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# NAUTICUS HULL

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# RELEASE NOTE

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JUNE 2007 - PATCH 2

DECEMBER 2007

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DET NORSKE VERITAS

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Published by Det Norske Veritas AS  
Veritasveien 1  
N-1322 HØVIK, NORWAY

Telephone: +47 67 57 99 00

Fax: +47 67 57 99 11

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## **1 Introduction**

### **1.1 Purpose**

The purpose of this document is to inform the users about enhancements and bug fixes in the Nauticus Hull June 2007 from the main release to Patch 2.

### **1.2 Updates in this Release Note**

This release note might be updated with new information after the distribution of this patch. To check the latest updated version of this document, please see our Internet page **DNV Software Download and Updates**. To open this page you can follow this [Link](#).

### **1.3 Installation**

This is a cumulative patch that contains all updates contained in Nauticus Hull June 2007 Patches 1 to 2. Prior to this upgrade you must have the Nauticus Hull June 2007 version installed, and in most cases you need the install files from this installation when running this upgrade.

## **2 Program Updates**

### **2.1 Nauticus Workflow Manager**

#### **2.1.1 Error Corrections:**

Hull viewer:

Hull Geometry sections in viewer/modeller did not always represent the actual frame table.

Compartment load types for CSR Tank only:

Inconsistency in drop-down menu.

Change of load type was previously not taken into account in calculations.

Edit Compartments and Edit loads tools:

Sorting of tables, pressing Save or Refresh button could result in wrong data references.

## 2.2 Section Scantlings

### 2.2.1 New functionality

#### Casings, deckhouses and superstructures

The local Rule requirements concerning plates and stiffeners in casings, sides in deckhouses and superstructures have been included.

For unprotected casings (open to the sea), the requirements are the same as for sides in deckhouses.

The update is related to DNV Rules only.

### 2.2.2 Error corrections

#### 1) Local and buckling strength requirements, bottom and side plates

Consider a cross section where the double bottom, bilge and side are transversely stiffened.

For the plane bottom and side plates next to the curved bilge, no local or buckling strength requirement was calculated. Hence the minimum thickness became the final local requirement for those plates.

The error has been corrected.

#### 2) Import and export of data from/to the 2dl-file

##### 2a) Transverse stiffeners

For transverse stiffeners, the text "LEFT" or "RIGHT" in the 2dl-file is used to specify the side where the stiffeners are to be placed. However, when importing data from a 2dl-file, the LEFT/RIGHT code had no influence on the placement of the stiffeners.

The error has been corrected.

##### 2b) Crash upon importing data from a 2dl-file

In version 3 of the 2dl-file, the program expected that the items Name, GUID and TypeID from IntelliShip were included in the file. Otherwise the program would crash upon importing the data from the file.

The error has been corrected, so the items Name, Guid and TypeID may well be left out.

##### 2c) Changing stiffener scantlings

Assume that the data from a 2dl-file has been imported into Section Scantlings.

Also assume that the 2dl-file included the items Name, GUID and TypeID.

If the user then changes the scantlings of any stiffener, the items Name, GUID and TypeID will be missing upon exporting the data to a 2dl-file.

The error has been corrected.

#### 3) Error message "asin DOMAIN error"

The error that resulted in this message has been corrected.

#### 4) Plates in vertically corrugated longitudinal tank bulkheads (CSR-Tank Rules)

Assume that two or more alternative loads in an adjacent tank have been given as input (e.g. oil/heavy liquid). In such cases a few requirements on the CORRU line were sometimes based on the wrong load.

#### 14 Local Rule Requirements - Plates

Plate No	ACT	$t_{act}$ (mm)	Steel	$t_{corr}$ (mm)	$\psi$	Draught (m)		Eff. (%)	Span (mm)	Spac (mm)	$\sigma_{ng}$ N/mm <sup>2</sup>	$\sigma_{yd}$ N/mm <sup>2</sup>	k
	LOC	$t_{loc}$ (mm)	$t_{min}$ (mm)	Pos	Load comb.	Load Ref.		Loc. ref.	$y_1$ (mm)	$z_1$ (mm)	$C_a$	Comp ref.	$p$ kN/m <sup>2</sup>
	BUC	$t_{buc}$ (mm)	$t_{sit}$ (mm)	$\eta$	$\eta_{allow}$	K	C	Buc. ref.	$y_b$ (mm)	$z_b$ (mm)	$\sigma_L$ N/mm <sup>2</sup>	$\sigma_c$ N/mm <sup>2</sup>	$\sigma_{cr}$ N/mm <sup>2</sup>
	CORRU	$t_{Zr}$ (mm)	$Z_r$ cm <sup>3</sup>	$t_{wr}$ (mm)	$t_{fr}$ (mm)	$C_{s-cg}$	$d_{og}$ (mm)	$Z_{net}$ cm <sup>3</sup>	$y_z$ (mm)	$z_z$ (mm)	$\sigma_{bdg}$ N/mm <sup>2</sup>	$M_{cg}$ kNm	$p$ kN/m <sup>2</sup>

#### C.L

The corrugation depth = 1000 mm, minimum value = 783 mm. Status = OK (CSR-Tank Rules Section 8/2.5.7.4).

1	ACT	18.0	std	2.5	0.00	7.29		0	11745	1077	16.9	315.0	0.78
	LOC	17.00	10.50	Lbhd	S+D 3	Oil f 7a Sag		Lat	0	5220	0.90	1	201.7
	BUC		To be specially considered.										
	CORRU	13.28	7597	6.37	14.62	0.900	783	10920	0	5220	167.9	1833.3	108.5

The following items on the CORRU line were affected by the error:

$t_{wr}$  The required thickness of the corrugation web (mm). The corrosion addition  $t_{corr}$  is included, i.e.  $t_{wr} = t_{w-net} + t_{corr}$ , where  $t_{w-net}$  is given in the CSR-Tank Rules Section 8/2.5.7.3.

$t_{fr}$  The required thickness of the corrugation flange (mm). The corrosion addition  $t_{corr}$  is included, i.e.  $t_{fr} = t_{f-net} + t_{corr}$ , where  $t_{f-net}$  is given in the CSR-Tank Rules Section 8/2.5.7.5

$C_{s-cg}$  Permissible bending stress coefficient  $C_{s-cg}$ . See the CSR-Tank Rules Section 8/2.5.7.6.

$\sigma_{bdg}$  The maximum bending stress in the corrugation flange (N/mm<sup>2</sup>). See the CSR-Tank Rules Section 8/2.5.7.5.

$M_{cg}$  Bending moment factor used in the section modulus requirement,  $Z_r$ . See the CSR-Tank Rules Section 8/2.5.7.6.

The other items on the CORRU line were OK

The error has been corrected.

#### 5) Crash when calculating results

In some cases the program would crash when calculating the shear flow results.

As a result of the same error, the program would also crash upon selecting "Forces/Moments/Stresses" | "Moments/stresses for buckling check with PULS" from the menu line.

The error has been corrected.

#### 6) Fatigue loads (1A1, CN 30.7)

For stiffeners in compartments with other loads than oil cargo, bulk cargo, heavy bulk cargo or water ballast, the fatigue load was not applied. The error has been corrected.

## 2.3 Rule Check XL

### 2.3.1 Corrected problems and errors

	Problem	Spreadsheet	Description/comments
-	DNV 1A1, Wheel loading	WheelJan99.xls	Input fields incorrectly locked.
-	DNV 1A1, Ice Class	IceclassJan2007.xls	Updated according to amendments July 2007 entering into force with immediate effect.
-	CSR Tank, Primary support	CSR- Tank_PriSupMemb.xls	Included ability to add additional sheets and to produce a report for all members.
-	CSR Tank, Buckling control	CSR- Tank_Ch10.3.2-4_Buckli ng.xls	New version of buckling control, replacing the old CSR_Tank_Buckling_Ch10_3_v3_2.xls
-	Offshore, Buckling Strength of Plated Structures, DNV-RP-C201	StiffenedPlateBuckling_ RP-201.xls	Error corrections and updates.
-	Offshore, Buckling Strength of Shells, DNV- RP-C202	StiffenedCurvedPlate.xls	Errors and modifications related to column buckling and torsional buckling strength.

## 2.4 Modelling And Analysis

### 2.4.1 Error Corrections

#### 1) Paste assembly to Automatic Buckling Analysis

In some cases an error occurred when pasting an assembly into an Automatic Buckling Analysis. This is now corrected.

#### 2) Instabilities in viewer

In some cases the viewer crashed when the assembly node was activated or when the execution of the command sequence was finished. This problem is now corrected.

#### 3) Crash during execution of command sequence

If topology errors caused by invalid 2D parts occurred during execution of the command sequence, the program often crashed. Handling of such situations is now improved.

## **3 Known Issues**

### **3.1 General**

The Known Issues listed here also comprises issues listed in earlier release documentation. Issues added in this document are highlighted by a NEW in the heading.

### **3.2 Section Scantlings**

#### **3.2.1 General**

##### **Updates in interaction with Workflow Manager**

Both Workflow Manager and Section Scantlings may now be open and editable at the same time, but changes in Workflow Manager will not be updated in Section Scantlings until the latter is closed and re-opened. When editing ship data for old jobs in the previous BRIX Manager, the whole job must be closed and re-opened for updating the ship data. It is not enough to close and re-start Section Scantlings.

#### **3.2.2 DNV Rules**

##### **NEW: Fatigue calculation on 1A1 Bulk carriers**

Fatigue calculation on 1A1 Bulk carriers is not available in the current program version. (This limitation also comprises the September 2006-release and onwards).

##### **Incorrect section modulus for “tilted” stiffeners in fatigue calculations (IM 823)**

If the stiffener web is not perpendicular to the plate, the section modulus used in the fatigue calculations will be incorrect. The section modulus requirement should be compared with the actual section modulus, assuming that the web is perpendicular to the plate. However, if the fatigue strength calculations are included, the section modulus of the stiffener will be based on the true angle between the web and the plate.

##### **“Hogging ships” – sign on bending moment curve**

For “hogging” ships, the allowable still water bending moment is in the area between the maximum and the minimum hogging moment curve. Before the Workflow Manager was introduced in Nauticus Hull, the “minimum hogging” curve could be specified by entering negative values as input for the sagging moment curve.

However, in Workflow Manager, sagging moments are to be given as negative values, hogging moments as positive values.

In Section Scantlings, the moments given in Workflow manager will always be positive values. Hence it is no longer possible to specify the “minimum” hogging moment curve by entering negative values for the sagging moment curve.

##### **Remedial action in Section Scantlings, for “hogging ships”:**

In the “Design bending moments and shear forces” dialog, enter a negative value for the sagging

moment. The negative sagging moment will then be considered as the “minimum hogging” moment in the calculations.

### 3.2.3 CSR-Bulk

#### Bulk loads without “Has homogenous bulk load”

If the bulk load is not included (“Has homogenous bulk load” is not marked), the additional  $0.1 M_H$  is not added to the heavy bulk load.

Regarding BC-B notation: When calculating pressures for heavy bulk, density=3.0, the input for  $M_{HD}$  shall be used. To get correct mass in calculations the input weight shall be  $0.9 M_H$ . The heavy bulk load is not included in fatigue calculations for BC-B.

## 3.3 Finite Element Analysis

### Spreadsheets requiring Office 2003 or later

Following spreadsheet analyses requires Office 2003 or later in order for ‘Browse’ button to work:

- CSR-TankShip-FEABucklingPostProcTemplate-WithPuls.xls
- CSR-BulkShip-FEABucklingPostProcTemplate.xls
- CSR-Bulk\_Ch7\_Sc4\_Fatigue.xls

Workaround is to write full file path manually.

## 3.4 Brix Explorer

### NEW: Message “The job is already open by ...”.

When opening a job from disk, you may get message “The job is already open by ...”. This is an indication that someone else are working with this job. If however you previous work with this job was terminated in an abnormal way, you may always get this message. In this case you may remove this message by deleting file with same file name and location as the job file, but with additional extension “.inuse”. A file that ends with “.inuse” does not contain any vital information and its only purpose is to warn about other users working on the same file. It can be deleted.

This functionality can be completely disabled by changing following parameter inside the *Hull.config* file from:

```
<add key="DetectOpenOfflineJobs" value="true"/>
<add key="SkipHullFileInUseCheck" value="false"/>
```

To:

```
<add key="DetectOpenOfflineJobs" value=" false"/>
<add key="SkipHullFileInUseCheck" value="true"/>
```

The first line turn on/off indication of job files, and the other works for analyse files opened from within a job. By default the last line is not included in the *Hull.config* file, but may be added manually. Changed do not take place before the program is restarted.

**"Import job from file" does not include all files (IM 585)**

"Import job from file" does not include files not located at sub directory 'WFDepot'. Workaround is to extract the file manually after import by renaming the file extension from 'bxHullJob' to 'zip'.

**Error message "*String was not recognized as a valid DateTime*". (IM 840)**

When several users work on a common 'hull job directory'. A warning message is given if two users open the same file. If however the two users have different date/time format given in control panel - regional settings, the second user get error message "*String was not recognized as a valid DateTime*". The job or analysis will not be opened. Workaround can be one of following:

- Wait until first user is finished,
- Delete the file named "<filename>.inuse".
- Contact Nauticus Hull Support for information about how to turn off the '*file-in-use*' option.
- Preferably should all users use the same date/time format..

**3.4.1 Load tools****Load test height for CSR-Bulk loads**

The load test height for liquid compartment loads is not shown in the CSR-Bulk compartment loads dialog, and it is not possible to edit the value. The load test height is however calculated according to the rules when the internal tank pressures are applied in Section Scantlings.

**Not all CSR-Bulk compartment loads are generated automatically**

According to the rules side tanks that are void spaces should be calculated as water ballast tanks. Compartment loads for side tanks specified as void spaces are not generated automatically and must be added manually.

**Unspecified attributes for compartment loads, DNV Rules**

If not all the attributes for a compartment load are specified in the DNV Rules compartment loads grid, Section Scantlings may crash during the calculations. Workaround is to specify a value for all the attributes, i.e. replace the text "(null)" with a valid value in the grid.