

4th NCWG MEETING
The Hague, The Netherlands, 6 - 9 Nov. 2018

Paper for Consideration by NCWG
Existence Doubtful Definition/Guidance

Submitted by:	United States (NOAA)
Executive Summary:	Proposal for a more appropriate definition and guidance for the term, "Existence Doubtful."
Related Documents:	S-4, Regulations for International (INT) Charts and Chart Specifications of the IHO S-32, Hydrographic Dictionary CSPCSWG Letter 07/2013 CSPCWG10-09.2A, "Existence Doubtful" 10th CSPCWG Meeting Report
Related Projects:	Maintenance of S-32, S-52, S-57, S-101

Introduction / Background

The most recent discussion of the term, "Existence Doubtful" goes back five years ago to a suggestion made by the CSPCWG chair in CSPCWG Letter 07/2013, which recommended the blue text shown be added to S-4, B-424.3.

It may be useful to add a line at B-424.3, considering the recent news items about 'Sandy Island' (eg in 'Hydro International' 26/11/2012 and 11/01/2013) which was probably actually a sighting of floating volcanic residue.

B-424.3 **ED**, meaning **Existence doubtful**, must be used to indicate the possible, but unconfirmed, existence of a rock, shoal, etc (sometimes called a 'vigia'). [Note that reports of uncharted islands in unexpected places may be from sightings of floating debris or volcanic residue. Genuine uncharted islands in deep water are increasingly unlikely now that satellite imagery is readily available. Equally, satellite imagery and other modern data sources may enable previously reported doubtful features to be removed from charts with confidence.](#)

The US response to the letter made a distinction between NOAA's use of "Reported"

At NOAA, we have charted rocks, wrecks, shoals or other dangerous features that have been reported to exist as "Rep" when the existence is believable (making "ED" inappropriate), but the object has not been "confirmed" (see S-32 definition) by a trusted survey.

We interpret this as agreeing with the existing B-424.5 text and existing S-32 definition for "reported danger".

and "Existence Doubtful"

Although not expressly stated in S-32, Existence Doubtful (ED), would indicate that the chart producer has sufficient reason to doubt that the object actually exists, but cannot prove it without an authoritative survey.

The US response and correspondence with the chairs of the Hydrographic Dictionary Working Group and the Data Quality Working Group prompted a paper by the CSPCWG Chair to submit [CSPCWG10-09.2A, Existence Doubtful](#) at the next working group meeting, which suggested that Existence Doubtful and the "ED" legend be made obsolete. This paper provides a useful summary, not detailed here, which is worth reading.

At the [CSPCWG10 meeting](#) the working group, "decided that ED and Rep are still useful and should be retained, but the definitions need to be clarified. The Chairman had already written to the

Chairman of HDWG with suggestion for changing the definition, so CSPCWG would take no further action." Jeff Wooten was tasked with following up with the HDWG.

No further progress was reported in refining the definition of "Existence Doubtful" at CSPCWG11-NCWG1, NCWG2, or NCWG3. At NCWG3, "Colby Harmon (US-NOAA) agreed to take responsibility for this action (Definition of ED), as it was based on an original proposal from his CSPCWG predecessor (Rob Heeley)."

Analysis / Discussion

Rob Heeley commented that, "... Existence Doubtful (ED), would indicate that the chart producer has sufficient reason to doubt that the object actually exists, but cannot prove it without an authoritative survey."

At CSPCWG10, Ben Timmerman stated that ED is still useful, for example when a new survey does not find a shoal depth but is unable to conclusively disprove it.

These similar remarks may help provide a useful distinction between "Reported" and "Existence Doubtful."

The general guidance could be simply stated as:

1. Use Reported when a new danger has been reported, but not yet confirmed to exist.
2. Use Existence Doubtful when a charted danger has not yet been proven Not to exist.

Thus, any new unconfirmed danger will be charted with the legend, "Rep" and the year if available. The legend, "ED" will be shown next to dangers to which there is now some degree of doubt as to their continued existence, but for which insufficient confirmation has been obtained to definitively disprove the object.

Conclusions

"Existence Doubtful" still serves a useful charting purpose distinct from "Reported."

Recommendations

Change the guidance in S-4 for Existence Doubtful as shown below. Changes to PA and PD are also recommended for consistency. "Other object" has been added, because PA and PD could be used for non-dangerous features or even landmarks. It is assumed that Rep and ED would never be used for objects on land.

- B-424.1** **PA**, meaning **Position approximate**, must be used to indicate that the position of a shoal, wreck, or other object~~etc~~, either has not been accurately determined or does not remain fixed.
- B-424.2** **PD**, meaning **Position doubtful**, must be used to indicate a shoal, wreck, or other object ~~wreck, shoal, etc~~, has been reported in various positions and not confirmed in any of them.
- B-424.3** **ED**, meaning **Existence doubtful**, must be used to indicate an object, dangerous to navigation, which is shown on a chart, the existence of which has come into question, but which has not been adequately disproven. ~~the possible, but unconfirmed, existence of a rock, shoal, etc (sometimes called a 'vigia').~~

Change the definitions in S-32 for Existence Doubtful and Reported Danger as shown below. This provides parallel structure, but distinct meanings for each.

Existence doubtful

An object, dangerous to navigation, which is shown on a chart, the existence of which has come into question, but which has not been adequately disproven. ~~Of uncertain existence. The expression is used principally on charts to indicate the possible existence of a rock, shoal, etc., the actual existence of which has not been established.~~ Usually shown by the abbreviation 'ED'.

Reported danger

An object, dangerous to navigation, which is shown on a chart, but the existence of which has not been confirmed. Usually shown by the abbreviation 'Rep'. ~~Sometimes called vigia.~~

Also, note that S-4 states that ED is "Sometimes called vigia," while S-32 states this is the case only for Reported Danger. This can contribute to the misconception that they mean the same thing (by a Transitive Relationship for you mathematics and logic aficionados). Therefore, it is recommended that this information be deleted in both places. Vigia may be familiar in Spanish and Portuguese speaking communities, but it is an archaic term that seems to be rarely used elsewhere.

Action required of NCWG

The NCWG is invited to:

- a.) Endorse the recommendations
- b.) Provide recommended changes to the HDWG, S100WG, ENCWG, and other working groups as appropriate for further review, coordination, and endorsement.
- c.) Implement changes to S-4
- d.) Support the implementation of associated changes in S-32 and other IHO standards and specifications as required.

B-424 DOUBTFUL DANGERS

The **international abbreviations** 'PA','PD','ED','SD' must not be written in full or translated. Brackets and full stops should be omitted. The abbreviations should be in sloping letters when applied to a water feature, for example shoal or submerged wreck. Doubtful shoals must be encircled by a danger line, or the appropriate depth contour. However, existing depth contours should not be extended to accommodate these shoals.

Note: Technical Resolution 1/1947 as amended recommends hydrographic offices to 'review the applicable legends appearing on their charts and remove all those that do not seem to refer to actual or possible dangers to navigation.'

The abbreviations 'PA','PD' and 'ED' may be applied to features other than dangers where necessary.

Note that reports of uncharted islands in unexpected places may be from sightings of floating debris or volcanic residue. Genuine uncharted islands in deep water are increasingly unlikely now that satellite imagery is readily available. Equally, satellite imagery and other modern data sources may enable previously reported doubtful features to be removed from charts with confidence.

B-424.1 PA, meaning **Position approximate**, must be used to indicate that the position of a shoal, wreck, etc, either has not been accurately determined or does not remain fixed.

PA **B7**

B-424.2 PD, meaning **Position doubtful**, must be used to indicate a wreck, shoal, etc, has been reported in various positions and not confirmed in any of them.

PD **B8**

B-424.3 ED, meaning **Existence doubtful**, must be used to indicate the possible, but unconfirmed, existence of a rock, shoal, etc (sometimes called a 'vigia').

ED **I1**

B-424.4 SD, meaning **Sounding doubtful**, must be used to indicate a sounding over a shoal or rock where the depth may be less than shown, but the position is not in doubt.

SD **I2**

B-424.5 Reported (that is: unconfirmed) shoal depths and other dangers. The presence of a reported shoal depth, usually in an unsurveyed or inadequately surveyed area, should alert the mariner to the potential existence of unsurveyed shoal depths. A significant depth reported by ships on passage should therefore be charted with the abbreviation 'Rep', unless it is supported by other data (for example: good quality metadata; other depths within the line of soundings; satellite imagery):

Rep **I3.1**

The reported depth must normally be surrounded by an approximate contour (see B-411.2) and blue tint as appropriate to the depth. However, if the sounding is potentially a danger to surface navigation (for example if it is 31m or less, depending on context), it should be encircled by a danger line in addition to the 'Rep' legend. It should not normally be necessary to include an explanatory note on the chart. Other reported dangers, such as wrecks, rocks, should be treated similarly, with abbreviation 'Rep' placed adjacent to the appropriate symbol.

The horizontal and vertical accuracy of reported dangers varies considerably, dependent upon the equipment in use at the time of the report. The date on which the danger was reported is therefore of considerable assistance to the navigator. A recent date indicates that the data may be more reliable. As the year date becomes of greater antiquity, so the report becomes more dubious if the danger has remained unconfirmed, especially in well-frequented waters. Where it would assist the navigator to know the date on which a danger was reported, the abbreviation should be followed by the year of the report, in brackets.

Rep (1973) **I3.2**

If there is doubt over the accuracy of either the position or depth of the reported danger, additional legends such as 'PA' (B-424.1) and/or 'SD' (B-424.4) may be added.

Existence doubtful

Of uncertain existence. The expression is used principally on charts to indicate the possible existence of a rock, shoal, etc., the actual existence of which has not been established. Usually shown by the abbreviation 'ED'.

Reported danger

An object dangerous to navigation which is shown on a chart but the existence of which has not been confirmed. Sometimes called *vigia*.