**NIPWG 6-57.1**

**HSSC11-05.3B**

Determination of responsibility for product specification portrayal among HSSC WGs

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| ***Submitted by:*** | NIPWG, UKCMPT, ENCWG?? |
| ***Related Documents:*** | S-100, S-99, S-101, various product specificationsHSSC8-05.6B INF6, HSSC9-05.5C |
| ***Related Projects:*** | All S-100 Product Specifications |

Introduction/Background

Based on HSSC endorsement, the development of S-100 compliant product specifications which are based on the IHO registry HYDRO domain belongs to the responsible HSSC WG.

S-100 Part 9 describes the technical process from the feature data through the drawing instruction towards the portrayal output.

S-100 Part 11 clearly states that the portrayal section is optional.

S-99 describes the “Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry” and specifies that a proposer provides portrayal proposals and that these proposals should be reviewed by the submitting organisation and finally goes through the registry manager and domain control body acceptance procedure.

What is missing is clear guidance on which HSSC working group has the responsibility to a) specify symbols and to b) keep control over the various symbols used under HSSC remit (HYDRO domain). As more and more product specifications mature, and with the advent of an interoperability specification, this clarification becomes pressing.

In addition, something more than a specification document on interoperability will be needed to ensure there are no portrayal conflicts when all possible S-100 information portrayals are combined. Using a combination of experienced seafarers (users) in a simulator test environment could be one way to achieve this.

Analysis / Discussion

The provision of portrayal in various product specifications differs.

For example:

* all portrayal chapters for product specifications under the remit of NIPWG have been kept intentionally blank.
* S-129 currently provides instructions on what to portray and the intention is to include details about how it could be portrayed. Portrayal information is registered on the IHO website through the Portrayal Catalogue Builder.
* S-101 version 1.0.0 describes that it is intended to provide portrayal. However, nothing has been provided at this stage.

Hydrographic Offices invested money and effort to provide a scientific based portrayal of bathymetric data. Results were presented at HSSC8. This work was picked up and a different portrayal solution was provided at HSSC9 by DQWG.

According to S-99, one could consider that these proposals were provided by the proposer. Following the S-99 workflow, the submitting organisation would be the S100WG (the S-101PTas its subsidiary in this case).

Drawing parallels to the above mentioned situation, if neither a third party nor the responsible working group itself provide portrayal proposals, is it on HSSC to consider the information provided by a particular product specification and request portrayal solutions if deemed necessary? If yes, to which HSSC WG should this request be addressed?

In addition, at a certain point of development users should be brought into the workflow to assess and help define optimal portrayal solutions. The relevant PTs and WGs can only really make initial portrayal suggestions. Without having full access to all information portrayal combined together with an understanding of how the information will be used in real operations final portrayal cannot be decided.

Taking into account that the development of symbols and portrayal solutions is a highly professional skill, it can be assumed that the most WGs will not be able to accept that task. The structure of the HSSC WGs implies that the only WG with the appropriate professional expertise is the NCWG.

The accompanied diagram illustrates a workflow and the intended scope of the portrayal development. It should be noted that the IHO mission to provide services for the widest possible use is not affected by this workflow.

It is assumed that product specifications which have been developed based on S-100 Registry entries outside the HYDRO domain are out of scope. If any portrayal is needed, that should be developed by the proposer themselves. However, the final portrayal of such product specifications needs consideration taking into account how the information will be seen and interpreted by users in a simulated or real operational environment.

It is further assumed that product specifications developed under the HYDRO domain may be used for on board application or for any on shore applications (GIS for example). The scope of work should be limited to on board applications. It is well known that some on board applications, especially those for back of bridge use, could also be seen as GIS applications. The scope includes these applications as they are made for on board use.

However, interoperability aspects should be considered for both front of bridge and back of bridge use. Depends on the intended use (front of bridge or back of bridge) either any symbol (for back of bridge use) or a special symbol (for back of bridge use) should be designed. The development of the latter should consider limits or guidance specified by the interoperability specification (under S-100WG development).

The product specification development team should decide whether information should be capable of being portrayed. The human readability option may include symbols. Whether information could be accessible through a pick report should be considered and is not the subject of this discussion. Rather, a separate decision is needed if autonomous shipping is to be supported.

In this regard, automation in shipping is not likely to involve full automation of ships for many years yet, but the use of automation will first be to monitor navigation for sections of a ship’s voyage. Such automated monitoring could be carried out on board and/or from a remote location. Where remote monitoring involves human monitoring then clearly this will require portrayal. The recent discussion at the 100th session of the IMO’s Maritime Safety Committee (MSC) on marine autonomous surface ships (MASS) is relevant to subject.

If the product specification development is mature the request of an information portrayal seems appropriate. Tthe product specification developing WG should address the need of symbols through HSSC to the NCWG. The requesting WG should not develop symbol proposals. That belongs entirely to the NCWG. That procedure ensures that:

1) HSSC has to overview of portrayal related work,

2) one HSSC WG keeps the control of symbols under HSSC remit (HYDRO domain), and

3) NCWG will work on portrayal in a HSSC approved order.

Justification and Impacts

Defining clear responsibilities between involved HSSC WGs in the product specification development process avoids duplication of work and simplifies the process. The concentration of portrayal development work in one HSSC WG ensures that all symbols under HSSC remit are consistent and harmonised. Having HSSC involved as coordinating body avoids work overload for NCWG. For critical phases, HSSC could prioritise the work.

Conclusions and Recommended Actions

The clear separation of portrayal related work improves the product specification development process. A clarification within the S-99, assigning the rules to the relevant WGs, seems appropriate. A clarification of the NCWG ToR should be considered.

Action Required of HSSC

HSSC11 is invited to:

1. take note of the paper,
2. initiate the necessary S-99 amendment, and to
3. assign the portrayal development to NCWG.

[[[My concern with all this is that NCWG are paper chart experts and the designing of symbols for use in electronic navigational systems is outside of their expertise. This work goes beyond the NCWG as there are symbols used in ECDIS that are not the domain of the IHO and are managed by the IEC. I would go so far as to say that the whole structure of WGs at the IHO will need to be modified to cope with all the new layers that are being developed. This paper will certainly generate discussion and maybe the outcome should be a new group.]]]