Components task group

ID	Clause	Location	Country	Status
105	0 General		UK	**Components task group**

Comment My main comment concerns the partial load factors. I realise it was probably political to allow use of a number of design codes rather than to introduce ISO-specific design formulae. However this has created a real mess. Section 9.01 recommends using tube strength formulations from ISO 19902, presumably with ISO19902 load factors. In practice this will mean running two or more sets of topsides analyses with different load factors to assess tubulars and I-beams. I suggest that such an approach is bound to lead to confusion and error.

Proposed

Reply

ID	Clause	Location	Country	Status
927	0 General		CA	**Components task group**

Comment Canada will supply action factors for CAN/CSA-S16-01 in Tables 2, 3 and 4 as soon as we have them ready.

Proposed

Reply

ID	Clause	Location	Country	Status
137	05.02		UK	**Components task group**

Comment The intent of the use of regional or nation standards is that the use of resistance factors therein shall be used unmodified. Make this clear in this clause.

Proposed

Reply

ID	Clause	Location	Country	Status
709	05.05	1st paragraph	FR	**Components task group**

Comment The environmental design conditions (both metocean and seismic) for the topsides shall be those selected for the Substructure, except for wind : wind speed acting on superstructures is depending on structures overall dimensions...

Proposed The environmental design conditions (both metocean and seismic, except wind) for the topsides shall be those selected for the Substructure.

Reply

ID	Clause	Location	Country	Status
148	06		UK	**Components task group**

Comment Need to include a statement somewhere on alignment and mismatches with the supporting structure (imposed deflections) - mentioned in analysis

Proposed

Reply

ID	Clause	Location	Country	Status
480	06	and A.06	NL	**Components task group**

Comment Structural design in the DIS is based on a partial factor method (LRFD). While this is indeed the rather common and preferred method for topsides on fixed structures, for topsides on floating structures current practice is still based on WSD. Design of the floating structures themselves in ISO 19904-1 offers a choice between LRFD and WSD methods. The choice between LRFD and WSD should also be allowed for the topsides on floating structures.

Proposed Add the option to use LRFD or WSD for the topsides structures design on floating structures. Add a description of how WSD design should be performed.

Reply

ID	Clause	Location	Country	Status
150	06.03		UK	**Components task group**

Comment Current and earthquake loadings (and generally wave loadings) are imposed via the substructure motions rather than being direct actions.

Proposed

Reply

ID	Clause	Location	Country	Status
483d	06.04.01	1st line under list	NL	**Components task group**

Comment 4) Accidental events should be included (as per 7.010), in addition to extreme events.

Proposed 4) Change to "... extreme and accidental events are ..."

Reply

ID	Clause	Location	Country	Status
152	06.04.02.03		UK	**Components task group**

Comment Long period vibrations: A note should be added stating the following: "The natural period of large cantilevers can be demonstrated by eigenvalue analysis. Such analysis should include unfactored static and live loads and in the case where heavy rotating machinery is installed (such as variable speed pump skids, compressors etc), three dimensional vibration analysis should be performed. The cantilevered local structure should be designed such that the natural frequencies of the deck section are not between 0,65 and 1,5 times the operating frequency of the equipment to avoid resonance.

Proposed

Reply

ID	Clause	Location	Country	Status
168	07		UK	**Components task group**

Comment Section 7: Actions should include followings
-Wind actions
-Fatigue
- Resistance factors & Allowable stresses

Proposed

Reply

ID	Clause	Location	Country	Status
169	07		UK	**Components task group**

Comment The UKbelieves that it is important that some checks are made on the use of the document in its final draft form to ensure that the use of the various partial safety factors results in credible results.

Proposed

Reply

ID	Clause	Location	Country	Status
619	07		DK	**Components task group**

Comment Variable actions. Deck loads are not addressed, apart from on heli-deck, ref. 8.5.3.010. It is proposed to include some topics relating to:
Deck-load magnitude,
area-reduction factors,
which loads to consider for local- and global-design
This item is addressed in chapter 7.3 of ISO 19904-1, but there primarily for global design.

Proposed Include a section on deck-loads.

Reply

ID	Clause	Location	Country	Status
716	07		FR	**Components task group**

Comment There is a paragraph on waves, but surprisingly not one on wind.

Proposed Make clear what gust factors (3sec, 1min, etc) apply in different situations.

Reply

ID	Clause	Location	Country	Status
717	07		FR	**Components task group**

Comment It seems to be an omission not to include brief discussion on loading combinations for equipment testing.

Proposed Add text on equipment testing

Reply

ID	Clause	Location	Country	Status
519	07	07 and A.07	NL	**Components task group**

Comment Certain data / information is still missing and need to be supplied.

Proposed

Reply

ID	Clause	Location	Country	Status
885	07.02		NO	**Components task group**

Comment The equivalent quasi static action should be deleted as a separate action and should not require a specific action factor. Instead the dynamic effects need to be included in the determination of the load effects. The safety format with a 1.25 additional factor on the dynamic action stems from calibration of jacket structures and is not relevant for the different types of dynamic loads on topside structures. E.g. lifting, blast pressure, rotating machinery.

Proposed Delete the term De

Reply

ID	Clause	Location	Country	Status
174	07.03		UK	**Components task group**

Comment My understanding of partial load factors is that they are supposed to reflect the uncertainty in the loading. However, the values of the factors seem to take no account of the actual uncertainty in the types of load. The load factor on an accurately weighed structure should be less than on an estimate for an existing old structure.

Proposed

Reply

ID	Clause	Location	Country	Status
714	07.03		FR	**Components task group**

Comment 1) It is not clear what load factors are being recommended here. This code should recommend a set of governing partial action factors to use in design, rather than listing some of the factors used by some other codes.
Furthermore, there are several difficulties.
Is the user allowed to choose from the list of standards with their different factors?
What is one to make of tables A.01 and A.2 which have changed some of these factors compared to Table 2 and Table 3?
Even if one is allowed to select from the list of codes, NS3472 does not actually give load factors: it refers to NS3490. AISC does not actually give load factors: it refers to SEI/ASCE 7, and that has a list of 9 different combinations to think about. EN1990 seems to offer a choice in its Table A1.2(B) of combination format.
The text discusses (7.3.2) checks on gravity loading alone, and (7.3.3) checks on gravity plus environment actions. There should be another paragraph for accident conditions, at least.

Proposed Revisit text

Reply

ID	Clause	Location	Country	Status
887	07.03		NO	**Components task group**

Comment Action factors for topside structures for fixed platforms are given for application of different onshore codes. This is confusing as the material factors to be applied are not defined. In the case of Eurocode the material factors are so called National Determined Parameters and will differ from country to country. An alternative can be to state material factors in the National Annexes, but in that case it should be possible to have one set of action factors that are applicable to all codes. It is argued in the Commentary that this is done as the material factor is embedded in the software. It is disputed that this is a general problem and even for software that is made this way it can easily be overcome by modification of the yield stress.

Proposed Make one set of action factors for all codes.

Reply

ID	Clause	Location	Country	Status
521	07.03	07.03 and A.07.03	NL	**Components task group**

Comment Note that AISC-LRFD 1999 (Reference [1]) has been superseded by ANSI/AISC 360-05 as of March 2005, and that this latter document does not specify action factors but refers to "the applicable building code", or in the absence of a building code to ASCE/SEI 7-05.

Proposed

Reply

ID	Clause	Location	Country	Status
886	07.03	7.3.2	NO	**Components task group**

Comment The sentence in 2nd paragraph is confusing: "The partial factors shall be the same as those used for the substructure design of assessment, taking account of any eccentricities where any components of the actions are due to motion".

Proposed State that partial factors shall be the same as for the substructure. Use building codes using substructure factors.

Reply

ID	Clause	Location	Country	Status
175	07.03.01		UK	**Components task group**

Comment AISC-LRFD has a 3rd Edition dated 2001. Are the action factors still valid?

Proposed

Reply

ID	Clause	Location	Country	Status
176	07.03.01		UK	**Components task group**

Comment The partial load factors are supposed to reflect the uncertainty in the loading. However, the values of the factors seem to take no account of the actual uncertainty in the types of load. Why should the dead weight of an accurately weighed structure attract a load factor of 1.25 to 1.45 (depending on resistance code), which would be the same if the weight (say of an existing old structure) was just estimated? Why should the weight of water in a tank of known volume attract a factor of 1.4 to 1.65, which is the same as for blanket live load allowance. There seems to be no recognition of uncertainty/variability in the loads

Proposed

Reply

ID	Clause	Location	Country	Status
177	07.03.01		UK	**Components task group**

Comment There is no guidance for local and global blanket live load design values. Could some be added?

Proposed

Reply

ID	Clause	Location	Country	Status
178	07.03.01		UK	**Components task group**

Comment It is good practice to allow for a lack-of-fit or out-of-level between the top-of-jacket legs and the underside of the topsides, and to consider uncertainty in the position of the CoG (as in 7.9.2.2). What load factors should be applied to these cases?

Proposed

Reply

ID	Clause	Location	Country	Status
179a	07.03.01		UK	**Components task group**

Comment AISC-LRFD has a 3rd Edition dated 2001. Are the action factors still valid?

Proposed

Reply

ID	Clause	Location	Country	Status
179b	07.03.01		UK	**Components task group**

Comment The partial load factors are supposed to reflect the uncertainty in the loading. However, the values of the factors seem to take no account of the actual uncertainty in the types of load. Why should the dead weight of an accurately weighed structure attract a load factor of 1.25 to 1.45, which would be the same if the weight (say of an existing old structure) was just estimated? Why should the weight of water in a tank of known volume attract a factor of 1.4 to 1.65, which is the same as for blanket live load allowance? There seems to be no recognition of uncertainty/variability in the loads.

Proposed

Reply

ID	Clause	Location	Country	Status
179c	07.03.01		UK	**Components task group**

Comment There is no guidance for local and global blanket live load design values. Could some be added?

Proposed

Reply

ID	Clause	Location	Country	Status
179d	07.03.01		UK	**Components task group**

Comment It is good practice to allow for a lack-of-fit or out-of-level between the top-of-jacket legs and the underside of the topsides, and to consider uncertainty in the position of the CoG (as in 7.9.2.2). What load factors should be applied to these cases?

Proposed

Reply

ID	Clause	Location	Country	Status
620	07.03.01		DK	**Components task group**

Comment Why DS449 not in list or table 2

Proposed

Reply

ID	Clause	Location	Country	Status
914	07.03.01	1st para.	CA	**Components task group**

Comment Revise CISC/CSA-S16[?] reference.

Proposed Replace CISC/CSA-S16[?] with CAN/CSA-S16-01 [5]

Reply

ID	Clause	Location	Country	Status
622	07.03.02		DK	**Components task group**

Comment Gravity loads.
It is not clear whether initial uncertainties with regards to centre-of-gravity is addressed and/or included in the partial action factors or otherwise addressed in referenced documents. Normal design procedure is to account for a COG-shift factor during engineering. This factor is calculated based on a COG-envelope and the distances to support-points. The support-points varies during the project-stages:
Transport: distance to grillage/sea fastening
Lifting: distance to lift-points
In-place: distance to module support-points
For large structures with short distances between support-points (for instance living-quarters) the COG-shift factor may be significant (up to 1.3).

Proposed Uncertainties with regards to location of centre-of-gravity shall be addressed and accounted for. This item should be discussed with the weight-control-department during project start-up phase. Monitoring throughout the project-execution shall ensure that the defined limits/boundaries are maintained

Reply

ID	Clause	Location	Country	Status
621	07.03.02	7.03.02,7.03.03 & 7.03.04 Table 2, 3 & 4	DK	**Components task group**

Comment The table defines load-factors from NS3472. This is not correct. NS3472 does not apply to design loads, only design rules for steel member capacity. The corresponding load-factors (primarily to be used for land-based buildings) are defined in appendix J (normative) of NS3490 - "Design of structures - Requirements to reliability".
It is not clear why the above mentioned sections and tables are included. The same items are addressed in a clear and consistent manner in the corresponding ISO-standards for global design, ref. table 4 in ISO-19904-1 as an example.

Proposed Replace tables 2, 3 & 4 by reference to the relevant chapters in the equivalent ISO-standards for global design. Alternatively copy the tables from these standards.

Reply

ID	Clause	Location	Country	Status
916	07.03.02	Table 2	CA	**Components task group**

Comment Revise CISC/CSA-S16 reference

Proposed Replace CISC/CSA-S16 with CAN/CSA-S16-01

Reply

ID	Clause	Location	Country	Status
183	07.03.03	Equation 4	UK	**Components task group**

Comment When the internal forces due to gravity forces oppose those due to wind, wave and current forces, the internal force, S, resulting from the design action, Fd , shall be calculated using reduced partial action factors as Equation
The reduction in safety factor for G1 and G2 is 1/gG. If this is based on an adverse Normal distribution then should the factor be (2 - gG)? The reduction in safety factor for Q1 is 1/gQ2 , what is this based on?

Proposed

Reply

ID	Clause	Location	Country	Status
917	07.03.03	Table 3	CA	**Components task group**

Comment Is the designation YEL,s under each referenced code correct?

Proposed Consider replace ‘YEL,s’ with ‘Environmental YE,s’

Reply

ID	Clause	Location	Country	Status
715a	07.03.04	eqn (5)	FR	**Components task group**

Comment 1) For this particular combination of loads, why are the action factors from Table 4 inverted in equation (5)?

Proposed Check equation (5)

Reply

ID	Clause	Location	Country	Status
715b	07.03.04	eqn (5)	FR	**Components task group**

Comment 2) The text refers to particular operations that might be limited by particular weather conditions. An example might be that we do not apply "stuck caisson" loads in 100-year conditions, but limit this work to 10-year conditions. In that case, the action factors should be those of Table 2 and Table 3 (with 10-year environment for example) and not those of Table 4. For 1-year return environment, Table 4 look reasonable.

Proposed Consider suggestion of use of Table 2 and 3 (instead of 4) when environmental conditions are "higher" than 1-year return.

Reply

ID	Clause	Location	Country	Status
715c	07.03.04	eqn (5)	FR	**Components task group**

Comment 3) Why does the text limit consideration to fixed platforms? There should be complementary text for floaters.

Proposed Add text for floaters

Reply

ID	Clause	Location	Country	Status
919	07.03.04	Equation [5]	CA	**Components task group**

Comment Equation [5] as presented is in the form required when the internal forces due to gravity forces oppose those due to wind, wave and current forces. For operating environmental situations, the required equation format should be for when these internal forces do not oppose each other.

Proposed Replace Equation [5] with the following:Fd = YG (G1 + G2) + YQ (Q1 + Q2) + YE (Eo + 1.25Do)

Reply

ID	Clause	Location	Country	Status
922	07.04		CA	**Components task group**

Comment Why is extreme and operating Partial Action Factors calibration provided for fixed platforms but not for mobile and floating platforms? More guidance is required for mobile or floating structures.Regarding deletion of the 1,25 dynamic factor for mobile and floating platforms, the dynamic response can be computed accurately for hulls, therefore, you do not require the additional factor.

Proposed Consider providing Tables of the extreme, abnormal and operating Partial Action Factors for mobile and floating platforms similar to those for fixed platforms. Essentially, the same equations can apply as for fixed structures, however, the 1,25 factor used in equations 3, 4 and 5 quasi-static action representing dynamic response needs to be dropped as this effect does not need to be enhanced on a floating structure as the hull will move with the environmental action where a fixed platform cannot. It should be stated that for mobile platforms this dynamic factor can only be dropped for design cases when the mobile platform is floating.

Reply

ID	Clause	Location	Country	Status
522	07.04	07.04 and A.07.04	NL	**Components task group**

Comment It would appear more logical to see 7.4 as a continuation of subclauses under 7.3 (then becoming 7.3.5), and to renumber 7.5 to 7.011

Proposed Rearrange and renumber.

Reply

ID	Clause	Location	Country	Status
718	07.06		FR	**Components task group**

Comment Deformation on concrete platforms is discussed, but the subject of deformation imposed by substructures is particularly of importance for modules on ship-shaped floating structures, which is not mentioned. Note that para 1 specifically includes discrete structural units placed on the hull structures of floating offshore structures.

Proposed Mention the importance of deformation imposed by substructures for modules on ship-shaped floating structures.

Reply

ID	Clause	Location	Country	Status
923	07.06	1st para.	CA	**Components task group**

Comment There is one other deformation action that is worthwhile adding to the discussion. In general, the hull of a monohull is much stiffer than the topside structure and as it sags and hogs, considerable deformations are introduced at the topside structure level. Unless the design incorporates this, the topside structure may be subject to excessive stresses and fatigue.

Proposed Consider adding the following sentence to Clause 7.6. "The hull of a monohull is much stiffer than the topside structure and as it sags and hogs, considerable deformations can be introduced at the topside structure level."

Reply

ID	Clause	Location	Country	Status
623	07.07		DK	**Components task group**

Comment Wave actions.
Only wave-slamming are addressed. Wave actions are also transmitted through the global structure in the form of accelerations and imposed deformations. Even if a module is not part of the main load-carrying system it must be able to withstand the above mentioned loads. This is briefly mentioned in chapter 9.4.01 of ISO 19904-1, but there primarily for accuracy of global analysis models.

Proposed Include: Wave actions on hull/substructure may impose accelerations and deformations that must be included for the structural analysis and design of topside facilities (modules).

Reply

ID	Clause	Location	Country	Status
719	07.07		FR	**Components task group**

Comment There is mention of wave ingress on topsides due to insufficient air gap, but there could also be mention of wave run-up against any large substructure, and green water inundation on floaters.

Proposed Add text on wave run-up against any large substructure, and green water inundation on floaters.

Reply

ID	Clause	Location	Country	Status
187	07.08	Table 5	UK	**Components task group**

Comment Table missing. Overall Clauses 7.8 and A.7.8 need to be worked on as there are gaps in the text/tables.

Proposed

Reply

ID	Clause	Location	Country	Status
844	07.08.02		US	**Components task group**

Comment Five (5) Items on Page 17 need Clarifications

Proposed 1.3rd Paragraph / last sentence - Due to the platform's dynamic responsethese deck design accelerations are typically much greater than those associated with ground motions.
2. Item A - From prior modal analysis of the overall strucutre, extract the acclerations (Am) at the euipment support location for each significant mode of structural response.
3. Item B - Obtain the corresponding equipment modal acceleration Ae by multiplying Am by the well known single degree of freedon amplification factor. Each significant modal response of the overall structure along with the single degree of freedom chracteristics of the equipment needs to be considered.
4. Item C - Combine structural modal values of Ae by the SRSS method to obtain the reulting acceleration value Ae.
5. Equation 6 - Replace AS with AE, Replace As with Ae for to distinguish visually. Consider replacing Equation 6 with "A more rigorous method is required if the equipment mass to toal mass ratiio is greater then 5%.
The next sentence would read "Forces on deck equpment with greater mass or equipment with multi-mode represnetation shall be derived by dynamic analysis using either..."

Reply

ID	Clause	Location	Country	Status
845	07.08.02		US	**Components task group**

Comment Page 18 - Table 5 is missing

Proposed Include Table 5

Reply

ID	Clause	Location	Country	Status
720	07.08.02	eqn (6)	FR	**Components task group**

Comment It is clear how to use this equation, and all the terms are not defined properly.

Proposed Clarify text

Reply

ID	Clause	Location	Country	Status
724	07.08.02	page 18, last para	FR	**Components task group**

Comment Is this proposed default lateral acceleration to be applied as a strength-level earthquake, or a rare-event "accident" level earthquake? In other words, what set of action combinations is it to be included in?

Proposed

Reply

ID	Clause	Location	Country	Status
855	07.09.02.02		US	**Components task group**

Comment States that "allowances shall be made for uncertainties and potential changes in the center of gravity position during design." However, there is not guidance provided as to how to do this.

Proposed Add guidance in A7.9.2.2. Suggest a COG envelope.

Reply

ID	Clause	Location	Country	Status
725	07.09.02.03		FR	**Components task group**

Comment Are the action factors to be used on lift forces always to be the same as in other conditions? Are we not requiring consequence factors?

Proposed

Reply

ID	Clause	Location	Country	Status
625	07.09.02.07		DK	**Components task group**

Comment What is small give max dim + weight. Cannot find typical criteria for small modules in A7

Proposed

Reply

ID	Clause	Location	Country	Status
197	07.09.02.07	Para 2	UK	**Components task group**

Comment Reference to A.7 is too vague.

Proposed

Reply

ID	Clause	Location	Country	Status
633	07.11		DK	**Components task group**

Comment Minimise clearance in conductor support guides.

Proposed Clearance (radial) in support guides shall be minimised to avoid excessive dynamic load transfer into support guide itself and supporting structure.

Reply

ID	Clause	Location	Country	Status
229	07.11	Probably elsewhere	UK	**Components task group**

Comment The design loads for muster points and around lifeboats should be considerable higher than normal walkway loading

Proposed

Reply

ID	Clause	Location	Country	Status
230a	07.11.02		UK	**Components task group**

Comment Clarify that it is the well string that primarily results in thermal growth and tree movement.

Proposed

Reply

ID	Clause	Location	Country	Status
230b	07.11.02		UK	**Components task group**

Comment Note also there can be flow-induced vibrations

Proposed

Reply

ID	Clause	Location	Country	Status
231a	07.11.02		UK	**Components task group**

Comment Conductors, riser and caisson design should consider all environmental actions not just waves

Proposed

Reply

ID	Clause	Location	Country	Status
231b	07.11.03		UK	**Components task group**

Comment Conductors, riser and caisson design should consider all environmental actions not just waves

Proposed

Reply

ID	Clause	Location	Country	Status
739	07.11.05		FR	**Components task group**

Comment There should be mention of loading from pressure testing.

Proposed

Reply

ID	Clause	Location	Country	Status
233	07.11.06	d)	UK	**Components task group**

Comment Consider foreseeable temporary loads imposed during bearing maintenance e.g. jacking.

Proposed

Reply

ID	Clause	Location	Country	Status
635	07.12		DK	**Components task group**

Comment Minimise clearance in caisson support guides

Proposed Similar statement as in chapter 7.011

Reply

ID	Clause	Location	Country	Status
740	08		FR	**Components task group**

Comment It seems to be an omission not to mention lifeboat support structure where there are special loads to be considered.

Proposed Add mention on lifeboat

Reply

ID	Clause	Location	Country	Status
924	08		CA	**Components task group**

Comment Particular attention shall be paid in analysis to the interaction between topsides and hull structures for mobile and floating installations.

Proposed A new section for "Topsides to floating structures- is to be added under section 8.01 detailing the hull deformations and requirement for sliding supports. The following statement should be adequate. "Particular attention shall be paid in analysis to the interaction between topsides and hul structures for mobile and floating installations. Deformations of the hull under environmental actions and ballast conditions can be significant and are to be considered in the design of supports. The use of sliding or elastomeric bearings at the topsides/hull interface may be required.-

Reply

ID	Clause	Location	Country	Status
741	08.01.01		FR	**Components task group**

Comment We have particular mention of topsides on concrete substructures, but no mention of particular issues for floating structures.

Proposed Add text for floating structures

Reply

ID	Clause	Location	Country	Status
268	08.01.02		UK	**Components task group**

Comment Maybe need some strengthening on issues between concrete and topsides? Differential movements, portal frame action etc?

Proposed

Reply

ID	Clause	Location	Country	Status
235	08.02.03		UK	**Components task group**

Comment Include the following:
Appropriate boundary conditions shall be modeled for the analysis of topside during pre-service condition

Proposed

Reply

ID	Clause	Location	Country	Status
636	08.03.01		DK	**Components task group**

Comment Substructure interface
The items relating to interface assumptions are also relevant for other topside-interfaces. Typically both Living Quarters and drilling-rigs are engineered by special sub-contractors. The coordination of these interfaces is important and should be addressed.

Proposed Include in chapter 8.011
All interfaces to other parties should be closely coordinated throughout the project. This typically relates to Living Quarter and Drilling -facilities, but may relate to other topside-facilities as well. Of particular importance is any assumptions made by one party relating to the work done by the other party.

Reply

ID	Clause	Location	Country	Status
637	08.03.03		DK	**Components task group**

Comment Fatigue Analysis.
It may be sufficient to base the need for fatigue analysis on experience and engineering judgement. However, a better basis is the results from the global analysis covered by the relating ISO-standards. These analyses will at an early stage reveal the need for fatigue analysis of topside-facilities.

Proposed "The need for fatigue analysis of topside facilities shall be based on experience, engineering judgement and results from global structural analysis.

Reply

ID	Clause	Location	Country	Status
742	08.03.03		FR	**Components task group**

Comment Fatigue: There is no mention of floating installations, where fatigue on topside might be important.

Proposed Add text for floating structures

Reply

ID	Clause	Location	Country	Status
238	08.04	Para 4	UK	**Components task group**

Comment Reference to appropriate methods for vibration in A.4 is incorrect.

Proposed

Reply

ID	Clause	Location	Country	Status
246	08.05.03.01	Para 1 bullets	UK	**Components task group**

Comment Are ‘from wind’ and ‘from motion of the installation’ subcategories of environmental actions?

Proposed

Reply

ID	Clause	Location	Country	Status
258	08.06.02		UK	**Components task group**

Comment We question the values of the dynamic coefficients quoted - are they appropriate and should they not vary with e.g. sea state - also what about cranes on floating installations - do they have different factors?

Proposed

Reply

ID	Clause	Location	Country	Status
259	08.06.02		UK	**Components task group**

Comment What should be used for seismic conditions for crane design?

Proposed

Reply

ID	Clause	Location	Country	Status
527	08.06.02		NL	**Components task group**

Comment The coefficient for dynamic effects for crane lifting operations is not in accordance with the rules for lifting appliances of recognized classification societies.
It may also differ from ISO 19901-6 for Marine operations (not checked at this point in time).

Proposed Review and make sure that there are no conflicts or discrepancies.

Reply

ID	Clause	Location	Country	Status
651	08.06.02		DK	**Components task group**

Comment Ø daf should only be on payload
Min or max radius seldom gives max overturning moment for real cranes

Proposed For cases a) and b), FL shall be selected to check the lifted load applicable to both maximum and minimum crane radius, for sea and platform lifts as well as radius giving max slewing moment.

Reply

ID	Clause	Location	Country	Status
848	08.06.02		US	**Components task group**

Comment Addional load case should be considered.

Proposed Define Load case to also be investigated to include Maximum Moment with corresponding Thrust and Maximum Thrust with corresonding Momentr and include boom side loading

Reply

ID	Clause	Location	Country	Status
652	08.06.02	a) and b)	DK	**Components task group**

Comment "Φ shall be taken as 2,0 for sea-lifts and 1.3 for platform lifts."
Comments:
Generally it is advisable to obtain specific dynamic coefficients from the crane-supplier.
A dynamic coefficient of 2.0 for sea-lifts may prove too conservative for design of the support-structure for certain cranes. See proposal.

Proposed The dynamic coefficients are strongly dependant on crane-specific characteristics. The preferred method is to obtain dynamic coefficients from the crane-supplier. Alternatively the dynamic coefficients may be obtained by approved methods or design-codes. For initial design the values in table xxx may be used:

Reply

ID	Clause	Location	Country	Status
754	08.06.02	a) and b)	FR	**Components task group**

Comment "φ shall be taken as 2,0 for sea lifts and 1,3 for platform lifts" : These criteria are lower than those of API 2C 6th edition

Proposed Criteria to be confirmed

Reply

ID	Clause	Location	Country	Status
653	08.06.02	c)	DK	**Components task group**

Comment "For cases a) and b), FL shall be selected to check the lifted load applicable to both maximum and minimum crane radius, for sea and platform lifts."
It is not certain that the maximum overturning moment from the crane is obtained from maximum/minimum crane radius. The dead-weight contribution from the crane will increase monotonic with regards to crane-radius, and the corresponding lifting-capacity generally has a monotonic decrease. As part of crane-pedestal analysis we have encountered cases where the maximum overall pedestal-actions are imposed for lift-radius between maximum and minimum reach. The relevant crane-capacity and crane-weight-data should form the basis for analysis/design.

Proposed For cases a) and b) care shall be taken to identify a conservative basis that takes into account the maximum combined actions from both dead-weight and the suspended load. These data are normally provided by the crane-supplier in the form of crane-capacity diagrams and/or a crane pedestal reaction forces specification.

Reply

ID	Clause	Location	Country	Status
757	08.06.02	last para	FR	**Components task group**

Comment It should be stated that gm factors should be taken as 1.0 for this condition.

Proposed

Reply

ID	Clause	Location	Country	Status
260	08.06.03		UK	**Components task group**

Comment Can be an issue with a retrofit of a larger crane onto an older platform - add exclusion for these circumstances.

Proposed

Reply

ID	Clause	Location	Country	Status
758	08.06.03		FR	**Components task group**

Comment It seems to be an omission not to mention cranes on floating installation in the context of this clause.

Proposed Add text on cranes on floating installations

Reply

ID	Clause	Location	Country	Status
654	08.06.04		DK	**Components task group**

Comment The design fatigue life of the crane supports shall be twice the planned topsides life. Uninspected ??
Avoid is impossible

Proposed All joints in the pedestal shall be designed to minimize stress concentration factors that are likely to result in an excessive reduction of the fatigue strength of the pedestal

Reply

ID	Clause	Location	Country	Status
655a	08.06.04		DK	**Components task group**

Comment "The design fatigue life shall be twice the planned topsides life."

Proposed The design fatigue life for the crane support structure shall be defined for all essential load-carrying elements based on the criticality as well as the possibility for in-service inspection.

Reply

ID	Clause	Location	Country	Status
656	08.06.04		DK	**Components task group**

Comment "All joints in the pedestal shall be design to avoid stress concentration factors that are likely to result in an excessive reduction of the fatigue strength of the pedestal."
It is generally difficult to avoid local geometric discontinuities in the connections between supporting structure and the pedestal. The emphasis should be:
Proper design that reduces such effects
Design-solutions that ensures early detection of any defects.
Method of analysis that accurately simulates the local structural response.
An in-service inspection program that ensures a satisfactory level of safety during the service-life.

Proposed The pedestal and supporting structures shall be designed in a manner that accounts for the fatigue loading. Special attention shall be given to any geometric discontinuities that may lead to local hot-spots, i.e. localized high stresses that cause reduction of fatigue life. Details and connections shall as far as possible be designed in a manner that:
Reduces local hot-spot stresses
Ensures that any defects and crack-propagation is easily discovery in the inspection-program.
Example: design welded connections so that crack-propagation is initiated from the weld-toe.
Local hot-spot regions shall be subjected to detailed analysis to ensure a proper basis for fatigue damage calculations. Detailed FE-analysis is recommended to predict such local phenomena.
The design-documentation should be prepared in a manner that enables the operator to define an in-service inspection-program that covers the critical areas. This is further defined in chapter 16.

Reply

ID	Clause	Location	Country	Status
657	08.06.04		DK	**Components task group**

Comment "Off-lead and side-lead loading, wind and other environmental loads shall be ignored for the fatigue analysis"
Ignoring environmental loads on a general basis may prove non-conservative. Topsides are frequently installed on floating installations. Such installations are subjected to environmental loads that may cause significant fatigue damage to topside structures. A typical example is wave-actions that impose accelerations as well as forces and moments into the topside structure. Wave-imposed accelerations acting on deck-cranes may cause significant fatigue damage to the supporting pedestal.

Proposed Off-lead and side-lead loading and wind are normally insignificant with regards to the fatigue analysis, but shall be assessed on a case-to-case basis.
Special attention shall be given to any environmental loads acting on floating structures that may cause fatigue damage to the crane-supporting structures (wave-imposed accelerations causing inertia-loading).

Reply

ID	Clause	Location	Country	Status
658	08.06.04		DK	**Components task group**

Comment "The dynamic coefficient applied to the suspended load shall be taken as stated in 8.6.2 for sea and platform lifts as applicable, (i.e. 2,0 for sea lift or 1,3 for platform lift)."

Comment: Avoid reiterations

Proposed The dynamic coefficient applied to the suspended load shall be taken as stated in 8.6.2.

Reply

ID	Clause	Location	Country	Status
659	08.06.04		DK	**Components task group**

Comment "The fatigue analysis shall be based on the expected crane usage and S-N curves for the particular member or connection."
Comments:
Avoid reiterations (the use of expected crane-usage already stated).
Elaborate on fatigue-data

Proposed Calculation of fatigue damages shall be based on:
Fatigue design basis (loads etc.)
Appropriate fatigue data such as: S-N curves and Stress Concentration Factors (SCF) due to fabrication tolerances, thickness-transitions as well as local hot-spot stresses.

Reply

ID	Clause	Location	Country	Status
660	08.06.04		DK	**Components task group**

Comment "The fatigue calculations shall utilise S-N curves....."
May be omitted provided earlier comment/proposal is implemented.

Proposed

Reply

ID	Clause	Location	Country	Status
849	08.06.04		US	**Components task group**

Comment The number of minimum cyles is not shown.

Proposed Add - A minimum number of 25,000 cycles should be used for 1) A load of 1.33 times the static rated load at the boom position and crane orientation that produces the maximum stress in each compnent of the supporting structure and 2) Stress range to be the difference of the stresses caused by 1) and stress with the boom in the same position but unloaded.

Reply

ID	Clause	Location	Country	Status
759	08.06.04	2nd para	FR	**Components task group**

Comment Recommendations on fatigue safety factors should be included in Section 7, which does not even mention fatigue limit states.

Proposed

Reply

ID	Clause	Location	Country	Status
261	08.06.04	Para 2	UK	**Components task group**

Comment Substantiation for this?

Proposed

Reply

ID	Clause	Location	Country	Status
262	08.07		UK	**Components task group**

Comment Interface issues - ensure reactions and tie downs for extreme conditions are addressed - could require site-specific assessment

Proposed

Reply

ID	Clause	Location	Country	Status
266	08.09	2nd bullet	UK	**Components task group**

Comment Displacements may be assessed using unfactored actions (plus a margin to ensure you don't run out of bearing surface?)

Proposed

Reply

ID	Clause	Location	Country	Status
267	08.09	Para below list	UK	**Components task group**

Comment including the provision of jacking points.

Proposed

Reply

ID	Clause	Location	Country	Status
274	09.01		UK	**Components task group**

Comment If using tube strength formulations from ISO 19902 what load factors should be applied. Does this mean running 2 or more analyses with different load factors to assess tubulars and I-beams? If so, it is bound to lead to confusion and error.

Proposed

Reply

ID	Clause	Location	Country	Status
528a	09.01	Titles and text	NL	**Components task group**

Comment Does "cylindrical" intend to refer specifically to "tubular" shapes, or are also RHS sections included?

Proposed Change to "tubular" if tubular is meant.
Stay with "cylindrical" if both CHS and RHS are referred to.

Reply

ID	Clause	Location	Country	Status
528b	09.02	Titles and text	NL	**Components task group**

Comment Does "cylindrical" intend to refer specifically to "tubular" shapes, or are also RHS sections included?

Proposed Change to "tubular" if tubular is meant.
Stay with "cylindrical" if both CHS and RHS are referred to.

Reply

ID	Clause	Location	Country	Status
529a	09.02.02		NL	**Components task group**

Comment 1) Add a sentence at the beginning, as for 9.2.3.

Proposed 1) Add: "Plate girders shall be designed in accordance with a suitable code of practice, see A.9.2.2."

Reply

ID	Clause	Location	Country	Status
276	09.02.02	Last sentence	UK	**Components task group**

Comment How does web slenderness affect fatigue?

Proposed

Reply

ID	Clause	Location	Country	Status
277	09.02.03		UK	**Components task group**

Comment The applicable standards need to be checked and updated.

Proposed

Reply

ID	Clause	Location	Country	Status
530	09.02.03	1st sentence	NL	**Components task group**

Comment Wording.

Proposed Change "with reference to" to "in accordance with", and add at the end "...., see A.9.2.3."

Reply

ID	Clause	Location	Country	Status
278	09.02.04		UK	**Components task group**

Comment Delete clause check Annex references etc

Proposed

Reply

ID	Clause	Location	Country	Status
531	09.02.05		NL	**Components task group**

Comment Wording and cross-reference.

Proposed Change to
"Stressed skin structures may be designed on the basis of that the plating resisting resists shear force forces only and that all axial forces are carried by the framing, see A.9.2.5. If the stressed skin structure is exposed to cyclic loadingactions the possible detrimental effects from repeated buckling shall be considered.-

Reply

ID	Clause	Location	Country	Status
279	09.03.03		UK	**Components task group**

Comment Not true - e.g. gusset joints that are only intended to transfer axial and certain moments - emphasis is too restrictive

Proposed

Reply

ID	Clause	Location	Country	Status
534	09.03.03	09.03.03 and A.09.03.03 title	NL	**Components task group**

Comment As for 9.01/9.2: Does "cylindrical" intend to refer specifically to "tubular" shapes, or are also RHS sections included?

Proposed Change to "Non-tubular joints" if tubular is meant; otherwise stay with ‘Non-cylindrical".

Reply

ID	Clause	Location	Country	Status
538	09.03.04	para 3, 1st sentence	NL	**Components task group**

Comment

Proposed Change to
"In general, connections designed in accordance with any normal building code will be satisfactorily satisfactory, see also A.9.3.4."

Reply

ID	Clause	Location	Country	Status
563	14	Clause 14/A.14	NL	**Components task group**

Comment Reference should be made to ISO 19901-6 (Marine operations), and it should be ensured that there are no discrepancies between this document and ISO 19901-6.

Proposed Make cross-reference and check existing text against ISO 19901-6.

Reply

ID	Clause	Location	Country	Status
476g	A.05.02	para 1	NL	**Components task group**

Comment 7) Add a word in last line.

Proposed 7) Change to ".. factors were determined for ..".

Reply

ID	Clause	Location	Country	Status
325	A.05.02	para 2 line 4	UK	**Components task group**

Comment Remove: With the emergence of other European countries as active participants in the oil and gas industry, EC3 is an obvious choice to complement the list of codes used for topsides structures.

Proposed Add: Eurocodes such as EC1 Basis of design and actions on structures and EC3 Design of steel structures: general rules and rules for buildings [2] give further information.

Reply

ID	Clause	Location	Country	Status
679	A.07.03		DK	**Components task group**

Comment LRFD not in sec 4.2

Proposed

Reply

ID	Clause	Location	Country	Status
790	A.07.03		FR	**Components task group**

Comment see comment on Section 7

Proposed

Reply

ID	Clause	Location	Country	Status
334	A.07.03	Table A.01	UK	**Components task group**

Comment Unclear what the +- represents against EC3

Proposed

Reply

ID	Clause	Location	Country	Status
335	A.07.03	Table A.3?	UK	**Components task group**

Comment No table is presented for operating condition - has this been missed by mistake?

Proposed

Reply

ID	Clause	Location	Country	Status
791	A.07.06		FR	**Components task group**

Comment "In general, the ultimate strength of ductile structural systems are not sensitive to deformation actions." Is it still true for discrete structural units placed on the hull structures of floating offshore structures?

Proposed To be checked

Reply

ID	Clause	Location	Country	Status
336	A.07.08	Table A.4	UK	**Components task group**

Comment Table is referenced as A.4 in text but A.3 in table title. It should probably be A.4 as previously noted in Clause A.7.3.

Proposed

Reply

ID	Clause	Location	Country	Status
337	A.07.08.01		UK	**Components task group**

Comment Earthquake actions: the following 2 paragraphs could be added in relation to SLE and DLE requirements:
The strength level earthquake (SLE) requirements are intended to provide a topsides that is adequately sized for strength and stiffness. This is to ensure that no significant structural damage is sustained during a strength level earthquake, i.e. an event that has a reasonable probability of not being exceeded during the life of the platform (annual probability not exceeding 10-3). The traditional AISC WSD approach for SLE requirements permits an increase of 70 % on the basic allowable stresses. These provisions permit minor yielding but no significant damage to occur. The resulting allowable stresses are nearly the same as those proposed for the earthquake response of steel in buildings. Some yielding of the members can occur in bending since the 1,7 stress factor is within the range of the AISC factors of safety for members subjected to axial and bending loads (1,52 to 1,92). Also when multiplied by 1,7, the AISC allowable shear stress (0,4Fy) becomes 0,68 Fy which is 18% greater than the von Mises yield criterion (1/root 3=0,577). However the overstress in shear can be supported by strain hardening.
When addressing the above a, reasonable comparisons should also be made of the level of horizontal and vertical impact forces encountered during installation of a topsides (usually 5% of lift weight), as well as the level of accelerations encountered during offshore transportation. Further consideration should be given to the appropriate selection of section properties of primary members with regard to their ability in resisting premature buckling and tearing resistance at end connections.
The ductility level requirements (DLE) are intended to ensure that the topsides has sufficient reserve capacity to prevent its collapse during rare, intense earthquake motions with an annual probability of exceedance of 10‑4. These rare earthquake motions can involve inelastic action and structural damage as long as there is no progressive collapse."

Proposed

Reply

ID	Clause	Location	Country	Status
338	A.07.08.02	Table	UK	**Components task group**

Comment Cells in table should not be left empty. This table needs to be tidied as its intent is unclear.

Proposed

Reply

ID	Clause	Location	Country	Status
794	A.07.09.02.07		FR	**Components task group**

Comment The potential for slamming is not mentioned.

Proposed Mention slamming

Reply

ID	Clause	Location	Country	Status
805	A.07.10.04.05		FR	**Components task group**

Comment Worthy as it is, should a section on FPSO hulls be here?

Proposed To be checked

Reply

ID	Clause	Location	Country	Status
823	A.08.04	eqn (A.8)	FR	**Components task group**

Comment If one puts l = 4m into this expression, the required D is > 48m !!

Proposed Equation to be corrected

Reply

ID	Clause	Location	Country	Status
377	A.08.04	Para 3	UK	**Components task group**

Comment It is suggested that, provided individual element stiffness meets certain criteria then a rigorous analysis in not required. It isn't clear what the basis for this is for these parameters - presumably individual member VIV. However, this ignores the global dynamics. Since local and global dynamics vary due to a wide range of parameters, it is preferred that this section be deleted.

Proposed

Reply

ID	Clause	Location	Country	Status
655b	A.08.06.04		DK	**Components task group**

Comment The design-fatigue-factor (DFF) (i.e. the ratio between design fatigue life and planned service life) depends both on the criticality of the structural components (redundancy, failure-consequences) as well as the access for in-service inspection. The proposed DFF of 2.0 may prove non-conservative for structural solutions without in-service access

Proposed Definition of design fatigue-life shall be done in accordance with accepted design codes (for example table 3 Norsok N-001, rev. 4, 2004, ref. http://www.standard.no/pronorm-3/data/f/0/03/92/8_10704_0/N-001.pdf)

Reply

ID	Clause	Location	Country	Status
528c	A.09.01	Titles and text	NL	**Components task group**

Comment Does "cylindrical" intend to refer specifically to "tubular" shapes, or are also RHS sections included?

Proposed Change to "tubular" if tubular is meant.
Stay with "cylindrical" if both CHS and RHS are referred to.

Reply

ID	Clause	Location	Country	Status
528d	A.09.02	Titles and text	NL	**Components task group**

Comment Does "cylindrical" intend to refer specifically to "tubular" shapes, or are also RHS sections included?

Proposed Change to "tubular" if tubular is meant.
Stay with "cylindrical" if both CHS and RHS are referred to.

Reply

ID	Clause	Location	Country	Status
828	A.16.02		FR	**Components task group**

Comment Floating installations are forgotten in respect to fatigue and imposed deflection.

Proposed Add text on floating installations

Reply

ID	Clause	Location	Country	Status
847	A7.08		US	**Components task group**

Comment Review Table A.3

Proposed Fe is not defined in this document or in 19901-2:2004(E)
Section 7.7.2.6 and Section 7.7.2.9 are not in this document or in 19901-2:2004)E)

Reply