Paper for consideration by IHO DIPWG4 meeting, Monaco May 2012

Observations about deferred amendments
A study based on DIPWG 9.8A
Clarifications and changes for IHO ECDIS Chart 1

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Executive Summary:	Background of this paper is the paper 9.8A submitted by the writer to DIPWG4 meeting. This paper informs about issues around implementation of deferred amendments, which someone could see as solution to original problems reported in paper 9.8A
Related Documents:	S-52, ECDIS presentation library ed. 3.4, dated Jan 2008 (printed document) S-52, ECDIS presentation library ed. 3.4, dated Jan 2008 (CDROM containing digital files) DIPWG4 paper 9.8A
Related Projects:	New request for clarification of the rules

1 Introduction

This paper add to paper 9.8A a study about “How about deferred amendments ? Do they fix any problem detected by paper 9.8A.”

2 Details of the new observations

2.1 Deferred amendment PL03.4.d9.co.1

Original observation in paper 9.8A was that symbols 410 and 412 (radio towers) in printed example of “ECDIS Chart1 Natural and man made features – C, D, E” are not based on rules published in the current edition 3.4 of the S-52 presentation library.

During memory refresh preparation just before the meeting we found that there is actually a deferred amendment **PL03.4.d9.co.1** addressing the radio tower issue. This amendment is an action point from DIPWG3, year 2011. The action point was completed and published by someone without full review or testing as I found a trivial error in this deferred amendment. Below is copy of original deferrd amendment published by IHO. One can see that attribute FUNCTN alternate between value 33 and 31 while both should have been 31. A simple and trivial “typo”, but being available indicate skip of real review before publishing.

11.1.1 Look-up Table for paper chart point symbolization

"LNDMRK","CATLMK17**FUNCTN33**CONVIS1","SY(TOWERS15);TX(OBJNAM,3,2,2,'15110',1,1,CHBLK,26)","6","O","STANDARD","22220"
"LNDMRK","CATLMK17**FUNCTN31**","SY(TOWERS05);TX(OBJNAM,3,2,2,'15110',1,1,CHBLK,26)","4","O","OTHER","32220"

11.1.2 Look-up Table for simplified point symbolisation

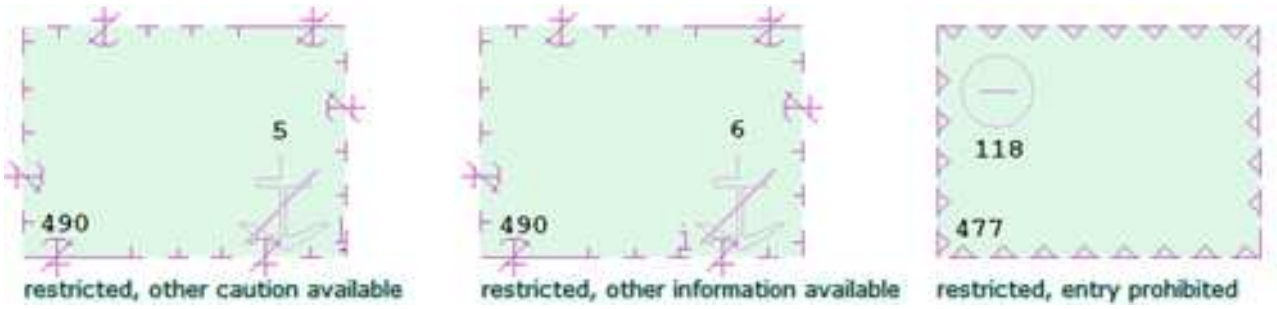
"LNDMRK","CATLMK17**FUNCTN33**CONVIS1","SY(TOWERS15);TX(OBJNAM,3,2,2,'15110',1,1,CHBLK,26)","6","O","STANDARD","22220"
"LNDMRK","CATLMK17**FUNCTN31**","SY(TOWERS05);TX(OBJNAM,3,2,2,'15110',1,1,CHBLK,26)","4","O","OTHER","32220"

2.2 Deferred amendment PL03.4.d9.co.4

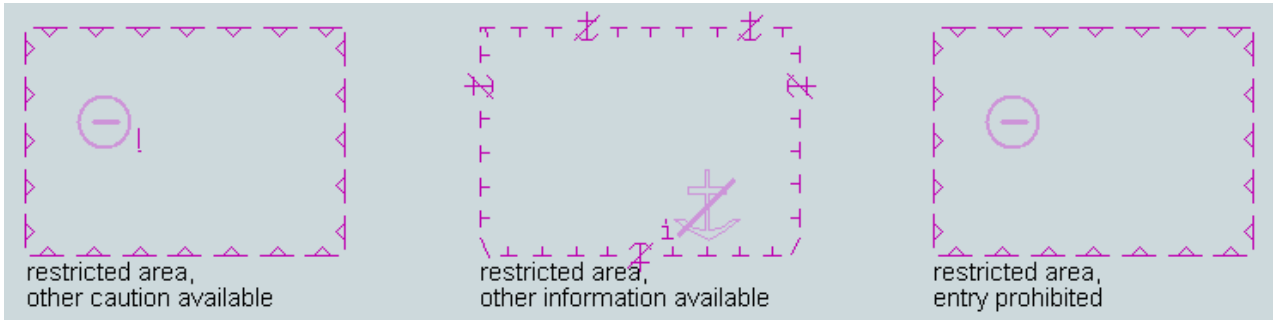
Next detail studied from 2011 deferred amendment is **PL03.4.d9.co.4** which modified conditional procedure RESAREnn.

Original observation in paper 9.8A was that symbol 516 (restricted area) in printed example of "ECDIS Chart1 Seabed, obstructions, pipelines, etc. – J, K, L" is not based on rules published in the current edition 3.4 of the S-52 presentation library.

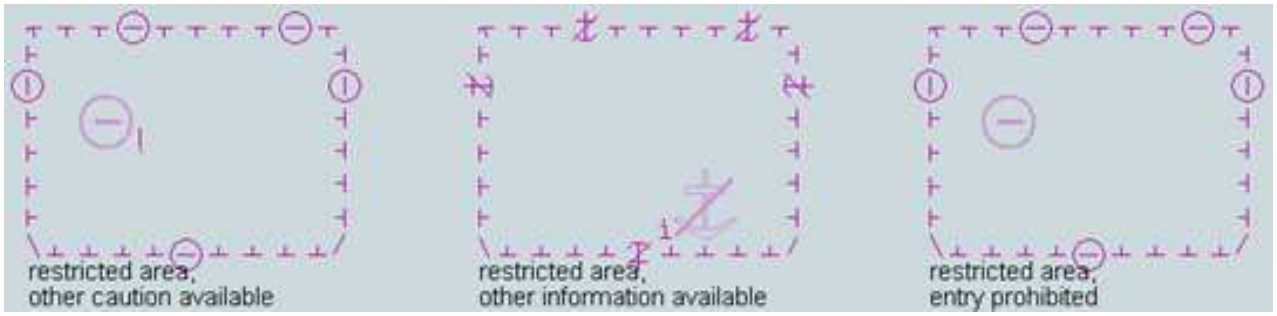
During memory refresh preparation just before the meeting we found that there is actually a deferred amendment **PL03.4.d9.co.4** addressing the restricted area issue. This amendment is an action point from DIPWG3, year 2011. The action point was completed and published by someone without full review or testing as I found a trivial side effect in this deferred amendment. The deferred amendment fix the case identified for symbol 516 in page J,K,L of ECDIS Chart 1, but as side effect creates a new discrepancy for page "Special areas – N" for symbol 477.



"Special areas – N" as printed in S-52
(Note: leftmost area "restricted, other caution available" has error as it does not symbolize the most important restriction "entry prohibited", but secondary restriction "anchoring prohibited")



Before deferred amendment: Symbol 477 same as printed in S-52



After deferred amendment, Symbol 477 is now different from as printed in S-52

2.3 Deferred amendment PL03.4.d9.co.2

The study results of the simple radio tower and restricted area cases were such that we wanted to know how about other deferred amendments.

Next in the study was **PL03.4.d9.co.2** which modified conditional procedure DEPVAL02. This procedure is a subroutine used by objects OBSRTN, UWTROC and WRECKS. The target of this amendment is theoretically very nice as "Correction to DEPVAL02 Conditional Symbology Procedure to reduce the unnecessary display of the isolated danger symbol for OBSTRN and UWTROC".

The origin of this deferred amendment is DIPSWG3, 2011 paper 8.6C which proposes:

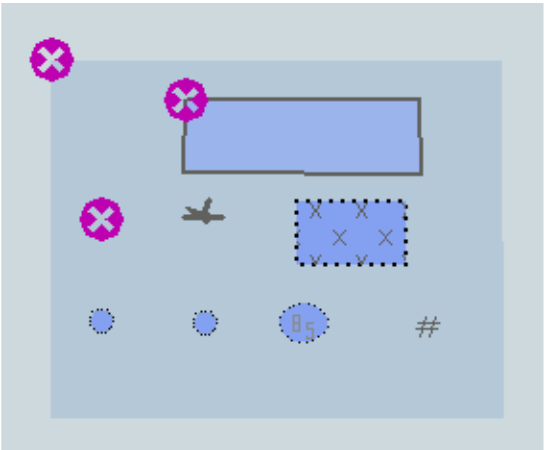
Unfortunately, the current situation is different - based upon an analysis of current ENC from a number of different hydrographic offices, it was found that hydrographic offices for various reasons try to avoid using the EXPSOU attribute for hazards (especially for OBSTRN and UWTROC) where the value should to be set to '1' (within the range of depth of the surrounding depth area) or '3' (deeper than the range of depth of the surrounding depth area). This results in (see picture 1) that the local variable 'LEAST_DEPTH' for hazards with WATLEV equal '3' (always under water) and without EXPSOU attribute set or with unknown value of EXPSOU will always be set to 'UNKNOWN'.

Suggestions:

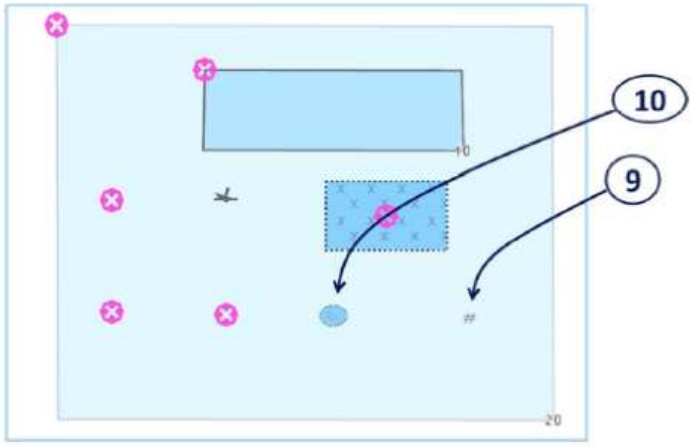
*To reduce presentation of unnecessary Isolated Danger Symbols for OBSTRN and UWTROC objects it is necessary to revise CSP for detecting least depth (**DEPVAL02**).:*

*To check the code of object and in case if it is NOT WRECKS to **check the value of EXPSOU. If it is missing or unknown AND if the value of WATLEV = '3'** then return to the calling procedure with the value of LEAST_DEPTH calculated in the loop for underlying group 1 objects.*

We implemented a prototype of this deferred amendment and the result was that, if implemented the ECDIS cannot pass the famous IHO CDS, which is currently used to stop vessels by port state inspection in Australia. So this started to be serious compared to trivial typo in the first deferred amendment analysed.



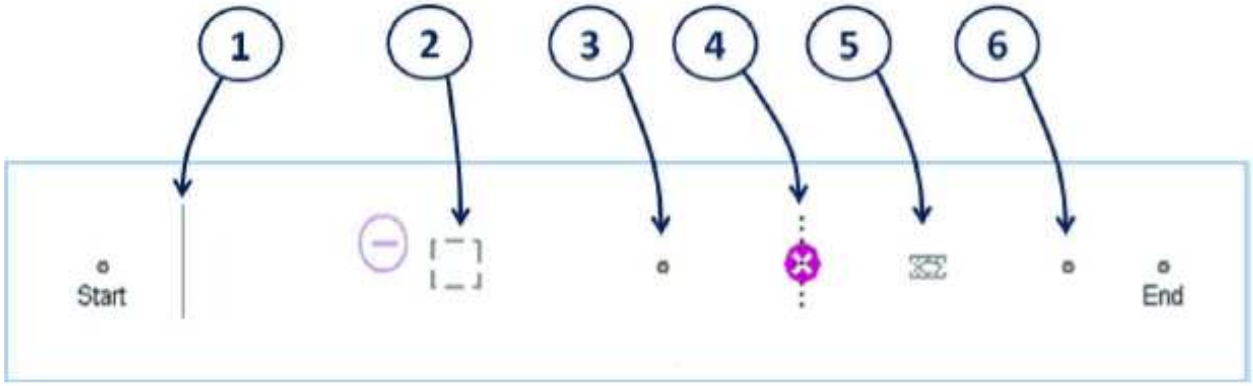
CDS figure 6 after deferred amendments



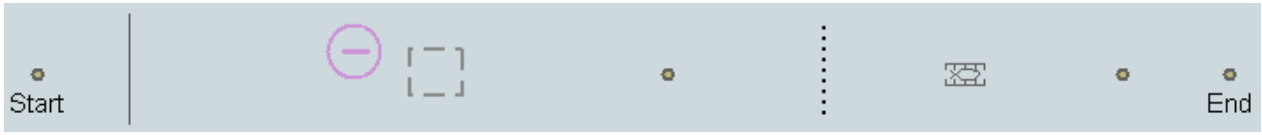
CDS figure 6 – original from IHO document

Items 5, 6 and 7 have changed and are now non-dangerous. The result would be vessel stopped by port state control.

The study continued with IHO CDS for chart related alarms.



CDS figure 7 – original from IHO document



CDS figure 7 after deferred amendment

Item 4 has changed from dangerous to non dangerous and do not cause alarm or indication. The result would be vessel stopped by port state control.

Review of my study during the DIPWG4 meeting

Before the public presentation scheduled for Wednesday I showed my draft presentation for several people in the DIPWG4 meeting. Most common response was that they have newer implemented any of the deferred amendments and therefore they do not know anything of the expected result.

Then one reviewer told me that a respected manufacturer not participating the DIPWG4 has implemented the deferred amendment and based on confirmation from him during the meeting not found the problem found by us.

Nest step was to look the case again even more deeper for what could be wrong in our implementation. The key point is the new condition added by this amendment. The condition is written as below in the DIPWG3 proposal
check the value of EXPSOU. If it is missing or unknown AND if the value of WATLEV = '3'…

Now if the condition is changed as
check the value of EXPSOU. If it is ~~missing or~~ unknown AND if the value of WATLEV = '3'…

then nothing happens for IHO CDS test as every example in the CDS is with WATLEV = '3' but with missing EXPSOU.

Is everybody now happy, when there is no change for the IHO CDS test result.

I would say NO, as without "*missing EXPSOU*" this deferred amendment is totally ineffective for the original case which was described in DIPWG3 paper 8.6C. I quote below the original reason for the amendment

> *Unfortunately, the current situation is different - based upon an analysis of current ENC from a number of different hydrographic offices, it was found that hydrographic offices for various reasons try to avoid using the EXPSOU attribute for hazards (especially for OBSTRN and UWTROC) where the value should to be set to '1' (within the range of depth of the surrounding depth area) or '3' (deeper than the range of depth of the surrounding depth area)*

As seen above the whole purpose of the amendment was to reduce isolated danger symbols from the cases when Hydrographic office has avoided using the EXPSOU. The amendment fails to do this for missing EXPSOU and therefore this amendment is a "change for change".

3 Conclusions

In the old days it was possible to ignore many embedded errors and discrepancies in IHO documents, but this is not anymore the case. Reason is that before serious discussion was between experts from OEM and experts from type approval. The situation is totally different after introduction of ECDIS anomalies issue and after publishing the IHO CDS. The results and content of the IHO documents are now interpreted by non experts – port state inspectors, mariners, ship owners to name a few.

The first conclusion of this paper is that for short term – between 1 to 2 years from now – the IHO should seriously focus on clarifying the current rules and removing all discrepancies within IHO documents.

The second conclusion of this paper is that instead of playing with words such as “immediate amendment” or “deferred amendment” the IHO should make serious new editions. Reason is that the non-experts – port state inspectors, mariners, ship owners to name a few – cannot understand terminology which is not in common use in the whole society for changed rules. A serious new edition include changes for every aspect of presentation

- text in the printed document
- pictures in the printed document
- machine readable presentation library (so called DAI-file)
- improved test data (in S-64) to cover new rules