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Paper for Consideration by ENCWG
S-101 Attribute Water Level Effect in Geo Feature Offshore platform

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Executive Summary:	Proposed consideration to obtain an automatic value for the Water level effect Attribute on the Offshore platform Geo Feature when converting S-57 to S-101
Related Documents:	S-57 Appendix B.1 Annex A (UOC Edition 4.3.0), S-65 Annex B Edition 1.1.0
Related Projects:	S-57 to S-101 Conversion

Introduction / Background

The OFSPLF (P,A) feature on S-57 will be converted to the Offshore platform (P,S) Geo feature on S-101. The definition of Offshore Platform is a permanent offshore structure, either fixed or floating. One of the main changes from the OFSPLF object class in the S-57 to the Geo Feature Offshore platform on the S-101 is the existence of the water level effect attribute as a mandatory attribute.

Acronym: **WATLEV**   Code: **187**

Attribute type: E

Expected input:

ID	Meaning	INT 1	M-4
1	partly submerged at high water	IF 33.2;	378.1;
2	always dry	IF 6.1; IK 10;	313.4; 421.1;
3	always under water/submerged	IF 6.3; IK 13;	421.4;
4	covers and uncovers	IF 6.2; IK 11;	421.2;
5	awash	IK 12;	421.3;
6	subject to inundation or flooding		
7	floating		

S-57 Appendix A, Chapter 2: Attribute Catalogue WATLEV

14.1   Offshore platform

IHO Definition: **OFFSHORE PLATFORM**. A permanent offshore structure, either fixed or floating. (Adapted from IHO Dictionary – S-32).

S-101 Geo Feature: Offshore Platform (OFSPLF)

Primitives: Point, Surface

Real World	Paper Chart Symbol	ECModIS Symbol

S-101 Attribute	S-57 Acronym	Allowable Encoding Value	Type	Multiplicity
water level effect	(WATLEV)	2 : always dry 7 : floating	EN	1,1

S-101 Annex A_DCEG Edition 1.1.014.1 Offshore platform

Analysis / Discussion

To find out the conversion results of the Water level effect attribute on the S-101, several converter software's are used. Trial conversion using all existing software is not intended to compare the advantages of each software, but only as a tool to find out the possible conversion results.

ENC, tools and conversion methods used:
- ENC Band 4: MS4BR2JS ed. 10 up. 13, Compilation Scale: 45.000;
- Converter: ArcGIS Pro 3.0.3 within S-101 FC 1.0.2; Caris S-57 Composer 4.1 within S-101 FC 1.0; dan dKart S-101 Converter 1.0 within S-101 FC 1.0.2.;
- Validation: 7Cs Analyzer Version 4.2.0 Build 3, Reference: S-101 ENC Validation Checks, Ed. 1.0.0;
- Display: KHOA S-100 Viewer version 1.0.17

In this conversion, FC version 1.0.2 is still used, where it is known that version 1.1.0 has now been released, but this version is still considered relevant because there are no changes to the Offshore platform section from version 1.0.2 to 1.1.0.

Conversion and Validation Result

- Water level effect in offshore platform has detected critical error due to leave the attribute empty.
- The other result is not an error as this has been fixed by auto filled with value (unknown).

If the Water level effect attribute in the Offshore Platform can be converted automatically, it will greatly simplify the conversion process and reduce errors when filling in manually. Therefore, the conversion can be considered based on the Category of offshore platform (CATOFP) in OFSPLF, as follows:

- CATOFP: 1. oil derrick/rig
             2. production platform
             3. observation/research platform
             4. articulated loading platform (ALP)
             6. mooring tower
             7. artificial island
             9. accommodation platform

For those above CATOFP values, it is recommended to become a Water level effect **2. Always dry**.

- CATOFP: 5. single anchor leg mooring (SALM)
             8. floating production, storage, and off-loading vessel (FPSO)
             10. navigation, communication, and control buoy (NCCB)

For those above CATOFP values, it is recommended to become a Water level effect **7. Floating**.

- CATOFP: (Unknown)

For **(Unknown)**, it is recommended to retain the same value.

Automatic conversion of the Water level effect attribute can also be considered to use the HEIGHT or VERLEN attributes in OFSPLF. If there is a HEIGHT, the water level effect can be converted to **2. Always dry** as the HEIGHT attribute is based on the information for the fixed platform. If there is a VERLEN, the water level effect can be filled in automatically **7. Floating** as the VERLEN attribute is used for floating platforms.

11.7.2   Offshore platforms (see S-4 – B-445.2; B-445.4 and B-445.5)

If it is required to encode a permanent offshore platform (fixed or floating), it must be done using the object class **OFSPLF**.

Geo object: Offshore platform (**OFSPLF**)   (P,A)
Attributes: CATOFP   COLOUR   COLPAT   CONDTN   CONRAD   CONVIS   DATEND
               DATSTA
               HEIGHT -   for fixed platforms, referred to the vertical datum (see clause 2.1.2).
               NATCON   NOBJNM   OBJNAM   PRODCT   STATUS   ~~VERACC~~   ~~VERDAT~~
               VERLEN -   for floating platforms, referred to the sea level .
               INFORM   NINFOM

Alternatively, the Water level effect as a mandatory attribute on the Offshore platform Geo feature on S-101 could be removed. This is considered to minimize work during the conversion of S-57 to S-101, considering that the Water Level Effect attribute is not present in the S-57.

Justification and Impacts

It is felt that the Water level effect attribute on the Offshore platform feature is necessary in the S-101, but the mandatory status makes the cartographic workload (manual work) considering that there are quite a lot of existing Offshore platforms in the ENC.

It is suggested to adjust the document S-65 Annex B – Conversion Guidance related to the Offshore Platform to explain in more detail regarding obtaining automatic Water level effect values or considering removing WATLEV from the list of mandatory attributes in DCEG.

Conclusion and Recommendations

- Automatic conversion of the Water level effect attribute in S-101, based on CATOFP encoded from Object Class OFSPLF in S-57;
- Alternatively, automatic conversion of the Water level effect attribute on S-101, can be derived from HEIGHT and VERLEN attribute value from Object Class OFSPLF in S-57; and
- To remove the Water level effect as a mandatory attribute on the Offshore platform Geo feature in S-101.

Action Required of ENCWG

The ENCWG8 is invited to:
- discuss the paper.
- consider the recommendations.
- decide on the next steps forward.