INTERNATIONAL HYDROGRAPHIC ORGANIZATION

ORGANISATION HYDROGRAPHIQUE INTERNATIONALE

CHART STANDARDIZATION & PAPER CHART WORKING GROUP (CSPCWG)

[A Working Group of the Hydrographic Services and Standards Committee (HSSC)]

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CSPCWG Letter: 06/2013

UKHO ref: HA317/010/031-10

To CSPCWG Members

Date 24 April 2013

Dear Colleagues,

Subject: Actions from 9th CSPCWG meeting: Group 2 'Aids to navigation'.

Here is the second group of drafts in fulfilment of CSPCWG9 actions. This progresses actions 10, 12, 17, 18, 20 and 33. All deal with aids to navigation.

Please let me have your comments by 18 June, using the response form attached at Annex B.

Yours sincerely,

Andrew Heath-Coleman
Secretary

Annex A: CSPCWG9 Actions drafts: Group 2 'Aids to navigation' with Appendix 'Notes from UK meeting on CSPCWG lights queries - 14 December 2012'

Annex B: Response form.

CSPCWG9 Actions drafts: Group 2 Aids to navigation

Actions in blue
Comments and explanations in green
Extracts from S-4 in black with:

- Proposed additional words in red
- Proposed deletions ~~crossed through~~.

Report of discussions with IALA representatives from the UK General Lighthouse Authorities is at **Appendix**.

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ACTION 10: Secretary to consider all references to 'major' lights in S-4 with a view to enhancing the guidance in line with the 2nd proposed 'definition' in CSPCWG9-08.1A.

The main reference is at B-472.1. There are other references at:

- B-435.7 (no action required)
- B-470 (add cross reference to B-472.1)
- B-470.4 (add cross reference to B-472.1)
- B-470.5 (already cross referenced to B-472.1)
- B-470.7 (add cross reference to B-472.1)
- B-474.1 (delete reference to 10 miles, see action 18)
- B-477 (no action required).

Suggested clarification to B-472.1 (as agreed with IALA representatives 14/12/12 and by subsequent correspondence – see Appendix).

B-472.1 **Major lights.** For the purposes of charting, this includes ~~lights intended for use at sea, usually with a range of 15 miles or more, and in outer approaches to harbours~~). navigationally significant lights which are considered essential for:

- marking landfalls, off-shore dangers, shipping routes and port access channels;
- the protection of the marine environment.

The above is derived from IALA recommendation O-130 Edition 2 'Navigational significance - Category 1'. They may be on land, on platforms or floating structures at sea. Lights inside harbours are generally excluded.

When reducing the detail …

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ACTION 12: Secretary to draft clarification on application of 'Dir' to lights with sectors which are too narrow to chart.

Because the use of 'Dir' in the light description can replace more complicated description characters, the instruction to only use it if the course line is not charted has been deleted. See also notes of Secretary's meeting with IALA representatives 14/12/12, at Appendix.

B-475.7 **Direction (or directional) lights** of several types are in use but all have in common a very narrow sector intended to mark a direction to be followed. They are generally used where for some reason leading lights cannot be established and serve the same purpose. The narrow sector may be flanked by:

a. **Unlit sectors or unintensified light.** The centre line of the sector must be charted in a manner similar to a leading line (see B-433) but with the **international abbreviation** 'Dir', and the

course to be followed, against the line, eg:

P30.1

P30.2

~~The abbreviation 'Dir' should only be used in the light description at the position of the light if the course line is not charted~~. The sector limits may be charted if considered to be useful.

If the light oscillates from side to side, there will be sectors either side of the fixed sector where the light phase decreases as the deviation from the central sector increases. If charted, such sectors should be labelled as 'Oc', although in practice they vary between occulting and flashing. In such cases, the abbreviation Dir may replace more complex character abbreviations at the light description.

b. **Sectors of different colour and/or character.** ~~Some direction lights are so precise that a complete colour change at a sector boundary occurs over an angle of less than 1 minute (0.02°). This corresponds to a lateral distance of just 1 metre at a viewing distance of 3.5 km. In addition the intensity may be maintained right to the edge of the beam, and does not reduce the further the observer is away from the axis.~~ In the case of multicoloured direction~~al~~ lights, the mariner will expect to see coloured sectors either side of a central white sector so, to avoid chart clutter or if the sectors are too narrow to chart, it is ~~usually~~ sufficient to show just the centre line of the leading sector, with the light description and course to be followed against ~~along~~ the line, eg DirWRG 090°. If a fuller light description is required, this should be given at the light star to avoid chart clutter in navigation areas, eg DirWRG.11m15-10M, with just Dir 090° against the line.

The sector limits and arcs may, if considered useful and scale allows, be charted instead of, or in addition to, the centre line, in the same way as for other ~~a~~ sectored lights (see B-475.1)~~. If the centre line is not charted, 'Dir' should be inserted at the beginning of the light description, to inform the navigator that the fairway sector has a particularly precise 'cut-off' or very small angle of uncertainty (unlike the average fairway sector)~~, eg:

P30.3

P30.4

In the examples shown, the light oscillates from side to side, so that between the fixed colour sectors, there is a narrow sector of alternating colour. Such lights may also have outer sectors where the colour phase decreases away from the fixed coloured sectors. If required to be charted, such sectors should be labelled as Oc.G or Oc.R. In such cases, the abbreviation Dir should be used in place of any attempt to describe the more complex character abbreviations at the light description.

There may be scope to simplify further, as much of the guidance applies whatever sectors (if any) flank the direction sector.

ALTERNATIVE SIMPLIFIED VERSION

B-475.7 **Direction (or directional) lights** of several types are in use but all have in common a very narrow sector intended to mark a direction to be followed. They are generally used where for some reason leading lights cannot be established and serve the same purpose. The narrow sector may be flanked by:

- unlit sectors
- unintensified sectors
- coloured sectors
- sectors of a different character (usually caused by the light oscillating from side to side).

The centre line of the sector must be charted, if required, in a manner similar to a leading line (see B-433) but with the **international abbreviation** 'Dir', and the course to be followed, against the line, eg:

P30.1

P30.2

In the case of multicoloured direction lights, the mariner will expect to see coloured (usually green and red) sectors either side of a central white sector. To avoid chart clutter, or if the sectors are too narrow to chart, it is sufficient to show just the centre line of the leading sector, with the light description and course to be followed against the line, eg DirWRG 090°. If a fuller light description is required, this should be given at the light star to avoid chart clutter in navigation areas, eg DirWRG.11m15-10M, with just Dir 090° against the line.

The sector limits and arcs may, if considered useful and scale allows, be charted instead of, or in addition to, the centre line, in the same way as for other sectored lights (see B-475.1).

If the light oscillates from side to side, there will be sectors either side of the fixed sector where the light phase decreases as the deviation from the central sector increases. If charted, such sectors should be labelled as 'Oc', although in practice they vary between occulting and flashing. For multicoloured lights, there will also be sectors which alternate between white and green or red. Again, the duration of each colour will vary across the sector. For oscillating lights, therefore, the abbreviation Dir should be used in place of any attempt to describe the more complex character abbreviations at the light description, eg: DirWRG.11m15-10M or, if the sectors are shown:

P30.3

P30.4

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ACTION 17: Secretary to circulate draft S-4 entry on 'highlighting' by WG Letter, for review, before preparing for MS.

The draft new specification on 'highlighting' at Annex D to CSPCWG9-08.1D was approved in principle, to be circulated to the full WG for review before exposing to Member States. J Wootton (AU) suggested placing at B-478.6 (after strip light) might be a better location in S-4, but it is not obvious what advantage this would bring, as B478.4 is not currently used.

The following wording is proposed:

B-478.4 **Highlighting of navigation lights.** Light pollution, (eg: street lighting, harbour area floodlighting, architectural lighting, lit signs) can cause serious problems for a mariner trying to identify an important navigation light.

There are various options available to lighthouse authorities and ports for highlighting navigation lights to make them more easily detected and identified. Some are more useful close up, others further out to sea. Some options, such as choosing a colour which contrasts with the background or rival lights, may not be available because the navigational purpose of the light dictates its colour (ie red, green, yellow or white). A rhythmic light is usually more easily seen, but again, the character may be dictated by the navigational purpose. There may be scope for using a faster flash rate, which is more easily detected than a slow one.

Many methods of increasing the conspicuity of a light are covered by light characteristics which can be included in standard light descriptions. These include:

- rapidly alternating colours (as on emergency wreck marking buoys) (see B-466.2f);
- faster rhythm (see B-471.2 and B-471.5);
- alternating flashing pairs of lights (similar to road lights at a level crossing) (see B-471.2 and B-471.8);
- increased intensity (see B-471.7 and B-475.2);
- the disposition (see B-471.8);
- floodlighting the structure (see B-478.2);
- synchronizing (including sequencing) groups of lights (see B-478.3).

Other methods of increasing the conspicuity of a light (some still experimental) would be difficult to chart using current methods; these include:

- Flickering the navigation light within the flash profile at a frequency of around 10Hz.

- Exhibiting a high intensity strobe light next to the navigation light at the beginning of its rhythmic sequence to draw the observer's eye to the navigation light.
- 'Pointer' lights. An arc of light installed next to an existing navigation light that displays a circular sequence of lights to give the impression of a moving pointer which 'points' to the position of a navigation light. This 'arc-pointer' is more conspicuous than background light because of its shape, colour and the apparent movement caused by the sequenced flashing.
- Shape of Light Source. A lit shape providing a very conspicuous marker, used either as a pointer to an aid to navigation (AtoN) or as an AtoN in its own right.
- Flashing floodlights on and off, or repeatedly changing the colour of the floodlight.
- Contour Lighting. Highlighting the outline shape of a structure with low luminance strips of light can be useful for two reasons: it provides a recognizable shape and it gives an impression of size and distance.

This is not an exhaustive list, and further devices may be invented. There is no generic symbol to chart these (and future) possibilities. Instead, details should be provided in a List of Lights (LL). A legend '(see Note)' may be added to the light description, with a description of the method of highlighting being given in the note or a reference to a List of Lights (LL).

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ACTION 18: Secretary to draft revision on light vessels to S-4 for WG review. New Work Plan item.

B-474 MAJOR FLOATING LIGHTS

B-474.1 **Major floating lights.** (For an explanation of the term 'major' see B-472.1.) ~~are generally classed as those with a nominal range in excess of 10 nautical miles. Special circumstances, eg an isolated location, may mean that a floating light of lower range is given this status~~. The structure on which the light is fixed will be a light vessel, (also known as a lightship or major light float) or a LANBY (Large Automatic Navigational Buoy, which is a type of superbuoy); the latter may no longer exist, see B-460.4.

B-474.2 **The symbol for a major floating light** must be either,

for a light vessel:

Q32 (new)

for a LANBY:

P6

The colour of the structure does not indicate on which side it should be passed and therefore should not be charted (this is consistent with the omission of colour from major shore light structures on paper charts). Details of the structure may be found in List of Lights and Fog Signals (LL).

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ACTION 20: Secretary to ask IALA to advise whether 'LANBY's still exist.

Secretary asked UK's IALA representatives. It is their understanding that there are no longer any 'LANBYs' in service worldwide; see Appendix.

It is proposed to add to B-460.4b, 3rd bullet, as a clarification:

It is understood (2012) that there are no longer any LANBYs in service worldwide.

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ACTION 33: All WG members to advise whether the use of radio-activated fog signals is likely to be implemented in their waters.

Advice from UK's IALA representatives (see Appendix) is that these are likely to spread beyond US waters. Also, and perhaps more importantly, radio-activated **lights** already exist in Canadian waters and may spread further. Although details should be given in LL, it would be useful to have some indication on charts. Depending on intelligence received from other WG members, it may be worth pursuing this subject, either by correspondence or at CSPCWG10.

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Appendix to Annex A: CSPCWG9 Actions drafts: Group 2 Aids to navigation

Notes from UK meeting on CSPCWG lights queries - 14 December 2012

UKHO: Andrew Heath-Coleman (Secretary CSPCWG), Hal Milner, Sue Harland, Roger Millard.

GLA: Roger Barker (Chairman, IALA ANM Operations Working Group), Nick Dodson, Phil Day (Chairman, IALA ANM committee).

Discussion points

1. **'Definition' of major lights**. CSPCWG9 had decided that guidance, rather than a formal definition, would be more use. Andrew tabled a draft which was adapted during discussion and should now be circulated to participants for further comment:

S-4 B-472.1 to be changed to read:

> **Major lights**. For the purposes of charting, this includes navigationally significant lights which are considered essential for:
>
> - marking landfalls, off-shore dangers, shipping routes and port access channels;
> - the protection of the marine environment.
>
> In general, such lights would be designated IALA category 1. They may be on land, on platforms or floating structures at sea. Lights inside harbours are generally excluded.
>
> When reducing the detail …

[Note: agreed by subsequent correspondence]

2. **Direction lights.** CSPCWG9 had agreed that there is no need to change existing guidance (unless IALA advises otherwise). However, a clarification was needed for the use of 'Dir' where sectors are so narrow that they cannot be shown.

GLA representatives agreed that the original usage (to designate a certain make of sector light – 'PEL') was no longer significant. Such lights tend to be used where for some reason leading lights cannot be established. Considered however that the abbreviation 'Dir', in lieu of 'Ldg Lts', is useful to mark the centre line to be followed through a narrow sector (whether the sectors are charted or not).

The abbreviation is also useful where the character of the light is too complex to describe in a normal light description (eg in the case of an oscillating light where the character changes from fixed W, through Fl/Iso/Oc alternating WR and WG)

3. **Group v Interrupted.** One development is that IALA have removed the definitions UQ and IUQ from the IALA Navguide. Presumably all lights with flashes more than 80 flashes per minute should be charted as VQ? There was still no consensus on how group Q/VQ should be distinguished from IQ/IVQ, but one possible distinction is that cardinal lights should always be charted in the form Q or VQ(3), (6) and (9), while groups of non-cardinal Q and VQ should be charted as IQ/IVQ, with the period.

Roger undertook to consult further, especially with Malcolm Nicholson.

4. **LANBYs.** It is believed these buoys no longer exist anywhere. GLA welcomed the intention to resurrect the light vessel symbol.

5. **Radio-activated fog signals.** These are likely to spread beyond US waters. Also, radio-activated **lights** already exist in Canadian waters and may spread further. Although details should be given in LL, it would be useful to have some indication on charts.

CSPCWG9 Actions drafts: Group 2 'Aids to navigation'

Response Form
(please return to CSPCWG Secretary by 18 June 2013)
andrew.coleman@ukho.gov.uk

WG9 Action	Question	Yes	No
10	Do you agree with the assessment of where 'no action required' or 'add cross reference'?		
	Do you agree with the proposed rewording of B-472.1		
12 mark one box only	Do you prefer the proposed revision of existing B-475.7, or		
	Do you prefer the new simplified version?		
17	Do you agree with the wording of the proposed new B-478.4?		
	Do you agree that B-478.4 is an appropriate location in S-4?		
18	Do you agree with the proposed revision of B-474.1-2?		
	Is the reinstated light vessel symbol:		
	sufficiently distinct from the light float Q30 and		
	sufficiently more prominent than Q30? If you answer 'no' to either of these questions, please explain below and offer an alternative.		
20	Do you agree to add the proposed clarification to B-460.4b?		
33	Do you have any further information about radio-activated lights or fog signals?		

Further comments:

Name:
Member State: