCTION CATEGORY	L-4722	R-2846
LEN LENGTH /DIAMETER	L-4753	R-2847
PRO PRODUCT CATEGORY	L-4758	R-2937
RAA RESTRICTED AREA ATTRIBUTE	L-4826	R-3678
USE USE STATUS	L-4862	R-9034
WID WIDTH	R-2218	

Inclusion Conditions:

Length >= 5 mm (map scale)  
 and DTC(DANGER/OBSTRUCTION CATEGORY) 14(FISHING PROHIBITED) or 16(OTHER) or 17(ANCHORING PROHIBITED)  
 or 18(IMO AREA TO BE AVOIDED) or 19(SAFETY AREA)  
 OR width >= 5 mm (map scale)  
 and DTC(DANGER/OBSTRUCTION CATEGORY) 12(CABLE AREA) or 13(PIPELINE AREA) or 15(CABLES AND PIPELINES)

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Demarcation (6)  
**SUBCATEGORY:** Boundaries /Limits /Zones (Hydrographic) (6C)

**6C150 RESTRICTED AREA (Cont.)****LINE**

<u>Attributes</u>		<u>PG Rules</u>
DTC	DANGER /OBSTRUCTION CATEGORY	L-4743
LEN	LENGTH /DIAMETER	L-4758
PRO	PRODUCT CATEGORY	L-4862
USE	USE STATUS	R-2219
WID	WIDTH	R-2220
		R-2937
		R-9034

Inclusion Conditions:

Width < 5 mm (map scale)  
 and DTC(DANGER/OBSTRUCTION CATEGORY) 12(CABLE AREA) or 13(PIPELINE AREA) or 15(CABLES AND PIPELINES)

**POINT**

<u>Attributes</u>		<u>PG Rules</u>
DTC	DANGER /OBSTRUCTION CATEGORY	L-4722
LEN	LENGTH /DIAMETER	R-3678
RAA	RESTRICTED AREA ATTRIBUTE	
WID	WIDTH	

Inclusion Conditions:

Length < 5 mm (map scale)  
 and DTC(DANGER/OBSTRUCTION CATEGORY) 14(FISHING PROHIBITED) or 16(OTHER) or 17(ANCHORING PROHIBITED) or 18(IMO AREA TO BE AVOIDED) or 19(SAFETY ZONE)

\*HAC 6\*HAC 6

**6C160 ROUNDABOUT****AREA**

<u>Attributes</u>		<u>PG Rules</u>
IAS	IMO APPROVAL STATUS	R-2821
TSP	TRAFFIC SCHEME PART	R-2848

Inclusion Conditions:

TSP(TRAFFIC SCHEME PART) 3(SEPARATION ZONE AREA)

**LINE**

<u>Attributes</u>		<u>PG Rules</u>
IAS	IMO APPROVAL STATUS	R-2821
TSP	TRAFFIC SCHEME PART	R-2848

Inclusion Conditions:

TSP(TRAFFIC SCHEME PART) 2(OUTER BOUNDARY)

**POINT**

<u>Attributes</u>		<u>PG Rules</u>
IAS	IMO APPROVAL STATUS	R-2271
TSP	TRAFFIC SCHEME PART	R-2821
		R-2848

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Demarcation (6)  
**SUBCATEGORY:** Boundaries /Limits /Zones (Hydrographic) (6C)

**6C160 ROUNDABOUT (Cont.)  
 POINT**

Inclusion Conditions:

TSP (TRAFFIC SCHEME PART) 1 (ARROW) or 5 (SEPARATION ZONE POINT)

\*HAC 6\*HAC 6

**6C165 ROUTE  
 AREA**

<u>Attributes</u>	<u>PG Rules</u>
HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-4702
HDP HYDROGRAPHIC DEPTH	L-4747
RTT ROUTE TYPE ATTRIBUTE	L-4770
VDC VERTICAL DATUM CATEGORY	R-2205
VDR VERTICAL DATUM RECORD	R-2222
WID WIDTH	R-2758

Inclusion Conditions:

RTT (ROUTE TYPE ATTRIBUTE) 4 (DEEP WATER ROUTE) or 7 (TWO-WAY ROUTE) or 8 (MINESWEPT CHANNEL)

**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ATN AIDS TO NAVIGATION	D-7012
BRR BEARING AND RECIPROCAL CATEGORY	L-4702
BRS BEARING FROM SEAWARD	L-4709
DAN DESCRIPTION OF AIDS TO NAVIGATION	L-4769
DOF DIRECTION OF FLOW	L-4880
DRP DESCRIPTION OF REFERENCE POINT	R-2209
EXS EXISTENCE CATEGORY	R-2222
HDI HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	R-2820
HDP HYDROGRAPHIC DEPTH	R-2854
NAM NAME CATEGORY	
RTT ROUTE TYPE ATTRIBUTE	
VDC VERTICAL DATUM CATEGORY	
VDR VERTICAL DATUM RECORD	

Inclusion Conditions:

RTT (ROUTE TYPE ATTRIBUTE) 2 (RECOMMENDED TRACK FOR OTHER THAN DEEP DRAFT) or 3 (RECOMMENDED TRACK FOR DEEP DRAFT VESSELS) or 5 (RECOMMENDED ROUTE)

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
DOF DIRECTION OF FLOW	R-2289
RTT ROUTE TYPE ATTRIBUTE	

Inclusion Conditions:

RTT (ROUTE TYPE ATTRIBUTE) 6 (RECOMMENDED DIRECTION OF TRAFFIC FLOW)

\*HAC 6\*HAC 6

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** Demarcation (6)  
**SUBCATEGORY:** Boundaries /Limits /Zones (Hydrographic) (6C)  
\*HAC 6\*HAC 6

**6C180 TRAFFIC SEPARATION SCHEME AREA**

<u>Attributes</u>	<u>PG Rules</u>
IAS IMO APPROVAL STATUS	O-3426
TSP TRAFFIC SCHEME PART	R-2821
WID WIDTH	R-2856

Inclusion Conditions:

TSP(TRAFFIC SCHEME PART) 3(SEPARATION ZONE AREA)

**LINE**

<u>Attributes</u>	<u>PG Rules</u>
IAS IMO APPROVAL STATUS	O-3426
TSP TRAFFIC SCHEME PART	R-2821
WID WIDTH	R-2856

Inclusion Conditions:

TSP(TRAFFIC SCHEME PART) 2(OUTER BOUNDARY) or 4(SEPARATION ZONE LINE)

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
DOF DIRECTION OF FLOW	R-2816
IAS IMO APPROVAL STATUS	R-2821
TSP TRAFFIC SCHEME PART	R-2856

Inclusion Conditions:

TSP(TRAFFIC SCHEME PART) 1(ARROW)

\*HAC 6\*HAC 6

**6C210 WORK IN PROGRESS AREA AREA**

<u>Attributes</u>	<u>PG Rules</u>
AOO ANGLE OF ORIENTATION	L-4706
COD CERTAINTY OF DELINEATION	L-4722
DAT DATE CATEGORY	L-4753
LEN LENGTH /DIAMETER	L-4774
WID WIDTH	R-2857
WPC WORK IN PROGRESS CATEGORY	

Inclusion Conditions:

COD(CERTAINTY OF DELINEATION) 1(LIMITS AND INFO KNOWN)  
 and WPC(WORK IN PROGRESS CATEGORY) 1(LAND RECLAMATION)

\*HAC 6\*HAC 6

**9C040 MAGNETIC DISTURBANCE AREA AREA**

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

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** General (9)  
**SUBCATEGORY:** Magnetic Variation Info (9C)

**9C040 MAGNETIC DISTURBANCE AREA (Cont.)  
 AREA**

Inclusion Conditions:

All required

\*HAC 6\*HAC 6

**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  $\geq$  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  $\geq$  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 6\*HAC 6

**9D015 POINT OF CHANGE  
 POINT**

<u>Attributes</u>	<u>PG Rules</u>
PCI POINT OF CHANGE IDENTIFIER	R-2209

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

**PRODUCT:**    HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:**    General (9)  
**SUBCATEGORY:**    Miscellaneous (9D)

**9D015 POINT OF CHANGE (Cont.)  
POINT**

Inclusion Conditions:

PCI(POINT OF CHANGE IDENTIFIER) 7(DREDGED CHANNEL) or 8(RECOMMENDED TRACK FOR OTHER THAN DEEP DRAFT VESSELS) or 9(RECOMMENDED TRACK FOR DEEP DRAFT VESSELS)

\*HAC 6\*HAC 6

**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

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 6\*HAC 6

**9D045 TEXT DESCRIPTION  
AREA**

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

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

**PRODUCT:** HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000)  
**CATEGORY:** General (9)  
**SUBCATEGORY:** Miscellaneous (9D)

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

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 6\*HAC 6\*HAC 6\*HAC 6\*HAC 5\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6\*HAC 6

APPENDIX A

HARBOR, APPROACH, AND COASTAL CHART (HAC 6) 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 1:350,001 to 1:600,000. 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.

**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)**

-

**PIPELINE /PIPE...1L160 (LINE)**

**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).

**L-4862** Pipelines (1L160), pipeline areas (6C150, DTC=013), and cable and pipeline areas (6C150, DTC=015) shall show a label for the following PRO values, using the label shown below:

If PRO=006, label "Chem"  
 If PRO=012, label "Gas"  
 If PRO=013, label "Gasoline"  
 If PRO=018, label "Oil"  
 If PRO=027, label "Water"

No PRO label is shown for PRO=000 Unknown, PRO=019 Other, or PRO=035 Sewage.

**O-3427** DEP is used when LOC=010 (Below Sea Bottom). If DEP is unknown, show as LOC=011 (On Sea Bottom).

**R-2208** The attribute HSB is applicable when LOC=012 (Suspended or elevated above sea bottom). If a pipeline is LOC=012, and the height above the bottom is unknown, a caution label (see Cautions section of product specification) shall be shown near the feature, and the following caution shall be shown in the caution box:

**CAUTION**

Pipelines are elevated above the sea bottom, and the clearance over them is less than the charted depth.

If the feature is LOC=012, and the height above the bottom is known, the caution in the caution box shall be:

**CAUTION**

Pipelines are elevated up to (HSB) meters above the sea bottom, and the clearance over them is less than the charted depth.

The height above sea bottom (HSB) is indicated in the text of the note.

**FEATURE: PIPELINE /PIPE...1L160 (LINE)**

**R-2818** If Pipelines (1L160) or cables (1T005) in the water (LOC=010, 011, or 012) meet the following criteria, they are represented as pipeline areas (6C150, DTC=013) or cable areas (6C150, DTC=012) respectively, rather than shown as separate pipelines or cables. If Pipelines and cables together meet the following criteria, they are represented as "cables and pipelines area" (6C150, DTC=015).

## Criteria:

- a. more than two linear features, AND
- b. space between any two linear features is less than 8 mm at chart scale, AND
- c. space between the outermost linear features in the group is greater than 3 mm at chart scale

If more than two cables or pipelines are  $\leq$  3 mm apart at chart scale, show only the outermost linear features.

If cable symbols overprint other cable symbols, show one cable.

If pipeline symbols overprint other pipeline symbols, show one pipeline.

If cable symbols and pipeline symbols overprint, show a cable and pipeline area (6C150, DTC=15).

The outermost limits of the cable, pipeline, or cables and pipeline area (6C150, DTC=012, 013, or 015) area feature are displaced for 2 mm past the outermost cables and pipelines, so that the area within which anchoring, trawling, and dredging are prohibited or inadvisable includes a safety margin beyond the outermost cables and/or pipelines.

**R-2937** Charts shall have the following caution notes shown in the margin if pipelines (1L160), pipeline areas (6C150, DTC=013), or cable and pipeline areas (6C150, DTC=015) are shown on the chart, and products are chemicals (PRO=006), gas (PRO=012), gasoline (PRO=013), or oil (PRO=018): .

## CAUTION

Mariners risk prosecution if they anchor or trawl near a pipeline and so damage it. (PRO) leaking from a damaged pipeline could cause fire or loss of a vessel's buoyancy.

The product name (PRO) is indicated in the text of the note. PRO006 is shown in plural, i.e., "Chemicals." See Notes and Cautions section of product specifications for color, type size, type style, and other information regarding caution notes.

**BRIDGE /OVERPASS /VIADUCT...1Q040 (LINE)**

**L-4815** Label for EXS=005 shall be "Under constr." followed by the date of the activity (DAT) in parentheses. The label for EXS=007 shall be "Destroyed" If DAT is unknown, or EXS=028 Operational, omit DAT label and parentheses.

a. For area bridges, EXS and DAT label placement shall be centered on the length of the bridge, between casings of area symbol, where space permits, reading left to right, or bottom to top if bridge is vertical. If labels cannot be placed between the bridge casings, position labels as for line bridges.

b. For line bridges, EXS and DAT label placement shall be centered on the length of the bridge, 1.0mm above bridge, reading left to right, or to left of bridge symbol, reading bottom to top, if bridge is vertical.

Placement of SOC and SHC labels shall be below bridge, or to the right of the bridge, if bridge is vertical, and shall be in accordance with PG rules L-4804 and L-4805.

**L-4863** Placement for NAM and BOT labels shall be above the bridge, or on the left side of the bridge, if bridge is vertical. If there is insufficient space, or labels will obscure hydrographic detail, NAM and BOT labels may be placed on land, adjacent to the bridge.

**FEATURE: BRIDGE /OVERPASS /VIADUCT...1Q040 (LINE)**

- O-3437** Bridges (1Q040) shall be shown if they pass over an area water feature (2A040 open water, 2H020 canal, 2H030 ditch, 2H080 lake/pond, 2H140 river/stream) and support a road (1P030), railroad (1N010), or siding/spur (1N050) shown on the chart.
- R-2744** Navigable water in the context of the OWO attribute is any open water (2A040), or inland hydrographic feature river/stream (2H140), lake/pond (2H080), or canal (2H020) that is required for port access (RPA=001).
- R-2804** When an area symbol or cased line symbol overprints the shoreline, shoreline is deleted.
- R-9035** Show land tint inside the symbol.

**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"

**CABLE...1T005 (LINE)**

- R-2211** Cables (1T005) shall be printed so the centerline (line from end to end) of the Posicut #56 follows the position of the linear feature cable. The linear symbol is created by adjacent and joined posicuts repeated for the length of the line. Abandoned cables (1T005, EXS=006) shall have one out of every four posicuts along the line deleted.
- R-2212** The electric flash (Posicut #142) of power cables (1T005, USE=053) shall be printed at 50 mm interval along the line symbol. The line symbol shall be broken for 1 mm on each side of the electric flash.
- R-2818** If Pipelines (1L160) or cables (1T005) in the water (LOC=010, 011, or 012) meet the following criteria, they are represented as pipeline areas (6C150, DTC=013) or cable areas (6C150, DTC=012) respectively, rather than shown as separate pipelines or cables. If Pipelines and cables together meet the following criteria, they are represented as "cables and pipelines area" (6C150, DTC=015).  
 Criteria:  
 a. more than two linear features, AND  
 b. space between any two linear features is less than 8 mm at chart scale, AND  
 c. space between the outermost linear features in the group is greater than 3 mm at chart scale
- If more than two cables or pipelines are  $\leq$  3 mm apart at chart scale, show only the outermost linear features.
- If cable symbols overprint other cable symbols, show one cable.  
 If pipeline symbols overprint other pipeline symbols, show one pipeline.  
 If cable symbols and pipeline symbols overprint, show a cable and pipeline area (6C150, DTC=15).

The outermost limits of the cable, pipeline, or cables and pipeline area (6C150, DTC=012, 013, or 015) area feature are displaced for 2 mm past the outermost cables and pipelines, so that the area within which anchoring, trawling, and dredging are prohibited or inadvisable includes a safety margin beyond the outermost cables and/or pipelines.

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

## HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000) PRODUCT RULES

**FEATURE: 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-3805** If HGT is unknown, omit HGT label (including parentheses and overhead bar/ticks).
- 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.
- O-3431** If GUG=000 (Unknown), portray as GUG=002 (Unguyed).
- O-3434** The minimum height requirement in the inclusion condition is ignored if: 1) the height (HGT) is unknown, or 2) the chart falls within an area defined as having sparse culture, or 3) no other landmark or navigational (area or point FACS Category 1 or Subcategory 2C) features are shown on the chart within 50 mm (at chart scale) of the feature.
- R-2746** If a feature is symbolized by one of the following posicuts, and that posicut overprints the shoreline (2A010, 2H075), or other point symbols when oriented vertical, replace the posicut and label as indicated below. Type is upper case 7 point, with Posicut #55, if COC=001 (Conspicuous), and type is upper and lower case, with Posicut #7, if COC=002 (Not Conspicuous), or COC is not used for that feature.

Feature	Posicut	Label
1F010	6	Chy
1F070	9	Flare
1J050	13	Windmill (if PRO=019)
1J050	211	Windmotor (if PRO=036)
1L050	39	Sign
1L073	221	FS
1L130	63	Mon
1L240	68	Tr
1M080	69	Water Tr
1Q110	45	Mooring Mast
1T080	61	R Mast (if GUG=001)
1T080	62	R Tr (if GUG=000 or 002)

- 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
- T-0857** A non-conspicuous feature (COC=002) is not required if it is obscured from seaward by intervening terrain, unless NST=002 (Consol), 003 (Decca), 007 (Loran), or 008 (Omega).

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

**FEATURE: 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.
- 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.

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

**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-2869** Show water tint (Blue SPC-48253, 31% screen, at 45°) from the shoreline (2A010 or 2H075), to the 10 meter depth curve (2E010, CRV=010) and all offshore areas shallower than 10 meters (inside a 10 meter depth curve). Blue tint is deleted from inland hydrographic features (2H), in those areas that are deeper than 10 meters (outside the 10 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.

**BREAKWATER...2B040 (LINE)**

**L-4725** If VRC=004 (Below Surface) or 008 (Covers and Uncovers), add a label "Breakwater" Type shall be 6 point Swiss 742 Upper/lower case italic. If feature LEN <= 13 mm at chart scale, abbreviate Breakwater as "Bkw" Type placement for Breakwater or Bkw shall be in water, parallel to the feature, readable from left to right or from bottom to top.

**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).

**JETTY...2B140 (LINE)****OFFSHORE LOADING FACILITY...2B170 (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.

**FEATURE: OFFSHORE LOADING FACILITY...2B170 (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-9035** Show land tint inside the symbol.

**OFFSHORE LOADING FACILITY...2B170 (LINE)**

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

**L-4860** Place type above symbol with a minimum distance of 1 mm, to a maximum of 4 mm from the symbol, to avoid overprinting other chart data. If overprinting occurs, place type below symbol, with a minimum distance of 1 mm, to a maximum distance of 4 mm from the symbol, to avoid overprinting other data.

**R-9035** Show land tint inside the symbol.

**OFFSHORE LOADING FACILITY...2B170 (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)

**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).

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

**D-1914** If an IALA cardinal buoy must be displaced off of a 2D point hydrographic danger, it shall be displaced the minimum distance required to resolve the overprint of the central danger symbol (excluding danger circle and type), in the safe direction of the IALA cardinal buoy. The following are IALA cardinal buoys:

If SSC=080 or 083, and CCF=019, and TMC=008, buoy is IALA North Cardinal, displace north.

If SSC=080 or 083, and CCF=020, and TMC=009, buoy is IALA East Cardinal, displace east.

If SSC=080 or 083, and CCF=013, and TMC=010, buoy is IALA South Cardinal, displace south.

If SSC=080 or 083, and CCF=014, and TMC=011, buoy is IALA West Cardinal, displace west.

**FEATURE: 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-4767** The period (PER) label of a buoy (2C010) may be omitted if that buoy is shown on a chart at a larger scale.
- L-4789** In areas of congested type, if it is necessary to abridge a light legend due to clutter, the period (PER) may be omitted.
- 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-4842** If PER=000 (Unknown) or 999 (None), delete window and close up any windows previously separated by the PER window (if any).
- 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-4845** If PER < 3 seconds, round it to the nearest half second and display in whole number and fraction format (e.g., 2.3 seconds = 2 1/2s, 2.6 seconds = 2 1/2s, 2.8 seconds = 3s). If PER >= 3 seconds round to whole seconds.

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

- 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-4856** If PER is not 000 (Unknown) or 998 (None), the numerical value for PER shall be immediately followed by a lower case letter "s" printed in the same type as PER (i.e., 12s). When PER is not shown, do not show the "s".
- 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.
- 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 (1:350,001 - 1:600,000) PRODUCT RULES

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

- 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
- S-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-4709** If attribute NAM is unknown, delete window and condense the remaining windows.
- 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).
- L-4836** If RA2=000 (Unknown) or 050 (None), do not show RA2 label.

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

**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.

**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  $BF1 < 285 \text{ kHz}$  or  $BF1 > 325 \text{ kHz}$ , 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  $BF2 < 285 \text{ kHz}$  or  $BF2 > 325 \text{ kHz}$ , 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.

**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.

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

- 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., "F1 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-4788** Name (NAM) of feature shall not be translated (into English) or changed, but shall appear in print as they appear on the original source (i.e., Banc Sud).
- L-4792** The word "Light" shall not be included in the name (NAM) of the light.
- L-4793** If the name (NAM) of the feature is the same name as the land which it is on (i.e., Cape Dana, Calva Island, Bull Hill), and the land is labeled with its name within 10 mm of the feature, no (NAM) shall be shown on the feature.
- 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-4842** If PER=000 (Unknown) or 999 (None), delete window and close up any windows previously separated by the PER window (if any).
- 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.

**FEATURE: LIGHT...2C050 (POINT)****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-4856** If PER is not 000 (Unknown) or 998 (None), the numerical value for PER shall be immediately followed by a lower case letter "s" printed in the same type as PER (i.e., 12s). When PER is not shown, do not show the "s".
- 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.
- L-4888** A light legend may be shortened to reduce chart clutter and eliminate overprints, but only if there is no other way to show the entire light legend, and the full legend is shown on charts comprising the larger scale coverage for that same area. In shortening the legend, the following priority is used:
1. Omit EOL first
  2. Omit PER second
  3. Omit LVR (or MLR) third
  4. Omit all detail except for light dot and flare.
- 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.
- 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.

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

- 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.
- R-2889** Light (2C050) characteristics on bridges (1Q040):
- a. Bridge lights that mark the centers of navigable or unnavigable spans, and are not traffic signals, should be charted showing only the character (COL), if space permits.
  - b. Where such lights change character to regulate traffic, they should be charted showing only the character (COL), and if on a chart at 1:50,000 or larger (HAC 1-2), shown in conjunction with a marine traffic signal station (2B155, STN=014).
  - c. Lights on bridges other than "a." or "b." above shall show full characteristics.
- R-2920** Periods of lights (PER on 2C050) shall be shown as follows:
- a. If PER is a whole number, (e.g., 1,2,3, etc.), show it as an integer, e.g., 4s, 12s, 120s. Note that even above one minute, the period is still shown in seconds.
  - b. If PER is not a whole number, i.e., ends in .1 to .9, show it as a 1/2 fraction if .5 seconds, and as a decimal, i.e., 1.2s, if other than .5 seconds. Tenths of seconds are not rounded.
- 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.
- 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.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000) PRODUCT RULES

**FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (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: MISCELLANEOUS UNDERWATER FEATURE...2D000 (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.
- 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.
- 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

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

- 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).
- 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.

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

- 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)**

- 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)

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

**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.

**S-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.

**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).

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

**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.
- 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.

**FEATURE: DISCOLORED WATER...2D030 (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-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.

**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

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

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

- D-1909** If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posit, 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-4806** 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.

**KELP...2D060 (AREA)**

**D-1907** Point features, or individual posicuts of an area symbol, may be displaced <= 5 mm, at chart scale, to avoid overprints.

**R-2913** Features with areas greater than 100 square cm shall be represented by a legend, e.g., Kelp, Eddies, Overfalls, rather than by the graphic symbol. Type is 6 point Swiss 742. Black SPC-58600, and label is scattered over area at approximately 50 mm intervals. Position is horizontal and shall not overprint other features.

**KELP...2D060 (POINT)**

**D-1907** Point features, or individual posicuts of an area symbol, may be displaced <= 5 mm, at chart scale, to avoid overprints.

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

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

Hydro  
power  
plant

**T-0800** If Platforms (2D110)  $\leq$  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.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000) PRODUCT RULES

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

**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).

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

- 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.
- 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, positcut, 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.

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

- 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
- 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 >= 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)**

**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-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.

**B-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-0808** Delete wrecks (2D180), except stranded (VRC=001 or 008), inside the 20 meter depth curve (2E010, CRV=20) 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.

**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-2869** Show water tint (Blue SPC-48253, 31% screen, at 45°) from the shoreline (2A010 or 2H075), to the 10 meter depth curve (2E010, CRV=010) and all offshore areas shallower than 10 meters (inside a 10 meter depth curve). Blue tint is deleted from inland hydrographic features (2H), in those areas that are deeper than 10 meters (outside the 10 meter depth curve).

## HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000) PRODUCT RULES

**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 Routing 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.

## HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000) PRODUCT RULES

**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-2862** Sounding density shall be greatest (6 mm - 15 mm average spacing) between the 10 meter depth curve (2E010, CRV=010, UNI=013) and the 50 meter depth curve (2E010, CRV=030, UNI=013), and for all isolated shoals less than 20 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 know 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.

**FEATURE: TIDAL STREAM DATA POINT...2G030 (POINT)****TIDAL STREAM DATA POINT...2G030 (POINT)**

**R-2906** When tidal stream data is available from source charts, it shall be shown in the margin or land area of the chart. The point for which the data refers shall be shown by a tidal stream data point (2G030) symbol. The NAM attribute shall be used to associate a listing in the tidal stream table with a geographic position within the limits of the chart.

**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  $\geq$  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.

**FEATURE: LAKE /POND...2H080 (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-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 neatline. 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  $2/3$  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.

MIL-H-89201/6  
APPENDIX A  
HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000) PRODUCT RULES

**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.

**FEATURE: 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.

**DREDGED CHANNEL /DREDGED AREA...6C040 (AREA)**

**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-4747** Type placement order of preference:

- (1) Centered in area, parallel to longer of two axes, reading left to right, or bottom to top if longer axis of the feature is vertical.
- (2) Shifted sideways to avoid overprints.
- (3) Placed outside area parallel and 1 mm away from top boundary, reading left to right, or parallel to and 1 mm away from left boundary, reading bottom to top, if the major axis is vertical, centered with respect to the major axis.
- (4) Shifted sideways to avoid overprints.
- (5) Shifted up to avoid overprints, to a maximum distance of 6 mm.

**FEATURE; DREDGED CHANNEL /DREDGED AREA...6C040 (AREA)**

- L-4748** If space does not allow for the full legend to be shown, labels for Dredged Channels (6C040) are condensed in the following order:  
 1. Delete "Dredged to" or "Maintained depth" labels first,  
 2. Delete DAT label and parentheses second,  
 3. Delete DAN label third.  
 Do not delete HDP label or the "m" from any 6C040 feature.
- R-2205** If adjacent areas of this feature have different depths (HDP), the common boundary shall be shown with the lineweight reduced to half (0.2 mm changed to 0.1 mm), dash lengths of 2.0 mm and dash spaces of 0.5 mm. Color remains the same.
- 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-2278** Dredged channels/areas (6C040) shall be tinted in accordance with their depths (HDP), following the guidance for generation of water tint provided in PG rules for depth curves (2E010) and/or open water (2A040).
- 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-2840** If ATN =001 (Marked), DAN shall be shown if one of the following conditions occur:  
 (1) The aids to navigation (2C features) that mark the feature do not meet the inclusion conditions for aids to navigation.  
 (2) The aids to navigation (2C features) that mark a feature are known to exist, but the details, such as position, type of aid, etc, are not sufficient to chart them as aids to navigation.  
 If 2C features are shown, or information about aids to navigation is completely lacking, omit the DAN label.
- R-2986** Symbol perimeter shall be broken where ship traffic enters and exits the feature. Feature boundary is symbolized only on those edges where ship traffic does not enter or exit the feature.
- V-1067** If DAT is unknown, omit DAT window.

**DREDGED CHANNEL /DREDGED AREA...6C040 (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-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).
- L-4748** If space does not allow for the full legend to be shown, labels for Dredged Channels (6C040) are condensed in the following order:  
 1. Delete "Dredged to" or "Maintained depth" labels first,  
 2. Delete DAT label and parentheses second,  
 3. Delete DAN label third.  
 Do not delete HDP label or the "m" from any 6C040 feature.
- R-2209** If two line features of the same FACS code meet end to end, and have different depths (HDP), a short line is shown centered on the point of intersection. It bisects the angle at which the line features meet (i.e., if the lines meet at 180° angle the bisecting line is perpendicular to the meeting line features). The bisecting line is 0.1 mm lineweight, length is 3.0 mm, and it is shown in the same color as the line features.

**FEATURE: DREDGED CHANNEL /DREDGED AREA...6C040 (LINE)**

**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-2278** Dredged channels/areas (6C040) shall be tinted in accordance with their depths (HDP), following the guidance for generation of water tint provided in PG rules for depth curves (2E010) and/or open water (2A040).

**R-2840** If ATN =001 (Marked), DAN shall be shown if one of the following conditions occur:

(1) The aids to navigation (2C features) that mark the feature do not meet the inclusion conditions for aids to navigation.

(2) The aids to navigation (2C features) that mark a feature are known to exist, but the details, such as position, type of aid, etc, are not sufficient to chart them as aids to navigation.

If 2C features are shown, or information about aids to navigation is completely lacking, omit the DAN label.

**V-1067** If DAT is unknown, omit DAT window.

**INSHORE TRAFFIC ZONE...6C075 (AREA)**

**L-4749** Labels for Inshore Traffic Zone:

Type Size	Area Width
8 point	0-20 mm
10 point	> 20 mm <= 40 mm
12 point	> 40 mm <= 60 mm
14 point	> 60 mm

Area width is measured from blue tint area to edge of Traffic Separation Scheme (6C180).

Type shall be centered in the area between the edge of the blue tint and the adjoining Traffic Separation Scheme. Type shall be spaced if the length of the Inshore Traffic Zone is greater than five times the length of the type string at normal spacing. If the length of type exceeds the length of zone, use the largest type size that will fit in the zone on one line, oriented along longer axis. If 8 point type exceeds length of zone at normal spacing, break the legend into two lines by centering "Zone" below "Inshore Traffic".

**O-3426** If the width of a traffic separation zone is > 3 mm at chart scale, TSP shall be 003 (Separation Zone-Area). If the width of a separation zone is <= 3 mm at chart scale, TSP shall be 004 (Separation Zone-Line).

**R-2852** The boundary between an inshore traffic zone (6C075) and a traffic separation scheme (6C180) shall be a tinted purple zone (AP-130) with a minimum width of 3 mm at chart scale. Outer edge of zone shall correspond with inshore traffic lane outer boundary. End boundary lines for Inshore Traffic Zone shall be T shape dashes, and shall be shown only when known. Boundaries between inshore traffic zones and land areas shall not be shown.

**INSHORE TRAFFIC ZONE...6C075 (LINE)**

**FEATURE: INSHORE TRAFFIC ZONE...6C075 (LINE)****L-4749** Labels for Inshore Traffic Zone:

Type Size	Area Width
8 point	0-20 mm
10 point	> 20 mm <= 40 mm
12 point	> 40 mm <= 60 mm
14 point	> 60 mm

Area width is measured from blue tint area to edge of Traffic Separation Scheme (6C180).

Type shall be centered in the area between the edge of the blue tint and the adjoining Traffic Separation Scheme. Type shall be spaced if the length of the Inshore Traffic Zone is greater than five times the length of the type string at normal spacing. If the length of type exceeds the length of zone, use the largest type size that will fit in the zone on one line, oriented along longer axis. If 8 point type exceeds length of zone at normal spacing, break the legend into two lines by centering "Zone" below "Inshore Traffic".

**O-3426** If the width of a traffic separation zone is > 3 mm at chart scale, TSP shall be 003 (Separation Zone-Area). If the width of a separation zone is <= 3 mm at chart scale, TSP shall be 004 (Separation Zone-Line).

**R-2852** The boundary between an inshore traffic zone (6C075) and a traffic separation scheme (6C180) shall be a tinted purple zone (AP-130) with a minimum width of 3 mm at chart scale. Outer edge of zone shall correspond with inshore traffic lane outer boundary. End boundary lines for Inshore Traffic Zone shall be T shape dashes, and shall be shown only when known. Boundaries between inshore traffic zones and land areas shall not be shown.

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

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

**L-4715** Type sizes for Maritime Limits and areas:

8 point	- < 8 sq. cm.
10 point	- >= 8 and < 12 sq. cm.
12 point	- >= 12 and < 24 sq. cm.
14 point	- >= 24 and < 100 sq. cm.
8 point	- >= 100 sq. cm.

Type placement for areas >= 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 >= 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°), 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-4750** Label for OPS=002 (Abandoned) shall be "Disused", in Upper/lower case italic type, and enclosed in parentheses. It shall be centered under label for that area.

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

- 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 +/- 20 degrees or East-West +/- 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 >= WID times two, and major axis is East-West +/- 20 degrees, type shall be placed on one line.

(c) If LEN >= WID times two, and major axis is North-South +/- 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 >= 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.
- 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)**

**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)

**MINE DANGER AREA...6C110 (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)

**FEATURE: MINE DANGER AREA...6C110 (AREA)**

**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 +/- 20 degrees or East-West +/- 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 >= WID times two, and major axis is East-West +/- 20 degrees, type shall be placed on one line.

(c) If LEN >= WID times two, and major axis is North-South +/- 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 >= 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.

**L-4756** Open areas between adjacent Mine Danger Areas (6C110) shall be shown as \*MINESWEPT CHANNEL\* (6C165, RTT=008) if cartographic or other source material confirms that the area has been swept for mines. Type placement for the MINESWEPT CHANNEL labels shall be in the following priority:

-Place in the center of the mine swept area, parallel to centerline of the mine swept area, reading from left to right, or from bottom to top if vertical:

- Shifted off of but parallel to the centerline of the mine swept area to avoid overprints with other symbols with the same color;

-If the mine swept area is too narrow to place type inside the area, place type outside area parallel to the top boundary, and 1 mm away from the boundary reading from left to right, or from bottom to top if vertical.

-Shifted along the boundary to avoid overprints with other symbols of the same color.

- Shifted away from the boundary, to a maximum distance of 6 mm at chart scale, to avoid overprints with other symbols of the same color.

If the mine swept area (6C165, RTT=008) is also a dredged channel (6C040), the type placement of type for the channel symbol shall take precedence over type for the mine swept area.

**O-3413** If danger from mines is significant, based on ancillary data, cautions on source charts, or other available information, show mine danger area (6C110) as maintained minefield (MAS=001) even if the field is no longer maintained.

**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-2809** The following cautions shall be shown on charts showing Mine Danger Areas (6C110). If the minefield is a maintained minefield (MAS=001), the following caution is shown:

**CAUTION**

Mariners should stay out of the area indicated because of the presence of mines. See Annual NM 1 (36).

If the area is a former Mine Danger Area no longer maintained (MAS=002), the following caution is shown:

**CAUTION**

Mariners are warned not to anchor, trawl, ground, or conduct other bottom activities because of the residual danger of mines on the bottom. See Annual NM 1 (36).

The cautions shown above may have to be modified to provide additional or different information, based on ancillary sources such as Sailing Directions or cautions shown on source charts.

**MINE DANGER AREA...6C110 (POINT)**

**FEATURE: MINE DANGER AREA...6C110 (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)

**O-3413** If danger from mines is significant, based on ancillary data, cautions on source charts, or other available information, show mine danger area (6C110) as maintained minefield (MAS=001) even if the field is no longer maintained.

**R-2609** The following cautions shall be shown on charts showing Mine Danger Areas (6C110). If the minefield is a maintained minefield (MAS=001), the following caution is shown:

**CAUTION**

Mariners should stay out of the area indicated because of the presence of mines. See Annual NM 1 (36).

If the area is a former Mine Danger Area no longer maintained (MAS=002), the following caution is shown:

**CAUTION**

Mariners are warned not to anchor, trawl, ground, or conduct other bottom activities because of the residual danger of mines on the bottom. See Annual NM 1 (36).

The cautions shown above may have to be modified to provide additional or different information, based on ancillary sources such as Sailing Directions or cautions shown on source charts.

**PROHIBITED AREA...6C120 (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)

**FEATURE: PROHIBITED AREA...6C120 (AREA)**

**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 +/- 20 degrees or East-West +/- 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 >= WID times two, and major axis is East-West +/- 20 degrees, type shall be placed on one line.

(c) If LEN >= WID times two, and major axis is North-South +/- 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 >= 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-2800** When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

**PROHIBITED AREA...6C120 (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)

**RESTRICTED AREA...6C150 (AREA)**

**L-4715** Type sizes for Maritime Limits and areas:

- 8 point - < 8 sq. cm.
- 10 point - >= 8 and < 12 sq. cm.
- 12 point - >= 12 and < 24 sq. cm.
- 14 point - >= 24 and < 100 sq. cm.
- 8 point - >= 100 sq. cm.

Type placement for areas >= 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 >= 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°), 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)

**FEATURE: RESTRICTED AREA...6C150 (AREA)**

- 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 +/- 20 degrees or East-West +/- 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 >= WID times two, and major axis is East-West +/- 20 degrees, type shall be placed on one line.
- (c) If LEN >= WID times two, and major axis is North-South +/- 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 >= 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.
- L-4758** Descriptive type for cables and pipelines (6C150, DTC=015) shall be parallel to the direction of the pipe or cable, i.e., bank to bank, rather than aligned with the body of water. Type may be shown on more than one line if necessary.
- L-4826** Labeling of pipeline areas (6C150, DTC=013):  
If width < 10 mm, PRO label shall be placed in the center of the area, parallel to the major axis, reading left to right, or bottom to top if major axis is vertical. Type may be moved sideways to avoid overprints. If WID >= 10 mm, PRO label shall be placed parallel to and 1 mm away from the boundary, inside the area adjacent to pipeline portion of the symbol. Both sides of the area shall be labeled. If line is > 150 mm it shall be labeled every 100 mm.
- L-4862** Pipelines (1L160), pipeline areas (6C150, DTC=013), and cable and pipeline areas (6C150, DTC=015) shall show a label for the following PRO values, using the label shown below:
- If PRO=006, label "Chem"  
If PRO=012, label "Gas"  
If PRO=013, label "Gasoline"  
If PRO=018, label "Oil"  
If PRO=027, label "Water"
- No PRO label is shown for PRO=000 Unknown, PRO=019 Other, or PRO=035 Sewage.
- R-2218** If the boundary of an area showing alternating T shaped dashes and other graphic components joins with a similar line, for example, if a boundary closes on itself, number of dashes or graphic components shown in a series (usually three) shall be reduced so that no more than four of any one kind of symbol component are shown in a row.
- 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-2846** Fish symbol (6C150 DTC=014) is repeated every 30 mm. For closed area, if first and last fish symbols are within 150 mm of each other, do not show last fish symbol, and continue T shaped line through the space.
- R-2847** Power cable areas (6C150, DTC=012, USE=053) shall have an electric flash (Posicut #142) placed in the area to identify power cables. The posicut shall be positioned as follows, depending on the size of the area: Length <= 40 mm at chart scale - center one posicut in the center of the area. Length > 40 mm and width <= 40 mm at chart scale - place one posicut every 30 mm at chart scale centered between the long sides of the features. Width > 40 mm at chart scale - place one posicut every 30 mm along each boundary line, 5 mm to the inside of the line.

**FEATURE: RESTRICTED AREA...6C150 (AREA)**

**R-2937** Charts shall have the following caution notes shown in the margin if pipelines (1L160), pipeline areas (6C150, DTC=013), or cable and pipeline areas (6C150, DTC=015) are shown on the chart, and products are chemicals (PRO=006), gas (PRO=012), gasoline (PRO=013), or oil (PRO=018): .

**CAUTION**

Mariners risk prosecution if they anchor or trawl near a pipeline and so damage it. (PRO) leaking from a damaged pipeline could cause fire or loss of a vessel's buoyancy.

The product name (PRO) is indicated in the text of the note. PRO006 is shown in plural, i.e., "Chemicals." See Notes and Cautions section of product specifications for color, type size, type style, and other information regarding caution notes.

**R-3678** RAA is used when DTC=016 (Other) to describe the nature of the restriction imposed on the area. It should be worded in the form of a label, to appear on the symbol for DTC=016.

**R-9034** PRO is used when DTC=013 (Pipeline Area), or DTC=015 (Cables and Pipelines). USE is used when DTC=012 (Cable Area), or DTC=015 (Cables and Pipelines).

**RESTRICTED AREA...6C150 (LINE)**

**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).

**L-4758** Descriptive type for cables and pipelines (6C150, DTC=015) shall be parallel to the direction of the pipe or cable, i.e., bank to bank, rather than aligned with the body of water. Type may be shown on more than one line if necessary.

**L-4862** Pipelines (1L160), pipeline areas (6C150, DTC=013), and cable and pipeline areas (6C150, DTC=015) shall show a label for the following PRO values, using the label shown below:

If PRO=006, label "Chem"  
 If PRO=012, label "Gas"  
 If PRO=013, label "Gasoline"  
 If PRO=018, label "Oil"  
 If PRO=027, label "Water"

No PRO label is shown for PRO=000 Unknown, PRO=019 Other, or PRO=035 Sewage.

**R-2219** Cable areas (6C150, DTC=012) symbolized as line symbols shall be printed so the centerline of the cable symbol (Posicut #56) follows the centerline of the cable area. The linear symbol is created by adjacent and joined posicuts repeated for the length of the centerline of the area.

**R-2220** The electric flash symbol (Posicut #142) shown on power cable areas (6C150, DT=C012, USE=053) symbolized as line symbols shall be printed at 50 mm intervals along the line symbol. The line symbol shall be broken for 1 mm on each side of the electric flash.

**FEATURE; RESTRICTED AREA...6C150 (LINE)**

**R-2937** Charts shall have the following caution notes shown in the margin if pipelines (1L160), pipeline areas (6C150, DTC=013), or cable and pipeline areas (6C150, DTC=015) are shown on the chart, and products are chemicals (PRO=006), gas (PRO=012), gasoline (PRO=013), or oil (PRO=018): .

**CAUTION**

Mariners risk prosecution if they anchor or trawl near a pipeline and so damage it. (PRO) leaking from a damaged pipeline could cause fire or loss of a vessel's buoyancy.

The product name (PRO) is indicated in the text of the note. PRO006 is shown in plural, i.e., "Chemicals." See Notes and Cautions section of product specifications for color, type size, type style, and other information regarding caution notes.

**R-9034** PRO is used when DTC=013 (Pipeline Area), or DTC=015 (Cables and Pipelines). USE is used when DTC=012 (Cable Area), or DTC=015 (Cables and Pipelines).

**RESTRICTED AREA...6C150 (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)

**R-3678** RAA is used when DTC=016 (Other) to describe the nature of the restriction imposed on the area. It should be worded in the form of a label, to appear on the symbol for DTC=016.

**ROUNDABOUT...6C160 (AREA)**

**R-2821** When a traffic separation scheme (6C160, 6C180, 6C165) is portrayed on a nautical chart, a note is shown in black indicating whether or not it has been adopted by the International Marine Organization. The following note is shown if the:

- (1) If the traffic separation scheme has been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is adopted by the International Maritime Organization (IMO).

- (2) If the traffic separation scheme has not been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is not adopted by the International Maritime Organization (IMO).

**R-2848** Break outer boundary of roundabout (6C160) where traffic separation schemes (6C180) enter and exit the roundabout. Arrows proceed in a counterclockwise direction and may be moved to avoid overprints. At least two arrows shall be shown, with more arrows shown as the circumference of the travelled lane increases. If the width of the traffic lane part of the roundabout is less than 4 mm, delete arrows.

**ROUNDABOUT...6C160 (LINE)**

**FEATURE: ROUNDABOUT...6C160 (LINE)**

**R-2821** When a traffic separation scheme (6C160, 6C180, 6C165) is portrayed on a nautical chart, a note is shown in black indicating whether or not it has been adopted by the International Marine Organization. The following note is shown if the:

- (1) If the traffic separation scheme has been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is adopted by the International Maritime Organization (IMO).

- (2) If the traffic separation scheme has not been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is not adopted by the International Maritime Organization (IMO).

**R-2848** Break outer boundary of roundabout (6C160) where traffic separation schemes (6C180) enter and exit the roundabout. Arrows proceed in a counterclockwise direction and may be moved to avoid overprints. At least two arrows shall be shown, with more arrows shown as the circumference of the travelled lane increases. If the width of the traffic lane part of the roundabout is less than 4 mm, delete arrows.

**ROUNDABOUT...6C160 (POINT)**

**R-2271** The Roundabout Arrows (6C160, TSP=001) shall be curved when surrounding a roundabout-(6C180P001) to conform to the circumference of the traffic separation scheme roundabout.

**R-2821** When a traffic separation scheme (6C160, 6C180, 6C165) is portrayed on a nautical chart, a note is shown in black indicating whether or not it has been adopted by the International Marine Organization. The following note is shown if the:

- (1) If the traffic separation scheme has been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is adopted by the International Maritime Organization (IMO).

- (2) If the traffic separation scheme has not been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is not adopted by the International Maritime Organization (IMO).

**R-2848** Break outer boundary of roundabout (6C160) where traffic separation schemes (6C180) enter and exit the roundabout. Arrows proceed in a counterclockwise direction and may be moved to avoid overprints. At least two arrows shall be shown, with more arrows shown as the circumference of the travelled lane increases. If the width of the traffic lane part of the roundabout is less than 4 mm, delete arrows.

**ROUTE...6C165 (AREA)**

**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-4747** Type placement order of preference:

- (1) Centered in area, parallel to longer of two axes, reading left to right, or bottom to top if longer axis of the feature is vertical.
- (2) Shifted sideways to avoid overprints.
- (3) Placed outside area parallel and 1 mm away from top boundary, reading left to right, or parallel to and 1 mm away from left boundary, reading bottom to top, if the major axis is vertical, centered with respect to the major axis.
- (4) Shifted sideways to avoid overprints.
- (5) Shifted up to avoid overprints, to a maximum distance of 6 mm.

**FEATURE: ROUTE...6C165 (AREA)****L-4770** Labeling areas based on width:

Type Size:	If Width Is:
08 point	< 8 mm
10 point	$\geq$ 8 mm < 18 mm
12 point	$\geq$ 18 mm < 30 mm
14 point	$\geq$ 30 mm

Type is centered in area and repeated every 10 cm.

**R-2205** If adjacent areas of this feature have different depths (HDP), the common boundary shall be shown with the lineweight reduced to half (0.2 mm changed to 0.1 mm), dash lengths of 2.0 mm and dash spaces of 0.5 mm. Color remains the same.

**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-2758** If a mineswept area (6C165, RTT=008) boundary overprints a mine danger area (6C110) boundary, do not symbolize the overprinting mineswept area boundary.

**ROUTE...6C165 (LINE)**

**D-7012** Break line symbol in water area for overprinting point symbol with the same color. Leave space 0.5 mm on each side of the point symbol. Do not displace either the line symbol or the point symbol. Point symbols may overprint line symbols of a different color.

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

**L-4769** BRR or BRS shall be printed above track, 1 mm away from and parallel to it. Type shall be read from left to right, or bottom to top if track is vertical. One attribute shall be shown for each straight line segment, centered on that segment, but can be moved sideways to avoid conflicting with arrows or other chart detail.

BRS is used on one-way tracks (EXS=022) to indicate the bearing steered by a ship following the track in the direction indicated.

BRR is used on two-way tracks (EXS=023) with the bearing from seaward, i.e., when proceeding from seaward toward land, or in the direction of buoyage, followed by its reciprocal bearing, except as follows:

When a two way route (EXS=023) is of such length that reciprocal bearings are shown at both extremities, i.e., a straight line segment over 25 cm long, the bearing quoted first shall be the bearing followed by a ship joining the track at that extremity.

**L-4880** To reduce translation difficulties, a "not equal to" sign, i.e., a slash (/) overprinting an equal sign (=), or Posicut #224, shall be used in the Description of Reference Points (DRP) attribute to indicate any two objects in line. The DRP attribute should use this symbol in place of the words "in line", e.g., "2 Bns  $\neq$ " rather than "2 Bns in line"

**R-2209** If two line features of the same FACS code meet end to end, and have different depths (HDP), a short line is shown centered on the point of intersection. It bisects the angle at which the line features meet (i.e., if the lines meet at 180° angle the bisecting line is perpendicular to the meeting line features). The bisecting line is 0.1 mm lineweight, length is 3.0 mm, and it is shown in the same color as the line features.

**FEATURE: ROUTE...6C165 (LINE)**

**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-2820** Tracks of value only to local fishing boats or pleasure craft should not be included on nautical charts except in the Bahama Islands, Nova Scotia-Newfoundland, and Bermuda areas. This exception applies to all charts of 1:300,000 scale and larger.

**R-2854** Two way tracks that are not marked by fixed objects (6C165, EXS=023, ATN=002) are represented by arrows pointing in opposite directions. Each pair of arrows is separated by two dashes. No arrows are shown on two way tracks that are marked by fixed objects (6C165, EXS=-23, ATN=001), except for those showing depths (HDP).

If depth is known, HDP is placed between the arrowheads and the track line is deleted between the arrow points, to avoid overprinting HDP.

One way tracks (6C165, EXS=022) are represented by a single arrow pointing in the direction of traffic flow. If depth is known, the HDP is placed 2 mm behind the point of the arrow and the track line is deleted from the arrow to 1 mm past the type.

Deep water tracks (6C165, RTT=003) shall have a "DW" inserted before the arrow, approximately 25mm in front of the arrowhead.

**Representation of arrows on tracks:**

(1) Each segment of Tracks that has a different depth shall have one arrows /HDP set as described above centered approximately in the center of the segment. Type /arrows shall be moved sideways along track to avoid being placed around sharp corners (interior angle < 135°).

Additional arrows without type shall be spaced along Tracks at 100 mm interval, or once for each straight line segment over 15 mm long, whichever is less.

(2) Tracks without depths shall show arrows, or pairs of arrows, on two way tracks, once every 100 mm along the track, or once for each straight line segment over 15 mm long, whichever is less.

**ROUTE...6C165 (POINT)**

**R-2289** Arrows showing the recommended direction of traffic flow (RTT=006) should be staggered laterally, to avoid implying a specific track to follow, and to reduce the risk of overtaking encounters.

**TRAFFIC SEPARATION SCHEME...6C180 (AREA)**

**O-3426** If the width of a traffic separation zone is > 3 mm at chart scale, TSP shall be 003 (Separation Zone-Area). If the width of a separation zone is ≤ 3 mm at chart scale, TSP shall be 004 (Separation Zone-Line).

**FEATURE: TRAFFIC SEPARATION SCHEME...6C180 (AREA)**

**R-2821** When a traffic separation scheme (6C160, 6C180, 6C165) is portrayed on a nautical chart, a note is shown in black indicating whether or not it has been adopted by the International Marine Organization. The following note is shown if the:

- (1) If the traffic separation scheme has been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is adopted by the International Maritime Organization (IMO).

- (2) If the traffic separation scheme has not been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is not adopted by the International Maritime Organization (IMO).

**R-2856** The outer limits (TSP=002) and /or inner separation zone (TSP=003 or 004) of a traffic separation scheme (6C180) shall not be shown if natural obstacles or other features ie. rocks, reefs, islands, etc. clearly define the traffic pattern.

Arrows in the traffic lanes shall be positioned parallel to the flow of traffic, and randomly displaced laterally from the center of the lane to avoid giving the impression of a specific track that must be followed.

When a traffic separation scheme, (6C180) is adjacent to an inshore traffic zone (6C075), the boundary between them shall be shown as a separation zone, plotted at chart scale, but with a minimum width of 3 mm. The area covered by the zone is taken from the inshore traffic zone, NOT the traffic separation scheme.

**TRAFFIC SEPARATION SCHEME...6C180 (LINE)**

**O-3426** If the width of a traffic separation zone is > 3 mm at chart scale, TSP shall be 003 (Separation Zone-Area). If the width of a separation zone is <= 3 mm at chart scale, TSP shall be 004 (Separation Zone-Line).

**R-2821** When a traffic separation scheme (6C160, 6C180, 6C165) is portrayed on a nautical chart, a note is shown in black indicating whether or not it has been adopted by the International Marine Organization. The following note is shown if the:

- (1) If the traffic separation scheme has been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is adopted by the International Maritime Organization (IMO).

- (2) If the traffic separation scheme has not been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is not adopted by the International Maritime Organization (IMO).

**R-2856** The outer limits (TSP=002) and /or inner separation zone (TSP=003 or 004) of a traffic separation scheme (6C180) shall not be shown if natural obstacles or other features ie. rocks, reefs, islands, etc. clearly define the traffic pattern.

Arrows in the traffic lanes shall be positioned parallel to the flow of traffic, and randomly displaced laterally from the center of the lane to avoid giving the impression of a specific track that must be followed.

When a traffic separation scheme, (6C180) is adjacent to an inshore traffic zone (6C075), the boundary between them shall be shown as a separation zone, plotted at chart scale, but with a minimum width of 3 mm. The area covered by the zone is taken from the inshore traffic zone, NOT the traffic separation scheme.

**TRAFFIC SEPARATION SCHEME...6C180 (POINT)**

**FEATURE: TRAFFIC SEPARATION SCHEME...6C180 (POINT)**

**R-2816** Arrows shall not be shown where separation schemes join or cross each other, to avoid implying priority of one lane over another. This rule does not apply to schemes joining at a roundabout (6C160).

**R-2821** When a traffic separation scheme (6C160, 6C180, 6C165) is portrayed on a nautical chart, a note is shown in black indicating whether or not it has been adopted by the International Marine Organization. The following note is shown if the:

(1) If the traffic separation scheme has been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is adopted by the International Maritime Organization (IMO).

(2) If the traffic separation scheme has not been adopted by the IMO.

**NOTE**

The Traffic Separation Scheme(s) on this chart is not adopted by the International Maritime Organization (IMO).

**R-2856** The outer limits (TSP=002) and /or inner separation zone (TSP=003 or 004) of a traffic separation scheme (6C180) shall not be shown if natural obstacles or other features ie. rocks, reefs, islands, etc. clearly define the traffic pattern.

Arrows in the traffic lanes shall be positioned parallel to the flow of traffic, and randomly displaced laterally from the center of the lane to avoid giving the impression of a specific track that must be followed.

When a traffic separation scheme, (6C180) is adjacent to an inshore traffic zone (6C075), the boundary between them shall be shown as a separation zone, plotted at chart scale, but with a minimum width of 3 mm. The area covered by the zone is taken from the inshore traffic zone, NOT the traffic separation scheme.

**WORK IN PROGRESS AREA...6C210 (AREA)**

**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)

**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 +/- 20 degrees or East-West +/- 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 >= WID times two, and major axis is East-West +/- 20 degrees, type shall be placed on one line.

(c) If LEN >= WID times two, and major axis is North-South +/- 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 >= 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.

**FEATURE: WORK IN PROGRESS AREA...6C210 (AREA)**

- L-4774** If two work in progress areas (6C210) are within 20 mm of each other and the same COD (either both COD=001 or both COD=002), show only one legend with the later DAT attribute centered between the two features.
- R-2857** If work in progress area (6C210) is extending the shoreline seaward (WPC=001, COD=001), the old shoreline is retained until the work is completed. Water tint is deleted from the area, but land tint is not extended into the area. If it is a feature under construction (WPC=002, COD=001), the coincident shoreline is deleted, and land tint is extended into the area.

**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.

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

- 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.
- 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)

**POINT OF CHANGE...9D015 (POINT)**

- R-2209** If two line features of the same FACS code meet end to end, and have different depths (HDP), a short line is shown centered on the point of intersection. It bisects the angle at which the line features meet (i.e., if the lines meet at 180° angle the bisecting line is perpendicular to the meeting line features). The bisecting line is 0.1 mm lineweight, length is 3.0 mm, and it is shown in the same color as the line features.

**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 |

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

- 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)**

- 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)**

## HARBOR, APPROACH, AND COASTAL CHARTS (1:350,001 - 1:600,000) PRODUCT RULES

**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-4927** 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.

## INDEX

	<u>PARAGRAPH</u>	<u>PAGE</u>
Acquisition requirement.....	6.2	4
Appendix A - HAC 6 Product Rules.....		32
Applicable documents.....	2.	2
Changes from previous issue.....	6.7	5
Distribution Statement A.....		1
Feature/Attribute category inclusion conditions and product generation rules.	3.2	3
Feature/Attribute data.....	3.1	3
First article.....	6.3	4
Government documents.....	2.1	2
Intended use.....	6.1	4
Non-Government publications.....	2.2	3
Notes.....	6.	4
Order of precedence.....	2.3	3
Other Government documents, drawings, and publications.....	2.1.2	2
Packaging.....	5.	4
Purpose.....	1.2	1
Quality assurance.....	4.	4
Requirements.....	3.	3
Scope.....	1.	1
Security classification.....	1.3.1	2
Security.....	1.3	2
Specifications, standards, and handbooks.....	2.1.1	2
Standardization agreements.....	6.5	5
Subject term (key word) listing.....	6.6	5
Supersession.....	6.4	5
Table I.....		6

## CONCLUDING MATERIAL

Custodians:  
DMA - MP

Preparing activity:  
DMA - MP

(Project MCGT-0134)

