

Gutachterliche Stellungnahme für Lastannahmen zur Turm- und Fundamentsberechnung der Vestas V117-3.3/3.45 MW mit 116,5 m Nabenhöhe

für
Windklasse S

Auftraggeber:

**Vestas Wind Systems A/S
Hedeager 42
DK - 8200 Aarhus N**

1.0 VORLAGEN

Dokumente

<i>Dokument Nr.</i>	<i>Revision</i>	<i>Titel</i>
0050-4312	01/2015-08-05	Tower load V117-3.3 MW HH116.5 DIBtS
0050-4315	00/2015-03-03	Foundation load V117-3.3 MW HH116.5 DIBtS
0050-4319	01/2015-07-15	Compare Load spectrum V117-3.3 MW HH116.5 DIBtS
0053-4935	00/2015-07-17	Compare Load spectrum V117-3.3 MW HH116.5 DIBtS
0065-3553	02/2017-06-21	RNSP 15-428: Load Spectrum Comparision V117-3.45MW, Mk2C, DIBt, HH116.5m, 50/60Hz, GS
0065-3555	00/2017-03-06	RNSP 15-428: Foundation loads V117-3.45MW, Mk2C, DIBt, HH116.5m, 50Hz, GS
0101-3698	01/2020-12-23	DIBt Towers – Changes between old TAD & New TAD

Zeichnungen

<i>Dokument Nr.</i>	<i>Revision</i>	<i>Titel</i>
A012-0780	00/2020-12-08	T3E150-V117-3.3 MW NH116.5 DIBtS GKS

Vestas Lasten-Ordner:

H:\3MW\MK2A\V1173300.116\DIBtS\IEC_Tower\003\
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2.0 BEWERTUNGSGRUNDLAGEN

2.1 Umweltbedingungen

Wind: Windklasse S, gemäß IEC 61400-1:2005 ed. 3.

Die folgenden Windbedingungen von dieser Klasse wurden in den Lastberechnungen angesetzt:

Jahresmittel der Windgeschwindigkeit in Nabenhöhe	7,66 m/s
Weibull k-parameter [-]	2,0
50-Jahres-Wind, V_{m50} (10 min) in Nabenhöhe	44,20 m/s
50-Jahres-Bö, V_{e50} (3 sec) in Nabenhöhe	66,54 m/s
1-Jahres-Wind, V_{m1} (10 min) in Nabenhöhe	38,02 m/s
1-Jahres-Bö, V_{e1} (3 sec) in Nabenhöhe	55,23 m/s
Luftdichte	1,225 kg/m ³
Geländeneigung	8°
Geländerauigkeitsexponent (normale Bedingungen)	0,20
Geländerauigkeitsexponent (extreme Bedingungen)	0,11
Umgebungsturbulenzintensität I_{ref} nach IEC 61400-1, ed. 3, 2005	16 %
Turbulenzintensität bei V_{m50}	10,4%

Die Erhöhung der Turbulenzintensität aufgrund von Nachlaufströmung benachbarter Anlagen wurde nicht untersucht.

2.2 Normen und Richtlinien

- DIBt-Richtlinie: „Richtlinie für Windenergieanlagen; Einwirkungen und Standsicherheitsnachweise für Turm und Gründung“; Fassung Oktober 2012.
- IEC 61400-1:2005 ed. 3, Wind turbines-Part 1: Design Requirements.

2.3 Daten für die Lastannahme

- Nennleistung: 3,3 MW oder 3,45 MW
- Rotordurchmesser: 117 m
- Einschaltgeschwindigkeit: 3 m/s
- Nennwindgeschwindigkeit: 11,2 m/s
- Abschaltgeschwindigkeit: 25 m/s

- Nennrotordrehzahl: 13,14 U/min
- Maximale Blattverstellgeschwindigkeit 5 %/s (Protection Stop und Emergency Stop)
- Nabenhöhe: 116,5 m
- Stahlrohrturm mit 1. Biegeeigenfrequenz: 0,179 Hz
- Erschütterungsüberwachungsgrenze in Nabenhöhe: 2,3 m/s² (max. Beschleunigung)
- Rechnerische Lebensdauer: 20 Jahre

3.0 PRÜFBEMERKUNGEN

Extremlastfälle:

Die Übereinstimmung mit der DIBt-Richtlinie „Richtlinie für Windenergieanlagen: Einwirkungen und Standsicherheitsnachweise für Turm und Gründung“; Oktober 2012 bei Anwendung standortspezifischer Windbedingungen wurde geprüft. Die Extremlasten sind in den Vestas Wind System A/S Berichten gemäß DIBt-Richtlinie einschließlich Lastsicherheitsbeiwerten aufgeführt.

Einwirkungen aus Erdbeben wurden berücksichtigt.

Die geprüften Extremenlasten der Windzone S [1] decken die Extremlasten der untenstehenden Windzonen [2], [3], [4] und [5] ab.

	DIBtS	WZ3 GK1 Alt	WZ3 GK2	WZ3 GK3	WZ4 GK4
	[1]	[2]	[3]	[4]	[5]
V50 (m/s)	44.2	42.57	40.73	36.34	35.09
V1 (m/s)	38.02	34.06	32.58	29.07	28.07
Ve50 (m/s)	66.54	59.6	57.02	50.88	49.13
Ve1 (m/s)	55.23	47.68	45.61	40.7	39.3
Tl @ V50	0.104	0.113	0.128	0.163	0.206
Vave (m/s)	7.66	7.66	7.33	7.27	6.32

Table 0-1: Windzonen

Betriebsfestigkeit:

Die Lastannahme für den Betriebsfestigkeitsnachweis basiert auf der DIBt-Richtlinie: „Richtlinie für Windenergieanlagen; Einwirkungen und Standsicherheitsnachweise für Turm und Gründung“; Fassung Oktober 2012. Die Lastkollektive wurden mit der Vestas Turbine Simulator (VTS) Version VTS002 des aeroelastischen PC-Programmes Flex5 berechnet. Die Betriebslastkollektive werden für den Turmkopf, den Turmfuß sowie für die unterschiedlichen Turmschnitte angegeben. Die Fundamentlasten werden gesondert in den Dokumenten 0050-4315.V00 sowie 0065-3555.V00 aufgeführt.

Die Betriebsfestigkeitslasten werden unter Berücksichtigung eines drei-dimensionalen Turbulenzfeldes durchgeführt.

Die in der Lastdokumentation von Vestas Wind Systems A/S für den Betriebsfestigkeitsnachweis angegebenen Beanspruchungskollektive, berücksichtigen alle in der DIBt-Richtlinie aufgeführten Einwirkungen und Einflüsse.

Die geprüften Ermüdungslasten der Windzone S [1] decken die in der Tabelle 0-1 stehenden Windzonen [2], [3], [4] und [5] ab.

4.0 SCHLUBBEMERKUNG

Die aufgeführten Lastannahmen sind für die Windenergieanlage V117-3.3 MW bzw. V117-3.45 MW der Firma Vestas mit Nabenhöhe 116,5 m, Windklasse S gültig.

Die Lastannahmen sind gültig für Standorte mit Geländehöhe bis zu 800 m über NN gemäß DIN1991-1-4/NA A.2 (1).

Die Lastannahmen sind nur für die Umgebungsturbulenzintensität I_{ref} unter 16% nach IEC 61400-1, ed. 3, 2005, gültig.

Die Prüfung der Mindestabstände der Windenergieanlagen untereinander bei Aufstellung in einer Windparkkonfiguration in Abhängigkeit der örtlichen Umgebungsturbulenzintensität wurde nicht untersucht, d.h. der Einfluss der Turbulenzerhöhungen braucht nicht untersucht werden, solange die folgenden Bedingungen laut Kapitel 7.3.3 der DIBt-Richtlinie erfüllt sind:

- der Abstand der Turmachsen benachbarter Windenergieanlagen darf den 8-fachen Rotor-durchmesser für $V_{m50} \leq 40$ m/s in Nabenhöhe nicht unterschreiten
- der Abstand der Turmachsen benachbarter Windenergieanlagen darf den 5-fachen Rotor-durchmesser für $V_{m50} \geq 45$ m/s in Nabenhöhe nicht unterschreiten.

Für zwischenwerte von V_{m50} ist der Abstand linear zu interpolieren.

Die in den Lastannahmen von Vestas Wind Systems A/S für den Betriebsfestigkeitsnachweis angegebenen Beanspruchungskollektive berücksichtigen alle in der DIBt-Richtlinie aufgeführten Einwirkungen und Einflüsse.

Die begutachtete Lastannahme ist für eine Turmeigenfrequenz von 0,179 Hz (-5%/+5%) gültig.

Die Fundamentsteifigkeit muss größer als 32 GNm/rad sein.

Es wurden keine Ride-Through Lastfälle (Stützung der Netzspannung durch Windenergieanlagen bei Netzstörung) bei Spannungsabfall definiert oder berechnet. Ride-Through Lastfälle bei Spannungsabfall sind nicht Bestandteil dieses Gutachtens.

Das Inbetriebnahmehandbuch muss die Verhinderung unzulässiger Turmschwingungen, wie von Vestas definiert, beschreiben. Einwirkungen aus Wirbelablösungen sollte während der Auslegung des Turms berücksichtigt werden.

Wartungsarbeiten sind bis zu eine Windgeschwindigkeit von 15 m/s (10 min Mittel) in Nabenhöhe durchzuführen.

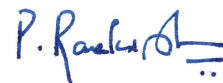
Die Richtigkeit der vorgelegten Lasten, sowie die Übereinstimmung der Lasten mit den Anforderungen der DIBt "Richtlinie für Windenergieanlagen, Einwirkungen und Standsicherheitsnachweise für Turm und Gründung", Fassung Oktober 2012 wurden anhand von Plausibilitätsprüfungen der dimensionierenden Eingangsdaten und unter Berücksichtigung einer maximalen Umgebungsturbulenzintensität $I_{ref} = 16 \%$ geprüft und bestätigt.

Die geprüften Ermüdungs- und Extremlasten der Windzone S [1] decken die anderen Windzonen [2], [3], [4] und [5] ab.

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Andreas Reimann

Gutachter

Handwritten signature of Ramakrishna Parasarampuram in blue ink.

Ramakrishna Parasarampuram

Gutachter

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CLASS T05



DOCUMENT:
0050-4315 VER 00

DESCRIPTION:
Foundation loads

 DNV GL Denmark A/S
Tuborg Parkvej 8, 2
DK-2900 Hellerup
VAT No. DK89832314

Original Instruction: T05 0050-4315 VER 00

Foundation loads

V117-3.3 MW Mk2 DIBtS 116.5 m




QMS 00091 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

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Version History

VERSION: DATE: CHANGE:
00 2015.03.03 New document

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1. Introduction

This document presents the foundation loads from the V117-3.3 MW, Mk2A, HH 116.5, DIBtS load spectrum. The loads are simulated in accordance with DIBt - Richtlinie für Windenergieanlagen Ed. October 2012, ref. [1]. Additional tower & foundation interface requirements can be found in ref [3] and the tower used for calculating the loads can be found in ref [2].

Reference	Description	Doc No.
[1]	DIBt - Richtlinie für Windenergieanlagen Ed. October 2012	
[2]	Tower drawing	0050-4117.V00
[3]	Additional Tower & Foundation Interface Requirements	0001-3891

Table 1-1 Reference to documents.

1.1 Climate conditions

This section gives an overview of the climate conditions.


Climate conditions	
Mean wind speed at hub height	7.66 m/s
Weibull shape factor	2.00 -
Turbulence intensity at 15m/s - Iref,	0.16 -
Turbulence intensity at 15m/s - I90 (90% quantile),	0.18 -
Air density	1.225 kg/m3
Inflow angle (upwards positive)	8.00 deg
Wind shear exponent (normal)	0.20 -
1 Year mean wind speed (10min ave.), V1	38.02 m/s
1 Year extreme wind speed (3sec ave.), Ve1	55.23 m/s
50 Year mean wind speed (10min ave.), V50	44.20 m/s
50 Year extreme wind speed (3sec ave.), Ve50	66.54 m/s
Turbulence intensity at V50	0.104 -

Table 1-2 Climate data.

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2. Extreme loads

Foundation loads components at the instant of extreme resulting bending moment are given in beneath table. Own weight moment contribution due to tower out of vertical is included in below resultant moments. The tower out of vertical moment consists of a contribution from tower and foundation misalignment (0.008m/m, PLF: 1.1) and a contribution from dynamic soil conditions (0.006m/m, PLF: 1.35).

Loads are given at height: 0.20m

Extreme resulting tower bottom moment according to ref [1] incl. own weight moment contribution due to 8mm/m tower out of vertical and second order effects.
 *unfavorable loads: PLF = 1.1, favorable loads: PLF = 0.9.

Mbt1: Resulting bending moment. $\text{SQRT}(\text{Mxt1}^2 + \text{Myt1}^2)$ (also M_{res})

FndFr: Resulting shear force. $\text{SQRT}(\text{Fxt1}^2 + \text{Fyt1}^2)$ (also F_{res})

Characteristic Extreme							
Lead	LC/Family	PLF	Type	Mbt1	Mzt1	FndFr	Fzt1
Sensor	-]	-]	-]	[kNm]	[kNm]	[kN]	[kN]
Mbt1	62E50a07500(fam143)	1.10	Abs	119400	-1608	1160	-5326
Mzt1	21PSBBVo00(fam56)	1.35	Abs	26290	-6408	224.9	-5292
FndFr	62E50a09000(fam144)	1.10	Abs	118000	-1573	1163	-5337
Fzt1	81P60015b00000(fam186)	1.50	Abs	15190	153.3	129.8	-5453

Table 2-1 Characteristic Extreme (excl. PLF). Load cases sorted with PLF.

Characteristic Extreme							
Lead	LC/Family	PLF	Type	Mbt1	Mzt1	FndFr	Fzt1
Sensor	-]	-]	-]	[kNm]	[kNm]	[kN]	[kN]
Mbt1	62E50a07500(fam143)	1.10	Abs	119400	-1608	1160	-5326
Mzt1	22OSFVo00(fam65)	1.10	Abs	25360	-7174	222.8	-5262
FndFr	62E50a09000(fam144)	1.10	Abs	118000	-1573	1163	-5337
Fzt1	12lcVo00(fam25)	1.35	Abs	35840	1845	399.5	-5523

Table 2-2 Characteristic Extreme (excl. PLF). Load cases sorted without PLF.

Characteristic Extreme							
Lead	LC/Family	PLF	Type	Mbt1	Mzt1	FndFr	Fzt1
Sensor	-]	-]	-]	[kNm]	[kNm]	[kN]	[kN]
Mbt1	62E50a07500(fam143)	1.10	Abs	119400	-1608	1160	-5326
Mzt1	22OSFVo00(fam65)	1.10	Abs	25360	-7174	222.8	-5262
FndFr	62E50a09000(fam144)	1.10	Abs	118000	-1573	1163	-5337
Fzt1	22VOGVo00(fam73)	1.10	Abs	39860	2037	364.5	-5490

Table 2-3 Characteristic Extreme (excl. PLF). Only load cases with PLF = 1.10.

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Characteristic Extreme							
Lead	LC/Family	PLF	Type	Mbt1	Mzt1	FndFr	Fzt1
Sensor	[-]	[-]	[-]	[kNm]	[kNm]	[kN]	[kN]
Mbt1	32PREogVim21(fam119)	1.35	Abs	93040	-357.7	783.8	-5386
Mzt1	21PSBBVo00(fam56)	1.35	Abs	26290	-6408	224.9	-5292
FndFr	61E50a00800(fam136)	1.35	Abs	78330	-619.3	830.0	-5137
Fzt1	12lcVo00(fam25)	1.35	Abs	35840	1845	399.5	-5523

Table 2-4 Characteristic Extreme (excl. PLF). Only load cases with PLF = 1.35.

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3. Production loads

The production loads are calculated for the main sensors of the foundation. The following loads are calculated.

Char. load Characteristic Extreme (excl. PLF, Load cases sorted without PLF). Only load cases with PLF = 1.35 and 1.50 are included in the evaluation.

Prob.: 1e-2 Load level with an exceedance probability of 1e-2

Prob.: 1e-4 Load level with an exceedance probability of 1e-4

Production loads				
		Char. load	Prob.:1e-2	Prob.:1e-4
M _{res}	[kNm]	93035.74	62008.81	68569.08
M _z	[kNm]	-6408.33	-2115.21	-3729.97
F _{res}	[kN]	830.05	525.09	629.64
F _z	[kN]	-5522.87	-5447.12	-5472.29

Table 3-1 Service Limit State (SLS) loads, in accordance with DIBT 2012.

4. Fatigue loads

For the foundation, the mean loads have to be considered. The mean loads must be combined with either the equivalent loads or the fatigue load spectrum.

Loads are given at height: 0.20m

The equivalent loads given may be used only if the material property can be characterized by an S/N-curve with the same slope as given for the equivalent loads.

Equivalent and Mean Fatigue Foundation Loads				
		Mean load	Range m = 4	Range m = 7
F _y	[kN]	240.86	545.44	494.61
M _x	[kNm]	-28123.88	29752.04	32477.74
M _z	[kNm]	-82.33	5433.08	5112.14

Table 4-1 Fatigue loads for N=1E7 cycles.

Ref. [3] contains a description of how to combine ranges and mean values.

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5. Stiffness of foundation

The nominal spring stiffness used for the load calculations is 120 GNm/rad resulting in a nominal tower frequency of 0.179 Hz. The spring stiffness of the foundation must be at least $C_{\theta, dyn} \geq 32$ GNm/rad for the loads to be valid. The minimum lateral stiffness of the foundations is given in Table 5.1 as a function of the rotational stiffness.


Minimum Lateral Stiffness										
Rotational stiffness	[GNm/rad]	32	38	59	90	139	213	326	442	500
Lateral stiffness	[MN/m]	2500.0	16.9	6.6	6.0	6.0	6.0	6.0	6.0	6.0

Table 5-1 Minimum lateral stiffness.

The natural frequency of the tower must be within the frequency interval [0.170 Hz; 0.188 Hz]

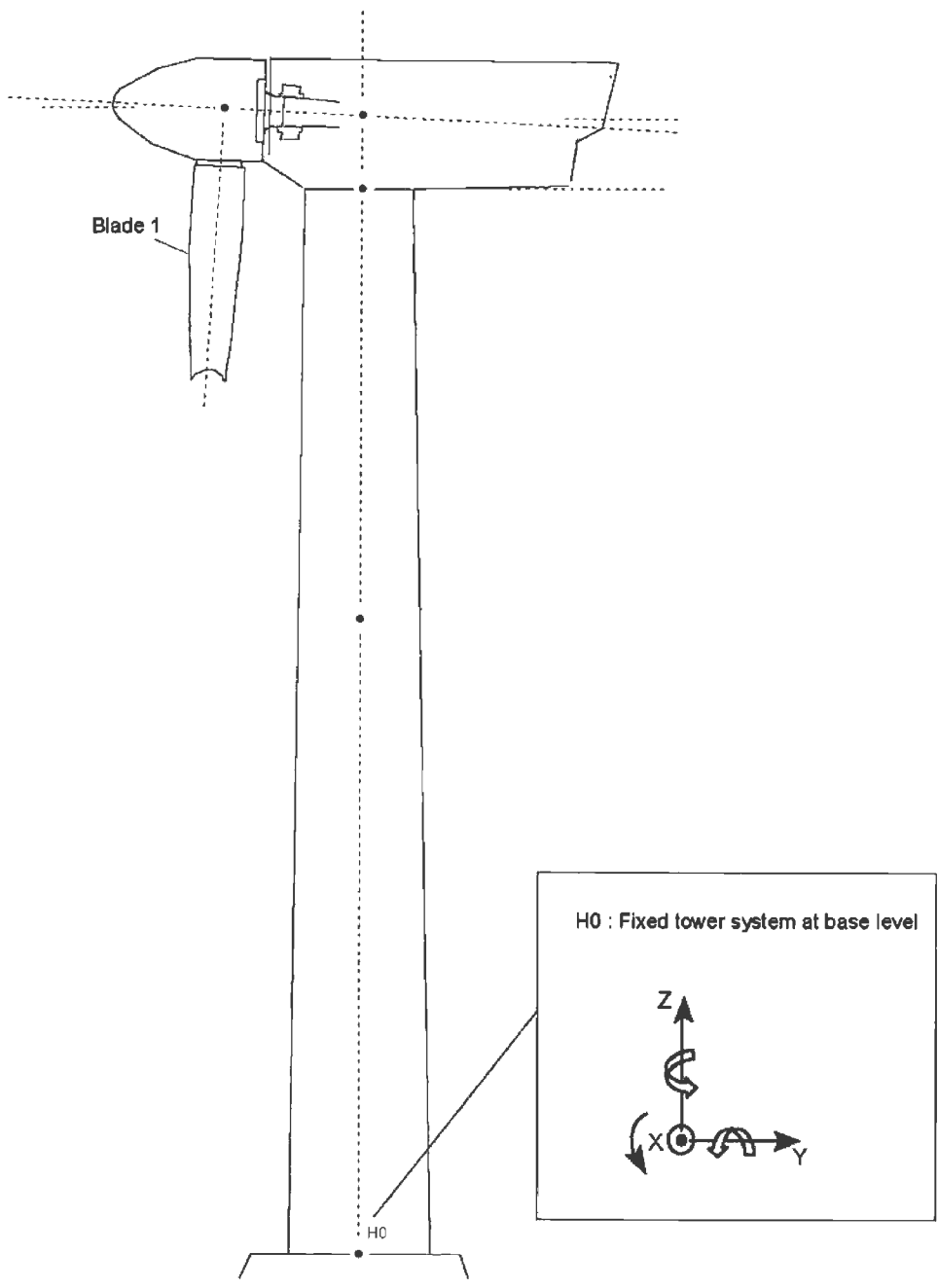
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Appendix A. Co-ordinate systems



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DOCUMENT:
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DESCRIPTION:
Foundation loads

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Appendix B. Rain flow count

This appendix contains the rain flow spectrum for the shear force, the bending moment and the torsional moment in the bottom of the tower.

Foundation Fatigue Load Spectrum					
Tower shear, bottom F_y [kN]		Tower bending, bottom M_x [kNm]		Tower torsion, bottom M_z [kNm]	
Range	Frequency	Range	Frequency	Range	Frequency
1.1967E+03	1.0000E+01	1.2155E+05	2.9167E+00	1.1715E+04	2.0000E+01
1.1488E+03	1.9250E+01	1.1669E+05	2.9167E+00	1.1246E+04	1.3750E+01
1.1009E+03	3.1272E+02	1.1182E+05	2.1459E+01	1.0778E+04	9.6542E+01
1.0531E+03	3.4143E+02	1.0696E+05	8.7500E+00	1.0309E+04	2.9175E+02
1.0052E+03	4.4531E+02	1.0210E+05	3.4958E+01	9.8403E+03	5.7234E+02
9.5733E+02	8.2060E+02	9.7239E+04	1.8584E+01	9.3717E+03	2.6574E+03
9.0947E+02	2.6203E+03	9.2377E+04	4.8917E+01	8.9032E+03	3.3627E+03
8.6160E+02	3.6263E+03	8.7515E+04	9.1542E+01	8.4346E+03	7.4588E+03
8.1373E+02	8.4412E+03	8.2653E+04	1.1125E+02	7.9660E+03	3.2165E+04
7.6587E+02	3.0236E+04	7.7791E+04	1.6425E+02	7.4974E+03	5.5069E+04
7.1800E+02	6.1205E+04	7.2929E+04	5.4650E+02	7.0288E+03	1.1771E+05
6.7013E+02	1.1064E+05	6.8067E+04	1.9089E+03	6.5602E+03	2.3791E+05
6.2227E+02	2.3092E+05	6.3205E+04	3.1165E+03	6.0916E+03	4.4296E+05
5.7440E+02	4.6572E+05	5.8343E+04	1.0103E+04	5.6230E+03	6.8521E+05
5.2653E+02	8.7258E+05	5.3481E+04	3.0348E+04	5.1545E+03	1.0533E+06
4.7867E+02	1.5568E+06	4.8619E+04	1.3032E+05	4.6859E+03	1.4261E+06
4.3080E+02	3.2179E+06	4.3757E+04	2.7914E+05	4.2173E+03	3.0488E+06
3.8293E+02	5.5613E+06	3.8895E+04	6.3037E+05	3.7487E+03	5.1048E+06
3.3507E+02	1.0709E+07	3.4033E+04	9.5303E+05	3.2801E+03	9.7860E+06
2.8720E+02	2.0135E+07	2.9172E+04	1.6979E+06	2.8115E+03	1.8065E+07
2.3933E+02	3.5259E+07	2.4310E+04	3.1186E+06	2.3429E+03	3.2252E+07
1.9147E+02	5.7513E+07	1.9448E+04	6.1027E+06	1.8743E+03	5.3160E+07
1.4360E+02	9.1900E+07	1.4586E+04	1.6810E+07	1.4058E+03	7.7249E+07
9.5733E+01	1.6084E+08	9.7239E+03	7.8308E+07	9.3717E+02	9.9434E+07
4.7867E+01	3.2351E+08	4.8619E+03	3.8063E+08	4.6859E+02	1.9790E+08

Table B-1 Rainflow counting spectra

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK9832314		CLASS T05	
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Appendix C. Markov matrices

This appendix contains the Markov Matrices for the shear force, the bending moment and the torsional moment in the bottom of the tower.

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
5.9994E+02	1.9147E+02	1.2500E+00	4.2907E+04	0.0000E+00	5.8333E+00	3.8254E+03	0.0000E+00	2.0000E+01
5.7232E+02	2.1540E+02	2.0000E+01	3.7866E+04	2.4310E+03	2.2084E+01	3.5487E+03	0.0000E+00	2.0000E+01
5.7232E+02	1.9147E+02	5.8333E+00	3.2824E+04	2.4310E+03	3.5000E+00	3.2720E+03	4.6859E+02	5.0585E+01
5.7232E+02	1.1967E+02	2.0000E+01	3.2824E+04	0.0000E+00	2.5584E+01	3.2720E+03	2.3429E+02	2.0000E+01
5.7232E+02	9.5733E+01	5.8333E+00	3.0303E+04	4.8619E+03	3.5000E+00	3.2720E+03	0.0000E+00	1.3206E+03
5.7232E+02	7.1800E+01	1.6250E+01	3.0303E+04	2.4310E+03	3.5000E+00	2.9953E+03	9.3717E+02	1.7009E+03
5.7232E+02	0.0000E+00	4.8782E+03	3.0303E+04	0.0000E+00	1.3000E+01	2.9953E+03	2.3429E+02	2.2121E+02
5.4471E+02	2.1540E+02	2.0000E+01	2.7782E+04	9.7239E+03	2.5000E+00	2.9953E+03	0.0000E+00	1.1320E+04
5.4471E+02	1.9147E+02	1.4000E+02	2.7782E+04	4.8619E+03	2.0917E+01	2.7186E+03	1.6401E+03	1.1339E+03
5.4471E+02	1.6753E+02	4.8149E+03	2.7782E+04	2.4310E+03	3.7333E+01	2.7186E+03	7.0288E+02	4.9986E+02
5.4471E+02	1.4360E+02	4.8207E+03	2.7782E+04	0.0000E+00	4.0084E+01	2.7186E+03	4.6859E+02	2.0000E+01
5.4471E+02	1.1967E+02	5.8333E+00	2.5262E+04	1.2155E+04	6.0000E+00	2.7186E+03	2.3429E+02	3.7204E+02
5.4471E+02	9.5733E+01	4.8149E+03	2.5262E+04	9.7239E+03	7.0000E+00	2.7186E+03	0.0000E+00	2.4847E+04
5.4471E+02	7.1800E+01	2.0583E+02	2.5262E+04	7.2929E+03	7.0000E+00	2.4419E+03	3.7487E+03	2.0000E+01
5.4471E+02	4.7867E+01	6.8667E+01	2.5262E+04	4.8619E+03	2.0917E+01	2.4419E+03	1.8743E+03	2.0000E+01
5.4471E+02	2.3933E+01	5.1001E+03	2.5262E+04	2.4310E+03	2.3500E+01	2.4419E+03	1.1715E+03	4.5986E+02
5.4471E+02	0.0000E+00	6.5907E+03	2.5262E+04	0.0000E+00	2.2167E+01	2.4419E+03	9.3717E+02	4.7986E+02
5.1709E+02	4.5473E+02	2.0000E+01	2.2741E+04	9.7239E+03	7.0000E+00	2.4419E+03	7.0288E+02	2.5000E+00
5.1709E+02	4.0687E+02	2.0000E+01	2.2741E+04	7.2929E+03	7.0000E+00	2.4419E+03	4.6859E+02	2.8094E+03
5.1709E+02	3.1113E+02	2.5833E+01	2.2741E+04	4.8619E+03	4.1000E+01	2.4419E+03	2.3429E+02	9.3540E+03
5.1709E+02	2.1540E+02	1.2449E+04	2.2741E+04	2.4310E+03	4.9500E+01	2.4419E+03	0.0000E+00	5.3448E+04
5.1709E+02	1.9147E+02	1.2519E+04	2.2741E+04	0.0000E+00	4.8000E+01	2.1652E+03	3.9830E+03	2.0000E+01
5.1709E+02	1.6753E+02	2.5024E+04	2.0220E+04	5.1050E+04	1.7500E+00	2.1652E+03	3.5144E+03	4.7986E+02
5.1709E+02	1.4360E+02	1.2773E+04	2.0220E+04	1.2155E+04	2.5000E+00	2.1652E+03	3.2801E+03	2.0000E+01
5.1709E+02	1.1967E+02	6.6906E+04	2.0220E+04	9.7239E+03	2.5000E+00	2.1652E+03	2.8115E+03	3.5000E+00
5.1709E+02	9.5733E+01	4.3088E+04	2.0220E+04	7.2929E+03	2.7000E+01	2.1652E+03	1.8743E+03	1.7500E+00
5.1709E+02	7.1800E+01	8.9619E+04	2.0220E+04	4.8619E+03	4.3417E+01	2.1652E+03	1.6401E+03	2.4474E+03
5.1709E+02	4.7867E+01	3.1392E+04	2.0220E+04	2.4310E+03	8.2167E+01	2.1652E+03	1.4058E+03	1.0350E+02
5.1709E+02	2.3933E+01	6.0969E+04	2.0220E+04	0.0000E+00	1.9867E+02	2.1652E+03	1.1715E+03	6.7769E+03
5.1709E+02	0.0000E+00	1.0738E+05	1.7699E+04	1.2155E+04	6.0000E+00	2.1652E+03	9.3717E+02	1.5892E+02
4.8948E+02	5.7440E+02	5.0000E+01	1.7699E+04	9.7239E+03	2.6000E+01	2.1652E+03	7.0288E+02	1.8854E+04
4.8948E+02	4.5473E+02	2.5292E+01	1.7699E+04	7.2929E+03	4.1500E+01	2.1652E+03	4.6859E+02	1.0814E+04

Original Instruction: T05 0050-4315 VER 00
T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK9832314	CLASS T05 PAGE 11/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
4.8948E+02	3.8293E+02	1.6800E+03	1.7699E+04	4.8619E+03	5.7833E+01	2.1652E+03	2.3429E+02	5.8189E+04
4.8948E+02	3.5900E+02	2.5833E+01	1.7699E+04	2.4310E+03	1.0975E+02	2.1652E+03	0.0000E+00	1.5564E+05
4.8948E+02	3.1113E+02	2.2083E+01	1.7699E+04	0.0000E+00	1.4852E+02	1.8886E+03	4.4516E+03	2.0000E+01
4.8948E+02	2.8720E+02	1.2624E+04	1.5178E+04	4.1326E+04	3.5000E+00	1.8886E+03	3.7487E+03	2.0833E+00
4.8948E+02	2.6327E+02	2.5007E+04	1.5178E+04	3.8895E+04	1.7500E+00	1.8886E+03	3.5144E+03	2.0000E+01
4.8948E+02	2.3933E+02	2.5307E+04	1.5178E+04	3.6464E+04	1.7500E+00	1.8886E+03	3.2801E+03	1.1564E+03
4.8948E+02	2.1540E+02	7.4045E+04	1.5178E+04	3.1603E+04	1.7500E+00	1.8886E+03	3.0458E+03	1.2307E+04
4.8948E+02	1.9147E+02	2.3306E+05	1.5178E+04	1.2155E+04	2.5000E+00	1.8886E+03	2.8115E+03	1.1397E+03
4.8948E+02	1.6753E+02	4.1864E+05	1.5178E+04	9.7239E+03	1.3000E+01	1.8886E+03	2.3429E+03	2.4834E+03
4.8948E+02	1.4360E+02	4.6974E+05	1.5178E+04	7.2929E+03	4.8000E+01	1.8886E+03	2.1086E+03	1.0157E+04
4.8948E+02	1.1967E+02	4.9853E+05	1.5178E+04	4.8619E+03	7.2833E+01	1.8886E+03	1.8743E+03	2.7069E+03
4.8948E+02	9.5733E+01	5.2397E+05	1.5178E+04	2.4310E+03	2.3617E+02	1.8886E+03	1.6401E+03	2.1038E+04
4.8948E+02	7.1800E+01	6.1110E+05	1.5178E+04	0.0000E+00	4.3950E+02	1.8886E+03	1.4058E+03	7.1196E+03
4.8948E+02	4.7867E+01	7.0260E+05	1.2657E+04	8.2653E+04	2.9167E+00	1.8886E+03	1.1715E+03	1.0142E+04
4.8948E+02	2.3933E+01	6.0568E+05	1.2657E+04	8.0222E+04	2.9167E+00	1.8886E+03	9.3717E+02	5.6625E+04
4.8948E+02	0.0000E+00	7.3300E+05	1.2657E+04	6.5636E+04	2.9167E+00	1.8886E+03	7.0288E+02	2.2335E+04
4.6186E+02	6.2227E+02	1.0000E+02	1.2657E+04	5.3481E+04	1.7500E+00	1.8886E+03	4.6859E+02	1.0476E+05
4.6186E+02	5.9833E+02	1.5000E+02	1.2657E+04	4.6188E+04	1.7500E+00	1.8886E+03	2.3429E+02	2.0652E+05
4.6186E+02	5.5047E+02	5.0000E+01	1.2657E+04	4.3757E+04	3.5000E+00	1.8886E+03	0.0000E+00	4.4285E+05
4.6186E+02	5.2653E+02	2.0000E+01	1.2657E+04	4.1326E+04	3.5000E+00	1.6119E+03	5.8573E+03	1.7500E+00
4.6186E+02	5.0260E+02	1.0000E+02	1.2657E+04	3.8895E+04	7.0000E+00	1.6119E+03	5.6230E+03	1.7500E+00
4.6186E+02	4.5473E+02	1.7506E+03	1.2657E+04	3.6464E+04	3.5000E+00	1.6119E+03	5.1545E+03	2.0000E+01
4.6186E+02	4.3080E+02	1.2338E+04	1.2657E+04	3.1603E+04	8.7500E+00	1.6119E+03	4.4516E+03	2.0000E+01
4.6186E+02	4.0687E+02	1.8515E+04	1.2657E+04	2.9172E+04	1.0500E+01	1.6119E+03	4.2173E+03	1.7500E+00
4.6186E+02	3.8293E+02	1.2574E+04	1.2657E+04	2.6741E+04	3.5000E+00	1.6119E+03	3.9830E+03	1.6604E+02
4.6186E+02	3.5900E+02	5.2633E+04	1.2657E+04	2.4310E+04	1.7500E+00	1.6119E+03	3.7487E+03	1.1397E+03
4.6186E+02	3.3507E+02	4.9347E+04	1.2657E+04	1.7017E+04	1.0500E+01	1.6119E+03	3.5144E+03	5.7986E+02
4.6186E+02	3.1113E+02	1.4088E+05	1.2657E+04	1.4586E+04	3.5000E+00	1.6119E+03	3.2801E+03	3.8233E+03
4.6186E+02	2.8720E+02	1.9078E+05	1.2657E+04	1.2155E+04	1.3000E+01	1.6119E+03	3.0458E+03	1.0872E+04
4.6186E+02	2.6327E+02	2.6928E+05	1.2657E+04	9.7239E+03	1.5083E+01	1.6119E+03	2.8115E+03	3.5548E+04
4.6186E+02	2.3933E+02	6.8331E+05	1.2657E+04	7.2929E+03	6.0917E+01	1.6119E+03	2.5772E+03	1.3724E+03
4.6186E+02	2.1540E+02	9.1138E+05	1.2657E+04	4.8619E+03	7.6000E+01	1.6119E+03	2.3429E+03	3.3100E+04
4.6186E+02	1.9147E+02	1.3343E+06	1.2657E+04	2.4310E+03	7.3300E+02	1.6119E+03	2.1086E+03	7.5220E+04
4.6186E+02	1.6753E+02	2.0030E+06	1.2657E+04	0.0000E+00	8.0916E+03	1.6119E+03	1.8743E+03	8.5636E+04
4.6186E+02	1.4360E+02	2.1077E+06	1.0137E+04	8.5084E+04	2.9167E+00	1.6119E+03	1.6401E+03	8.8883E+04

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05		PAGE 12/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
4.6186E+02	1.1967E+02	2.9461E+06	1.0137E+04	5.5912E+04	2.9167E+00	1.6119E+03	1.4058E+03	6.3178E+04
4.6186E+02	9.5733E+01	3.3788E+06	1.0137E+04	5.3481E+04	1.7500E+00	1.6119E+03	1.1715E+03	7.0631E+04
4.6186E+02	7.1800E+01	3.5002E+06	1.0137E+04	4.3757E+04	3.5000E+00	1.6119E+03	9.3717E+02	8.1330E+04
4.6186E+02	4.7867E+01	2.6205E+06	1.0137E+04	3.8895E+04	1.0500E+01	1.6119E+03	7.0288E+02	7.8297E+04
4.6186E+02	2.3933E+01	2.4415E+06	1.0137E+04	3.6464E+04	8.7500E+00	1.6119E+03	4.6859E+02	1.5765E+05
4.6186E+02	0.0000E+00	2.8233E+06	1.0137E+04	3.4033E+04	5.2500E+00	1.6119E+03	2.3429E+02	5.2499E+05
4.3425E+02	6.4620E+02	5.0000E+01	1.0137E+04	3.1603E+04	1.0500E+01	1.6119E+03	0.0000E+00	1.1382E+06
4.3425E+02	5.9833E+02	1.6604E+02	1.0137E+04	2.9172E+04	1.7500E+01	1.3352E+03	5.6230E+03	2.0833E+00
4.3425E+02	5.7440E+02	3.3907E+03	1.0137E+04	2.6741E+04	1.2250E+01	1.3352E+03	5.1545E+03	1.2500E+00
4.3425E+02	5.5047E+02	2.3750E+01	1.0137E+04	2.4310E+04	3.5000E+00	1.3352E+03	4.9202E+03	1.1739E+03
4.3425E+02	5.2653E+02	1.0216E+04	1.0137E+04	2.1879E+04	3.5000E+00	1.3352E+03	4.6859E+03	2.8720E+03
4.3425E+02	5.0260E+02	9.5396E+03	1.0137E+04	1.9448E+04	1.4000E+01	1.3352E+03	4.4516E+03	1.1364E+03
4.3425E+02	4.7867E+02	1.9250E+04	1.0137E+04	1.7017E+04	2.4500E+01	1.3352E+03	4.2173E+03	2.0000E+01
4.3425E+02	4.5473E+02	1.2434E+04	1.0137E+04	1.4586E+04	3.4000E+01	1.3352E+03	3.9830E+03	5.4986E+02
4.3425E+02	4.3080E+02	1.2575E+04	1.0137E+04	1.2155E+04	1.5500E+01	1.3352E+03	3.7487E+03	1.8086E+03
4.3425E+02	4.0687E+02	1.1178E+04	1.0137E+04	9.7239E+03	3.6500E+01	1.3352E+03	3.5144E+03	2.0626E+04
4.3425E+02	3.8293E+02	1.1307E+05	1.0137E+04	7.2929E+03	6.4417E+01	1.3352E+03	3.2801E+03	4.3250E+04
4.3425E+02	3.5900E+02	9.1216E+04	1.0137E+04	4.8619E+03	1.4350E+02	1.3352E+03	3.0458E+03	6.2873E+04
4.3425E+02	3.3507E+02	2.7963E+05	1.0137E+04	2.4310E+03	9.1769E+02	1.3352E+03	2.8115E+03	4.0589E+04
4.3425E+02	3.1113E+02	5.5748E+05	1.0137E+04	0.0000E+00	3.5373E+04	1.3352E+03	2.5772E+03	6.7935E+04
4.3425E+02	2.8720E+02	9.2807E+05	7.6159E+03	7.2929E+04	2.9167E+00	1.3352E+03	2.3429E+03	1.1992E+05
4.3425E+02	2.6327E+02	1.4878E+06	7.6159E+03	7.0498E+04	2.9167E+00	1.3352E+03	2.1086E+03	1.3983E+05
4.3425E+02	2.3933E+02	2.0100E+06	7.6159E+03	5.3481E+04	1.7500E+00	1.3352E+03	1.8743E+03	2.2312E+05
4.3425E+02	2.1540E+02	2.9337E+06	7.6159E+03	4.8619E+04	5.2500E+00	1.3352E+03	1.6401E+03	2.8209E+05
4.3425E+02	1.9147E+02	3.7978E+06	7.6159E+03	4.6188E+04	3.5000E+00	1.3352E+03	1.4058E+03	2.8821E+05
4.3425E+02	1.6753E+02	5.0409E+06	7.6159E+03	4.3757E+04	1.7500E+00	1.3352E+03	1.1715E+03	2.7952E+05
4.3425E+02	1.4360E+02	6.1997E+06	7.6159E+03	4.1326E+04	5.2500E+00	1.3352E+03	9.3717E+02	2.4432E+05
4.3425E+02	1.1967E+02	7.1711E+06	7.6159E+03	3.8895E+04	5.2500E+00	1.3352E+03	7.0288E+02	3.4682E+05
4.3425E+02	9.5733E+01	7.6438E+06	7.6159E+03	3.6464E+04	3.5000E+00	1.3352E+03	4.6859E+02	6.4042E+05
4.3425E+02	7.1800E+01	7.0317E+06	7.6159E+03	3.4033E+04	1.7500E+01	1.3352E+03	2.3429E+02	1.3677E+06
4.3425E+02	4.7867E+01	5.9962E+06	7.6159E+03	3.1603E+04	1.4000E+01	1.3352E+03	0.0000E+00	2.9657E+06
4.3425E+02	2.3933E+01	4.6186E+06	7.6159E+03	2.9172E+04	4.2917E+01	1.0585E+03	1.0075E+04	4.1667E+01
4.3425E+02	0.0000E+00	4.8065E+06	7.6159E+03	2.6741E+04	1.1667E+01	1.0585E+03	9.8403E+03	4.2917E+01
4.0663E+02	6.4620E+02	2.2917E+00	7.6159E+03	2.4310E+04	6.3750E+01	1.0585E+03	9.1374E+03	1.0000E+01
4.0663E+02	6.2227E+02	4.2292E+01	7.6159E+03	2.1879E+04	2.2150E+02	1.0585E+03	7.2631E+03	1.0000E+01

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

PUBLIC


DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05 PAGE 13/36	
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
4.0663E+02	5.9833E+02	2.0299E+03	7.6159E+03	1.9448E+04	1.0917E+02	1.0585E+03	6.0916E+03	1.0302E+02
4.0663E+02	5.7440E+02	3.4137E+03	7.6159E+03	1.7017E+04	1.2442E+02	1.0585E+03	5.8573E+03	1.6667E+02
4.0663E+02	5.5047E+02	9.7015E+03	7.6159E+03	1.4586E+04	2.3500E+01	1.0585E+03	5.6230E+03	6.6462E+02
4.0663E+02	5.2653E+02	8.4140E+02	7.6159E+03	1.2155E+04	3.3670E+03	1.0585E+03	5.3888E+03	2.2838E+02
4.0663E+02	5.0260E+02	9.7723E+03	7.6159E+03	9.7239E+03	1.2817E+02	1.0585E+03	5.1545E+03	5.9695E+02
4.0663E+02	4.7867E+02	4.5142E+04	7.6159E+03	7.2929E+03	1.6383E+02	1.0585E+03	4.9202E+03	2.7229E+03
4.0663E+02	4.5473E+02	3.7372E+04	7.6159E+03	4.8619E+03	3.2308E+02	1.0585E+03	4.6859E+03	1.4871E+03
4.0663E+02	4.3080E+02	1.5176E+05	7.6159E+03	2.4310E+03	4.8354E+04	1.0585E+03	4.4516E+03	1.3776E+03
4.0663E+02	4.0687E+02	2.1294E+05	7.6159E+03	0.0000E+00	2.2422E+05	1.0585E+03	4.2173E+03	1.6793E+04
4.0663E+02	3.8293E+02	3.2631E+05	5.0950E+03	7.0498E+04	2.9167E+00	1.0585E+03	3.9830E+03	2.3680E+04
4.0663E+02	3.5900E+02	5.5923E+05	5.0950E+03	6.8067E+04	2.9167E+00	1.0585E+03	3.7487E+03	3.7171E+04
4.0663E+02	3.3507E+02	9.5385E+05	5.0950E+03	6.3205E+04	4.1666E+00	1.0585E+03	3.5144E+03	2.7865E+04
4.0663E+02	3.1113E+02	1.1753E+06	5.0950E+03	5.3481E+04	1.7500E+00	1.0585E+03	3.2801E+03	2.6163E+04
4.0663E+02	2.8720E+02	1.9730E+06	5.0950E+03	4.6188E+04	1.2500E+00	1.0585E+03	3.0458E+03	8.5224E+04
4.0663E+02	2.6327E+02	2.6337E+06	5.0950E+03	4.1326E+04	1.7500E+00	1.0585E+03	2.8115E+03	1.9591E+05
4.0663E+02	2.3933E+02	3.8355E+06	5.0950E+03	3.8895E+04	3.2417E+01	1.0585E+03	2.5772E+03	2.4883E+05
4.0663E+02	2.1540E+02	4.6897E+06	5.0950E+03	3.6464E+04	1.7500E+00	1.0585E+03	2.3429E+03	2.4691E+05
4.0663E+02	1.9147E+02	6.4622E+06	5.0950E+03	3.4033E+04	3.5000E+00	1.0585E+03	2.1086E+03	4.1555E+05
4.0663E+02	1.6753E+02	7.2824E+06	5.0950E+03	3.1603E+04	1.1667E+01	1.0585E+03	1.8743E+03	7.2849E+05
4.0663E+02	1.4360E+02	9.3909E+06	5.0950E+03	2.9172E+04	1.4000E+01	1.0585E+03	1.6401E+03	7.8541E+05
4.0663E+02	1.1967E+02	1.0370E+07	5.0950E+03	2.6741E+04	4.2917E+01	1.0585E+03	1.4058E+03	8.6513E+05
4.0663E+02	9.5733E+01	1.0668E+07	5.0950E+03	2.4310E+04	4.8000E+01	1.0585E+03	1.1715E+03	9.9039E+05
4.0663E+02	7.1800E+01	1.0630E+07	5.0950E+03	2.1879E+04	1.5783E+02	1.0585E+03	9.3717E+02	1.0191E+06
4.0663E+02	4.7867E+01	9.1479E+06	5.0950E+03	1.9448E+04	3.1767E+02	1.0585E+03	7.0288E+02	1.0618E+06
4.0663E+02	2.3933E+01	6.6209E+06	5.0950E+03	1.7017E+04	7.6808E+02	1.0585E+03	4.6859E+02	1.6972E+06
4.0663E+02	0.0000E+00	6.1166E+06	5.0950E+03	1.4586E+04	1.1482E+03	1.0585E+03	2.3429E+02	3.4581E+06
3.7902E+02	7.6587E+02	4.5986E+02	5.0950E+03	1.2155E+04	5.4691E+02	1.0585E+03	0.0000E+00	6.9324E+06
3.7902E+02	7.4193E+02	4.5986E+02	5.0950E+03	9.7239E+03	1.8294E+04	7.8180E+02	1.0309E+04	1.0000E+01
3.7902E+02	6.9407E+02	1.8854E+02	5.0950E+03	7.2929E+03	4.8016E+03	7.8180E+02	9.3717E+03	1.0000E+01
3.7902E+02	6.4620E+02	3.4130E+03	5.0950E+03	4.8619E+03	5.3950E+03	7.8180E+02	8.9032E+03	1.0000E+01
3.7902E+02	6.2227E+02	3.3884E+03	5.0950E+03	2.4310E+03	1.1968E+05	7.8180E+02	8.2003E+03	1.0000E+01
3.7902E+02	5.9833E+02	6.9398E+03	5.0950E+03	0.0000E+00	6.1407E+05	7.8180E+02	7.0288E+03	5.0000E+01
3.7902E+02	5.7440E+02	7.9138E+03	2.5742E+03	7.0498E+04	2.9167E+00	7.8180E+02	6.7945E+03	8.3335E+01
3.7902E+02	5.5047E+02	8.2417E+03	2.5742E+03	6.5636E+04	2.9167E+00	7.8180E+02	6.5602E+03	1.0333E+02
3.7902E+02	5.2653E+02	3.2325E+04	2.5742E+03	5.3481E+04	1.2500E+00	7.8180E+02	6.3259E+03	4.2917E+01

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

PUBLIC

DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK69832314		CLASS T05		PAGE 14/36
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Original Instruction: T05 0050-4315 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
3.7902E+02	5.0260E+02	5.6773E+04	2.5742E+03	4.8619E+04	1.7500E+00	7.8180E+02	6.0916E+03	1.2758E+02
3.7902E+02	4.7867E+02	6.2762E+04	2.5742E+03	4.6188E+04	2.9167E+00	7.8180E+02	5.8573E+03	5.0209E+03
3.7902E+02	4.5473E+02	1.0462E+05	2.5742E+03	4.3757E+04	3.0000E+00	7.8180E+02	5.6230E+03	2.3058E+02
3.7902E+02	4.3080E+02	1.4398E+05	2.5742E+03	4.1326E+04	4.6666E+00	7.8180E+02	5.3888E+03	4.0779E+02
3.7902E+02	4.0687E+02	3.4292E+05	2.5742E+03	3.6464E+04	4.5667E+01	7.8180E+02	5.1545E+03	1.5698E+03
3.7902E+02	3.8293E+02	3.3909E+05	2.5742E+03	3.4033E+04	6.4166E+00	7.8180E+02	4.9202E+03	2.7274E+03
3.7902E+02	3.5900E+02	4.9990E+05	2.5742E+03	3.1603E+04	5.9583E+01	7.8180E+02	4.6859E+03	1.0583E+04
3.7902E+02	3.3507E+02	7.1537E+05	2.5742E+03	2.9172E+04	7.5750E+01	7.8180E+02	4.4516E+03	1.4664E+04
3.7902E+02	3.1113E+02	9.0634E+05	2.5742E+03	2.6741E+04	5.8333E+00	7.8180E+02	4.2173E+03	2.4312E+04
3.7902E+02	2.8720E+02	1.3114E+06	2.5742E+03	2.4310E+04	1.0117E+02	7.8180E+02	3.9830E+03	5.1920E+04
3.7902E+02	2.6327E+02	1.9538E+06	2.5742E+03	2.1879E+04	1.8425E+02	7.8180E+02	3.7487E+03	7.6005E+04
3.7902E+02	2.3933E+02	2.3717E+06	2.5742E+03	1.9448E+04	1.0525E+02	7.8180E+02	3.5144E+03	1.0285E+05
3.7902E+02	2.1540E+02	3.6048E+06	2.5742E+03	1.7017E+04	2.6050E+02	7.8180E+02	3.2801E+03	1.4320E+05
3.7902E+02	1.9147E+02	4.5964E+06	2.5742E+03	1.4586E+04	4.1518E+03	7.8180E+02	3.0458E+03	2.0463E+05
3.7902E+02	1.6753E+02	5.3046E+06	2.5742E+03	1.2155E+04	2.1845E+03	7.8180E+02	2.8115E+03	2.2971E+05
3.7902E+02	1.4360E+02	7.1728E+06	2.5742E+03	9.7239E+03	7.0974E+03	7.8180E+02	2.5772E+03	5.5781E+05
3.7902E+02	1.1967E+02	8.1664E+06	2.5742E+03	7.2929E+03	1.8189E+04	7.8180E+02	2.3429E+03	6.9851E+05
3.7902E+02	9.5733E+01	8.7947E+06	2.5742E+03	4.8619E+03	2.1563E+05	7.8180E+02	2.1086E+03	9.9521E+05
3.7902E+02	7.1800E+01	8.8109E+06	2.5742E+03	2.4310E+03	1.3087E+06	7.8180E+02	1.8743E+03	1.2791E+06
3.7902E+02	4.7867E+01	7.8310E+06	2.5742E+03	0.0000E+00	2.9050E+07	7.8180E+02	1.6401E+03	1.7197E+06
3.7902E+02	2.3933E+01	6.3934E+06	5.3379E+01	7.7791E+04	2.9167E+00	7.8180E+02	1.4058E+03	2.2937E+06
3.7902E+02	0.0000E+00	7.0950E+06	5.3379E+01	7.0498E+04	4.1666E+00	7.8180E+02	1.1715E+03	2.2504E+06
3.5140E+02	1.0052E+03	1.0000E+01	5.3379E+01	6.8067E+04	1.2500E+00	7.8180E+02	9.3717E+02	2.6579E+06
3.5140E+02	9.5733E+02	1.2500E+00	5.3379E+01	6.5636E+04	5.4166E+00	7.8180E+02	7.0288E+02	2.4833E+06
3.5140E+02	8.6160E+02	1.2500E+00	5.3379E+01	6.0774E+04	1.2500E+00	7.8180E+02	4.6859E+02	3.0778E+06
3.5140E+02	8.1373E+02	1.0000E+01	5.3379E+01	5.8343E+04	2.9167E+00	7.8180E+02	2.3429E+02	7.8130E+06
3.5140E+02	7.6587E+02	2.2292E+01	5.3379E+01	4.6188E+04	2.5000E+00	7.8180E+02	0.0000E+00	1.3210E+07
3.5140E+02	7.4193E+02	4.5833E+00	5.3379E+01	4.3757E+04	5.4166E+00	5.0511E+02	1.0778E+04	1.2500E+00
3.5140E+02	7.1800E+02	1.2417E+03	5.3379E+01	3.8895E+04	3.0000E+00	5.0511E+02	1.0075E+04	1.0000E+01
3.5140E+02	6.9407E+02	1.0417E+00	5.3379E+01	3.6464E+04	4.6666E+00	5.0511E+02	9.8403E+03	2.0000E+01
3.5140E+02	6.7013E+02	1.3404E+03	5.3379E+01	3.4033E+04	3.4333E+01	5.0511E+02	9.6060E+03	1.0000E+01
3.5140E+02	6.4620E+02	1.6313E+04	5.3379E+01	3.1603E+04	1.1250E+01	5.0511E+02	9.3717E+03	4.5292E+01
3.5140E+02	6.2227E+02	1.5005E+04	5.3379E+01	2.9172E+04	3.3398E+03	5.0511E+02	9.1374E+03	2.0000E+01
3.5140E+02	5.9833E+02	1.8535E+04	5.3379E+01	2.6741E+04	4.6250E+01	5.0511E+02	8.9032E+03	2.6334E+01
3.5140E+02	5.7440E+02	1.3505E+04	5.3379E+01	2.4310E+04	3.7667E+01	5.0511E+02	8.6689E+03	2.0000E+01

PUBLIC

DNV-GL Denmark A/S

Tuborg Parkvej 8, 2

DK-2900 Hellerup

VAT No. DK97832314

CLASS T05

DOCUMENT:
0050-4315 VER 00

DESCRIPTION:
Foundation loads

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Original Instruction: T05 0050-4315 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

T04 0053-2020 Ver 06 - Approved- Exported from DMS: 2021-02-03 by INVOL

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
3.5140E+02	5.5047E+02	5.4492E+04	5.3379E+01	2.1879E+04	2.5758E+02	5.0511E+02	8.4346E+03	2.0000E+01
3.5140E+02	5.2653E+02	5.6697E+04	5.3379E+01	1.9448E+04	5.6042E+03	5.0511E+02	8.2003E+03	8.7128E+01
3.5140E+02	5.0260E+02	1.1109E+05	5.3379E+01	1.7017E+04	4.8943E+03	5.0511E+02	7.7317E+03	6.2378E+02
3.5140E+02	4.7867E+02	1.2079E+05	5.3379E+01	1.4586E+04	3.7540E+03	5.0511E+02	7.4974E+03	2.3391E+03
3.5140E+02	4.5473E+02	1.1288E+05	5.3379E+01	1.2155E+04	6.8133E+03	5.0511E+02	7.2631E+03	5.7574E+02
3.5140E+02	4.3080E+02	1.7512E+05	5.3379E+01	9.7239E+03	1.0214E+04	5.0511E+02	7.0288E+03	6.1112E+02
3.5140E+02	4.0687E+02	2.3781E+05	5.3379E+01	7.2929E+03	3.2676E+04	5.0511E+02	6.7945E+03	1.4567E+03
3.5140E+02	3.8293E+02	2.8784E+05	5.3379E+01	4.8619E+03	2.2649E+05	5.0511E+02	6.5602E+03	3.2083E+01
3.5140E+02	3.5900E+02	3.8465E+05	5.3379E+01	2.4310E+03	1.3315E+06	5.0511E+02	6.3259E+03	6.3794E+02
3.5140E+02	3.3507E+02	5.9008E+05	5.3379E+01	0.0000E+00	1.1528E+07	5.0511E+02	6.0916E+03	3.7718E+02
3.5140E+02	3.1113E+02	8.4239E+05	-2.4674E+03	1.1182E+05	2.9167E+00	5.0511E+02	5.8573E+03	6.2686E+02
3.5140E+02	2.8720E+02	8.8479E+05	-2.4674E+03	6.8067E+04	1.2500E+00	5.0511E+02	5.6230E+03	3.8718E+03
3.5140E+02	2.6327E+02	1.3088E+06	-2.4674E+03	6.5636E+04	1.2500E+00	5.0511E+02	5.3888E+03	2.6646E+03
3.5140E+02	2.3933E+02	1.5037E+06	-2.4674E+03	6.0774E+04	7.0833E+00	5.0511E+02	5.1545E+03	1.3827E+04
3.5140E+02	2.1540E+02	2.3374E+06	-2.4674E+03	5.5912E+04	5.0000E+00	5.0511E+02	4.9202E+03	2.0899E+03
3.5140E+02	1.9147E+02	2.9562E+06	-2.4674E+03	5.3481E+04	1.2500E+00	5.0511E+02	4.6859E+03	2.2004E+04
3.5140E+02	1.6753E+02	3.5211E+06	-2.4674E+03	4.8619E+04	3.7500E+00	5.0511E+02	4.4516E+03	3.8475E+04
3.5140E+02	1.4360E+02	4.2121E+06	-2.4674E+03	4.6188E+04	1.2500E+00	5.0511E+02	4.2173E+03	5.0497E+04
3.5140E+02	1.1967E+02	5.3199E+06	-2.4674E+03	4.3757E+04	6.2500E+00	5.0511E+02	3.9830E+03	1.0970E+05
3.5140E+02	9.5733E+01	5.8360E+06	-2.4674E+03	4.1326E+04	4.7917E+01	5.0511E+02	3.7487E+03	1.7041E+05
3.5140E+02	7.1800E+01	7.1202E+06	-2.4674E+03	3.8895E+04	1.2500E+01	5.0511E+02	3.5144E+03	1.9454E+05
3.5140E+02	4.7867E+01	6.3676E+06	-2.4674E+03	3.6464E+04	9.1250E+01	5.0511E+02	3.2801E+03	4.0952E+05
3.5140E+02	2.3933E+01	5.6427E+06	-2.4674E+03	3.4033E+04	1.8750E+02	5.0511E+02	3.0458E+03	5.8067E+05
3.5140E+02	0.0000E+00	5.7645E+06	-2.4674E+03	3.1603E+04	3.8209E+01	5.0511E+02	2.8115E+03	6.0259E+05
3.2379E+02	1.0291E+03	2.3118E+02	-2.4674E+03	2.9172E+04	1.0917E+02	5.0511E+02	2.5772E+03	1.1427E+06
3.2379E+02	9.5733E+02	1.0000E+01	-2.4674E+03	2.6741E+04	1.0000E+01	5.0511E+02	2.3429E+03	1.3259E+06
3.2379E+02	9.0947E+02	1.0417E+00	-2.4674E+03	2.4310E+04	1.1167E+02	5.0511E+02	2.1086E+03	1.9599E+06
3.2379E+02	8.8553E+02	1.2292E+01	-2.4674E+03	2.1879E+04	6.7655E+03	5.0511E+02	1.8743E+03	2.4449E+06
3.2379E+02	8.6160E+02	2.5292E+01	-2.4674E+03	1.9448E+04	2.0261E+03	5.0511E+02	1.6401E+03	3.0743E+06
3.2379E+02	8.3767E+02	5.6542E+01	-2.4674E+03	1.7017E+04	3.0748E+03	5.0511E+02	1.4058E+03	4.0121E+06
3.2379E+02	8.1373E+02	1.2083E+01	-2.4674E+03	1.4586E+04	1.9939E+03	5.0511E+02	1.1715E+03	5.1107E+06
3.2379E+02	7.8980E+02	8.1835E+01	-2.4674E+03	1.2155E+04	1.3449E+04	5.0511E+02	9.3717E+02	5.5876E+06
3.2379E+02	7.6587E+02	9.1835E+01	-2.4674E+03	9.7239E+03	1.3609E+04	5.0511E+02	7.0288E+02	5.6123E+06
3.2379E+02	7.4193E+02	2.3318E+03	-2.4674E+03	7.2929E+03	3.1878E+04	5.0511E+02	4.6859E+02	7.4414E+06
3.2379E+02	7.1800E+02	4.3050E+03	-2.4674E+03	4.8619E+03	3.0306E+05	5.0511E+02	2.3429E+02	1.4643E+07

PUBLIC



DNV GL Denmark A/S
Tuborg Parkvej 8, 2
DK-2900 Hellerup
VAT No. DK99832314

CLASS T05

DOCUMENT:
0050-4315 VER 00

DESCRIPTION:
Foundation loads

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Original Instruction: T05 0050-4315 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

T04 0053-2020 Ver 06 - Approved- Exported from DMS: 2021-02-03 by INVOL

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
3.2379E+02	6.9407E+02	5.5218E+03	-2.4674E+03	2.4310E+03	2.5855E+06	5.0511E+02	0.0000E+00	2.5637E+07
3.2379E+02	6.7013E+02	3.4423E+02	-2.4674E+03	0.0000E+00	9.5731E+06	2.2842E+02	1.1715E+04	1.0000E+01
3.2379E+02	6.4620E+02	1.0661E+04	-4.9883E+03	1.1426E+05	2.9167E+00	2.2842E+02	1.0309E+04	2.6334E+01
3.2379E+02	6.2227E+02	3.1695E+04	-4.9883E+03	1.1182E+05	5.2085E+00	2.2842E+02	1.0075E+04	1.0417E+00
3.2379E+02	5.9833E+02	1.1687E+04	-4.9883E+03	1.0939E+05	5.2085E+00	2.2842E+02	9.6060E+03	2.5292E+01
3.2379E+02	5.7440E+02	4.5561E+04	-4.9883E+03	8.0222E+04	4.2500E+00	2.2842E+02	9.3717E+03	2.7647E+02
3.2379E+02	5.5047E+02	5.6643E+04	-4.9883E+03	6.8067E+04	2.9167E+00	2.2842E+02	9.1374E+03	2.7522E+02
3.2379E+02	5.2653E+02	7.5917E+04	-4.9883E+03	6.3205E+04	4.1666E+00	2.2842E+02	8.9032E+03	5.2292E+01
3.2379E+02	5.0260E+02	9.9111E+04	-4.9883E+03	6.0774E+04	2.5000E+00	2.2842E+02	8.6689E+03	2.0000E+01
3.2379E+02	4.7867E+02	1.4233E+05	-4.9883E+03	5.8343E+04	5.4166E+00	2.2842E+02	8.4346E+03	2.3305E+02
3.2379E+02	4.5473E+02	1.5775E+05	-4.9883E+03	5.5912E+04	1.2500E+00	2.2842E+02	8.2003E+03	3.5399E+02
3.2379E+02	4.3080E+02	2.1144E+05	-4.9883E+03	5.3481E+04	8.7500E+00	2.2842E+02	7.9660E+03	2.0844E+02
3.2379E+02	4.0687E+02	3.1244E+05	-4.9883E+03	5.1050E+04	1.2500E+01	2.2842E+02	7.7317E+03	7.5585E+02
3.2379E+02	3.8293E+02	3.4816E+05	-4.9883E+03	4.8619E+04	1.2500E+00	2.2842E+02	7.4974E+03	3.0425E+02
3.2379E+02	3.5900E+02	4.2872E+05	-4.9883E+03	4.6188E+04	1.0417E+01	2.2842E+02	7.2631E+03	2.9082E+02
3.2379E+02	3.3507E+02	5.6339E+05	-4.9883E+03	4.3757E+04	5.2917E+01	2.2842E+02	7.0288E+03	3.5729E+02
3.2379E+02	3.1113E+02	7.4348E+05	-4.9883E+03	4.1326E+04	1.0226E+02	2.2842E+02	6.7945E+03	5.2024E+03
3.2379E+02	2.8720E+02	1.1037E+06	-4.9883E+03	3.8895E+04	1.0333E+02	2.2842E+02	6.5602E+03	8.0432E+03
3.2379E+02	2.6327E+02	1.2207E+06	-4.9883E+03	3.6464E+04	3.4077E+02	2.2842E+02	6.3259E+03	1.3238E+04
3.2379E+02	2.3933E+02	1.6036E+06	-4.9883E+03	3.4033E+04	1.4875E+02	2.2842E+02	6.0916E+03	3.1911E+04
3.2379E+02	2.1540E+02	1.9360E+06	-4.9883E+03	3.1603E+04	3.0125E+02	2.2842E+02	5.8573E+03	8.6488E+03
3.2379E+02	1.9147E+02	2.2517E+06	-4.9883E+03	2.9172E+04	2.3500E+02	2.2842E+02	5.6230E+03	6.7561E+04
3.2379E+02	1.6753E+02	2.9831E+06	-4.9883E+03	2.6741E+04	9.3167E+02	2.2842E+02	5.3888E+03	1.8044E+04
3.2379E+02	1.4360E+02	3.2248E+06	-4.9883E+03	2.4310E+04	1.2138E+03	2.2842E+02	5.1545E+03	6.3622E+04
3.2379E+02	1.1967E+02	4.9938E+06	-4.9883E+03	2.1879E+04	1.4171E+03	2.2842E+02	4.9202E+03	4.2277E+04
3.2379E+02	9.5733E+01	5.7440E+06	-4.9883E+03	1.9448E+04	1.5118E+03	2.2842E+02	4.6859E+03	7.6359E+04
3.2379E+02	7.1800E+01	6.4954E+06	-4.9883E+03	1.7017E+04	8.9511E+03	2.2842E+02	4.4516E+03	9.4936E+04
3.2379E+02	4.7867E+01	7.1951E+06	-4.9883E+03	1.4586E+04	6.4265E+03	2.2842E+02	4.2173E+03	1.9165E+05
3.2379E+02	2.3933E+01	6.1164E+06	-4.9883E+03	1.2155E+04	2.8056E+04	2.2842E+02	3.9830E+03	2.0273E+05
3.2379E+02	0.0000E+00	6.4149E+06	-4.9883E+03	9.7239E+03	3.4059E+04	2.2842E+02	3.7487E+03	2.9722E+05
2.9617E+02	1.1009E+03	2.2993E+02	-4.9883E+03	7.2929E+03	4.8300E+04	2.2842E+02	3.5144E+03	4.4793E+05
2.9617E+02	9.8127E+02	1.0417E+00	-4.9883E+03	4.8619E+03	5.2325E+05	2.2842E+02	3.2801E+03	6.4574E+05
2.9617E+02	9.5733E+02	2.6334E+01	-4.9883E+03	2.4310E+03	5.8007E+06	2.2842E+02	3.0458E+03	8.6196E+05
2.9617E+02	9.3340E+02	3.0000E+01	-4.9883E+03	0.0000E+00	1.7624E+07	2.2842E+02	2.8115E+03	1.1528E+06
2.9617E+02	9.0947E+02	1.1302E+02	-7.5091E+03	1.2155E+05	2.9167E+00	2.2842E+02	2.5772E+03	1.1148E+06

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05 PAGE 17/36	
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.9617E+02	8.8553E+02	1.2427E+02	-7.5091E+03	1.0939E+05	2.9167E+00	2.2842E+02	2.3429E+03	1.7221E+06
2.9617E+02	8.6160E+02	1.1163E+02	-7.5091E+03	1.0210E+05	6.9585E+00	2.2842E+02	2.1086E+03	2.7909E+06
2.9617E+02	8.3767E+02	1.4831E+02	-7.5091E+03	8.9946E+04	1.7500E+00	2.2842E+02	1.8743E+03	3.5816E+06
2.9617E+02	8.1373E+02	2.1394E+02	-7.5091E+03	8.5084E+04	2.5000E+00	2.2842E+02	1.6401E+03	4.8235E+06
2.9617E+02	7.8980E+02	4.0298E+02	-7.5091E+03	8.2653E+04	3.0000E+00	2.2842E+02	1.4058E+03	6.1441E+06
2.9617E+02	7.6587E+02	2.1711E+03	-7.5091E+03	8.0222E+04	1.2500E+00	2.2842E+02	1.1715E+03	8.1905E+06
2.9617E+02	7.4193E+02	3.6153E+03	-7.5091E+03	7.7791E+04	3.0000E+00	2.2842E+02	9.3717E+02	9.2625E+06
2.9617E+02	7.1800E+02	3.6508E+03	-7.5091E+03	7.2929E+04	3.5000E+00	2.2842E+02	7.0288E+02	1.0454E+07
2.9617E+02	6.9407E+02	1.7674E+04	-7.5091E+03	6.8067E+04	1.7500E+00	2.2842E+02	4.6859E+02	1.2567E+07
2.9617E+02	6.7013E+02	6.6694E+03	-7.5091E+03	6.5636E+04	4.1666E+00	2.2842E+02	2.3429E+02	2.2710E+07
2.9617E+02	6.4620E+02	1.9235E+04	-7.5091E+03	5.8343E+04	2.5000E+00	2.2842E+02	0.0000E+00	3.9720E+07
2.9617E+02	6.2227E+02	2.4038E+04	-7.5091E+03	5.5912E+04	2.5000E+00	-4.8268E+01	1.0778E+04	1.0000E+01
2.9617E+02	5.9833E+02	2.7269E+04	-7.5091E+03	5.3481E+04	5.0000E+00	-4.8268E+01	1.0543E+04	1.0000E+01
2.9617E+02	5.7440E+02	5.1926E+04	-7.5091E+03	5.1050E+04	1.2917E+01	-4.8268E+01	1.0075E+04	1.0000E+01
2.9617E+02	5.5047E+02	5.1914E+04	-7.5091E+03	4.8619E+04	3.7249E+00	-4.8268E+01	9.8403E+03	1.0417E+00
2.9617E+02	5.2653E+02	7.3702E+04	-7.5091E+03	4.6188E+04	1.0684E+02	-4.8268E+01	9.6060E+03	3.6334E+01
2.9617E+02	5.0260E+02	9.3607E+04	-7.5091E+03	4.3757E+04	1.9577E+02	-4.8268E+01	9.3717E+03	2.2993E+02
2.9617E+02	4.7867E+02	1.0901E+05	-7.5091E+03	4.1326E+04	2.0494E+02	-4.8268E+01	9.1374E+03	3.6334E+01
2.9617E+02	4.5473E+02	1.6367E+05	-7.5091E+03	3.8895E+04	1.0625E+02	-4.8268E+01	8.9032E+03	6.6122E+02
2.9617E+02	4.3080E+02	2.2576E+05	-7.5091E+03	3.6464E+04	2.2500E+01	-4.8268E+01	8.6689E+03	3.0239E+02
2.9617E+02	4.0687E+02	3.6086E+05	-7.5091E+03	3.4033E+04	5.3027E+02	-4.8268E+01	8.4346E+03	2.0038E+03
2.9617E+02	3.8293E+02	4.3264E+05	-7.5091E+03	3.1603E+04	6.6205E+02	-4.8268E+01	8.2003E+03	3.6106E+02
2.9617E+02	3.5900E+02	5.0640E+05	-7.5091E+03	2.9172E+04	7.5968E+02	-4.8268E+01	7.9660E+03	1.3598E+03
2.9617E+02	3.3507E+02	5.7221E+05	-7.5091E+03	2.6741E+04	8.1359E+02	-4.8268E+01	7.7317E+03	7.3387E+03
2.9617E+02	3.1113E+02	7.5439E+05	-7.5091E+03	2.4310E+04	4.6886E+03	-4.8268E+01	7.4974E+03	2.3894E+03
2.9617E+02	2.8720E+02	8.6684E+05	-7.5091E+03	2.1879E+04	1.8623E+03	-4.8268E+01	7.2631E+03	4.7883E+03
2.9617E+02	2.6327E+02	1.1233E+06	-7.5091E+03	1.9448E+04	8.9981E+03	-4.8268E+01	7.0288E+03	1.1582E+04
2.9617E+02	2.3933E+02	1.2781E+06	-7.5091E+03	1.7017E+04	5.8890E+03	-4.8268E+01	6.7945E+03	8.2333E+03
2.9617E+02	2.1540E+02	1.5801E+06	-7.5091E+03	1.4586E+04	1.3993E+04	-4.8268E+01	6.5602E+03	1.6663E+04
2.9617E+02	1.9147E+02	1.7557E+06	-7.5091E+03	1.2155E+04	3.0770E+04	-4.8268E+01	6.3259E+03	4.3860E+04
2.9617E+02	1.6753E+02	2.2133E+06	-7.5091E+03	9.7239E+03	5.8969E+04	-4.8268E+01	6.0916E+03	3.6281E+04
2.9617E+02	1.4360E+02	2.9491E+06	-7.5091E+03	7.2929E+03	6.3179E+04	-4.8268E+01	5.8573E+03	5.0358E+04
2.9617E+02	1.1967E+02	4.1136E+06	-7.5091E+03	4.8619E+03	7.5608E+05	-4.8268E+01	5.6230E+03	6.8087E+04
2.9617E+02	9.5733E+01	5.7350E+06	-7.5091E+03	2.4310E+03	7.2364E+06	-4.8268E+01	5.3888E+03	6.9310E+04
2.9617E+02	7.1800E+01	7.5455E+06	-7.5091E+03	0.0000E+00	2.2536E+07	-4.8268E+01	5.1545E+03	1.1642E+05

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05		PAGE 18/36
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Original Instruction: T05 0050-4315 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.9617E+02	4.7867E+01	8.9271E+06	-1.0030E+04	1.0453E+05	2.9167E+00	-4.8268E+01	4.9202E+03	1.4116E+05
2.9617E+02	2.3933E+01	7.7785E+06	-1.0030E+04	1.0210E+05	5.8333E+00	-4.8268E+01	4.6859E+03	1.7840E+05
2.9617E+02	0.0000E+00	7.2091E+06	-1.0030E+04	9.7239E+04	5.2085E+00	-4.8268E+01	4.4516E+03	2.2441E+05
2.6856E+02	9.8127E+02	2.5292E+01	-1.0030E+04	9.2377E+04	5.2085E+00	-4.8268E+01	4.2173E+03	2.8982E+05
2.6856E+02	9.5733E+02	1.9831E+02	-1.0030E+04	8.9946E+04	3.5000E+00	-4.8268E+01	3.9830E+03	4.5362E+05
2.6856E+02	9.3340E+02	2.1250E+01	-1.0030E+04	8.2653E+04	4.2500E+00	-4.8268E+01	3.7487E+03	4.3347E+05
2.6856E+02	9.0947E+02	1.1040E+02	-1.0030E+04	8.0222E+04	1.7500E+00	-4.8268E+01	3.5144E+03	5.8648E+05
2.6856E+02	8.8553E+02	6.2201E+02	-1.0030E+04	7.5360E+04	1.7500E+00	-4.8268E+01	3.2801E+03	8.0266E+05
2.6856E+02	8.6160E+02	1.1579E+02	-1.0030E+04	7.2929E+04	4.2500E+00	-4.8268E+01	3.0458E+03	9.8227E+05
2.6856E+02	8.3767E+02	8.3828E+02	-1.0030E+04	7.0498E+04	1.2500E+00	-4.8268E+01	2.8115E+03	1.5793E+06
2.6856E+02	8.1373E+02	1.1633E+03	-1.0030E+04	6.5636E+04	1.2500E+00	-4.8268E+01	2.5772E+03	1.9379E+06
2.6856E+02	7.8980E+02	2.9149E+03	-1.0030E+04	6.0774E+04	1.2500E+00	-4.8268E+01	2.3429E+03	2.3815E+06
2.6856E+02	7.6587E+02	4.2511E+03	-1.0030E+04	5.8343E+04	1.1278E+00	-4.8268E+01	2.1086E+03	3.1946E+06
2.6856E+02	7.4193E+02	6.5805E+03	-1.0030E+04	5.5912E+04	1.1278E+00	-4.8268E+01	1.8743E+03	3.5768E+06
2.6856E+02	7.1800E+02	9.2762E+03	-1.0030E+04	5.3481E+04	1.2500E+00	-4.8268E+01	1.6401E+03	5.1037E+06
2.6856E+02	6.9407E+02	7.7601E+03	-1.0030E+04	5.1050E+04	1.0417E+01	-4.8268E+01	1.4058E+03	6.8136E+06
2.6856E+02	6.7013E+02	1.0361E+04	-1.0030E+04	4.8619E+04	2.8715E+01	-4.8268E+01	1.1715E+03	7.5188E+06
2.6856E+02	6.4620E+02	1.9717E+04	-1.0030E+04	4.6188E+04	5.7431E+01	-4.8268E+01	9.3717E+02	1.0247E+07
2.6856E+02	6.2227E+02	2.7793E+04	-1.0030E+04	4.3757E+04	2.6215E+01	-4.8268E+01	7.0288E+02	1.1683E+07
2.6856E+02	5.9833E+02	3.2140E+04	-1.0030E+04	4.1326E+04	1.2264E+02	-4.8268E+01	4.6859E+02	1.3876E+07
2.6856E+02	5.7440E+02	4.8953E+04	-1.0030E+04	3.8895E+04	4.0496E+02	-4.8268E+01	2.3429E+02	2.8889E+07
2.6856E+02	5.5047E+02	4.9496E+04	-1.0030E+04	3.6464E+04	1.6372E+02	-4.8268E+01	0.0000E+00	9.3292E+07
2.6856E+02	5.2653E+02	5.1578E+04	-1.0030E+04	3.4033E+04	2.9311E+02	-3.2496E+02	1.0778E+04	1.0000E+01
2.6856E+02	5.0260E+02	9.4846E+04	-1.0030E+04	3.1603E+04	3.8033E+02	-3.2496E+02	1.0309E+04	2.5292E+01
2.6856E+02	4.7867E+02	1.2769E+05	-1.0030E+04	2.9172E+04	8.3308E+02	-3.2496E+02	1.0075E+04	3.5292E+01
2.6856E+02	4.5473E+02	1.4007E+05	-1.0030E+04	2.6741E+04	9.6340E+02	-3.2496E+02	9.8403E+03	1.2500E+00
2.6856E+02	4.3080E+02	2.0209E+05	-1.0030E+04	2.4310E+04	7.6090E+02	-3.2496E+02	9.6060E+03	3.6334E+01
2.6856E+02	4.0687E+02	2.5178E+05	-1.0030E+04	2.1879E+04	1.8473E+03	-3.2496E+02	9.3717E+03	2.6222E+02
2.6856E+02	3.8293E+02	3.4721E+05	-1.0030E+04	1.9448E+04	2.7182E+04	-3.2496E+02	9.1374E+03	1.0193E+03
2.6856E+02	3.5900E+02	3.5224E+05	-1.0030E+04	1.7017E+04	2.4068E+04	-3.2496E+02	8.9032E+03	9.6734E+02
2.6856E+02	3.3507E+02	4.0352E+05	-1.0030E+04	1.4586E+04	2.0964E+04	-3.2496E+02	8.6689E+03	2.2163E+02
2.6856E+02	3.1113E+02	5.6257E+05	-1.0030E+04	1.2155E+04	2.1719E+04	-3.2496E+02	8.4346E+03	5.8141E+02
2.6856E+02	2.8720E+02	7.0278E+05	-1.0030E+04	9.7239E+03	3.7217E+04	-3.2496E+02	8.2003E+03	1.3966E+03
2.6856E+02	2.6327E+02	8.4553E+05	-1.0030E+04	7.2929E+03	1.0698E+05	-3.2496E+02	7.9660E+03	4.2785E+03
2.6856E+02	2.3933E+02	9.5403E+05	-1.0030E+04	4.8619E+03	1.2730E+06	-3.2496E+02	7.7317E+03	4.7885E+03

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05 PAGE 19/36	
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.6856E+02	2.1540E+02	1.0646E+06	-1.0030E+04	2.4310E+03	1.1965E+07	-3.2496E+02	7.4974E+03	1.1857E+04
2.6856E+02	1.9147E+02	1.3242E+06	-1.0030E+04	0.0000E+00	3.2450E+07	-3.2496E+02	7.2631E+03	1.3409E+04
2.6856E+02	1.6753E+02	1.3952E+06	-1.2551E+04	1.1182E+05	5.2085E+00	-3.2496E+02	7.0288E+03	1.7083E+04
2.6856E+02	1.4360E+02	1.8799E+06	-1.2551E+04	1.0696E+05	2.9167E+00	-3.2496E+02	6.7945E+03	3.4583E+04
2.6856E+02	1.1967E+02	3.0548E+06	-1.2551E+04	1.0453E+05	2.9167E+00	-3.2496E+02	6.5602E+03	3.3001E+04
2.6856E+02	9.5733E+01	4.4511E+06	-1.2551E+04	1.0210E+05	4.6666E+00	-3.2496E+02	6.3259E+03	4.5566E+04
2.6856E+02	7.1800E+01	7.4783E+06	-1.2551E+04	9.9670E+04	5.8333E+00	-3.2496E+02	6.0916E+03	7.6923E+04
2.6856E+02	4.7867E+01	9.3940E+06	-1.2551E+04	9.7239E+04	1.7500E+00	-3.2496E+02	5.8573E+03	9.1441E+04
2.6856E+02	2.3933E+01	9.6687E+06	-1.2551E+04	9.4808E+04	3.5000E+00	-3.2496E+02	5.6230E+03	1.1462E+05
2.6856E+02	0.0000E+00	7.5973E+06	-1.2551E+04	9.2377E+04	3.5000E+00	-3.2496E+02	5.3888E+03	1.1896E+05
2.4094E+02	1.1967E+03	1.0000E+01	-1.2551E+04	8.9946E+04	1.1708E+01	-3.2496E+02	5.1545E+03	1.6967E+05
2.4094E+02	1.1009E+03	1.0000E+01	-1.2551E+04	8.7515E+04	3.0000E+00	-3.2496E+02	4.9202E+03	2.0821E+05
2.4094E+02	1.0531E+03	2.2500E+01	-1.2551E+04	8.5084E+04	1.4708E+01	-3.2496E+02	4.6859E+03	1.6621E+05
2.4094E+02	1.0291E+03	1.0000E+01	-1.2551E+04	8.2653E+04	8.7085E+00	-3.2496E+02	4.4516E+03	1.7966E+05
2.4094E+02	1.0052E+03	4.0000E+01	-1.2551E+04	8.0222E+04	4.2500E+00	-3.2496E+02	4.2173E+03	2.5507E+05
2.4094E+02	9.8127E+02	4.0000E+01	-1.2551E+04	7.2929E+04	1.2500E+00	-3.2496E+02	3.9830E+03	3.5242E+05
2.4094E+02	9.5733E+02	1.2083E+01	-1.2551E+04	7.0498E+04	3.0000E+00	-3.2496E+02	3.7487E+03	4.0311E+05
2.4094E+02	9.3340E+02	1.0346E+02	-1.2551E+04	6.8067E+04	1.4693E+00	-3.2496E+02	3.5144E+03	5.6924E+05
2.4094E+02	9.0947E+02	1.4165E+02	-1.2551E+04	6.5636E+04	4.4079E+00	-3.2496E+02	3.2801E+03	7.5108E+05
2.4094E+02	8.8553E+02	4.3311E+02	-1.2551E+04	6.3205E+04	1.2500E+00	-3.2496E+02	3.0458E+03	9.4392E+05
2.4094E+02	8.6160E+02	2.3973E+02	-1.2551E+04	6.0774E+04	1.3136E+01	-3.2496E+02	2.8115E+03	1.3878E+06
2.4094E+02	8.3767E+02	5.8104E+02	-1.2551E+04	5.8343E+04	3.3333E+00	-3.2496E+02	2.5772E+03	1.7560E+06
2.4094E+02	8.1373E+02	9.1324E+02	-1.2551E+04	5.3481E+04	4.3859E+00	-3.2496E+02	2.3429E+03	2.5009E+06
2.4094E+02	7.8980E+02	8.1764E+02	-1.2551E+04	5.1050E+04	2.7193E+00	-3.2496E+02	2.1086E+03	2.7540E+06
2.4094E+02	7.6587E+02	1.7930E+03	-1.2551E+04	4.8619E+04	1.2500E+01	-3.2496E+02	1.8743E+03	4.0123E+06
2.4094E+02	7.4193E+02	4.9299E+03	-1.2551E+04	4.6188E+04	6.4222E+00	-3.2496E+02	1.6401E+03	4.7957E+06
2.4094E+02	7.1800E+02	2.0792E+03	-1.2551E+04	4.3757E+04	3.4182E+01	-3.2496E+02	1.4058E+03	5.4957E+06
2.4094E+02	6.9407E+02	5.6348E+03	-1.2551E+04	4.1326E+04	8.9222E+00	-3.2496E+02	1.1715E+03	6.7606E+06
2.4094E+02	6.7013E+02	5.7756E+03	-1.2551E+04	3.8895E+04	9.4121E+01	-3.2496E+02	9.3717E+02	7.9386E+06
2.4094E+02	6.4620E+02	1.0733E+04	-1.2551E+04	3.6464E+04	4.9132E+01	-3.2496E+02	7.0288E+02	8.6216E+06
2.4094E+02	6.2227E+02	7.4744E+03	-1.2551E+04	3.4033E+04	4.1510E+02	-3.2496E+02	4.6859E+02	9.9932E+06
2.4094E+02	5.9833E+02	1.1335E+04	-1.2551E+04	3.1603E+04	1.6355E+02	-3.2496E+02	2.3429E+02	2.0717E+07
2.4094E+02	5.7440E+02	1.7281E+04	-1.2551E+04	2.9172E+04	2.1548E+02	-3.2496E+02	0.0000E+00	3.3902E+07
2.4094E+02	5.5047E+02	2.3453E+04	-1.2551E+04	2.6741E+04	2.2500E+02	-6.0165E+02	1.1715E+04	1.0000E+01
2.4094E+02	5.2653E+02	3.2584E+04	-1.2551E+04	2.4310E+04	7.6249E+03	-6.0165E+02	1.1012E+04	1.2500E+00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

PUBLIC

DNV·GL

DNV GL Denmark A/S
 Tuborg Parkvej 8, 2
 DK-2900 Hellerup
 VAT No. DK89632314

CLASS T05

DOCUMENT:
0050-4315 VER 00

DESCRIPTION:
Foundation loads

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Original Instruction: T05 0050-4315 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

T04 0053-2020 Ver 06 - Approved- Exported from DMS: 2021-02-03 by INVOL

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.4094E+02	5.0260E+02	2.8232E+04	-1.2551E+04	2.1879E+04	1.5344E+04	-6.0165E+02	1.0543E+04	2.5292E+01
2.4094E+02	4.7867E+02	5.2450E+04	-1.2551E+04	1.9448E+04	3.1871E+04	-6.0165E+02	1.0309E+04	2.6542E+01
2.4094E+02	4.5473E+02	7.7341E+04	-1.2551E+04	1.7017E+04	1.5339E+04	-6.0165E+02	1.0075E+04	6.0585E+01
2.4094E+02	4.3080E+02	9.1979E+04	-1.2551E+04	1.4586E+04	1.8509E+04	-6.0165E+02	9.8403E+03	8.4062E+01
2.4094E+02	4.0687E+02	1.2605E+05	-1.2551E+04	1.2155E+04	6.4363E+04	-6.0165E+02	9.6060E+03	1.7792E+02
2.4094E+02	3.8293E+02	1.5208E+05	-1.2551E+04	9.7239E+03	2.7904E+04	-6.0165E+02	9.3717E+03	1.2081E+02
2.4094E+02	3.5900E+02	1.5237E+05	-1.2551E+04	7.2929E+03	1.2042E+05	-6.0165E+02	9.1374E+03	1.1302E+02
2.4094E+02	3.3507E+02	2.4129E+05	-1.2551E+04	4.8619E+03	1.1947E+06	-6.0165E+02	8.9032E+03	3.4503E+02
2.4094E+02	3.1113E+02	2.7094E+05	-1.2551E+04	2.4310E+03	1.0743E+07	-6.0165E+02	8.6689E+03	2.5237E+02
2.4094E+02	2.8720E+02	3.2559E+05	-1.2551E+04	0.0000E+00	2.3586E+07	-6.0165E+02	8.4346E+03	1.2923E+03
2.4094E+02	2.6327E+02	4.1970E+05	-1.5072E+04	1.0210E+05	2.9167E+00	-6.0165E+02	8.2003E+03	3.2858E+02
2.4094E+02	2.3933E+02	4.9507E+05	-1.5072E+04	9.9670E+04	5.8333E+00	-6.0165E+02	7.9660E+03	1.4275E+03
2.4094E+02	2.1540E+02	5.8958E+05	-1.5072E+04	9.4808E+04	5.2085E+00	-6.0165E+02	7.7317E+03	3.1839E+03
2.4094E+02	1.9147E+02	7.0831E+05	-1.5072E+04	9.2377E+04	1.7500E+00	-6.0165E+02	7.4974E+03	1.0195E+04
2.4094E+02	1.6753E+02	7.9899E+05	-1.5072E+04	8.9946E+04	1.2167E+01	-6.0165E+02	7.2631E+03	4.3492E+03
2.4094E+02	1.4360E+02	1.3296E+06	-1.5072E+04	8.7515E+04	1.2833E+01	-6.0165E+02	7.0288E+03	1.5360E+04
2.4094E+02	1.1967E+02	2.0055E+06	-1.5072E+04	8.5084E+04	5.2500E+00	-6.0165E+02	6.7945E+03	1.5744E+04
2.4094E+02	9.5733E+01	4.4552E+06	-1.5072E+04	8.2653E+04	1.1208E+01	-6.0165E+02	6.5602E+03	1.9570E+04
2.4094E+02	7.1800E+01	7.1217E+06	-1.5072E+04	8.0222E+04	8.7500E+00	-6.0165E+02	6.3259E+03	3.1229E+04
2.4094E+02	4.7867E+01	9.5757E+06	-1.5072E+04	7.7791E+04	1.2500E+00	-6.0165E+02	6.0916E+03	3.3956E+04
2.4094E+02	2.3933E+01	9.6030E+06	-1.5072E+04	7.5360E+04	1.7500E+00	-6.0165E+02	5.8573E+03	7.2747E+04
2.4094E+02	0.0000E+00	7.3435E+06	-1.5072E+04	7.2929E+04	4.2500E+00	-6.0165E+02	5.6230E+03	9.0860E+04
2.1333E+02	1.1009E+03	1.0000E+01	-1.5072E+04	7.0498E+04	1.2500E+00	-6.0165E+02	5.3888E+03	9.8288E+04
2.1333E+02	1.0770E+03	4.6334E+01	-1.5072E+04	6.8067E+04	2.2917E+00	-6.0165E+02	5.1545E+03	8.9636E+04
2.1333E+02	1.0531E+03	1.0000E+01	-1.5072E+04	6.5636E+04	1.0417E+01	-6.0165E+02	4.9202E+03	8.9145E+04
2.1333E+02	1.0291E+03	1.0000E+01	-1.5072E+04	6.3205E+04	2.7193E+00	-6.0165E+02	4.6859E+03	1.0801E+05
2.1333E+02	1.0052E+03	1.1250E+01	-1.5072E+04	6.0774E+04	1.4693E+00	-6.0165E+02	4.4516E+03	1.4571E+05
2.1333E+02	9.8127E+02	2.3993E+02	-1.5072E+04	5.8343E+04	4.6992E-01	-6.0165E+02	4.2173E+03	2.3655E+05
2.1333E+02	9.5733E+02	2.3243E+02	-1.5072E+04	5.5912E+04	1.9079E+00	-6.0165E+02	3.9830E+03	2.6571E+05
2.1333E+02	9.3340E+02	1.1956E+02	-1.5072E+04	5.3481E+04	1.0918E+01	-6.0165E+02	3.7487E+03	3.2919E+05
2.1333E+02	9.0947E+02	4.8626E+01	-1.5072E+04	5.1050E+04	3.1359E+00	-6.0165E+02	3.5144E+03	5.0636E+05
2.1333E+02	8.8553E+02	6.0070E+02	-1.5072E+04	4.8619E+04	7.4843E+00	-6.0165E+02	3.2801E+03	6.0364E+05
2.1333E+02	8.6160E+02	5.4544E+02	-1.5072E+04	4.6188E+04	1.4411E+00	-6.0165E+02	3.0458E+03	7.4186E+05
2.1333E+02	8.3767E+02	2.2300E+02	-1.5072E+04	4.3757E+04	2.5425E+02	-6.0165E+02	2.8115E+03	9.5775E+05
2.1333E+02	8.1373E+02	3.6701E+02	-1.5072E+04	4.1326E+04	3.8753E+00	-6.0165E+02	2.5772E+03	1.4846E+06

PUBLIC


DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK8983231A	DNV GL Denmark A/S CLASS T05 PAGE 21/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.1333E+02	7.8980E+02	8.0140E+02	-1.5072E+04	3.8895E+04	1.8637E+02	-6.0165E+02	2.3429E+03	2.0561E+06
2.1333E+02	7.6587E+02	4.9460E+02	-1.5072E+04	3.6464E+04	1.1350E+01	-6.0165E+02	2.1086E+03	2.5423E+06
2.1333E+02	7.4193E+02	1.1421E+03	-1.5072E+04	3.4033E+04	9.9187E+01	-6.0165E+02	1.8743E+03	3.0796E+06
2.1333E+02	7.1800E+02	2.2992E+03	-1.5072E+04	3.1603E+04	1.7950E+02	-6.0165E+02	1.6401E+03	3.7260E+06
2.1333E+02	6.9407E+02	1.1768E+03	-1.5072E+04	2.9172E+04	1.2024E+01	-6.0165E+02	1.4058E+03	4.0695E+06
2.1333E+02	6.7013E+02	1.2361E+03	-1.5072E+04	2.6741E+04	2.7639E+02	-6.0165E+02	1.1715E+03	4.9791E+06
2.1333E+02	6.4620E+02	3.3235E+03	-1.5072E+04	2.4310E+04	8.7532E+03	-6.0165E+02	9.3717E+02	4.7901E+06
2.1333E+02	6.2227E+02	3.1040E+03	-1.5072E+04	2.1879E+04	2.4382E+02	-6.0165E+02	7.0288E+02	5.6636E+06
2.1333E+02	5.9833E+02	2.8105E+03	-1.5072E+04	1.9448E+04	1.5124E+04	-6.0165E+02	4.6859E+02	6.9758E+06
2.1333E+02	5.7440E+02	7.6370E+03	-1.5072E+04	1.7017E+04	9.7193E+03	-6.0165E+02	2.3429E+02	1.3683E+07
2.1333E+02	5.5047E+02	7.4737E+03	-1.5072E+04	1.4586E+04	1.2130E+04	-6.0165E+02	0.0000E+00	2.2564E+07
2.1333E+02	5.2653E+02	5.3365E+03	-1.5072E+04	1.2155E+04	1.3678E+04	-8.7833E+02	1.0543E+04	1.0000E+01
2.1333E+02	5.0260E+02	1.8859E+04	-1.5072E+04	9.7239E+03	2.6153E+04	-8.7833E+02	1.0309E+04	1.1250E+01
2.1333E+02	4.7867E+02	2.3959E+04	-1.5072E+04	7.2929E+03	1.3798E+05	-8.7833E+02	1.0075E+04	1.0000E+01
2.1333E+02	4.5473E+02	1.8752E+04	-1.5072E+04	4.8619E+03	1.4606E+06	-8.7833E+02	9.8403E+03	8.4270E+01
2.1333E+02	4.3080E+02	3.1653E+04	-1.5072E+04	2.4310E+03	1.0917E+07	-8.7833E+02	9.6060E+03	1.0000E+01
2.1333E+02	4.0687E+02	4.0193E+04	-1.5072E+04	0.0000E+00	2.1625E+07	-8.7833E+02	9.3717E+03	2.1250E+01
2.1333E+02	3.8293E+02	5.4024E+04	-1.7592E+04	8.9946E+04	6.4166E+00	-8.7833E+02	9.1374E+03	9.7128E+01
2.1333E+02	3.5900E+02	5.8063E+04	-1.7592E+04	8.7515E+04	8.7085E+00	-8.7833E+02	8.9032E+03	1.7729E+02
2.1333E+02	3.3507E+02	1.4738E+05	-1.7592E+04	8.5084E+04	1.5208E+01	-8.7833E+02	8.6689E+03	8.4270E+01
2.1333E+02	3.1113E+02	1.0873E+05	-1.7592E+04	8.2653E+04	1.4542E+01	-8.7833E+02	8.4346E+03	2.6347E+02
2.1333E+02	2.8720E+02	1.3814E+05	-1.7592E+04	8.0222E+04	4.7500E+00	-8.7833E+02	8.2003E+03	2.7448E+02
2.1333E+02	2.6327E+02	1.9371E+05	-1.7592E+04	7.7791E+04	6.0000E+00	-8.7833E+02	7.9660E+03	1.4242E+02
2.1333E+02	2.3933E+02	2.2379E+05	-1.7592E+04	7.5360E+04	1.0708E+01	-8.7833E+02	7.7317E+03	2.9612E+03
2.1333E+02	2.1540E+02	1.7530E+05	-1.7592E+04	7.2929E+04	3.7500E+00	-8.7833E+02	7.4974E+03	2.2905E+02
2.1333E+02	1.9147E+02	2.7898E+05	-1.7592E+04	7.0498E+04	4.5208E+01	-8.7833E+02	7.2631E+03	3.1525E+03
2.1333E+02	1.6753E+02	2.7530E+05	-1.7592E+04	6.8067E+04	8.5833E+01	-8.7833E+02	7.0288E+03	3.0425E+03
2.1333E+02	1.4360E+02	5.9866E+05	-1.7592E+04	6.5636E+04	2.5000E+00	-8.7833E+02	6.7945E+03	3.2855E+03
2.1333E+02	1.1967E+02	1.4981E+06	-1.7592E+04	6.3205E+04	4.1667E+01	-8.7833E+02	6.5602E+03	7.0901E+03
2.1333E+02	9.5733E+01	3.3374E+06	-1.7592E+04	6.0774E+04	2.5000E+00	-8.7833E+02	6.3259E+03	1.6549E+04
2.1333E+02	7.1800E+01	7.0743E+06	-1.7592E+04	5.8343E+04	1.2813E+00	-8.7833E+02	6.0916E+03	1.3980E+04
2.1333E+02	4.7867E+01	9.6690E+06	-1.7592E+04	5.5912E+04	8.5055E+01	-8.7833E+02	5.8573E+03	1.2297E+04
2.1333E+02	2.3933E+01	9.5064E+06	-1.7592E+04	5.3481E+04	3.0012E+00	-8.7833E+02	5.6230E+03	1.3499E+04
2.1333E+02	0.0000E+00	5.4546E+06	-1.7592E+04	5.1050E+04	1.2500E+00	-8.7833E+02	5.3888E+03	9.1831E+03
1.8571E+02	1.1009E+03	1.0000E+01	-1.7592E+04	4.8619E+04	1.2939E+01	-8.7833E+02	5.1545E+03	3.2666E+04

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

PUBLIC

DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No DK89832314		CLASS T05	
				PAGE 22/36			

Original Instruction: T05 0050-4315 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.8571E+02	1.0531E+03	1.0000E+01	-1.7592E+04	4.6188E+04	2.5627E+00	-8.7833E+02	4.9202E+03	4.1081E+04
1.8571E+02	1.0291E+03	2.5292E+01	-1.7592E+04	4.3757E+04	3.8127E+00	-8.7833E+02	4.6859E+03	3.3101E+04
1.8571E+02	1.0052E+03	2.2917E+00	-1.7592E+04	4.1326E+04	2.9386E+00	-8.7833E+02	4.4516E+03	5.0679E+04
1.8571E+02	9.8127E+02	2.1042E+01	-1.7592E+04	3.8895E+04	3.1328E-02	-8.7833E+02	4.2173E+03	1.4712E+05
1.8571E+02	9.5733E+02	2.1250E+01	-1.7592E+04	3.6464E+04	6.2656E-02	-8.7833E+02	3.9830E+03	2.0134E+05
1.8571E+02	9.3340E+02	2.5000E+00	-1.7592E+04	3.4033E+04	1.6894E+02	-8.7833E+02	3.7487E+03	2.2828E+05
1.8571E+02	9.0947E+02	9.5418E+01	-1.7592E+04	3.1603E+04	4.8151E+00	-8.7833E+02	3.5144E+03	3.3430E+05
1.8571E+02	8.8553E+02	2.6685E+02	-1.7592E+04	2.9172E+04	1.8346E+01	-8.7833E+02	3.2801E+03	4.3745E+05
1.8571E+02	8.6160E+02	2.4042E+01	-1.7592E+04	2.6741E+04	3.4320E+02	-8.7833E+02	3.0458E+03	5.7022E+05
1.8571E+02	8.3767E+02	5.7287E+02	-1.7592E+04	2.4310E+04	3.0898E+02	-8.7833E+02	2.8115E+03	8.0020E+05
1.8571E+02	8.1373E+02	8.9335E+01	-1.7592E+04	2.1879E+04	2.2670E+02	-8.7833E+02	2.5772E+03	1.1213E+06
1.8571E+02	7.8980E+02	5.2744E+02	-1.7592E+04	1.9448E+04	1.7782E+04	-8.7833E+02	2.3429E+03	1.5491E+06
1.8571E+02	7.6587E+02	3.2222E+02	-1.7592E+04	1.7017E+04	4.3272E+03	-8.7833E+02	2.1086E+03	1.6879E+06
1.8571E+02	7.4193E+02	3.7374E+02	-1.7592E+04	1.4586E+04	3.5923E+04	-8.7833E+02	1.8743E+03	1.8914E+06
1.8571E+02	7.1800E+02	5.5833E+01	-1.7592E+04	1.2155E+04	2.9569E+04	-8.7833E+02	1.6401E+03	2.6302E+06
1.8571E+02	6.9407E+02	1.2802E+02	-1.7592E+04	9.7239E+03	5.7542E+04	-8.7833E+02	1.4058E+03	2.7342E+06
1.8571E+02	6.7013E+02	1.8302E+02	-1.7592E+04	7.2929E+03	1.4543E+05	-8.7833E+02	1.1715E+03	3.0881E+06
1.8571E+02	6.4620E+02	3.7669E+02	-1.7592E+04	4.8619E+03	1.1300E+06	-8.7833E+02	9.3717E+02	3.0694E+06
1.8571E+02	6.2227E+02	2.1194E+03	-1.7592E+04	2.4310E+03	1.0652E+07	-8.7833E+02	7.0288E+02	2.7502E+06
1.8571E+02	5.9833E+02	1.3467E+03	-1.7592E+04	0.0000E+00	1.4638E+07	-8.7833E+02	4.6859E+02	4.0923E+06
1.8571E+02	5.7440E+02	6.0250E+02	-2.0113E+04	9.9670E+04	2.9167E+00	-8.7833E+02	2.3429E+02	8.3483E+06
1.8571E+02	5.5047E+02	1.6870E+03	-2.0113E+04	9.4808E+04	2.9167E+00	-8.7833E+02	0.0000E+00	1.3786E+07
1.8571E+02	5.2653E+02	1.3079E+03	-2.0113E+04	9.2377E+04	2.9167E+00	-1.1550E+03	1.1012E+04	1.0000E+01
1.8571E+02	5.0260E+02	6.0937E+03	-2.0113E+04	8.7515E+04	1.7500E+00	-1.1550E+03	1.0778E+04	1.0000E+01
1.8571E+02	4.7867E+02	4.4058E+03	-2.0113E+04	8.2653E+04	1.7500E+00	-1.1550E+03	1.0543E+04	2.0000E+01
1.8571E+02	4.5473E+02	1.3723E+04	-2.0113E+04	8.0222E+04	5.2085E+00	-1.1550E+03	1.0309E+04	1.1250E+01
1.8571E+02	4.3080E+02	1.3555E+04	-2.0113E+04	7.7791E+04	2.0833E+00	-1.1550E+03	1.0075E+04	1.0000E+01
1.8571E+02	4.0687E+02	1.0877E+04	-2.0113E+04	7.5360E+04	5.2085E+00	-1.1550E+03	9.6060E+03	4.1667E+01
1.8571E+02	3.8293E+02	1.2530E+04	-2.0113E+04	7.2929E+04	4.7500E+00	-1.1550E+03	9.3717E+03	2.2500E+01
1.8571E+02	3.5900E+02	1.8755E+04	-2.0113E+04	7.0498E+04	1.3083E+02	-1.1550E+03	9.1374E+03	1.2500E+01
1.8571E+02	3.3507E+02	3.8442E+04	-2.0113E+04	6.8067E+04	8.8542E+01	-1.1550E+03	8.9032E+03	3.1250E+01
1.8571E+02	3.1113E+02	5.0492E+04	-2.0113E+04	6.5636E+04	4.2948E+01	-1.1550E+03	8.6689E+03	1.6754E+02
1.8571E+02	2.8720E+02	4.7608E+04	-2.0113E+04	6.3205E+04	2.2917E+00	-1.1550E+03	8.4346E+03	4.3958E+01
1.8571E+02	2.6327E+02	1.0200E+05	-2.0113E+04	6.0774E+04	4.2979E+01	-1.1550E+03	8.2003E+03	6.0000E+01
1.8571E+02	2.3933E+02	8.6356E+04	-2.0113E+04	5.8343E+04	4.4167E+01	-1.1550E+03	7.9660E+03	4.8461E+03

PUBLIC

DNV GL Denmark A/S
 Tuborg Parkvej 8, 2
 DK-2900 Hellerup
 VAT No. DK89832314

CLASS T05

DOCUMENT: 0050-4315 VER 00	DESCRIPTION: Foundation loads	PAGE 23/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.8571E+02	2.1540E+02	1.2202E+05	-2.0113E+04	5.5912E+04	8.3335E+01	-1.1550E+03	7.7317E+03	6.5417E+01
1.8571E+02	1.9147E+02	9.3838E+04	-2.0113E+04	5.1050E+04	8.4648E+01	-1.1550E+03	7.4974E+03	1.2583E+02
1.8571E+02	1.6753E+02	1.3619E+05	-2.0113E+04	4.8619E+04	1.2531E-01	-1.1550E+03	7.2631E+03	6.6288E+02
1.8571E+02	1.4360E+02	2.7854E+05	-2.0113E+04	4.6188E+04	1.3127E+00	-1.1550E+03	7.0288E+03	3.7670E+02
1.8571E+02	1.1967E+02	8.2444E+05	-2.0113E+04	4.3757E+04	4.6679E+00	-1.1550E+03	6.7945E+03	4.5478E+02
1.8571E+02	9.5733E+01	2.5015E+06	-2.0113E+04	4.1326E+04	5.0627E+00	-1.1550E+03	6.5602E+03	5.1097E+02
1.8571E+02	7.1800E+01	5.0592E+06	-2.0113E+04	3.8895E+04	2.5031E+01	-1.1550E+03	6.3259E+03	1.3730E+03
1.8571E+02	4.7867E+01	8.3102E+06	-2.0113E+04	3.6464E+04	1.8673E+02	-1.1550E+03	6.0916E+03	1.9435E+03
1.8571E+02	2.3933E+01	9.2251E+06	-2.0113E+04	3.4033E+04	3.2216E+01	-1.1550E+03	5.8573E+03	3.0206E+03
1.8571E+02	0.0000E+00	5.6050E+06	-2.0113E+04	3.1603E+04	2.0833E+00	-1.1550E+03	5.6230E+03	9.6404E+02
1.5810E+02	1.1488E+03	1.2500E+00	-2.0113E+04	2.9172E+04	2.4401E+02	-1.1550E+03	5.3888E+03	6.2107E+03
1.5810E+02	1.0770E+03	1.2500E+00	-2.0113E+04	2.6741E+04	1.9500E+02	-1.1550E+03	5.1545E+03	1.9762E+04
1.5810E+02	1.0531E+03	1.2500E+00	-2.0113E+04	2.4310E+04	9.4246E+03	-1.1550E+03	4.9202E+03	6.2613E+03
1.5810E+02	1.0291E+03	5.9166E+00	-2.0113E+04	2.1879E+04	3.9720E+02	-1.1550E+03	4.6859E+03	3.6135E+04
1.5810E+02	1.0052E+03	1.1042E+01	-2.0113E+04	1.9448E+04	1.9219E+04	-1.1550E+03	4.4516E+03	2.2389E+04
1.5810E+02	9.8127E+02	3.0000E+00	-2.0113E+04	1.7017E+04	4.9473E+03	-1.1550E+03	4.2173E+03	3.3517E+04
1.5810E+02	9.5733E+02	7.5833E+00	-2.0113E+04	1.4586E+04	2.2919E+04	-1.1550E+03	3.9830E+03	1.0026E+05
1.5810E+02	9.3340E+02	1.5000E+01	-2.0113E+04	1.2155E+04	7.2868E+04	-1.1550E+03	3.7487E+03	8.6712E+04
1.5810E+02	9.0947E+02	9.3749E+00	-2.0113E+04	9.7239E+03	1.1813E+05	-1.1550E+03	3.5144E+03	1.4251E+05
1.5810E+02	8.8553E+02	1.1708E+01	-2.0113E+04	7.2929E+03	2.4681E+05	-1.1550E+03	3.2801E+03	1.9849E+05
1.5810E+02	8.6160E+02	8.9479E+01	-2.0113E+04	4.8619E+03	1.1363E+06	-1.1550E+03	3.0458E+03	2.9887E+05
1.5810E+02	8.3767E+02	9.9585E+00	-2.0113E+04	2.4310E+03	8.4911E+06	-1.1550E+03	2.8115E+03	4.3602E+05
1.5810E+02	8.1373E+02	8.6127E+01	-2.0113E+04	0.0000E+00	9.7547E+06	-1.1550E+03	2.5772E+03	5.7760E+05
1.5810E+02	7.8980E+02	1.2958E+01	-2.2634E+04	8.5084E+04	1.7500E+00	-1.1550E+03	2.3429E+03	7.7024E+05
1.5810E+02	7.6587E+02	1.2500E+00	-2.2634E+04	8.2653E+04	1.7500E+00	-1.1550E+03	2.1086E+03	9.0830E+05
1.5810E+02	7.4193E+02	1.1364E+03	-2.2634E+04	7.7791E+04	2.6250E+01	-1.1550E+03	1.8743E+03	1.3726E+06
1.5810E+02	7.1800E+02	6.6666E+00	-2.2634E+04	7.5360E+04	5.6875E+01	-1.1550E+03	1.6401E+03	1.5660E+06
1.5810E+02	6.9407E+02	9.1335E+01	-2.2634E+04	7.2929E+04	9.3417E+01	-1.1550E+03	1.4058E+03	1.3636E+06
1.5810E+02	6.7013E+02	5.3552E+01	-2.2634E+04	7.0498E+04	1.2292E+01	-1.1550E+03	1.1715E+03	1.6354E+06
1.5810E+02	6.4620E+02	1.7355E+02	-2.2634E+04	6.8067E+04	1.3729E+02	-1.1550E+03	9.3717E+02	1.7438E+06
1.5810E+02	6.2227E+02	3.5417E+01	-2.2634E+04	6.5636E+04	1.9167E+02	-1.1550E+03	7.0288E+02	1.5342E+06
1.5810E+02	5.9833E+02	1.3743E+03	-2.2634E+04	6.3205E+04	1.7467E+02	-1.1550E+03	4.6859E+02	2.3524E+06
1.5810E+02	5.7440E+02	7.2983E+02	-2.2634E+04	6.0774E+04	1.3604E+02	-1.1550E+03	2.3429E+02	5.5343E+06
1.5810E+02	5.5047E+02	8.2028E+02	-2.2634E+04	5.8343E+04	6.3741E+01	-1.1550E+03	0.0000E+00	8.5141E+06
1.5810E+02	5.2653E+02	1.6405E+03	-2.2634E+04	5.5912E+04	1.6896E+02	-1.4317E+03	9.3717E+03	1.0000E+01

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05		PAGE 24/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.5810E+02	5.0260E+02	2.6725E+02	-2.2634E+04	5.3481E+04	2.9042E+01	-1.4317E+03	9.1374E+03	1.2500E+01
1.5810E+02	4.7867E+02	2.9866E+03	-2.2634E+04	5.1050E+04	4.5833E+00	-1.4317E+03	8.6689E+03	1.2500E+01
1.5810E+02	4.5473E+02	3.7072E+03	-2.2634E+04	4.8619E+04	2.8071E+02	-1.4317E+03	8.2003E+03	9.3335E+01
1.5810E+02	4.3080E+02	6.9756E+03	-2.2634E+04	4.6188E+04	1.8069E+02	-1.4317E+03	7.9660E+03	2.0000E+01
1.5810E+02	4.0687E+02	6.0741E+03	-2.2634E+04	4.3757E+04	1.7104E+02	-1.4317E+03	7.7317E+03	1.0583E+02
1.5810E+02	3.8293E+02	6.9561E+03	-2.2634E+04	4.1326E+04	4.3667E+02	-1.4317E+03	7.2631E+03	2.1788E+02
1.5810E+02	3.5900E+02	1.1642E+04	-2.2634E+04	3.8895E+04	5.8951E+02	-1.4317E+03	7.0288E+03	1.7729E+02
1.5810E+02	3.3507E+02	1.6615E+04	-2.2634E+04	3.6464E+04	9.0574E+03	-1.4317E+03	6.7945E+03	1.0417E+00
1.5810E+02	3.1113E+02	1.0979E+04	-2.2634E+04	3.4033E+04	8.7671E+03	-1.4317E+03	6.5602E+03	1.1250E+01
1.5810E+02	2.8720E+02	1.2525E+04	-2.2634E+04	3.1603E+04	4.6208E+02	-1.4317E+03	6.3259E+03	4.6458E+01
1.5810E+02	2.6327E+02	1.2878E+04	-2.2634E+04	2.9172E+04	9.3158E+03	-1.4317E+03	6.0916E+03	1.4802E+02
1.5810E+02	2.3933E+02	3.1439E+04	-2.2634E+04	2.6741E+04	1.7766E+04	-1.4317E+03	5.8573E+03	2.6974E+03
1.5810E+02	2.1540E+02	3.1395E+04	-2.2634E+04	2.4310E+04	8.9326E+03	-1.4317E+03	5.6230E+03	1.1838E+02
1.5810E+02	1.9147E+02	3.8840E+04	-2.2634E+04	2.1879E+04	6.2345E+04	-1.4317E+03	5.3888E+03	3.8843E+02
1.5810E+02	1.6753E+02	4.4827E+04	-2.2634E+04	1.9448E+04	3.8139E+04	-1.4317E+03	5.1545E+03	1.2540E+03
1.5810E+02	1.4360E+02	5.5903E+04	-2.2634E+04	1.7017E+04	4.5428E+04	-1.4317E+03	4.9202E+03	6.3148E+03
1.5810E+02	1.1967E+02	4.2972E+05	-2.2634E+04	1.4586E+04	3.8447E+04	-1.4317E+03	4.6859E+03	2.9448E+03
1.5810E+02	9.5733E+01	1.4586E+06	-2.2634E+04	1.2155E+04	1.1396E+05	-1.4317E+03	4.4516E+03	8.1564E+03
1.5810E+02	7.1800E+01	4.6853E+06	-2.2634E+04	9.7239E+03	1.6271E+05	-1.4317E+03	4.2173E+03	2.1098E+04
1.5810E+02	4.7867E+01	9.7853E+06	-2.2634E+04	7.2929E+03	4.8763E+05	-1.4317E+03	3.9830E+03	1.4996E+04
1.5810E+02	2.3933E+01	1.2952E+07	-2.2634E+04	4.8619E+03	2.5562E+06	-1.4317E+03	3.7487E+03	1.9691E+04
1.5810E+02	0.0000E+00	7.4278E+06	-2.2634E+04	2.4310E+03	1.1228E+07	-1.4317E+03	3.5144E+03	4.4449E+04
1.3048E+02	1.0291E+03	3.0000E+00	-2.2634E+04	0.0000E+00	1.1276E+07	-1.4317E+03	3.2801E+03	8.1050E+04
1.3048E+02	1.0052E+03	5.9166E+00	-2.5155E+04	8.2653E+04	2.0000E+01	-1.4317E+03	3.0458E+03	1.2508E+05
1.3048E+02	9.8127E+02	4.6666E+00	-2.5155E+04	7.7791E+04	1.5208E+01	-1.4317E+03	2.8115E+03	1.8370E+05
1.3048E+02	9.5733E+02	5.9166E+00	-2.5155E+04	7.2929E+04	3.0000E+01	-1.4317E+03	2.5772E+03	2.3488E+05
1.3048E+02	9.3340E+02	2.9167E+00	-2.5155E+04	7.0498E+04	6.1667E+01	-1.4317E+03	2.3429E+03	3.5114E+05
1.3048E+02	9.0947E+02	1.7500E+00	-2.5155E+04	6.8067E+04	1.1071E+02	-1.4317E+03	2.1086E+03	5.0405E+05
1.3048E+02	8.8553E+02	8.1666E+00	-2.5155E+04	6.5636E+04	1.8979E+02	-1.4317E+03	1.8743E+03	7.7738E+05
1.3048E+02	8.6160E+02	1.5208E+01	-2.5155E+04	6.3205E+04	1.6185E+02	-1.4317E+03	1.6401E+03	5.6332E+05
1.3048E+02	8.3767E+02	7.0000E+00	-2.5155E+04	6.0774E+04	4.1951E+02	-1.4317E+03	1.4058E+03	7.1528E+05
1.3048E+02	8.1373E+02	5.2500E+00	-2.5155E+04	5.8343E+04	5.6864E+02	-1.4317E+03	1.1715E+03	7.0618E+05
1.3048E+02	7.8980E+02	5.2500E+00	-2.5155E+04	5.5912E+04	1.8796E+02	-1.4317E+03	9.3717E+02	6.5966E+05
1.3048E+02	7.6587E+02	5.2085E+00	-2.5155E+04	5.3481E+04	8.2595E+02	-1.4317E+03	7.0288E+02	8.2937E+05
1.3048E+02	7.4193E+02	2.3500E+01	-2.5155E+04	5.1050E+04	7.4433E+02	-1.4317E+03	4.6859E+02	1.2124E+06

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

PUBLIC

DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05 PAGE 25/36	
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.3048E+02	7.1800E+02	1.0417E+01	-2.5155E+04	4.8619E+04	1.7595E+03	-1.4317E+03	2.3429E+02	2.6692E+06
1.3048E+02	6.9407E+02	4.5417E+01	-2.5155E+04	4.6188E+04	9.8942E+02	-1.4317E+03	0.0000E+00	4.2281E+06
1.3048E+02	6.7013E+02	1.8334E+02	-2.5155E+04	4.3757E+04	1.9310E+03	-1.7084E+03	1.0309E+04	1.2500E+00
1.3048E+02	6.4620E+02	3.3333E+00	-2.5155E+04	4.1326E+04	1.0674E+04	-1.7084E+03	9.3717E+03	1.0000E+01
1.3048E+02	6.2227E+02	4.6250E+01	-2.5155E+04	3.8895E+04	3.5885E+03	-1.7084E+03	9.1374E+03	1.2500E+00
1.3048E+02	5.9833E+02	1.3659E+02	-2.5155E+04	3.6464E+04	2.7720E+04	-1.7084E+03	8.9032E+03	1.0000E+01
1.3048E+02	5.7440E+02	2.2517E+02	-2.5155E+04	3.4033E+04	6.7840E+03	-1.7084E+03	8.2003E+03	5.1835E+01
1.3048E+02	5.5047E+02	2.8271E+02	-2.5155E+04	3.1603E+04	2.4163E+04	-1.7084E+03	7.9660E+03	4.5292E+01
1.3048E+02	5.2653E+02	5.2074E+02	-2.5155E+04	2.9172E+04	4.7360E+03	-1.7084E+03	7.7317E+03	1.1250E+01
1.3048E+02	5.0260E+02	9.0182E+02	-2.5155E+04	2.6741E+04	1.4201E+04	-1.7084E+03	7.2631E+03	8.4270E+01
1.3048E+02	4.7867E+02	3.2055E+02	-2.5155E+04	2.4310E+04	9.0116E+03	-1.7084E+03	6.5602E+03	2.4906E+02
1.3048E+02	4.5473E+02	8.2777E+02	-2.5155E+04	2.1879E+04	1.3857E+04	-1.7084E+03	6.3259E+03	2.4792E+01
1.3048E+02	4.3080E+02	1.1218E+03	-2.5155E+04	1.9448E+04	3.3840E+04	-1.7084E+03	6.0916E+03	4.7376E+01
1.3048E+02	4.0687E+02	3.4036E+03	-2.5155E+04	1.7017E+04	3.2845E+04	-1.7084E+03	5.8573E+03	2.3750E+01
1.3048E+02	3.8293E+02	2.9923E+03	-2.5155E+04	1.4586E+04	9.4307E+04	-1.7084E+03	5.6230E+03	5.5585E+01
1.3048E+02	3.5900E+02	2.1858E+03	-2.5155E+04	1.2155E+04	1.8185E+05	-1.7084E+03	5.3888E+03	7.0295E+02
1.3048E+02	3.3507E+02	3.4418E+03	-2.5155E+04	9.7239E+03	3.8039E+05	-1.7084E+03	5.1545E+03	5.8750E+01
1.3048E+02	3.1113E+02	2.9017E+03	-2.5155E+04	7.2929E+03	9.3355E+05	-1.7084E+03	4.9202E+03	9.6347E+02
1.3048E+02	2.8720E+02	9.7138E+03	-2.5155E+04	4.8619E+03	2.7702E+06	-1.7084E+03	4.6859E+03	1.3961E+03
1.3048E+02	2.6327E+02	1.5413E+04	-2.5155E+04	2.4310E+03	1.1262E+07	-1.7084E+03	4.4516E+03	2.1574E+03
1.3048E+02	2.3933E+02	1.6111E+04	-2.5155E+04	0.0000E+00	1.1026E+07	-1.7084E+03	4.2173E+03	1.3704E+03
1.3048E+02	2.1540E+02	4.3766E+04	-2.7676E+04	8.5084E+04	2.0000E+01	-1.7084E+03	3.9830E+03	1.7788E+03
1.3048E+02	1.9147E+02	3.6769E+04	-2.7676E+04	8.2653E+04	1.0000E+01	-1.7084E+03	3.7487E+03	1.0576E+04
1.3048E+02	1.6753E+02	2.6680E+04	-2.7676E+04	7.7791E+04	1.0000E+01	-1.7084E+03	3.5144E+03	2.1527E+04
1.3048E+02	1.4360E+02	7.0207E+04	-2.7676E+04	7.0498E+04	5.0000E+01	-1.7084E+03	3.2801E+03	3.4811E+04
1.3048E+02	1.1967E+02	2.0293E+05	-2.7676E+04	6.8067E+04	1.5588E+02	-1.7084E+03	3.0458E+03	7.1197E+04
1.3048E+02	9.5733E+01	1.1638E+06	-2.7676E+04	6.5636E+04	2.6334E+01	-1.7084E+03	2.8115E+03	7.0298E+04
1.3048E+02	7.1800E+01	4.3871E+06	-2.7676E+04	6.3205E+04	5.0850E+02	-1.7084E+03	2.5772E+03	8.6987E+04
1.3048E+02	4.7867E+01	1.2163E+07	-2.7676E+04	6.0774E+04	3.0675E+02	-1.7084E+03	2.3429E+03	1.7431E+05
1.3048E+02	2.3933E+01	2.0894E+07	-2.7676E+04	5.8343E+04	5.9829E+02	-1.7084E+03	2.1086E+03	1.9935E+05
1.3048E+02	0.0000E+00	1.2132E+07	-2.7676E+04	5.5912E+04	1.2669E+03	-1.7084E+03	1.8743E+03	2.4809E+05
1.0287E+02	1.1249E+03	1.7500E+00	-2.7676E+04	5.3481E+04	2.0673E+03	-1.7084E+03	1.6401E+03	3.1844E+05
1.0287E+02	1.1009E+03	5.2085E+00	-2.7676E+04	5.1050E+04	2.3450E+03	-1.7084E+03	1.4058E+03	2.2416E+05
1.0287E+02	1.0531E+03	5.2085E+00	-2.7676E+04	4.8619E+04	2.7780E+03	-1.7084E+03	1.1715E+03	2.9866E+05
1.0287E+02	1.0291E+03	1.2500E+00	-2.7676E+04	4.6188E+04	1.3972E+04	-1.7084E+03	9.3717E+02	2.8264E+05

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS


DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK90932314		CLASS T05 PAGE 26/38	
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Original Instruction: T05 0050-4315 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.0287E+02	1.0052E+03	9.9999E+00	-2.7676E+04	4.3757E+04	6.3055E+03	-1.7084E+03	7.0288E+02	2.6446E+05
1.0287E+02	9.8127E+02	6.4166E+00	-2.7676E+04	4.1326E+04	1.3574E+04	-1.7084E+03	4.6859E+02	5.4513E+05
1.0287E+02	9.5733E+02	1.2500E+00	-2.7676E+04	3.8895E+04	1.6210E+04	-1.7084E+03	2.3429E+02	1.1285E+06
1.0287E+02	9.3340E+02	1.7500E+00	-2.7676E+04	3.6464E+04	2.9826E+04	-1.7084E+03	0.0000E+00	2.5194E+06
1.0287E+02	8.8553E+02	1.2958E+01	-2.7676E+04	3.4033E+04	5.0240E+04	-1.9851E+03	1.1012E+04	1.2500E+00
1.0287E+02	8.6160E+02	7.0000E+00	-2.7676E+04	3.1603E+04	2.7215E+04	-1.9851E+03	9.6060E+03	1.2500E+00
1.0287E+02	8.3767E+02	3.5000E+00	-2.7676E+04	2.9172E+04	4.2489E+04	-1.9851E+03	9.3717E+03	1.0000E+01
1.0287E+02	8.1373E+02	3.5000E+00	-2.7676E+04	2.6741E+04	5.8314E+04	-1.9851E+03	7.2631E+03	1.2500E+00
1.0287E+02	7.8980E+02	1.7500E+00	-2.7676E+04	2.4310E+04	4.0572E+04	-1.9851E+03	7.0288E+03	1.2500E+00
1.0287E+02	7.6587E+02	3.3333E+00	-2.7676E+04	2.1879E+04	5.4549E+04	-1.9851E+03	6.3259E+03	4.7916E+00
1.0287E+02	7.4193E+02	2.5000E+00	-2.7676E+04	1.9448E+04	6.0412E+04	-1.9851E+03	6.0916E+03	1.2500E+00
1.0287E+02	7.1800E+02	6.7500E+00	-2.7676E+04	1.7017E+04	1.4020E+05	-1.9851E+03	5.8573E+03	2.5000E+00
1.0287E+02	6.9407E+02	2.6667E+01	-2.7676E+04	1.4586E+04	2.4008E+05	-1.9851E+03	5.6230E+03	2.3668E+02
1.0287E+02	6.7013E+02	4.6111E+02	-2.7676E+04	1.2155E+04	3.2265E+05	-1.9851E+03	5.3888E+03	5.0000E+00
1.0287E+02	6.4620E+02	7.5000E+00	-2.7676E+04	9.7239E+03	6.5662E+05	-1.9851E+03	5.1545E+03	2.5000E+00
1.0287E+02	6.2227E+02	6.2499E+00	-2.7676E+04	7.2929E+03	1.4557E+06	-1.9851E+03	4.9202E+03	5.2335E+01
1.0287E+02	5.9833E+02	9.0002E+01	-2.7676E+04	4.8619E+03	3.8549E+06	-1.9851E+03	4.6859E+03	1.7267E+03
1.0287E+02	5.7440E+02	8.3335E+01	-2.7676E+04	2.4310E+03	1.2170E+07	-1.9851E+03	4.4516E+03	7.8740E+02
1.0287E+02	5.5047E+02	1.1667E+01	-2.7676E+04	0.0000E+00	1.2377E+07	-1.9851E+03	4.2173E+03	1.0325E+03
1.0287E+02	5.2653E+02	2.0687E+02	-3.0197E+04	8.7515E+04	2.9167E+00	-1.9851E+03	3.9830E+03	1.2121E+02
1.0287E+02	5.0260E+02	2.5559E+02	-3.0197E+04	7.5360E+04	2.1250E+01	-1.9851E+03	3.7487E+03	6.2232E+02
1.0287E+02	4.7867E+02	3.0230E+02	-3.0197E+04	7.2929E+04	2.0000E+01	-1.9851E+03	3.5144E+03	6.7698E+03
1.0287E+02	4.5473E+02	1.9468E+02	-3.0197E+04	7.0498E+04	3.0000E+01	-1.9851E+03	3.2801E+03	1.6522E+04
1.0287E+02	4.3080E+02	5.6778E+02	-3.0197E+04	6.8067E+04	7.4900E+02	-1.9851E+03	3.0458E+03	2.2573E+04
1.0287E+02	4.0687E+02	1.2534E+03	-3.0197E+04	6.5636E+04	7.0585E+01	-1.9851E+03	2.8115E+03	2.5220E+04
1.0287E+02	3.8293E+02	9.0200E+02	-3.0197E+04	6.3205E+04	4.5836E+02	-1.9851E+03	2.5772E+03	2.1342E+04
1.0287E+02	3.5900E+02	3.0515E+03	-3.0197E+04	6.0774E+04	3.1721E+02	-1.9851E+03	2.3429E+03	3.5065E+04
1.0287E+02	3.3507E+02	1.9793E+03	-3.0197E+04	5.8343E+04	3.0225E+02	-1.9851E+03	2.1086E+03	7.4593E+04
1.0287E+02	3.1113E+02	2.5298E+03	-3.0197E+04	5.5912E+04	8.7559E+02	-1.9851E+03	1.8743E+03	1.1859E+05
1.0287E+02	2.8720E+02	2.9670E+03	-3.0197E+04	5.3481E+04	1.3907E+03	-1.9851E+03	1.6401E+03	1.3534E+05
1.0287E+02	2.6327E+02	5.5277E+03	-3.0197E+04	5.1050E+04	5.0776E+03	-1.9851E+03	1.4058E+03	8.6264E+04
1.0287E+02	2.3933E+02	4.6021E+03	-3.0197E+04	4.8619E+04	5.0779E+03	-1.9851E+03	1.1715E+03	9.4448E+04
1.0287E+02	2.1540E+02	1.1968E+04	-3.0197E+04	4.6188E+04	1.1369E+04	-1.9851E+03	9.3717E+02	7.7419E+04
1.0287E+02	1.9147E+02	5.7571E+04	-3.0197E+04	4.3757E+04	9.7205E+03	-1.9851E+03	7.0288E+02	1.1553E+05
1.0287E+02	1.6753E+02	5.6202E+04	-3.0197E+04	4.1326E+04	1.7624E+04	-1.9851E+03	4.6859E+02	2.4809E+05

PUBLIC


DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads	 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 27/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.0287E+02	1.4360E+02	3.5256E+04	-3.0197E+04	3.8895E+04	3.2371E+04	-1.9851E+03	2.3429E+02	5.7947E+05
1.0287E+02	1.1967E+02	5.5268E+04	-3.0197E+04	3.6464E+04	2.6557E+04	-1.9851E+03	0.0000E+00	9.9650E+05
1.0287E+02	9.5733E+01	6.9698E+05	-3.0197E+04	3.4033E+04	3.7548E+04	-2.2618E+03	1.1012E+04	1.2500E+00
1.0287E+02	7.1800E+01	3.2123E+06	-3.0197E+04	3.1603E+04	6.3804E+04	-2.2618E+03	1.0075E+04	1.2500E+00
1.0287E+02	4.7867E+01	1.3143E+07	-3.0197E+04	2.9172E+04	7.8372E+04	-2.2618E+03	9.1374E+03	4.1667E+01
1.0287E+02	2.3933E+01	2.7126E+07	-3.0197E+04	2.6741E+04	9.0360E+04	-2.2618E+03	7.4974E+03	1.2500E+00
1.0287E+02	0.0000E+00	1.6948E+07	-3.0197E+04	2.4310E+04	1.1081E+05	-2.2618E+03	7.0288E+03	2.5000E+00
7.5252E+01	1.0531E+03	2.9167E+00	-3.0197E+04	2.1879E+04	1.2419E+05	-2.2618E+03	6.7945E+03	1.2500E+00
7.5252E+01	1.0291E+03	2.9167E+00	-3.0197E+04	1.9448E+04	1.5742E+05	-2.2618E+03	6.5602E+03	3.7500E+00
7.5252E+01	1.0052E+03	3.0000E+00	-3.0197E+04	1.7017E+04	2.1233E+05	-2.2618E+03	6.3259E+03	4.5417E+01
7.5252E+01	9.8127E+02	5.2085E+00	-3.0197E+04	1.4586E+04	3.2118E+05	-2.2618E+03	6.0916E+03	4.2917E+01
7.5252E+01	9.5733E+02	1.7500E+00	-3.0197E+04	1.2155E+04	5.6912E+05	-2.2618E+03	5.8573E+03	4.1666E+00
7.5252E+01	9.3340E+02	4.7500E+00	-3.0197E+04	9.7239E+03	1.1656E+06	-2.2618E+03	5.6230E+03	3.0000E+00
7.5252E+01	8.8553E+02	5.2500E+00	-3.0197E+04	7.2929E+03	2.1204E+06	-2.2618E+03	5.3888E+03	2.0000E+01
7.5252E+01	8.6160E+02	1.2500E+00	-3.0197E+04	4.8619E+03	4.7619E+06	-2.2618E+03	4.9202E+03	2.5000E+00
7.5252E+01	8.3767E+02	3.0000E+00	-3.0197E+04	2.4310E+03	1.2553E+07	-2.2618E+03	4.6859E+03	1.7500E+00
7.5252E+01	7.6587E+02	2.5000E+00	-3.0197E+04	0.0000E+00	1.2615E+07	-2.2618E+03	4.4516E+03	4.2500E+01
7.5252E+01	6.4620E+02	3.0000E+00	-3.2717E+04	7.2929E+04	1.0000E+01	-2.2618E+03	4.2173E+03	7.9173E+02
7.5252E+01	6.2227E+02	6.2500E+00	-3.2717E+04	7.0498E+04	1.0000E+01	-2.2618E+03	3.9830E+03	4.6875E+01
7.5252E+01	5.9833E+02	5.4166E+00	-3.2717E+04	6.8067E+04	1.1250E+01	-2.2618E+03	3.7487E+03	1.3825E+02
7.5252E+01	5.7440E+02	4.6667E+01	-3.2717E+04	6.3205E+04	2.0000E+01	-2.2618E+03	3.5144E+03	2.0110E+03
7.5252E+01	5.5047E+02	1.2083E+01	-3.2717E+04	6.0774E+04	4.8515E+02	-2.2618E+03	3.2801E+03	1.4905E+03
7.5252E+01	5.2653E+02	6.5000E+01	-3.2717E+04	5.8343E+04	1.0417E+00	-2.2618E+03	3.0458E+03	3.0031E+03
7.5252E+01	5.0260E+02	1.4333E+01	-3.2717E+04	5.5912E+04	8.8302E+02	-2.2618E+03	2.8115E+03	4.3531E+03
7.5252E+01	4.7867E+02	6.9335E+01	-3.2717E+04	5.3481E+04	3.4399E+02	-2.2618E+03	2.5772E+03	3.3776E+03
7.5252E+01	4.5473E+02	3.5000E+01	-3.2717E+04	5.1050E+04	2.9552E+03	-2.2618E+03	2.3429E+03	1.1250E+04
7.5252E+01	4.3080E+02	1.3583E+02	-3.2717E+04	4.8619E+04	7.1462E+03	-2.2618E+03	2.1086E+03	1.3105E+04
7.5252E+01	4.0687E+02	9.8750E+01	-3.2717E+04	4.6188E+04	4.2124E+03	-2.2618E+03	1.8743E+03	5.5841E+04
7.5252E+01	3.8293E+02	1.0927E+03	-3.2717E+04	4.3757E+04	1.8655E+04	-2.2618E+03	1.6401E+03	3.5892E+04
7.5252E+01	3.5900E+02	3.6450E+02	-3.2717E+04	4.1326E+04	2.2058E+04	-2.2618E+03	1.4058E+03	2.4180E+04
7.5252E+01	3.3507E+02	8.5073E+02	-3.2717E+04	3.8895E+04	1.7672E+04	-2.2618E+03	1.1715E+03	2.7357E+04
7.5252E+01	3.1113E+02	1.8807E+03	-3.2717E+04	3.6464E+04	2.2851E+04	-2.2618E+03	9.3717E+02	5.1955E+04
7.5252E+01	2.8720E+02	4.0342E+02	-3.2717E+04	3.4033E+04	4.7033E+04	-2.2618E+03	7.0288E+02	7.0142E+04
7.5252E+01	2.6327E+02	1.7446E+03	-3.2717E+04	3.1603E+04	5.0029E+04	-2.2618E+03	4.6859E+02	1.1475E+05
7.5252E+01	2.3933E+02	2.0275E+03	-3.2717E+04	2.9172E+04	8.9756E+04	-2.2618E+03	2.3429E+02	2.0249E+05

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-09-24 by PRAVS

PUBLIC

DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05	
						PAGE 28/36	

Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
7.5252E+01	2.1540E+02	3.0399E+03	-3.2717E+04	2.6741E+04	1.1519E+05	-2.2618E+03	0.0000E+00	4.9487E+05
7.5252E+01	1.9147E+02	9.1714E+03	-3.2717E+04	2.4310E+04	1.2317E+05	-2.5385E+03	8.2003E+03	1.2500E+00
7.5252E+01	1.6753E+02	1.9368E+04	-3.2717E+04	2.1879E+04	1.7998E+05	-2.5385E+03	7.4974E+03	1.2500E+00
7.5252E+01	1.4360E+02	3.1438E+04	-3.2717E+04	1.9448E+04	2.0749E+05	-2.5385E+03	7.2631E+03	4.1667E+01
7.5252E+01	1.1967E+02	7.1806E+04	-3.2717E+04	1.7017E+04	2.5552E+05	-2.5385E+03	6.7945E+03	3.7500E+00
7.5252E+01	9.5733E+01	2.1703E+05	-3.2717E+04	1.4586E+04	3.8254E+05	-2.5385E+03	6.5602E+03	1.2500E+00
7.5252E+01	7.1800E+01	2.1223E+06	-3.2717E+04	1.2155E+04	7.6872E+05	-2.5385E+03	6.0916E+03	5.0585E+01
7.5252E+01	4.7867E+01	9.1060E+06	-3.2717E+04	9.7239E+03	1.3790E+06	-2.5385E+03	5.8573E+03	2.5000E+00
7.5252E+01	2.3933E+01	2.4476E+07	-3.2717E+04	7.2929E+03	2.9300E+06	-2.5385E+03	5.3888E+03	2.0833E+00
7.5252E+01	0.0000E+00	1.5931E+07	-3.2717E+04	4.8619E+03	5.9697E+06	-2.5385E+03	5.1545E+03	2.0000E+01
4.7637E+01	1.1488E+03	5.2085E+00	-3.2717E+04	2.4310E+03	1.3234E+07	-2.5385E+03	4.9202E+03	2.7500E+01
4.7637E+01	1.1249E+03	5.8333E+00	-3.2717E+04	0.0000E+00	1.1995E+07	-2.5385E+03	4.4516E+03	1.9167E+02
4.7637E+01	1.0052E+03	5.2085E+00	-3.5238E+04	7.0498E+04	1.0000E+01	-2.5385E+03	4.2173E+03	5.2668E+01
4.7637E+01	9.3340E+02	1.2500E+00	-3.5238E+04	5.8343E+04	6.4997E+02	-2.5385E+03	3.9830E+03	2.5000E+01
4.7637E+01	8.8553E+02	1.7500E+00	-3.5238E+04	5.5912E+04	4.2920E+03	-2.5385E+03	3.7487E+03	3.3913E+02
4.7637E+01	8.6160E+02	1.2500E+00	-3.5238E+04	5.3481E+04	1.4816E+03	-2.5385E+03	3.5144E+03	5.8000E+01
4.7637E+01	8.3767E+02	2.5000E+00	-3.5238E+04	5.1050E+04	1.0501E+04	-2.5385E+03	3.2801E+03	1.4642E+02
4.7637E+01	7.4193E+02	2.9167E+00	-3.5238E+04	4.8619E+04	2.4834E+03	-2.5385E+03	3.0458E+03	4.9380E+03
4.7637E+01	7.1800E+02	2.5000E+00	-3.5238E+04	4.6188E+04	5.9954E+03	-2.5385E+03	2.8115E+03	2.5379E+03
4.7637E+01	6.9407E+02	1.2500E+00	-3.5238E+04	4.3757E+04	1.0350E+04	-2.5385E+03	2.5772E+03	2.7129E+02
4.7637E+01	6.7013E+02	4.1666E+00	-3.5238E+04	4.1326E+04	2.2420E+04	-2.5385E+03	2.3429E+03	3.7333E+03
4.7637E+01	6.4620E+02	2.5000E+00	-3.5238E+04	3.8895E+04	2.0032E+04	-2.5385E+03	2.1086E+03	1.9359E+03
4.7637E+01	6.2227E+02	1.2500E+00	-3.5238E+04	3.6464E+04	2.7103E+04	-2.5385E+03	1.8743E+03	1.6037E+03
4.7637E+01	5.9833E+02	2.5000E+00	-3.5238E+04	3.4033E+04	1.6827E+04	-2.5385E+03	1.6401E+03	3.5491E+03
4.7637E+01	5.7440E+02	7.2335E+01	-3.5238E+04	3.1603E+04	7.8679E+04	-2.5385E+03	1.4058E+03	5.4035E+03
4.7637E+01	5.5047E+02	5.0000E+00	-3.5238E+04	2.9172E+04	6.8036E+04	-2.5385E+03	1.1715E+03	1.0556E+04
4.7637E+01	5.2653E+02	7.9166E+00	-3.5238E+04	2.6741E+04	9.0936E+04	-2.5385E+03	9.3717E+02	1.9776E+04
4.7637E+01	5.0260E+02	6.7917E+01	-3.5238E+04	2.4310E+04	1.3195E+05	-2.5385E+03	7.0288E+02	1.8248E+04
4.7637E+01	4.7867E+02	6.0668E+01	-3.5238E+04	2.1879E+04	1.9909E+05	-2.5385E+03	4.6859E+02	3.8147E+04
4.7637E+01	4.5473E+02	4.8417E+01	-3.5238E+04	1.9448E+04	2.6277E+05	-2.5385E+03	2.3429E+02	1.1340E+05
4.7637E+01	4.3080E+02	1.7750E+02	-3.5238E+04	1.7017E+04	3.4597E+05	-2.5385E+03	0.0000E+00	2.6848E+05
4.7637E+01	4.0687E+02	6.6002E+01	-3.5238E+04	1.4586E+04	4.9835E+05	-2.8152E+03	8.9032E+03	1.2500E+00
4.7637E+01	3.8293E+02	7.9917E+01	-3.5238E+04	1.2155E+04	8.4915E+05	-2.8152E+03	7.7317E+03	1.2500E+00
4.7637E+01	3.5900E+02	1.4700E+02	-3.5238E+04	9.7239E+03	1.5752E+06	-2.8152E+03	7.4974E+03	1.2500E+00
4.7637E+01	3.3507E+02	7.9626E+01	-3.5238E+04	7.2929E+03	3.4027E+06	-2.8152E+03	7.0288E+03	2.0000E+01

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

PUBLIC

DNV GL Denmark A/S
 Tuborg Parkvej 6, 2
 DK-2900 Hellerup
 VAT No. DK89832314

CLASS T05

DOCUMENT: 0050-4315 VER 00	DESCRIPTION: Foundation loads	PAGE 29/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
4.7637E+01	3.1113E+02	5.1000E+01	-3.5238E+04	4.8619E+03	6.8628E+06	-2.8152E+03	5.6230E+03	1.0000E+01
4.7637E+01	2.8720E+02	2.6059E+02	-3.5238E+04	2.4310E+03	1.3231E+07	-2.8152E+03	5.3888E+03	1.0000E+01
4.7637E+01	2.6327E+02	6.4417E+01	-3.5238E+04	0.0000E+00	1.0534E+07	-2.8152E+03	4.6859E+03	4.7916E+00
4.7637E+01	2.3933E+02	4.1992E+03	-3.7759E+04	4.8619E+04	7.9190E+03	-2.8152E+03	4.2173E+03	4.0000E+01
4.7637E+01	2.1540E+02	7.3000E+02	-3.7759E+04	4.6188E+04	2.3136E+04	-2.8152E+03	3.7487E+03	2.1604E+02
4.7637E+01	1.9147E+02	6.7700E+02	-3.7759E+04	4.3757E+04	1.0872E+04	-2.8152E+03	3.0458E+03	2.5411E+03
4.7637E+01	1.6753E+02	5.9357E+03	-3.7759E+04	4.1326E+04	2.8179E+04	-2.8152E+03	2.8115E+03	1.1383E+03
4.7637E+01	1.4360E+02	1.8974E+04	-3.7759E+04	3.8895E+04	2.3114E+04	-2.8152E+03	2.5772E+03	2.5083E+02
4.7637E+01	1.1967E+02	4.2223E+04	-3.7759E+04	3.6464E+04	3.5239E+04	-2.8152E+03	2.3429E+03	2.5568E+03
4.7637E+01	9.5733E+01	8.1884E+04	-3.7759E+04	3.4033E+04	4.7302E+04	-2.8152E+03	2.1086E+03	2.1354E+02
4.7637E+01	7.1800E+01	8.4149E+05	-3.7759E+04	3.1603E+04	5.7587E+04	-2.8152E+03	1.8743E+03	1.4058E+03
4.7637E+01	4.7867E+01	5.4028E+06	-3.7759E+04	2.9172E+04	6.4443E+04	-2.8152E+03	1.6401E+03	1.7128E+03
4.7637E+01	2.3933E+01	1.4588E+07	-3.7759E+04	2.6741E+04	8.1397E+04	-2.8152E+03	1.4058E+03	5.3236E+02
4.7637E+01	0.0000E+00	1.1921E+07	-3.7759E+04	2.4310E+04	1.2431E+05	-2.8152E+03	1.1715E+03	1.2567E+04
2.0022E+01	1.1249E+03	5.2085E+00	-3.7759E+04	2.1879E+04	1.6571E+05	-2.8152E+03	9.3717E+02	6.9340E+02
2.0022E+01	8.1373E+02	2.9167E+00	-3.7759E+04	1.9448E+04	1.9138E+05	-2.8152E+03	7.0288E+02	9.4882E+03
2.0022E+01	7.6587E+02	2.9167E+00	-3.7759E+04	1.7017E+04	3.6550E+05	-2.8152E+03	4.6859E+02	1.6388E+04
2.0022E+01	7.1800E+02	5.4166E+00	-3.7759E+04	1.4586E+04	4.4862E+05	-2.8152E+03	2.3429E+02	5.3738E+04
2.0022E+01	6.4620E+02	3.0000E+00	-3.7759E+04	1.2155E+04	8.7088E+05	-2.8152E+03	0.0000E+00	9.2660E+04
2.0022E+01	6.2227E+02	2.5000E+00	-3.7759E+04	9.7239E+03	1.8696E+06	-3.0918E+03	8.4346E+03	1.2500E+00
2.0022E+01	5.9833E+02	3.0000E+00	-3.7759E+04	7.2929E+03	3.6704E+06	-3.0918E+03	7.7317E+03	1.2500E+00
2.0022E+01	5.2653E+02	3.5000E+00	-3.7759E+04	4.8619E+03	6.9320E+06	-3.0918E+03	7.4974E+03	4.1667E+01
2.0022E+01	5.0260E+02	4.1292E+01	-3.7759E+04	2.4310E+03	1.2864E+07	-3.0918E+03	6.0916E+03	3.7500E+00
2.0022E+01	4.7867E+02	2.5000E+00	-3.7759E+04	0.0000E+00	9.9811E+06	-3.0918E+03	4.6859E+03	5.0000E+00
2.0022E+01	4.5473E+02	4.6666E+00	-4.0280E+04	4.8619E+04	8.5490E+03	-3.0918E+03	4.4516E+03	2.2500E+01
2.0022E+01	4.3080E+02	4.5000E+01	-4.0280E+04	4.6188E+04	2.4452E+04	-3.0918E+03	4.2173E+03	2.5000E+00
2.0022E+01	4.0687E+02	5.2333E+01	-4.0280E+04	4.3757E+04	3.5174E+04	-3.0918E+03	3.9830E+03	2.2500E+01
2.0022E+01	3.8293E+02	3.2583E+01	-4.0280E+04	4.1326E+04	3.9235E+04	-3.0918E+03	3.7487E+03	5.0585E+01
2.0022E+01	3.5900E+02	1.8137E+02	-4.0280E+04	3.8895E+04	7.9607E+04	-3.0918E+03	3.5144E+03	7.5000E+00
2.0022E+01	3.3507E+02	4.1500E+01	-4.0280E+04	3.6464E+04	7.4022E+04	-3.0918E+03	3.2801E+03	5.7195E+02
2.0022E+01	3.1113E+02	4.7333E+01	-4.0280E+04	3.4033E+04	5.0232E+04	-3.0918E+03	3.0458E+03	1.1010E+02
2.0022E+01	2.8720E+02	2.3334E+02	-4.0280E+04	3.1603E+04	3.8373E+04	-3.0918E+03	2.8115E+03	5.0000E+01
2.0022E+01	2.6327E+02	3.8301E+03	-4.0280E+04	2.9172E+04	7.0255E+04	-3.0918E+03	2.5772E+03	8.5000E+00
2.0022E+01	2.3933E+02	3.2500E+02	-4.0280E+04	2.6741E+04	1.0207E+05	-3.0918E+03	2.3429E+03	3.3083E+01
2.0022E+01	2.1540E+02	6.7267E+03	-4.0280E+04	2.4310E+04	1.7668E+05	-3.0918E+03	2.1086E+03	4.2500E+01

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

PUBLIC

DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05	
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Original Instruction: T05 0050-4315 VER 00

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.0022E+01	1.9147E+02	1.3852E+03	-4.0280E+04	2.1879E+04	1.6858E+05	-3.0918E+03	1.8743E+03	2.8975E+02
2.0022E+01	1.6753E+02	5.0707E+03	-4.0280E+04	1.9448E+04	2.2316E+05	-3.0918E+03	1.6401E+03	2.8913E+02
2.0022E+01	1.4360E+02	3.3365E+03	-4.0280E+04	1.7017E+04	2.5075E+05	-3.0918E+03	1.4058E+03	2.5604E+02
2.0022E+01	1.1967E+02	6.9716E+03	-4.0280E+04	1.4586E+04	3.8745E+05	-3.0918E+03	1.1715E+03	1.6720E+03
2.0022E+01	9.5733E+01	2.4560E+04	-4.0280E+04	1.2155E+04	7.3078E+05	-3.0918E+03	9.3717E+02	1.1577E+03
2.0022E+01	7.1800E+01	1.7067E+05	-4.0280E+04	9.7239E+03	1.6142E+06	-3.0918E+03	7.0288E+02	6.3795E+02
2.0022E+01	4.7867E+01	1.2859E+06	-4.0280E+04	7.2929E+03	3.8183E+06	-3.0918E+03	4.6859E+02	1.9286E+03
2.0022E+01	2.3933E+01	4.7978E+06	-4.0280E+04	4.8619E+03	7.2691E+06	-3.0918E+03	2.3429E+02	1.5765E+04
2.0022E+01	0.0000E+00	9.4811E+06	-4.0280E+04	2.4310E+03	1.1981E+07	-3.0918E+03	0.0000E+00	6.2943E+04
-7.5936E+00	8.3767E+02	2.9167E+00	-4.0280E+04	0.0000E+00	8.0285E+06	-3.3685E+03	6.3259E+03	1.0000E+01
-7.5936E+00	7.8980E+02	1.2500E+00	-4.2801E+04	5.3481E+04	2.4074E+03	-3.3685E+03	4.4516E+03	5.3085E+01
-7.5936E+00	7.4193E+02	2.5000E+00	-4.2801E+04	4.8619E+04	4.8178E+03	-3.3685E+03	3.5144E+03	7.5000E+00
-7.5936E+00	7.1800E+02	1.7500E+00	-4.2801E+04	4.6188E+04	2.5074E+03	-3.3685E+03	3.2801E+03	2.5000E+00
-7.5936E+00	6.9407E+02	2.9167E+00	-4.2801E+04	4.3757E+04	1.1310E+04	-3.3685E+03	3.0458E+03	8.3333E+01
-7.5936E+00	6.7013E+02	4.6666E+00	-4.2801E+04	4.1326E+04	1.5241E+04	-3.3685E+03	2.8115E+03	2.5000E+00
-7.5936E+00	6.4620E+02	2.9167E+00	-4.2801E+04	3.8895E+04	6.7466E+04	-3.3685E+03	2.5772E+03	1.3892E+02
-7.5936E+00	6.2227E+02	2.4667E+01	-4.2801E+04	3.6464E+04	7.2122E+04	-3.3685E+03	2.3429E+03	1.1333E+02
-7.5936E+00	5.9833E+02	3.0000E+00	-4.2801E+04	3.4033E+04	6.2053E+04	-3.3685E+03	2.1086E+03	2.2500E+01
-7.5936E+00	5.7440E+02	4.6666E+00	-4.2801E+04	3.1603E+04	8.2526E+04	-3.3685E+03	1.8743E+03	2.4792E+01
-7.5936E+00	5.5047E+02	4.2500E+00	-4.2801E+04	2.9172E+04	1.1605E+05	-3.3685E+03	1.6401E+03	9.2083E+01
-7.5936E+00	5.2653E+02	1.7500E+00	-4.2801E+04	2.6741E+04	6.7750E+04	-3.3685E+03	1.4058E+03	3.0000E+01
-7.5936E+00	5.0260E+02	1.7500E+00	-4.2801E+04	2.4310E+04	1.3239E+05	-3.3685E+03	1.1715E+03	5.5292E+01
-7.5936E+00	4.5473E+02	9.3333E+00	-4.2801E+04	2.1879E+04	1.5039E+05	-3.3685E+03	9.3717E+02	1.4058E+02
-7.5936E+00	4.3080E+02	3.5000E+00	-4.2801E+04	1.9448E+04	1.9974E+05	-3.3685E+03	7.0288E+02	2.6104E+02
-7.5936E+00	4.0687E+02	8.9166E+00	-4.2801E+04	1.7017E+04	2.4064E+05	-3.3685E+03	4.6859E+02	4.6575E+02
-7.5936E+00	3.8293E+02	3.0667E+01	-4.2801E+04	1.4586E+04	2.7263E+05	-3.3685E+03	2.3429E+02	7.0128E+03
-7.5936E+00	3.5900E+02	5.6333E+01	-4.2801E+04	1.2155E+04	6.1347E+05	-3.3685E+03	0.0000E+00	3.6188E+04
-7.5936E+00	3.3507E+02	1.2250E+01	-4.2801E+04	9.7239E+03	1.7165E+06	-3.6452E+03	8.4346E+03	1.2500E+00
-7.5936E+00	3.1113E+02	6.8250E+01	-4.2801E+04	7.2929E+03	4.3484E+06	-3.6452E+03	3.9830E+03	2.5000E+00
-7.5936E+00	2.8720E+02	1.2750E+02	-4.2801E+04	4.8619E+03	8.6427E+06	-3.6452E+03	3.7487E+03	2.0000E+01
-7.5936E+00	2.6327E+02	6.1833E+01	-4.2801E+04	2.4310E+03	1.3142E+07	-3.6452E+03	3.0458E+03	7.5000E+00
-7.5936E+00	2.3933E+02	3.5633E+02	-4.2801E+04	0.0000E+00	8.1521E+06	-3.6452E+03	2.8115E+03	1.2833E+02
-7.5936E+00	2.1540E+02	2.5633E+02	-4.5321E+04	5.3481E+04	2.9167E+00	-3.6452E+03	2.5772E+03	4.2500E+01
-7.5936E+00	1.9147E+02	1.9392E+02	-4.5321E+04	4.6188E+04	2.4074E+03	-3.6452E+03	2.1086E+03	2.5000E+00
-7.5936E+00	1.6753E+02	5.5475E+02	-4.5321E+04	4.1326E+04	4.0874E+03	-3.6452E+03	1.8743E+03	2.5000E+00

PUBLIC

DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK99832314	CLASS T05	PAGE 31/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-7.5936E+00	1.4360E+02	6.4546E+03	-4.5321E+04	3.8895E+04	2.6644E+04	-3.6452E+03	1.6401E+03	5.0000E+00
-7.5936E+00	1.1967E+02	2.7290E+03	-4.5321E+04	3.6464E+04	1.0145E+04	-3.6452E+03	1.4058E+03	2.5000E+01
-7.5936E+00	9.5733E+01	8.2103E+03	-4.5321E+04	3.4033E+04	6.0061E+04	-3.6452E+03	1.1715E+03	2.5000E+00
-7.5936E+00	7.1800E+01	3.8863E+04	-4.5321E+04	3.1603E+04	8.5351E+04	-3.6452E+03	9.3717E+02	5.0000E+00
-7.5936E+00	4.7867E+01	3.8343E+05	-4.5321E+04	2.9172E+04	1.3026E+05	-3.6452E+03	7.0288E+02	1.8854E+02
-7.5936E+00	2.3933E+01	2.7226E+06	-4.5321E+04	2.6741E+04	1.7419E+05	-3.6452E+03	4.6859E+02	6.7500E+01
-7.5936E+00	0.0000E+00	5.8759E+07	-4.5321E+04	2.4310E+04	1.6191E+05	-3.6452E+03	2.3429E+02	4.1958E+02
-3.5209E+01	7.8980E+02	1.2500E+00	-4.5321E+04	2.1879E+04	2.4625E+05	-3.6452E+03	0.0000E+00	8.1067E+02
-3.5209E+01	7.6587E+02	1.2500E+00	-4.5321E+04	1.9448E+04	3.2013E+05	-3.9219E+03	3.5144E+03	2.5000E+00
-3.5209E+01	7.4193E+02	5.8333E+00	-4.5321E+04	1.7017E+04	3.1677E+05	-3.9219E+03	3.2801E+03	2.5000E+00
-3.5209E+01	7.1800E+02	5.9166E+00	-4.5321E+04	1.4586E+04	5.0148E+05	-3.9219E+03	2.8115E+03	2.2500E+01
-3.5209E+01	6.9407E+02	2.9167E+00	-4.5321E+04	1.2155E+04	1.0354E+06	-3.9219E+03	2.3429E+03	2.2500E+01
-3.5209E+01	6.7013E+02	3.5000E+00	-4.5321E+04	9.7239E+03	2.7751E+06	-3.9219E+03	2.1086E+03	5.0000E+00
-3.5209E+01	6.4620E+02	1.7500E+00	-4.5321E+04	7.2929E+03	6.4812E+06	-3.9219E+03	1.8743E+03	2.5000E+00
-3.5209E+01	5.9833E+02	5.9166E+00	-4.5321E+04	4.8619E+03	1.2595E+07	-3.9219E+03	1.6401E+03	2.5000E+00
-3.5209E+01	5.5047E+02	1.7500E+00	-4.5321E+04	2.4310E+03	1.7610E+07	-3.9219E+03	1.4058E+03	2.5000E+01
-3.5209E+01	5.2653E+02	1.7500E+00	-4.5321E+04	0.0000E+00	9.9616E+06	-3.9219E+03	1.1715E+03	1.6604E+02
-3.5209E+01	5.0260E+02	5.2500E+00	-4.7842E+04	4.8619E+04	2.9167E+00	-3.9219E+03	9.3717E+02	2.5000E+01
-3.5209E+01	4.7867E+02	1.7500E+00	-4.7842E+04	4.6188E+04	2.9167E+00	-3.9219E+03	7.0288E+02	5.0000E+00
-3.5209E+01	4.5473E+02	6.0000E+00	-4.7842E+04	4.1326E+04	2.9167E+00	-3.9219E+03	4.6859E+02	1.7500E+01
-3.5209E+01	4.3080E+02	6.7500E+00	-4.7842E+04	3.8895E+04	3.1396E+02	-3.9219E+03	2.3429E+02	4.8674E+03
-3.5209E+01	4.0687E+02	8.7500E+00	-4.7842E+04	3.6464E+04	6.1415E+03	-3.9219E+03	0.0000E+00	9.1457E+02
-3.5209E+01	3.8293E+02	1.7500E+01	-4.7842E+04	3.4033E+04	6.7769E+03	-4.1986E+03	3.5144E+03	2.2500E+01
-3.5209E+01	3.5900E+02	2.1333E+01	-4.7842E+04	3.1603E+04	4.6868E+04	-4.1986E+03	3.0458E+03	5.0000E+00
-3.5209E+01	3.3507E+02	2.4417E+01	-4.7842E+04	2.9172E+04	6.9440E+04	-4.1986E+03	2.5772E+03	2.0000E+01
-3.5209E+01	3.1113E+02	1.0333E+02	-4.7842E+04	2.6741E+04	9.9680E+04	-4.1986E+03	2.1086E+03	2.0000E+01
-3.5209E+01	2.8720E+02	3.1167E+01	-4.7842E+04	2.4310E+04	1.7081E+05	-4.1986E+03	1.6401E+03	5.0000E+00
-3.5209E+01	2.6327E+02	1.8833E+01	-4.7842E+04	2.1879E+04	3.9398E+05	-4.1986E+03	1.4058E+03	5.0000E+00
-3.5209E+01	2.3933E+02	2.5134E+02	-4.7842E+04	1.9448E+04	5.1502E+05	-4.1986E+03	1.1715E+03	2.5000E+01
-3.5209E+01	2.1540E+02	2.7283E+02	-4.7842E+04	1.7017E+04	8.2264E+05	-4.1986E+03	9.3717E+02	5.0000E+00
-3.5209E+01	1.9147E+02	6.7233E+02	-4.7842E+04	1.4586E+04	1.1874E+06	-4.1986E+03	7.0288E+02	2.5000E+01
-3.5209E+01	1.6753E+02	9.6200E+02	-4.7842E+04	1.2155E+04	2.1654E+06	-4.1986E+03	4.6859E+02	2.5000E+01
-3.5209E+01	1.4360E+02	4.2686E+03	-4.7842E+04	9.7239E+03	4.3312E+06	-4.1986E+03	2.3429E+02	4.9583E+01
-3.5209E+01	1.1967E+02	1.1312E+03	-4.7842E+04	7.2929E+03	9.1702E+06	-4.1986E+03	0.0000E+00	5.1575E+03
-3.5209E+01	9.5733E+01	1.5450E+04	-4.7842E+04	4.8619E+03	1.7409E+07	-4.4753E+03	3.2801E+03	2.0000E+01

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

PUBLIC


DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DKB9832314		CLASS T05	
				PAGE 32/36			

Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-3.5209E+01	7.1800E+01	2.6786E+04	-4.7842E+04	2.4310E+03	2.1911E+07	-4.4753E+03	2.8115E+03	2.5000E+00
-3.5209E+01	4.7867E+01	1.2954E+05	-4.7842E+04	0.0000E+00	1.0728E+07	-4.4753E+03	2.5772E+03	2.0000E+01
-3.5209E+01	2.3933E+01	3.9416E+05	-5.0363E+04	4.3757E+04	2.9167E+00	-4.4753E+03	2.1086E+03	5.0000E+00
-3.5209E+01	0.0000E+00	3.6163E+05	-5.0363E+04	3.6464E+04	5.5833E+01	-4.4753E+03	9.3717E+02	2.5000E+00
-6.2824E+01	6.4620E+02	1.2500E+00	-5.0363E+04	3.4033E+04	4.0292E+02	-4.4753E+03	7.0288E+02	8.3333E+01
-6.2824E+01	5.9833E+02	4.6666E+00	-5.0363E+04	3.1603E+04	1.5000E+02	-4.4753E+03	4.6859E+02	5.0000E+00
-6.2824E+01	5.7440E+02	3.0000E+00	-5.0363E+04	2.9172E+04	6.7003E+03	-4.4753E+03	2.3429E+02	7.5000E+00
-6.2824E+01	5.0260E+02	7.0000E+00	-5.0363E+04	2.6741E+04	1.3825E+04	-4.4753E+03	0.0000E+00	2.6187E+02
-6.2824E+01	4.7867E+02	7.0000E+00	-5.0363E+04	2.4310E+04	2.9027E+04	-4.7520E+03	5.6230E+03	2.5000E+00
-6.2824E+01	4.5473E+02	5.2500E+00	-5.0363E+04	2.1879E+04	6.4938E+04	-4.7520E+03	2.1086E+03	2.5000E+00
-6.2824E+01	4.3080E+02	6.0000E+00	-5.0363E+04	1.9448E+04	1.5766E+05	-4.7520E+03	4.6859E+02	2.0000E+01
-6.2824E+01	4.0687E+02	5.2500E+00	-5.0363E+04	1.7017E+04	4.1523E+05	-4.7520E+03	2.3429E+02	2.0000E+01
-6.2824E+01	3.8293E+02	1.2000E+01	-5.0363E+04	1.4586E+04	9.1055E+05	-4.7520E+03	0.0000E+00	1.5333E+02
-6.2824E+01	3.5900E+02	1.1250E+01	-5.0363E+04	1.2155E+04	1.5636E+06	-5.0287E+03	7.0288E+02	2.5000E+00
-6.2824E+01	3.3507E+02	2.7750E+01	-5.0363E+04	9.7239E+03	3.6779E+06	-5.0287E+03	4.6859E+02	2.5000E+00
-6.2824E+01	3.1113E+02	2.4250E+01	-5.0363E+04	7.2929E+03	8.0296E+06	-5.0287E+03	0.0000E+00	2.5000E+00
-6.2824E+01	2.8720E+02	3.1250E+01	-5.0363E+04	4.8619E+03	1.6077E+07	-5.3054E+03	4.6859E+03	2.5000E+00
-6.2824E+01	2.6327E+02	6.1167E+01	-5.0363E+04	2.4310E+03	1.9218E+07	-5.3054E+03	0.0000E+00	2.5000E+00
-6.2824E+01	2.3933E+02	8.5167E+01	-5.0363E+04	0.0000E+00	9.7682E+06	-5.5820E+03	2.3429E+02	2.5000E+00
-6.2824E+01	2.1540E+02	2.1092E+02	-5.2884E+04	2.9172E+04	1.2336E+04	-5.5820E+03	0.0000E+00	2.5000E+00
-6.2824E+01	1.9147E+02	9.0083E+01	-5.2884E+04	2.6741E+04	2.5583E+02	-6.1354E+03	0.0000E+00	2.5000E+00
-6.2824E+01	1.6753E+02	4.1500E+01	-5.2884E+04	2.4310E+04	2.0000E+02			
-6.2824E+01	1.4360E+02	8.1834E+01	-5.2884E+04	2.1879E+04	6.6240E+03			
-6.2824E+01	1.1967E+02	2.2192E+02	-5.2884E+04	1.9448E+04	2.5778E+04			
-6.2824E+01	9.5733E+01	7.6991E+02	-5.2884E+04	1.7017E+04	3.8872E+04			
-6.2824E+01	7.1800E+01	5.0233E+02	-5.2884E+04	1.4586E+04	3.6764E+05			
-6.2824E+01	4.7867E+01	2.7510E+04	-5.2884E+04	1.2155E+04	6.9183E+05			
-6.2824E+01	2.3933E+01	6.2713E+04	-5.2884E+04	9.7239E+03	1.7125E+06			
-6.2824E+01	0.0000E+00	5.9325E+04	-5.2884E+04	7.2929E+03	4.5362E+06			
-9.0439E+01	8.1373E+02	2.9167E+00	-5.2884E+04	4.8619E+03	9.3029E+06			
-9.0439E+01	7.6587E+02	1.7500E+00	-5.2884E+04	2.4310E+03	1.1848E+07			
-9.0439E+01	7.1800E+02	2.9167E+00	-5.2884E+04	0.0000E+00	6.2917E+06			
-9.0439E+01	6.2227E+02	3.5000E+00	-5.5405E+04	2.9172E+04	2.9167E+00			
-9.0439E+01	5.7440E+02	1.7500E+00	-5.5405E+04	2.1879E+04	6.2415E+03			
-9.0439E+01	5.5047E+02	1.7500E+00	-5.5405E+04	1.9448E+04	1.4065E+04			

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 33/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-9.0439E+01	5.0260E+02	7.7500E+00	-5.5405E+04	1.7017E+04	7.0000E+02			
-9.0439E+01	4.7867E+02	3.5000E+00	-5.5405E+04	1.4586E+04	3.5523E+04			
-9.0439E+01	4.5473E+02	5.2500E+00	-5.5405E+04	1.2155E+04	2.1714E+05			
-9.0439E+01	4.3080E+02	7.0000E+00	-5.5405E+04	9.7239E+03	4.9775E+05			
-9.0439E+01	4.0687E+02	3.5000E+00	-5.5405E+04	7.2929E+03	1.6199E+06			
-9.0439E+01	3.8293E+02	7.0000E+00	-5.5405E+04	4.8619E+03	4.4184E+06			
-9.0439E+01	3.5900E+02	1.0500E+01	-5.5405E+04	2.4310E+03	5.9030E+06			
-9.0439E+01	3.3507E+02	2.5250E+01	-5.5405E+04	0.0000E+00	3.1185E+06			
-9.0439E+01	3.1113E+02	7.0000E+00	-5.7926E+04	1.7017E+04	1.0000E+02			
-9.0439E+01	2.8720E+02	1.5750E+01	-5.7926E+04	1.4586E+04	1.3417E+01			
-9.0439E+01	2.6327E+02	1.4000E+01	-5.7926E+04	1.2155E+04	1.3167E+02			
-9.0439E+01	2.3933E+02	4.0084E+01	-5.7926E+04	9.7239E+03	4.8346E+04			
-9.0439E+01	2.1540E+02	5.2167E+01	-5.7926E+04	7.2929E+03	3.6058E+05			
-9.0439E+01	1.9147E+02	4.8000E+01	-5.7926E+04	4.8619E+03	1.3414E+06			
-9.0439E+01	1.6753E+02	5.3333E+01	-5.7926E+04	2.4310E+03	1.8744E+06			
-9.0439E+01	1.4360E+02	1.4483E+02	-5.7926E+04	0.0000E+00	1.2115E+06			
-9.0439E+01	1.1967E+02	5.2000E+01	-6.0446E+04	9.7239E+03	1.2758E+02			
-9.0439E+01	9.5733E+01	1.8092E+02	-6.0446E+04	7.2929E+03	1.4277E+04			
-9.0439E+01	7.1800E+01	4.9158E+02	-6.0446E+04	4.8619E+03	1.5123E+05			
-9.0439E+01	4.7867E+01	7.3666E+02	-6.0446E+04	2.4310E+03	1.7315E+05			
-9.0439E+01	2.3933E+01	7.9503E+03	-6.0446E+04	0.0000E+00	1.3709E+05			
-9.0439E+01	0.0000E+00	2.3924E+03	-6.2967E+04	4.8619E+03	3.0035E+04			
-1.1805E+02	8.1373E+02	2.9167E+00	-6.2967E+04	2.4310E+03	4.8987E+04			
-1.1805E+02	5.7440E+02	1.7500E+00	-6.2967E+04	0.0000E+00	2.0054E+04			
-1.1805E+02	5.2653E+02	3.5000E+00	-6.5488E+04	4.8619E+03	4.8207E+03			
-1.1805E+02	5.0260E+02	4.2500E+00	-6.5488E+04	2.4310E+03	1.2208E+02			
-1.1805E+02	4.5473E+02	6.0000E+00	-6.5488E+04	0.0000E+00	1.1667E+01			
-1.1805E+02	4.3080E+02	1.7500E+00	-6.8009E+04	2.4310E+03	5.8333E+00			
-1.1805E+02	4.0687E+02	8.7500E+00	-6.8009E+04	0.0000E+00	1.1667E+01			
-1.1805E+02	3.8293E+02	7.7500E+00	-7.0530E+04	4.8619E+03	5.8333E+00			
-1.1805E+02	3.5900E+02	9.5000E+00						
-1.1805E+02	3.3507E+02	1.8250E+01						
-1.1805E+02	2.8720E+02	1.3000E+01						
-1.1805E+02	2.6327E+02	9.5000E+00						
-1.1805E+02	2.3933E+02	3.4000E+01						

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK9832314		CLASS T05	
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-1.1805E+02	2.1540E+02	3.4000E+01						
-1.1805E+02	1.9147E+02	3.3000E+01						
-1.1805E+02	1.6753E+02	2.7333E+01						
-1.1805E+02	1.4360E+02	3.5167E+01						
-1.1805E+02	1.1967E+02	5.6417E+01						
-1.1805E+02	9.5733E+01	1.4517E+02						
-1.1805E+02	7.1800E+01	7.9667E+01						
-1.1805E+02	4.7867E+01	6.9500E+01						
-1.1805E+02	2.3933E+01	5.8742E+02						
-1.1805E+02	0.0000E+00	8.0409E+02						
-1.4567E+02	5.2653E+02	1.7500E+00						
-1.4567E+02	4.0687E+02	2.5000E+00						
-1.4567E+02	3.8293E+02	9.5000E+00						
-1.4567E+02	3.3507E+02	7.0000E+00						
-1.4567E+02	3.1113E+02	3.5000E+00						
-1.4567E+02	2.8720E+02	6.0000E+00						
-1.4567E+02	2.6327E+02	1.7417E+01						
-1.4567E+02	2.3933E+02	1.0500E+01						
-1.4567E+02	2.1540E+02	6.0000E+00						
-1.4567E+02	1.9147E+02	2.1000E+01						
-1.4567E+02	1.6753E+02	3.1417E+01						
-1.4567E+02	1.4360E+02	3.0500E+01						
-1.4567E+02	1.1967E+02	6.4167E+01						
-1.4567E+02	9.5733E+01	3.9667E+01						
-1.4567E+02	7.1800E+01	5.9833E+01						
-1.4567E+02	4.7867E+01	7.8084E+01						
-1.4567E+02	2.3933E+01	2.4817E+02						
-1.4567E+02	0.0000E+00	5.3667E+01						
-1.7328E+02	4.3080E+02	3.5000E+00						
-1.7328E+02	4.0687E+02	2.5000E+00						
-1.7328E+02	3.5900E+02	6.0000E+00						
-1.7328E+02	3.1113E+02	7.0000E+00						
-1.7328E+02	2.8720E+02	1.0500E+01						
-1.7328E+02	2.6327E+02	1.7500E+01						
-1.7328E+02	2.3933E+02	6.0000E+00						

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads		DNV-GL	DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	CLASS T05	PAGE 35/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-1.7328E+02	2.1540E+02	7.0000E+00						
-1.7328E+02	1.9147E+02	1.3000E+01						
-1.7328E+02	1.6753E+02	3.3833E+01						
-1.7328E+02	1.4360E+02	1.0500E+01						
-1.7328E+02	1.1967E+02	2.7000E+01						
-1.7328E+02	9.5733E+01	2.1000E+01						
-1.7328E+02	7.1800E+01	4.3250E+01						
-1.7328E+02	4.7867E+01	8.1166E+01						
-1.7328E+02	2.3933E+01	3.5167E+01						
-1.7328E+02	0.0000E+00	2.8167E+01						
-2.0090E+02	3.5900E+02	2.5000E+00						
-2.0090E+02	3.3507E+02	3.5000E+00						
-2.0090E+02	2.8720E+02	3.5000E+00						
-2.0090E+02	2.6327E+02	7.0000E+00						
-2.0090E+02	2.1540E+02	3.5000E+00						
-2.0090E+02	1.9147E+02	7.0000E+00						
-2.0090E+02	1.6753E+02	7.0000E+00						
-2.0090E+02	1.4360E+02	1.8833E+01						
-2.0090E+02	1.1967E+02	1.1667E+01						
-2.0090E+02	9.5733E+01	2.3500E+01						
-2.0090E+02	7.1800E+01	2.4667E+01						
-2.0090E+02	4.7867E+01	7.0000E+00						
-2.0090E+02	2.3933E+01	2.2167E+01						
-2.0090E+02	0.0000E+00	9.3333E+00						
-2.2851E+02	2.6327E+02	1.0417E+01						
-2.2851E+02	2.1540E+02	3.5000E+00						
-2.2851E+02	1.9147E+02	1.0417E+01						
-2.2851E+02	1.6753E+02	9.3333E+00						
-2.2851E+02	1.4360E+02	1.1833E+01						
-2.2851E+02	1.1967E+02	1.2833E+01						
-2.2851E+02	9.5733E+01	2.7917E+01						
-2.2851E+02	7.1800E+01	1.6250E+01						
-2.2851E+02	4.7867E+01	1.0500E+01						
-2.2851E+02	2.3933E+01	1.6417E+01						
-2.2851E+02	0.0000E+00	1.6250E+01						

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DOCUMENT: 0050-4315 VER 00		DESCRIPTION: Foundation loads	 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 36/36
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Original Instruction: T05 0050-4315 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-2.5613E+02	2.3933E+02	3.5000E+00						
-2.5613E+02	2.1540E+02	3.5000E+00						
-2.5613E+02	7.1800E+01	5.8333E+00						
-2.5613E+02	4.7867E+01	7.0000E+00						
-2.5613E+02	2.3933E+01	1.4167E+01						
-2.5613E+02	0.0000E+00	7.0000E+00						
-2.8374E+02	1.6753E+02	1.0417E+01						
-2.8374E+02	1.1967E+02	3.5000E+00						
-2.8374E+02	7.1800E+01	5.8333E+00						
-2.8374E+02	4.7867E+01	1.1667E+01						
-2.8374E+02	2.3933E+01	1.7500E+01						
-2.8374E+02	0.0000E+00	5.8333E+00						
-3.1136E+02	1.9147E+02	1.0417E+01						
-3.1136E+02	1.4360E+02	5.8333E+00						
-3.1136E+02	2.3933E+01	5.8333E+00						
-3.3898E+02	7.1800E+01	1.1667E+01						
-3.3898E+02	4.7867E+01	9.3333E+00						
-3.3898E+02	2.3933E+01	1.7500E+01						
-3.9421E+02	2.3933E+01	5.8333E+00						
-4.2182E+02	2.3933E+01	5.8333E+00						

T05 0050-4315 Ver 00 - Approved - Exported from DMS: 2015-03-24 by PRAVS

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CLASS T05	Vestas
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Original Instruction: T05 0065-3555 VER 00

DOCUMENT: 0065-3555 VER 00	DESCRIPTION: RNSP 15-428: Foundation loads	 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314
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RNSP 15-428: Foundation loads

V117-3.45 MW, Mk2C, DIBt, HH116.5, 50 Hz, GS
 Site: Krumstedter Viert, DE



CLASS 00031 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

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T04 0053-2020 Ver 06 - Approved- Exported from DMS: 2021-02-03 by INVOL

		CLASS T05
DOCUMENT: 0065-3555 VER 00	DESCRIPTION: RNSP 15-428: Foundation loads	PAGE 2/36

Original Instruction: T05 0065-3555 VER 00


Version History

VERSION:	DATE:	CHANGE:
00	2017.02.22	New document

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DMS 0081 VER 00

 **DNV GL Denmark A/S**
 Tuborg Parkvej 8, 2
 DK-2900 Hellerup
 VAT No. DK89832314

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

T04 0053-2020 Ver 06 - Approved- Exported from DMS: 2021-02-03 by INVOL

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 3, 2 DK-2900 Hellerup VAT No. DK59832314	CLASS T05 PAGE 3/36
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Original Instruction: T05 0065-3555 VER 00

1. Introduction

This document presents the foundation loads from the Mk2C V117-3.45 MW DIBt WZ3 GKII TKA HH116.5m load spectrum. The loads are simulated in accordance with IEC61400-1 Edition 3, ref. [1]. The tower used for calculating the loads can be found in ref [2].

ISM Brief Description –

This document presents Mk2C V117-3.3MW Turbine loads for Tower HH116.5m, which is designed for 3.3MW Power Mode earlier, for this particular Site, Krumstedter Viert, DE, Power Mode 3.45MW is considered. This case has been done for project site specific condition therefore, considered as RNSP.

The natural frequency of the tower must be within the frequency interval [0.170 Hz; 0.188 Hz]

Reference	Description	Doc No.
[1]	IEC61400-1 Edition 3	
[2]	Tower drawing	0050-4117.V00

Table 1-1 Reference to documents.

DMS 0065 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

T04 0053-2020 Ver 06 - Approved- Exported from DMS: 2021-02-03 by INVOL

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		DNV GL Denmark A/S Tuborg Parkvej 8, 2 2900 Hellerup	CLASS T05	PAGE 4/36
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Original Instruction: T05 0065-3555 VER 00

2. Extreme loads

Foundation loads components at the instant of extreme resulting bending moment are given in beneath table. Own weight moment contribution due to tower out of vertical (0.008 m/m) is included with PLF 1.10 in below resultant moments.

Loads are given at height: 0.20m

Extreme resulting tower bottom moment according to ref [1] incl. own weight moment contribution due to 8mm/m tower out of vertical and second order effects.
*unfavorable loads: PLF = 1.1, favorable loads: PLF = 0.9.

Mbt1: Resulting bending moment. $SQRT(Mxt1^2 + Myt1^2)$ (also M_{res})

FndFr: Resulting shear force. $SQRT(Fxt1^2 + Fyt1^2)$ (also F_{res})

Characteristic Extreme							
Lead	LC/Family	PLF	Type	Mbt1	Mzt1	FndFr	Fzt1
Sensor	[-]	[-]	[-]	[kNm]	[kNm]	[kN]	[kN]
Mbt1	62E50a07500(fam143)	1.10	Abs	118600	-1552	1170	-5296
Mzt1	21PSBBVo00(fam56)	1.35	Abs	19360	-6422	180.7	-5246
FndFr	62E50a07500(fam143)	1.10	Abs	118300	-1511	1174	-5300
Fzt1	81P60015b00000(fam186)	1.50	Abs	13440	137.3	129.1	-5427

Table 2-1 Characteristic Extreme (excl. PLF). Load cases sorted with PLF.

Characteristic Extreme							
Lead	LC/Family	PLF	Type	Mbt1	Mzt1	FndFr	Fzt1
Sensor	[-]	[-]	[-]	[kNm]	[kNm]	[kN]	[kN]
Mbt1	62E50a07500(fam143)	1.10	Abs	118600	-1552	1170	-5296
Mzt1	22OSFVo00(fam65)	1.10	Abs	27460	-7166	272.1	-5241
FndFr	62E50a07500(fam143)	1.10	Abs	118300	-1511	1174	-5300
Fzt1	12lcVo00(fam25)	1.35	Abs	41770	2220	451.8	-5504

Table 2-2 Characteristic Extreme (excl. PLF). Load cases sorted without PLF.


Characteristic Extreme							
Lead	LC/Family	PLF	Type	Mbt1	Mzt1	FndFr	Fzt1
Sensor	[-]	[-]	[-]	[kNm]	[kNm]	[kN]	[kN]
Mbt1	62E50a07500(fam143)	1.10	Abs	118600	-1552	1170	-5296
Mzt1	22OSFVo00(fam65)	1.10	Abs	27460	-7166	272.1	-5241
FndFr	62E50a07500(fam143)	1.10	Abs	118300	-1511	1174	-5300
Fzt1	22VOGVo00(fam73)	1.10	Abs	38660	1816	373.4	-5463

Table 2-3 Characteristic Extreme (excl. PLF). Only load cases with PLF = 1.10.

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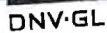
DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK99832314		CLASS T05	
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Original Instruction: T05 0065-3555 VER 00

Characteristic Extreme							
Lead	LC/Family	PLF	Type	Mbt1	Mzt1	FndFr	Fzt1
Sensor	[-]	[-]	[-]	[kNm]	[kNm]	[kN]	[kN]
Mbt1	32PREogVim21(fam119)	1.35	Abs	91750	-202.6	789.0	-5368
Mzt1	21PSBBVo00(fam56)	1.35	Abs	19360	-6422	180.7	-5246
FndFr	61E50b00800(fam138)	1.35	Abs	77940	1644	849.7	-5128
Fzt1	12lcVo00(fam25)	1.35	Abs	41770	2220	451.8	-5504

Table 2-4 Characteristic Extreme (excl. PLF). Only load cases with PLF = 1.35.

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DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads	 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 6/36
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Original Instruction: T05 0065-3555 VER 00

3. Production loads

The production loads are calculated for the main sensors of the foundation. The following loads are calculated.

Char. load Characteristic Extreme (excl. PLF, Load cases sorted without PLF). Only load cases with PLF = 1.35 and 1.50 are included in the evaluation.

Prob.: 1e-2 Load level with an exceedance probability of 1e-2

Prob.: 1e-4 Load level with an exceedance probability of 1e-4

Production loads		Char. load	Prob.:1e-2	Prob.:1e-4
M_{res}	[kNm]	91747.71	60173.96	66784.84
M_z	[kNm]	-6421.50	-2120.53	-3720.70
F_{res}	[kN]	849.73	528.04	635.74
F_z	[kN]	-5503.81	-5420.59	-5446.11

Table 3-1 Service Limit State (SLS) loads, in accordance with DIBt 2012.

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DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads	 DNV-GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 7/36
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Original Instruction: T05 0065-3555 VER 00

4. Fatigue loads

For the foundation, the mean loads have to be considered. The mean loads must be combined with either the equivalent loads or the fatigue load spectrum.


Loads are given at height: 0.20m

The equivalent loads given may be used only if the material property can be characterized by an S/N-curve with the same slope as given for the equivalent loads.

Equivalent and Mean Fatigue Foundation Loads				
		Mean load	Range m = 4	Range m = 7
Fy	[kN]	243.08	541.02	491.42
Mx	[kNm]	-28424.92	29713.12	32557.03
Mz	[kNm]	-82.37	5437.50	5118.12

Table 4-1 Fatigue loads for N=1E7 cycles.

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV-GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05 PAGE 8/36	
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Original Instruction: T05 0065-3555 VER 00

5. Stiffness of foundation

The nominal spring stiffness used for the load calculations is 120 GNm/rad resulting in a nominal tower frequency of 0.179 Hz. The spring stiffness of the foundation must be at least $C_{\psi,dyn} \geq 32$ GNm/rad for the loads to be valid. Concurrent values for rotational- and lateral stiffness of the foundation are given in Table 5-1.

Concurrent values for rotational- and lateral stiffness										
Rotational stiffness	[GNm/rad]	32	39	59	91	139	213	327	442	500
Lateral stiffness	[MN/m]	157.0	16.9	6.6	6.0	6.0	6.0	6.0	6.0	6.0

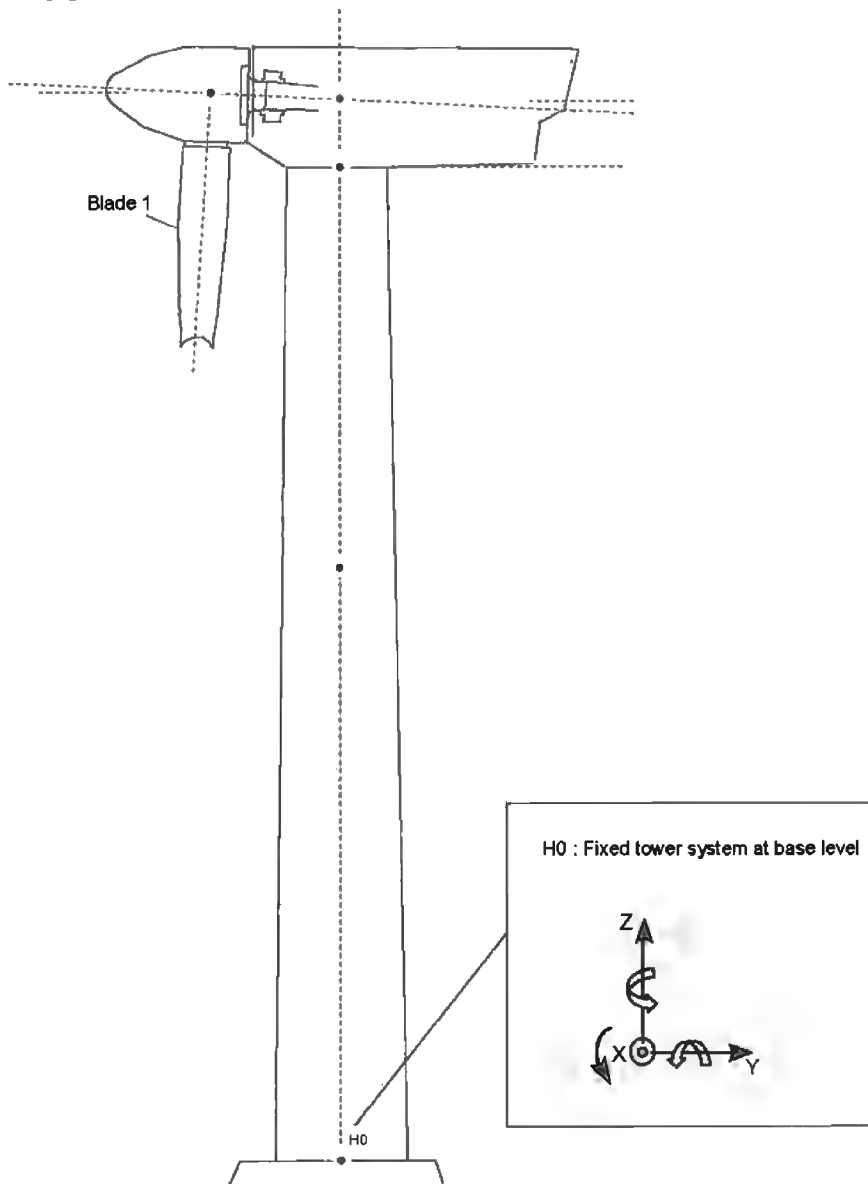
Table 5-1 Minimum lateral stiffness.

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00	DESCRIPTION: RNSP 15-428: Foundation loads	DNV GL Denmark A/S Tuborg Parkvej 8, 2 DNV GL DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 9/36
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Original Instruction: T05 0065-3555 VER 00

Appendix A. Co-ordinate systems



T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup AT 115 1, K89632314	CLASS T05 PAGE 10/36
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Appendix B. Rain flow count


This appendix contains the rain flow spectrum for the shear force, the bending moment and the torsional moment in the bottom of the tower.

Original Instruction: T05 0065-3555 VER 00

Foundation Fatigue Load Spectrum					
Tower shear, bottom F_y [kN]		Tower bending, bottom M_x [kNm]		Tower torsion, bottom M_z [kNm]	
Range	Frequency	Range	Frequency	Range	Frequency
1.2413E+03	1.0000E+01	1.1836E+05	5.8333E+00	1.1905E+04	1.0000E+01
1.1917E+03	1.7500E+00	1.1362E+05	1.6250E+01	1.1428E+04	2.2500E+01
1.1420E+03	8.1126E+01	1.0889E+05	2.3834E+01	1.0952E+04	1.0821E+02
1.0924E+03	7.1125E+01	1.0416E+05	1.3417E+01	1.0476E+04	2.3127E+02
1.0427E+03	9.6933E+02	9.9422E+04	3.5500E+01	9.9999E+03	5.0071E+02
9.9305E+02	6.8443E+02	9.4687E+04	3.7334E+01	9.5237E+03	1.5540E+03
9.4340E+02	7.3299E+02	8.9953E+04	6.6584E+01	9.0475E+03	2.7534E+03
8.9374E+02	2.1172E+03	8.5218E+04	9.0625E+01	8.5713E+03	6.6406E+03
8.4409E+02	4.9495E+03	8.0484E+04	2.1313E+02	8.0951E+03	2.6487E+04
7.9444E+02	1.3707E+04	7.5750E+04	5.1423E+02	7.6190E+03	5.0706E+04
7.4479E+02	3.7030E+04	7.1015E+04	1.4100E+03	7.1428E+03	8.8756E+04
6.9513E+02	8.7760E+04	6.6281E+04	2.0881E+03	6.6666E+03	2.0542E+05
6.4548E+02	1.5772E+05	6.1547E+04	3.7776E+03	6.1904E+03	4.3741E+05
5.9583E+02	3.5792E+05	5.6812E+04	1.4202E+04	5.7142E+03	6.6192E+05
5.4618E+02	6.3263E+05	5.2078E+04	4.0689E+04	5.2380E+03	9.2839E+05
4.9652E+02	1.3156E+06	4.7344E+04	1.5436E+05	4.7618E+03	1.4719E+06
4.4687E+02	2.4850E+06	4.2609E+04	3.5549E+05	4.2857E+03	2.6792E+06
3.9722E+02	4.7762E+06	3.7875E+04	6.4617E+05	3.8095E+03	5.0947E+06
3.4757E+02	8.9397E+06	3.3141E+04	1.0395E+06	3.3333E+03	9.0399E+06
2.9791E+02	1.8317E+07	2.8406E+04	1.8811E+06	2.8571E+03	1.7321E+07
2.4826E+02	3.2245E+07	2.3672E+04	3.1079E+06	2.3809E+03	3.1392E+07
1.9861E+02	5.6298E+07	1.8937E+04	6.3842E+06	1.9047E+03	5.2732E+07
1.4896E+02	8.9944E+07	1.4203E+04	1.7324E+07	1.4286E+03	7.7423E+07
9.9305E+01	1.6057E+08	9.4687E+03	7.9554E+07	9.5237E+02	1.0049E+08
4.9652E+01	3.3083E+08	4.7344E+03	3.8280E+08	4.7618E+02	1.9871E+08

Table B-1 Rainflow counting spectra

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DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Højbjergvej 8, 2 DK 2900 Hellerup VA. No. DK89832314		CLASS T05		PAGE 11/36
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Appendix C. Markov matrices

This appendix contains the Markov Matrices for the shear force, the bending moment and the torsional moment in the bottom of the tower.

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
6.0201E+02	2.4826E+01	2.0000E+01	4.8560E+04	0.0000E+00	5.8333E+00	4.2743E+03	0.0000E+00	2.0000E+01
6.0201E+02	0.0000E+00	8.7500E+00	4.0793E+04	0.0000E+00	3.5000E+00	3.7209E+03	2.3809E+02	2.0000E+01
5.7309E+02	2.9791E+02	2.0000E+01	3.5616E+04	2.3672E+03	1.6250E+01	3.1675E+03	4.7618E+02	5.0585E+01
5.7309E+02	1.7378E+02	2.0000E+01	3.3027E+04	9.4687E+03	3.5000E+00	3.1675E+03	0.0000E+00	2.3934E+02
5.7309E+02	9.9305E+01	1.1667E+01	3.3027E+04	2.3672E+03	9.3333E+00	2.8908E+03	7.1428E+02	4.5986E+02
5.7309E+02	7.4479E+01	1.2933E+02	3.3027E+04	0.0000E+00	2.4584E+01	2.8908E+03	4.7618E+02	5.0585E+01
5.7309E+02	4.9652E+01	7.5833E+00	3.0438E+04	4.7344E+03	3.5000E+00	2.8908E+03	2.3809E+02	6.4004E+02
5.7309E+02	2.4826E+01	2.4927E+03	3.0438E+04	2.3672E+03	3.5000E+00	2.8908E+03	0.0000E+00	1.0403E+04
5.7309E+02	0.0000E+00	1.9537E+02	3.0438E+04	0.0000E+00	1.2833E+01	2.6141E+03	3.0952E+03	1.1339E+03
5.4416E+02	1.9861E+02	2.0000E+01	2.7850E+04	1.1836E+04	6.0000E+00	2.6141E+03	1.1905E+03	6.2590E+02
5.4416E+02	1.7378E+02	6.8886E+03	2.7850E+04	9.4687E+03	3.5000E+00	2.6141E+03	4.7618E+02	6.0000E+01
5.4416E+02	1.4896E+02	1.1750E+02	2.7850E+04	4.7344E+03	1.7417E+01	2.6141E+03	2.3809E+02	2.8860E+03
5.4416E+02	1.2413E+02	2.0350E+02	2.7850E+04	2.3672E+03	3.5000E+01	2.6141E+03	0.0000E+00	2.9407E+04
5.4416E+02	9.9305E+01	6.9062E+03	2.7850E+04	0.0000E+00	5.2417E+01	2.3374E+03	4.0476E+03	4.0000E+01
5.4416E+02	7.4479E+01	1.1833E+01	2.5261E+04	9.4687E+03	3.5000E+00	2.3374E+03	3.0952E+03	3.5000E+00
5.4416E+02	4.9652E+01	1.3786E+03	2.5261E+04	7.1015E+03	7.0000E+00	2.3374E+03	2.1428E+03	1.7500E+00
5.4416E+02	2.4826E+01	1.1835E+04	2.5261E+04	4.7344E+03	3.0417E+01	2.3374E+03	1.4286E+03	1.1539E+03
5.4416E+02	0.0000E+00	1.8800E+04	2.5261E+04	2.3672E+03	3.6500E+01	2.3374E+03	1.1905E+03	1.1339E+03
5.1523E+02	3.9722E+02	2.0000E+01	2.5261E+04	0.0000E+00	2.6833E+01	2.3374E+03	9.5237E+02	6.7769E+03
5.1523E+02	3.2274E+02	2.7083E+01	2.2672E+04	1.4203E+04	6.0000E+00	2.3374E+03	7.1428E+02	6.6147E+03
5.1523E+02	2.9791E+02	2.5292E+01	2.2672E+04	9.4687E+03	1.3000E+01	2.3374E+03	4.7618E+02	8.6327E+03
5.1523E+02	2.7309E+02	1.2357E+04	2.2672E+04	7.1015E+03	2.6000E+01	2.3374E+03	2.3809E+02	1.5808E+04
5.1523E+02	2.4826E+02	4.9384E+03	2.2672E+04	4.7344E+03	1.6500E+01	2.3374E+03	0.0000E+00	9.1141E+04
5.1523E+02	2.2344E+02	1.2523E+04	2.2672E+04	2.3672E+03	9.1333E+01	2.0607E+03	3.8095E+03	2.0833E+00
5.1523E+02	1.9861E+02	2.2067E+02	2.2672E+04	0.0000E+00	1.2533E+02	2.0607E+03	3.5714E+03	2.5000E+00
5.1523E+02	1.7378E+02	2.9366E+04	2.0083E+04	9.4687E+03	1.2000E+01	2.0607E+03	3.3333E+03	2.0000E+01
5.1523E+02	1.4896E+02	7.4711E+04	2.0083E+04	7.1015E+03	1.7500E+01	2.0607E+03	2.8571E+03	4.6569E+02
5.1523E+02	1.2413E+02	7.0360E+04	2.0083E+04	4.7344E+03	5.7417E+01	2.0607E+03	2.6190E+03	2.0000E+01
5.1523E+02	9.9305E+01	9.2957E+04	2.0083E+04	2.3672E+03	7.8750E+01	2.0607E+03	2.1428E+03	3.5000E+00
5.1523E+02	7.4479E+01	9.8939E+04	2.0083E+04	0.0000E+00	5.5500E+01	2.0607E+03	1.9047E+03	2.4109E+03
5.1523E+02	4.9652E+01	6.6067E+04	1.7495E+04	4.7344E+04	1.7500E+00	2.0607E+03	1.6666E+03	1.2529E+02
5.1523E+02	2.4826E+01	1.3463E+05	1.7495E+04	1.1836E+04	1.3000E+01	2.0607E+03	1.4286E+03	6.7862E+03

Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

T04 0053-2020 Ver 06 - Approved- Exported from DMS: 2021-02-03 by INVOL

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05	
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
5.1523E+02	0.0000E+00	2.2697E+05	1.7495E+04	9.4687E+03	6.0000E+00	2.0607E+03	1.1905E+03	5.3748E+03
4.8631E+02	6.7031E+02	5.0000E+01	1.7495E+04	7.1015E+03	2.8333E+01	2.0607E+03	9.5237E+02	8.8372E+03
4.8631E+02	4.7170E+02	4.0000E+01	1.7495E+04	4.7344E+03	4.0000E+01	2.0607E+03	7.1428E+02	6.1536E+03
4.8631E+02	4.4687E+02	5.0585E+01	1.7495E+04	2.3672E+03	1.3933E+02	2.0607E+03	4.7618E+02	2.2094E+04
4.8631E+02	4.2205E+02	8.5415E+01	1.7495E+04	0.0000E+00	5.0592E+02	2.0607E+03	2.3809E+02	1.3576E+05
4.8631E+02	3.9722E+02	1.6604E+02	1.4906E+04	4.4976E+04	3.5000E+00	2.0607E+03	0.0000E+00	2.2704E+05
4.8631E+02	3.7239E+02	2.3187E+02	1.4906E+04	4.2609E+04	1.7500E+00	1.7840E+03	5.7142E+03	1.7500E+00
4.8631E+02	3.4757E+02	1.0642E+02	1.4906E+04	4.0242E+04	5.2500E+00	1.7840E+03	4.2857E+03	2.0000E+01
4.8631E+02	3.2274E+02	1.8662E+04	1.4906E+04	3.3141E+04	1.7500E+00	1.7840E+03	4.0476E+03	1.1339E+03
4.8631E+02	2.9791E+02	1.3069E+04	1.4906E+04	3.0773E+04	1.7500E+00	1.7840E+03	3.8095E+03	2.5000E+00
4.8631E+02	2.7309E+02	3.3329E+04	1.4906E+04	1.1836E+04	9.5000E+00	1.7840E+03	3.5714E+03	1.2539E+03
4.8631E+02	2.4826E+02	8.1728E+04	1.4906E+04	9.4687E+03	2.5000E+00	1.7840E+03	3.3333E+03	1.1539E+03
4.8631E+02	2.2344E+02	1.3987E+05	1.4906E+04	7.1015E+03	3.5500E+01	1.7840E+03	3.0952E+03	1.2283E+04
4.8631E+02	1.9861E+02	2.8457E+05	1.4906E+04	4.7344E+03	1.4833E+02	1.7840E+03	2.8571E+03	1.0683E+02
4.8631E+02	1.7378E+02	5.5978E+05	1.4906E+04	2.3672E+03	3.1692E+02	1.7840E+03	2.6190E+03	4.8149E+03
4.8631E+02	1.4896E+02	6.9240E+05	1.4906E+04	0.0000E+00	8.8100E+02	1.7840E+03	2.3809E+03	4.9868E+03
4.8631E+02	1.2413E+02	8.6769E+05	1.2317E+04	8.2851E+04	2.9167E+00	1.7840E+03	2.1428E+03	2.0705E+04
4.8631E+02	9.9305E+01	9.6759E+05	1.2317E+04	7.1015E+04	2.9167E+00	1.7840E+03	1.9047E+03	4.9625E+04
4.8631E+02	7.4479E+01	1.1435E+06	1.2317E+04	5.9179E+04	4.6666E+00	1.7840E+03	1.6666E+03	1.0467E+04
4.8631E+02	4.9652E+01	1.1662E+06	1.2317E+04	5.2078E+04	1.7500E+00	1.7840E+03	1.4286E+03	2.3024E+04
4.8631E+02	2.4826E+01	8.0446E+05	1.2317E+04	4.0242E+04	8.7500E+00	1.7840E+03	1.1905E+03	3.1630E+04
4.8631E+02	0.0000E+00	1.0415E+06	1.2317E+04	3.7875E+04	1.5750E+01	1.7840E+03	9.5237E+02	5.6097E+04
4.5738E+02	6.9513E+02	5.0000E+01	1.2317E+04	3.5508E+04	7.0000E+00	1.7840E+03	7.1428E+02	3.9583E+04
4.5738E+02	6.2065E+02	5.0000E+01	1.2317E+04	3.3141E+04	3.5000E+00	1.7840E+03	4.7618E+02	9.0634E+04
4.5738E+02	5.7100E+02	2.2917E+00	1.2317E+04	3.0773E+04	5.2500E+00	1.7840E+03	2.3809E+02	3.1223E+05
4.5738E+02	5.4618E+02	1.7125E+02	1.2317E+04	2.8406E+04	1.0500E+01	1.7840E+03	0.0000E+00	6.2908E+05
4.5738E+02	5.2135E+02	5.2083E+01	1.2317E+04	2.6039E+04	1.7500E+00	1.5073E+03	5.9523E+03	1.7500E+00
4.5738E+02	4.7170E+02	7.9115E+03	1.2317E+04	2.3672E+04	3.5000E+00	1.5073E+03	5.4761E+03	2.0000E+01
4.5738E+02	4.4687E+02	1.2524E+04	1.2317E+04	1.8937E+04	7.0000E+00	1.5073E+03	4.5238E+03	1.1369E+03
4.5738E+02	4.2205E+02	1.8984E+04	1.2317E+04	1.6570E+04	7.0000E+00	1.5073E+03	4.2857E+03	3.5814E+03
4.5738E+02	3.9722E+02	1.9857E+04	1.2317E+04	1.4203E+04	2.0000E+01	1.5073E+03	4.0476E+03	1.5938E+03
4.5738E+02	3.7239E+02	6.1418E+04	1.2317E+04	1.1836E+04	3.5000E+00	1.5073E+03	3.8095E+03	2.0833E+00
4.5738E+02	3.4757E+02	8.0367E+04	1.2317E+04	9.4687E+03	1.5500E+01	1.5073E+03	3.5714E+03	1.3823E+04
4.5738E+02	3.2274E+02	1.4570E+05	1.2317E+04	7.1015E+03	6.6834E+01	1.5073E+03	3.3333E+03	2.0241E+04
4.5738E+02	2.9791E+02	2.7954E+05	1.2317E+04	4.7344E+03	1.0800E+02	1.5073E+03	3.0952E+03	1.4797E+04

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK9832314	CLASS T05 PAGE 13/36
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
4.5738E+02	2.7309E+02	5.7058E+05	1.2317E+04	2.3672E+03	7.1665E+03	1.5073E+03	2.8571E+03	1.7640E+04
4.5738E+02	2.4826E+02	6.6453E+05	1.2317E+04	0.0000E+00	8.0107E+03	1.5073E+03	2.6190E+03	8.4446E+03
4.5738E+02	2.2344E+02	9.6560E+05	9.7285E+03	7.8117E+04	2.9167E+00	1.5073E+03	2.3809E+03	4.6141E+04
4.5738E+02	1.9861E+02	1.8011E+06	9.7285E+03	4.7344E+04	1.7500E+00	1.5073E+03	2.1428E+03	3.2051E+04
4.5738E+02	1.7378E+02	2.5162E+06	9.7285E+03	4.4976E+04	3.5000E+00	1.5073E+03	1.9047E+03	4.3444E+04
4.5738E+02	1.4896E+02	3.1154E+06	9.7285E+03	4.2609E+04	1.7500E+00	1.5073E+03	1.6666E+03	1.3382E+05
4.5738E+02	1.2413E+02	3.8386E+06	9.7285E+03	4.0242E+04	1.7500E+00	1.5073E+03	1.4286E+03	1.5419E+05
4.5738E+02	9.9305E+01	4.6118E+06	9.7285E+03	3.7875E+04	8.7500E+00	1.5073E+03	1.1905E+03	9.5797E+04
4.5738E+02	7.4479E+01	4.5720E+06	9.7285E+03	3.5508E+04	5.2500E+00	1.5073E+03	9.5237E+02	1.1876E+05
4.5738E+02	4.9652E+01	3.6352E+06	9.7285E+03	3.3141E+04	1.9250E+01	1.5073E+03	7.1428E+02	1.4715E+05
4.5738E+02	2.4826E+01	2.9909E+06	9.7285E+03	3.0773E+04	1.4000E+01	1.5073E+03	4.7618E+02	2.2772E+05
4.5738E+02	0.0000E+00	3.5666E+06	9.7285E+03	2.8406E+04	7.1667E+01	1.5073E+03	2.3809E+02	8.0032E+05
4.2845E+02	6.4548E+02	5.0000E+01	9.7285E+03	2.6039E+04	7.0000E+00	1.5073E+03	0.0000E+00	1.7401E+06
4.2845E+02	6.2065E+02	2.5000E+00	9.7285E+03	2.3672E+04	5.2500E+00	1.2306E+03	7.1428E+03	1.0000E+01
4.2845E+02	5.9583E+02	5.0000E+01	9.7285E+03	2.1305E+04	5.2500E+00	1.2306E+03	6.1904E+03	2.2917E+00
4.2845E+02	5.7100E+02	3.4384E+03	9.7285E+03	1.8937E+04	1.0500E+01	1.2306E+03	5.9523E+03	2.0000E+01
4.2845E+02	5.4618E+02	1.2000E+02	9.7285E+03	1.6570E+04	1.0500E+01	1.2306E+03	5.7142E+03	5.6695E+02
4.2845E+02	5.2135E+02	1.2234E+04	9.7285E+03	1.4203E+04	2.7000E+01	1.2306E+03	5.2380E+03	2.0000E+01
4.2845E+02	4.9652E+02	3.4642E+04	9.7285E+03	1.1836E+04	1.3000E+01	1.2306E+03	4.9999E+03	5.0585E+01
4.2845E+02	4.7170E+02	2.6061E+04	9.7285E+03	9.4687E+03	2.1717E+02	1.2306E+03	4.7618E+03	2.1954E+02
4.2845E+02	4.4687E+02	3.3473E+04	9.7285E+03	7.1015E+03	2.3175E+02	1.2306E+03	4.5238E+03	1.5938E+03
4.2845E+02	4.2205E+02	3.8321E+04	9.7285E+03	4.7344E+03	1.8975E+02	1.2306E+03	4.2857E+03	6.5497E+02
4.2845E+02	3.9722E+02	1.2867E+05	9.7285E+03	2.3672E+03	1.4257E+04	1.2306E+03	4.0476E+03	3.4523E+03
4.2845E+02	3.7239E+02	1.8005E+05	9.7285E+03	0.0000E+00	6.5991E+04	1.2306E+03	3.8095E+03	7.9702E+03
4.2845E+02	3.4757E+02	2.9224E+05	7.1397E+03	8.0484E+04	2.9167E+00	1.2306E+03	3.5714E+03	2.6510E+04
4.2845E+02	3.2274E+02	5.4446E+05	7.1397E+03	7.5750E+04	2.9167E+00	1.2306E+03	3.3333E+03	2.2356E+04
4.2845E+02	2.9791E+02	1.1382E+06	7.1397E+03	7.1015E+04	5.8333E+00	1.2306E+03	3.0952E+03	4.9931E+04
4.2845E+02	2.7309E+02	1.8554E+06	7.1397E+03	6.8648E+04	5.8333E+00	1.2306E+03	2.8571E+03	7.6159E+04
4.2845E+02	2.4826E+02	2.5462E+06	7.1397E+03	5.6812E+04	1.7500E+00	1.2306E+03	2.6190E+03	7.9989E+04
4.2845E+02	2.2344E+02	3.9366E+06	7.1397E+03	5.2078E+04	3.5000E+00	1.2306E+03	2.3809E+03	1.4297E+05
4.2845E+02	1.9861E+02	4.8778E+06	7.1397E+03	4.9711E+04	1.7500E+00	1.2306E+03	2.1428E+03	2.8695E+05
4.2845E+02	1.7378E+02	6.8598E+06	7.1397E+03	4.7344E+04	5.2500E+00	1.2306E+03	1.9047E+03	4.0357E+05
4.2845E+02	1.4896E+02	8.1329E+06	7.1397E+03	4.2609E+04	5.2500E+00	1.2306E+03	1.6666E+03	3.9200E+05
4.2845E+02	1.2413E+02	9.7496E+06	7.1397E+03	4.0242E+04	8.7500E+00	1.2306E+03	1.4286E+03	5.3557E+05
4.2845E+02	9.9305E+01	9.9363E+06	7.1397E+03	3.7875E+04	8.7500E+00	1.2306E+03	1.1905E+03	5.1915E+05

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05		PAGE 14/36
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
4.2845E+02	7.4479E+01	9.5173E+06	7.1397E+03	3.5508E+04	3.5000E+00	1.2306E+03	9.5237E+02	5.2227E+05
4.2845E+02	4.9652E+01	7.7791E+06	7.1397E+03	3.0773E+04	1.5750E+01	1.2306E+03	7.1428E+02	4.9454E+05
4.2845E+02	2.4826E+01	6.1164E+06	7.1397E+03	2.8406E+04	3.0917E+01	1.2306E+03	4.7618E+02	9.8212E+05
4.2845E+02	0.0000E+00	6.1366E+06	7.1397E+03	2.6039E+04	1.5750E+01	1.2306E+03	2.3809E+02	2.2128E+06
3.9953E+02	1.0675E+03	2.0000E+01	7.1397E+03	2.3672E+04	2.4725E+02	1.2306E+03	0.0000E+00	3.5470E+06
3.9953E+02	1.0179E+03	8.3333E+01	7.1397E+03	2.1305E+04	3.4183E+02	9.5390E+02	1.0238E+04	1.0000E+01
3.9953E+02	9.9305E+02	4.1667E+01	7.1397E+03	1.8937E+04	2.9842E+02	9.5390E+02	9.2856E+03	1.2500E+00
3.9953E+02	6.9513E+02	1.6604E+02	7.1397E+03	1.6570E+04	3.2033E+02	9.5390E+02	8.8094E+03	1.0000E+01
3.9953E+02	6.4548E+02	2.2500E+01	7.1397E+03	1.4203E+04	3.4932E+03	9.5390E+02	7.3809E+03	3.0000E+01
3.9953E+02	6.2065E+02	6.7156E+03	7.1397E+03	1.1836E+04	7.7750E+01	9.5390E+02	7.1428E+03	4.1667E+01
3.9953E+02	5.9583E+02	5.8380E+03	7.1397E+03	9.4687E+03	2.2317E+02	9.5390E+02	6.9047E+03	3.0000E+01
3.9953E+02	5.7100E+02	1.1996E+04	7.1397E+03	7.1015E+03	7.2667E+01	9.5390E+02	6.6666E+03	8.4585E+01
3.9953E+02	5.4618E+02	1.4821E+04	7.1397E+03	4.7344E+03	2.5383E+03	9.5390E+02	6.4285E+03	2.0000E+01
3.9953E+02	5.2135E+02	1.8939E+04	7.1397E+03	2.3672E+03	4.6048E+04	9.5390E+02	6.1904E+03	1.6604E+02
3.9953E+02	4.9652E+02	3.9402E+04	7.1397E+03	0.0000E+00	3.1109E+05	9.5390E+02	5.9523E+03	4.2500E+01
3.9953E+02	4.7170E+02	5.8318E+04	4.5510E+03	7.1015E+04	2.9167E+00	9.5390E+02	5.7142E+03	9.7961E+01
3.9953E+02	4.4687E+02	1.5652E+05	4.5510E+03	5.9179E+04	1.2500E+00	9.5390E+02	5.2380E+03	4.6475E+02
3.9953E+02	4.2205E+02	2.3766E+05	4.5510E+03	4.9711E+04	1.7500E+00	9.5390E+02	4.9999E+03	1.1939E+03
3.9953E+02	3.9722E+02	4.0209E+05	4.5510E+03	4.7344E+04	2.9167E+00	9.5390E+02	4.7618E+03	6.7836E+02
3.9953E+02	3.7239E+02	5.6339E+05	4.5510E+03	4.4976E+04	3.0000E+00	9.5390E+02	4.5238E+03	1.2495E+03
3.9953E+02	3.4757E+02	8.9526E+05	4.5510E+03	4.0242E+04	6.9333E+01	9.5390E+02	4.2857E+03	4.2114E+03
3.9953E+02	3.2274E+02	1.2043E+06	4.5510E+03	3.7875E+04	3.5000E+00	9.5390E+02	4.0476E+03	2.5966E+04
3.9953E+02	2.9791E+02	1.6564E+06	4.5510E+03	3.5508E+04	4.6666E+00	9.5390E+02	3.8095E+03	5.3314E+04
3.9953E+02	2.7309E+02	2.5794E+06	4.5510E+03	3.3141E+04	1.4583E+01	9.5390E+02	3.5714E+03	4.8003E+04
3.9953E+02	2.4826E+02	3.7597E+06	4.5510E+03	3.0773E+04	4.3917E+01	9.5390E+02	3.3333E+03	4.8419E+04
3.9953E+02	2.2344E+02	4.5366E+06	4.5510E+03	2.8406E+04	9.7249E+01	9.5390E+02	3.0952E+03	9.2298E+04
3.9953E+02	1.9861E+02	6.3179E+06	4.5510E+03	2.6039E+04	1.8858E+02	9.5390E+02	2.8571E+03	2.3145E+05
3.9953E+02	1.7378E+02	7.8948E+06	4.5510E+03	2.3672E+04	1.2750E+02	9.5390E+02	2.6190E+03	2.5735E+05
3.9953E+02	1.4896E+02	9.5302E+06	4.5510E+03	2.1305E+04	8.6667E+01	9.5390E+02	2.3809E+03	3.8335E+05
3.9953E+02	1.2413E+02	1.1202E+07	4.5510E+03	1.8937E+04	3.5267E+02	9.5390E+02	2.1428E+03	6.2039E+05
3.9953E+02	9.9305E+01	1.1959E+07	4.5510E+03	1.6570E+04	9.9283E+02	9.5390E+02	1.9047E+03	9.0519E+05
3.9953E+02	7.4479E+01	1.1412E+07	4.5510E+03	1.4203E+04	9.5866E+02	9.5390E+02	1.6666E+03	8.7718E+05
3.9953E+02	4.9652E+01	9.8419E+06	4.5510E+03	1.1836E+04	7.1142E+03	9.5390E+02	1.4286E+03	1.3125E+06
3.9953E+02	2.4826E+01	7.3397E+06	4.5510E+03	9.4687E+03	1.4340E+04	9.5390E+02	1.1905E+03	1.5934E+06
3.9953E+02	0.0000E+00	7.4955E+06	4.5510E+03	7.1015E+03	4.6414E+03	9.5390E+02	9.5237E+02	1.4762E+06


T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0085-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		INVOIC Denmark A/S Hedeagervej 44, 8200 Aarhus N, Denmark DNV-GL VAT No. DK89832314		CLASS T05		PAGE 15/36	
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
3.7060E+02	1.0427E+03	4.1667E+01	4.5510E+03	4.7344E+03	1.4229E+04	9.5390E+02	7.1428E+02	1.5672E+06
3.7060E+02	9.9305E+02	2.0000E+01	4.5510E+03	2.3672E+03	1.0703E+05	9.5390E+02	4.7618E+02	2.0931E+06
3.7060E+02	8.6892E+02	1.9667E+02	4.5510E+03	0.0000E+00	7.7848E+05	9.5390E+02	2.3809E+02	4.7926E+06
3.7060E+02	8.1926E+02	1.2500E+00	1.9622E+03	8.7586E+04	2.9167E+00	9.5390E+02	0.0000E+00	1.0097E+07
3.7060E+02	7.6961E+02	1.2500E+00	1.9622E+03	6.8648E+04	1.2500E+00	6.7720E+02	9.7618E+03	1.0000E+01
3.7060E+02	7.4479E+02	5.0000E+00	1.9622E+03	6.1547E+04	4.1666E+00	6.7720E+02	9.2856E+03	2.5292E+01
3.7060E+02	7.1996E+02	4.5833E+00	1.9622E+03	5.4445E+04	1.2500E+00	6.7720E+02	8.8094E+03	1.0000E+01
3.7060E+02	6.9513E+02	2.2993E+02	1.9622E+03	4.4976E+04	4.7500E+00	6.7720E+02	8.3332E+03	5.0585E+01
3.7060E+02	6.7031E+02	5.3532E+03	1.9622E+03	4.2609E+04	1.2500E+00	6.7720E+02	8.0951E+03	3.0000E+01
3.7060E+02	6.4548E+02	2.0000E+01	1.9622E+03	4.0242E+04	2.9167E+00	6.7720E+02	7.6190E+03	2.3993E+02
3.7060E+02	6.2065E+02	4.8412E+03	1.9622E+03	3.7875E+04	9.3333E+00	6.7720E+02	7.3809E+03	2.0000E+01
3.7060E+02	5.9583E+02	1.3728E+04	1.9622E+03	3.5508E+04	3.0667E+01	6.7720E+02	7.1428E+03	9.0585E+01
3.7060E+02	5.7100E+02	1.9948E+04	1.9622E+03	3.3141E+04	3.6500E+01	6.7720E+02	6.9047E+03	6.4004E+02
3.7060E+02	5.4618E+02	1.5776E+04	1.9622E+03	3.0773E+04	7.2250E+01	6.7720E+02	6.6666E+03	1.5517E+02
3.7060E+02	5.2135E+02	5.0853E+04	1.9622E+03	2.8406E+04	7.5166E+01	6.7720E+02	6.4285E+03	8.0982E+02
3.7060E+02	4.9652E+02	1.2419E+05	1.9622E+03	2.6039E+04	8.6250E+01	6.7720E+02	6.1904E+03	2.8913E+02
3.7060E+02	4.7170E+02	1.3389E+05	1.9622E+03	2.3672E+04	2.0417E+01	6.7720E+02	5.9523E+03	1.0233E+02
3.7060E+02	4.4687E+02	1.4153E+05	1.9622E+03	2.1305E+04	4.6333E+01	6.7720E+02	5.7142E+03	5.7329E+02
3.7060E+02	4.2205E+02	1.8490E+05	1.9622E+03	1.8937E+04	3.4622E+03	6.7720E+02	5.4761E+03	4.6475E+02
3.7060E+02	3.9722E+02	3.0490E+05	1.9622E+03	1.6570E+04	6.1825E+02	6.7720E+02	5.2380E+03	3.2805E+03
3.7060E+02	3.7239E+02	4.4198E+05	1.9622E+03	1.4203E+04	7.0995E+03	6.7720E+02	4.9999E+03	3.2364E+03
3.7060E+02	3.4757E+02	6.3219E+05	1.9622E+03	1.1836E+04	5.6285E+03	6.7720E+02	4.7618E+03	1.0155E+03
3.7060E+02	3.2274E+02	7.8846E+05	1.9622E+03	9.4687E+03	7.4368E+03	6.7720E+02	4.5238E+03	3.1656E+04
3.7060E+02	2.9791E+02	1.2175E+06	1.9622E+03	7.1015E+03	3.0402E+04	6.7720E+02	4.2857E+03	2.8268E+04
3.7060E+02	2.7309E+02	1.6223E+06	1.9622E+03	4.7344E+03	2.7298E+05	6.7720E+02	4.0476E+03	5.5869E+04
3.7060E+02	2.4826E+02	2.1282E+06	1.9622E+03	2.3672E+03	1.7373E+06	6.7720E+02	3.8095E+03	8.3747E+04
3.7060E+02	2.2344E+02	2.9717E+06	1.9622E+03	0.0000E+00	2.4491E+07	6.7720E+02	3.5714E+03	1.1329E+05
3.7060E+02	1.9861E+02	3.8257E+06	-6.2650E+02	6.8648E+04	1.2500E+00	6.7720E+02	3.3333E+03	2.8421E+05
3.7060E+02	1.7378E+02	5.2425E+06	-6.2650E+02	6.6281E+04	5.8333E+00	6.7720E+02	3.0952E+03	2.8514E+05
3.7060E+02	1.4896E+02	5.8933E+06	-6.2650E+02	6.3914E+04	2.9167E+00	6.7720E+02	2.8571E+03	4.0987E+05
3.7060E+02	1.2413E+02	7.4427E+06	-6.2650E+02	6.1547E+04	1.2500E+00	6.7720E+02	2.6190E+03	5.7816E+05
3.7060E+02	9.9305E+01	8.7087E+06	-6.2650E+02	5.9179E+04	1.2500E+00	6.7720E+02	2.3809E+03	1.0574E+06
3.7060E+02	7.4479E+01	9.4179E+06	-6.2650E+02	5.6812E+04	1.2500E+00	6.7720E+02	2.1428E+03	1.3761E+06
3.7060E+02	4.9652E+01	8.5276E+06	-6.2650E+02	5.4445E+04	2.9167E+00	6.7720E+02	1.9047E+03	1.7296E+06
3.7060E+02	2.4826E+01	6.8689E+06	-6.2650E+02	4.9711E+04	1.2500E+00	6.7720E+02	1.6666E+03	2.2705E+06

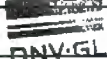
T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by AFRRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 6, 2 DK-2900 Hellerup VAT No. DK89652314		CLASS T05 PAGE 16/36	
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
3.7060E+02	0.0000E+00	7.3941E+06	-6.2650E+02	4.7344E+04	4.4167E+01	6.7720E+02	1.4286E+03	2.7551E+06
3.4167E+02	1.0675E+03	1.0000E+01	-6.2650E+02	4.4976E+04	5.0000E+00	6.7720E+02	1.1905E+03	3.2342E+06
3.4167E+02	9.6822E+02	2.2917E+00	-6.2650E+02	4.0242E+04	7.9166E+00	6.7720E+02	9.5237E+02	3.5811E+06
3.4167E+02	9.1857E+02	1.0417E+00	-6.2650E+02	3.7875E+04	1.2500E+00	6.7720E+02	7.1428E+02	3.5350E+06
3.4167E+02	8.9374E+02	1.2500E+00	-6.2650E+02	3.5508E+04	2.5000E+00	6.7720E+02	4.7618E+02	4.7838E+06
3.4167E+02	8.6892E+02	1.1042E+01	-6.2650E+02	3.3141E+04	4.1667E+01	6.7720E+02	2.3809E+02	9.4946E+06
3.4167E+02	8.4409E+02	5.0000E+01	-6.2650E+02	3.0773E+04	1.4333E+01	6.7720E+02	0.0000E+00	1.7170E+07
3.4167E+02	8.1926E+02	4.5833E+00	-6.2650E+02	2.8406E+04	3.3429E+03	4.0049E+02	1.0476E+04	1.2500E+00
3.4167E+02	7.9444E+02	8.3020E+01	-6.2650E+02	2.6039E+04	1.7000E+01	4.0049E+02	9.9999E+03	2.5292E+01
3.4167E+02	7.6961E+02	3.1250E+01	-6.2650E+02	2.3672E+04	1.7917E+01	4.0049E+02	9.2856E+03	1.0000E+01
3.4167E+02	7.4479E+02	1.2521E+02	-6.2650E+02	2.1305E+04	4.4614E+03	4.0049E+02	9.0475E+03	4.0000E+01
3.4167E+02	7.1996E+02	2.9926E+03	-6.2650E+02	1.8937E+04	1.5231E+03	4.0049E+02	8.8094E+03	2.6097E+02
3.4167E+02	6.9513E+02	5.3776E+03	-6.2650E+02	1.6570E+04	1.3538E+03	4.0049E+02	8.5713E+03	1.1250E+01
3.4167E+02	6.7031E+02	1.0675E+04	-6.2650E+02	1.4203E+04	5.2032E+03	4.0049E+02	8.3332E+03	4.2292E+01
3.4167E+02	6.4548E+02	5.7508E+03	-6.2650E+02	1.1836E+04	4.2503E+03	4.0049E+02	8.0951E+03	6.0320E+02
3.4167E+02	6.2065E+02	2.5025E+04	-6.2650E+02	9.4687E+03	9.4613E+03	4.0049E+02	7.8570E+03	2.0000E+01
3.4167E+02	5.9583E+02	2.4256E+04	-6.2650E+02	7.1015E+03	4.7954E+04	4.0049E+02	7.6190E+03	1.1307E+03
3.4167E+02	5.7100E+02	5.2403E+04	-6.2650E+02	4.7344E+03	2.2710E+05	4.0049E+02	7.3809E+03	6.0949E+02
3.4167E+02	5.4618E+02	5.7547E+04	-6.2650E+02	2.3672E+03	1.2966E+06	4.0049E+02	7.1428E+03	2.7851E+02
3.4167E+02	5.2135E+02	8.0230E+04	-6.2650E+02	0.0000E+00	6.2056E+06	4.0049E+02	6.9047E+03	1.5047E+03
3.4167E+02	4.9652E+02	1.2345E+05	-3.2152E+03	6.3914E+04	1.2500E+00	4.0049E+02	6.6666E+03	7.4950E+02
3.4167E+02	4.7170E+02	1.2208E+05	-3.2152E+03	5.9179E+04	1.2500E+00	4.0049E+02	6.4285E+03	1.0752E+03
3.4167E+02	4.4687E+02	1.8309E+05	-3.2152E+03	5.4445E+04	2.9167E+00	4.0049E+02	6.1904E+03	1.9814E+04
3.4167E+02	4.2205E+02	2.9099E+05	-3.2152E+03	5.2078E+04	1.2500E+00	4.0049E+02	5.9523E+03	9.3822E+02
3.4167E+02	3.9722E+02	2.4558E+05	-3.2152E+03	4.9711E+04	2.5000E+00	4.0049E+02	5.7142E+03	2.5642E+04
3.4167E+02	3.7239E+02	4.1102E+05	-3.2152E+03	4.7344E+04	8.3333E+00	4.0049E+02	5.4761E+03	7.7171E+03
3.4167E+02	3.4757E+02	4.7755E+05	-3.2152E+03	4.4976E+04	3.7500E+00	4.0049E+02	5.2380E+03	8.3341E+03
3.4167E+02	3.2274E+02	6.3928E+05	-3.2152E+03	4.2609E+04	4.9167E+01	4.0049E+02	4.9999E+03	1.4689E+04
3.4167E+02	2.9791E+02	9.7604E+05	-3.2152E+03	4.0242E+04	1.7292E+02	4.0049E+02	4.7618E+03	2.8671E+04
3.4167E+02	2.7309E+02	1.3528E+06	-3.2152E+03	3.7875E+04	1.3917E+02	4.0049E+02	4.5238E+03	4.9892E+04
3.4167E+02	2.4826E+02	1.4284E+06	-3.2152E+03	3.5508E+04	1.3333E+01	4.0049E+02	4.2857E+03	9.3866E+04
3.4167E+02	2.2344E+02	2.0020E+06	-3.2152E+03	3.3141E+04	1.8417E+02	4.0049E+02	4.0476E+03	1.1255E+05
3.4167E+02	1.9861E+02	2.5384E+06	-3.2152E+03	3.0773E+04	1.5000E+01	4.0049E+02	3.8095E+03	2.0903E+05
3.4167E+02	1.7378E+02	3.0718E+06	-3.2152E+03	2.8406E+04	1.7446E+02	4.0049E+02	3.5714E+03	3.3622E+05
3.4167E+02	1.4896E+02	3.8107E+06	-3.2152E+03	2.6039E+04	2.9084E+02	4.0049E+02	3.3333E+03	3.6254E+05


T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tjørnegård Parkvej 8, 2 DK-2700 Hellerup MA: 1401 12822832344		CLASS T05	
				PAGE 17/36			

Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
3.4167E+02	1.2413E+02	4.8888E+06	-3.2152E+03	2.3672E+04	3.4971E+03	4.0049E+02	3.0952E+03	5.9433E+05
3.4167E+02	9.9305E+01	6.1449E+06	-3.2152E+03	2.1305E+04	3.7025E+03	4.0049E+02	2.8571E+03	7.5025E+05
3.4167E+02	7.4479E+01	6.8504E+06	-3.2152E+03	1.8937E+04	2.2729E+03	4.0049E+02	2.6190E+03	1.1423E+06
3.4167E+02	4.9652E+01	7.0291E+06	-3.2152E+03	1.6570E+04	5.2553E+03	4.0049E+02	2.3809E+03	1.4608E+06
3.4167E+02	2.4826E+01	6.1929E+06	-3.2152E+03	1.4203E+04	2.6046E+03	4.0049E+02	2.1428E+03	1.9968E+06
3.4167E+02	0.0000E+00	5.9708E+06	-3.2152E+03	1.1836E+04	1.7870E+04	4.0049E+02	1.9047E+03	2.7791E+06
3.1274E+02	1.0427E+03	2.2993E+02	-3.2152E+03	9.4687E+03	2.3598E+04	4.0049E+02	1.6666E+03	3.7948E+06
3.1274E+02	1.0179E+03	2.5097E+02	-3.2152E+03	7.1015E+03	3.6964E+04	4.0049E+02	1.4286E+03	5.2671E+06
3.1274E+02	9.9305E+02	1.0000E+01	-3.2152E+03	4.7344E+03	4.0051E+05	4.0049E+02	1.1905E+03	6.4891E+06
3.1274E+02	9.6822E+02	2.5292E+01	-3.2152E+03	2.3672E+03	3.5014E+06	4.0049E+02	9.5237E+02	7.0953E+06
3.1274E+02	9.4340E+02	2.1042E+01	-3.2152E+03	0.0000E+00	1.2394E+07	4.0049E+02	7.1428E+02	7.7940E+06
3.1274E+02	9.1857E+02	2.1042E+01	-5.8040E+03	1.1836E+05	2.9167E+00	4.0049E+02	4.7618E+02	9.1234E+06
3.1274E+02	8.9374E+02	1.1250E+01	-5.8040E+03	1.1126E+05	1.0417E+01	4.0049E+02	2.3809E+02	1.8261E+07
3.1274E+02	8.6892E+02	1.4392E+02	-5.8040E+03	1.0889E+05	2.9167E+00	4.0049E+02	0.0000E+00	3.1124E+07
3.1274E+02	8.4409E+02	3.2183E+02	-5.8040E+03	1.0416E+05	2.9167E+00	1.2379E+02	1.1428E+04	1.0000E+01
3.1274E+02	8.1926E+02	2.6118E+02	-5.8040E+03	8.2851E+04	3.0000E+00	1.2379E+02	1.0476E+04	1.0417E+00
3.1274E+02	7.9444E+02	1.0935E+02	-5.8040E+03	8.0484E+04	4.2500E+00	1.2379E+02	1.0238E+04	5.1627E+01
3.1274E+02	7.6961E+02	4.1629E+02	-5.8040E+03	7.5750E+04	1.2500E+00	1.2379E+02	9.9999E+03	6.0585E+01
3.1274E+02	7.4479E+02	4.6805E+02	-5.8040E+03	6.1547E+04	5.4166E+00	1.2379E+02	9.5237E+03	2.2083E+01
3.1274E+02	7.1996E+02	5.6525E+03	-5.8040E+03	5.9179E+04	4.1666E+00	1.2379E+02	9.2856E+03	3.8478E+02
3.1274E+02	6.9513E+02	2.7041E+03	-5.8040E+03	5.6812E+04	9.1666E+00	1.2379E+02	9.0475E+03	5.2292E+01
3.1274E+02	6.7031E+02	1.5882E+04	-5.8040E+03	5.4445E+04	7.9166E+00	1.2379E+02	8.8094E+03	2.1042E+01
3.1274E+02	6.4548E+02	1.8217E+04	-5.8040E+03	5.2078E+04	1.1667E+01	1.2379E+02	8.5713E+03	7.8289E+02
3.1274E+02	6.2065E+02	2.4703E+04	-5.8040E+03	4.9711E+04	3.7500E+00	1.2379E+02	8.3332E+03	9.0963E+02
3.1274E+02	5.9583E+02	4.1817E+04	-5.8040E+03	4.7344E+04	1.0000E+01	1.2379E+02	8.0951E+03	7.5191E+02
3.1274E+02	5.7100E+02	5.2385E+04	-5.8040E+03	4.4976E+04	8.3333E+00	1.2379E+02	7.8570E+03	2.2890E+02
3.1274E+02	5.4618E+02	5.3028E+04	-5.8040E+03	4.2609E+04	1.9452E+02	1.2379E+02	7.6190E+03	1.5339E+03
3.1274E+02	5.2135E+02	6.7832E+04	-5.8040E+03	4.0242E+04	3.1559E+02	1.2379E+02	7.3809E+03	5.1576E+03
3.1274E+02	4.9652E+02	1.0812E+05	-5.8040E+03	3.7875E+04	2.4869E+02	1.2379E+02	7.1428E+03	5.6006E+03
3.1274E+02	4.7170E+02	1.5370E+05	-5.8040E+03	3.5508E+04	2.7625E+02	1.2379E+02	6.9047E+03	2.0955E+03
3.1274E+02	4.4687E+02	2.1131E+05	-5.8040E+03	3.3141E+04	2.0042E+02	1.2379E+02	6.6666E+03	8.3170E+03
3.1274E+02	4.2205E+02	2.1993E+05	-5.8040E+03	3.0773E+04	3.6958E+02	1.2379E+02	6.4285E+03	1.4496E+04
3.1274E+02	3.9722E+02	2.7861E+05	-5.8040E+03	2.8406E+04	6.4750E+02	1.2379E+02	6.1904E+03	2.1639E+04
3.1274E+02	3.7239E+02	5.5629E+05	-5.8040E+03	2.6039E+04	5.3666E+02	1.2379E+02	5.9523E+03	1.0661E+04
3.1274E+02	3.4757E+02	6.3277E+05	-5.8040E+03	2.3672E+04	1.0933E+03	1.2379E+02	5.7142E+03	3.3813E+04

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05 PAGE 18/36	
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
3.1274E+02	3.2274E+02	7.2543E+05	-5.8040E+03	2.1305E+04	9.2951E+02	1.2379E+02	5.4761E+03	4.4163E+04
3.1274E+02	2.9791E+02	9.0395E+05	-5.8040E+03	1.8937E+04	8.2650E+03	1.2379E+02	5.2380E+03	8.5033E+04
3.1274E+02	2.7309E+02	1.0533E+06	-5.8040E+03	1.6570E+04	3.4109E+03	1.2379E+02	4.9999E+03	6.7923E+04
3.1274E+02	2.4826E+02	1.2954E+06	-5.8040E+03	1.4203E+04	1.0146E+04	1.2379E+02	4.7618E+03	1.4661E+05
3.1274E+02	2.2344E+02	1.6449E+06	-5.8040E+03	1.1836E+04	2.6927E+04	1.2379E+02	4.5238E+03	1.5518E+05
3.1274E+02	1.9861E+02	1.9387E+06	-5.8040E+03	9.4687E+03	2.3217E+04	1.2379E+02	4.2857E+03	2.1871E+05
3.1274E+02	1.7378E+02	2.6109E+06	-5.8040E+03	7.1015E+03	5.2895E+04	1.2379E+02	4.0476E+03	2.8393E+05
3.1274E+02	1.4896E+02	3.0479E+06	-5.8040E+03	4.7344E+03	5.8946E+05	1.2379E+02	3.8095E+03	4.1859E+05
3.1274E+02	1.2413E+02	4.1942E+06	-5.8040E+03	2.3672E+03	6.5631E+06	1.2379E+02	3.5714E+03	4.6041E+05
3.1274E+02	9.9305E+01	5.8737E+06	-5.8040E+03	0.0000E+00	1.9899E+07	1.2379E+02	3.3333E+03	7.4992E+05
3.1274E+02	7.4479E+01	7.4183E+06	-8.3927E+03	1.1126E+05	2.9167E+00	1.2379E+02	3.0952E+03	7.4706E+05
3.1274E+02	4.9652E+01	8.3513E+06	-8.3927E+03	1.0416E+05	2.9167E+00	1.2379E+02	2.8571E+03	1.3049E+06
3.1274E+02	2.4826E+01	7.6976E+06	-8.3927E+03	1.0179E+05	1.7500E+00	1.2379E+02	2.6190E+03	1.4460E+06
3.1274E+02	0.0000E+00	7.3522E+06	-8.3927E+03	9.9422E+04	2.9167E+00	1.2379E+02	2.3809E+03	1.9083E+06
2.8382E+02	1.0179E+03	1.1250E+01	-8.3927E+03	9.2320E+04	5.2085E+00	1.2379E+02	2.1428E+03	2.8639E+06
2.8382E+02	9.6822E+02	2.0000E+01	-8.3927E+03	8.7586E+04	1.7500E+00	1.2379E+02	1.9047E+03	3.6785E+06
2.8382E+02	9.4340E+02	5.0000E+01	-8.3927E+03	8.5218E+04	4.2500E+00	1.2379E+02	1.6666E+03	5.3558E+06
2.8382E+02	9.1857E+02	4.5292E+01	-8.3927E+03	8.2851E+04	1.7500E+00	1.2379E+02	1.4286E+03	6.0797E+06
2.8382E+02	8.9374E+02	5.5292E+01	-8.3927E+03	7.3383E+04	1.7500E+00	1.2379E+02	1.1905E+03	8.2448E+06
2.8382E+02	8.6892E+02	2.0485E+02	-8.3927E+03	7.1015E+04	1.2500E+00	1.2379E+02	9.5237E+02	1.0463E+07
2.8382E+02	8.4409E+02	7.3545E+02	-8.3927E+03	6.6281E+04	4.6666E+00	1.2379E+02	7.1428E+02	1.1352E+07
2.8382E+02	8.1926E+02	1.2157E+03	-8.3927E+03	5.6812E+04	3.7500E+00	1.2379E+02	4.7618E+02	1.3477E+07
2.8382E+02	7.9444E+02	8.9885E+02	-8.3927E+03	5.4445E+04	1.2500E+00	1.2379E+02	2.3809E+02	2.5904E+07
2.8382E+02	7.6961E+02	3.5580E+03	-8.3927E+03	5.2078E+04	5.0000E+00	1.2379E+02	0.0000E+00	8.8809E+07
2.8382E+02	7.4479E+02	4.3805E+03	-8.3927E+03	4.9711E+04	6.1278E+00	-1.5292E+02	1.0952E+04	1.0000E+01
2.8382E+02	7.1996E+02	6.4295E+03	-8.3927E+03	4.7344E+04	1.0636E+01	-1.5292E+02	1.0238E+04	3.5292E+01
2.8382E+02	6.9513E+02	1.1913E+04	-8.3927E+03	4.4976E+04	1.2698E+02	-1.5292E+02	9.7618E+03	3.5292E+01
2.8382E+02	6.7031E+02	1.1518E+04	-8.3927E+03	4.2609E+04	1.3628E+01	-1.5292E+02	9.5237E+03	2.1250E+01
2.8382E+02	6.4548E+02	2.0196E+04	-8.3927E+03	4.0242E+04	3.7234E+02	-1.5292E+02	9.2856E+03	2.9731E+02
2.8382E+02	6.2065E+02	1.6596E+04	-8.3927E+03	3.7875E+04	2.2071E+02	-1.5292E+02	9.0475E+03	2.8097E+02
2.8382E+02	5.9583E+02	4.1387E+04	-8.3927E+03	3.5508E+04	3.2591E+02	-1.5292E+02	8.8094E+03	8.5878E+01
2.8382E+02	5.7100E+02	3.5262E+04	-8.3927E+03	3.3141E+04	4.8362E+02	-1.5292E+02	8.5713E+03	1.3223E+03
2.8382E+02	5.4618E+02	6.3654E+04	-8.3927E+03	3.0773E+04	6.7651E+02	-1.5292E+02	8.3332E+03	1.5547E+03
2.8382E+02	5.2135E+02	8.4142E+04	-8.3927E+03	2.8406E+04	7.3732E+02	-1.5292E+02	8.0951E+03	5.7073E+03
2.8382E+02	4.9652E+02	1.0117E+05	-8.3927E+03	2.6039E+04	6.4507E+02	-1.5292E+02	7.8570E+03	2.9278E+03

T04 0053-2020 Ver 06 - Approved - Exported from DMS: 2021-02-03 by INVOL

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		DNV GL Denmark A/S Hellerup DK-2900 Hellerup VA. No. 2019832314		CLASS T05		PAGE 19/36
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by AFRRAH

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.8382E+02	4.7170E+02	1.2437E+05	-8.3927E+03	2.3672E+04	4.5081E+03	-1.5292E+02	7.6190E+03	5.0373E+03
2.8382E+02	4.4687E+02	1.8188E+05	-8.3927E+03	2.1305E+04	8.0976E+03	-1.5292E+02	7.3809E+03	9.8685E+03
2.8382E+02	4.2205E+02	2.5511E+05	-8.3927E+03	1.8937E+04	5.7903E+03	-1.5292E+02	7.1428E+03	1.0679E+04
2.8382E+02	3.9722E+02	2.7124E+05	-8.3927E+03	1.6570E+04	8.9361E+03	-1.5292E+02	6.9047E+03	9.2861E+03
2.8382E+02	3.7239E+02	3.9342E+05	-8.3927E+03	1.4203E+04	1.9099E+04	-1.5292E+02	6.6666E+03	2.2196E+04
2.8382E+02	3.4757E+02	4.3063E+05	-8.3927E+03	1.1836E+04	2.0944E+04	-1.5292E+02	6.4285E+03	5.8699E+04
2.8382E+02	3.2274E+02	5.1950E+05	-8.3927E+03	9.4687E+03	8.1070E+04	-1.5292E+02	6.1904E+03	7.5457E+04
2.8382E+02	2.9791E+02	7.6713E+05	-8.3927E+03	7.1015E+03	5.8101E+04	-1.5292E+02	5.9523E+03	7.1001E+04
2.8382E+02	2.7309E+02	8.4144E+05	-8.3927E+03	4.7344E+03	1.1017E+06	-1.5292E+02	5.7142E+03	7.5794E+04
2.8382E+02	2.4826E+02	9.0690E+05	-8.3927E+03	2.3672E+03	9.7310E+06	-1.5292E+02	5.4761E+03	9.7756E+04
2.8382E+02	2.2344E+02	1.1724E+06	-8.3927E+03	0.0000E+00	2.7168E+07	-1.5292E+02	5.2380E+03	9.4491E+04
2.8382E+02	1.9861E+02	1.2694E+06	-1.0981E+04	1.1836E+05	2.9167E+00	-1.5292E+02	4.9999E+03	1.6338E+05
2.8382E+02	1.7378E+02	1.6892E+06	-1.0981E+04	1.1126E+05	2.9167E+00	-1.5292E+02	4.7618E+03	2.3013E+05
2.8382E+02	1.4896E+02	2.0196E+06	-1.0981E+04	1.0889E+05	2.9167E+00	-1.5292E+02	4.5238E+03	1.6239E+05
2.8382E+02	1.2413E+02	3.5630E+06	-1.0981E+04	1.0652E+05	1.8000E+01	-1.5292E+02	4.2857E+03	2.2020E+05
2.8382E+02	9.9305E+01	4.9012E+06	-1.0981E+04	1.0179E+05	2.9167E+00	-1.5292E+02	4.0476E+03	4.1363E+05
2.8382E+02	7.4479E+01	7.6497E+06	-1.0981E+04	9.9422E+04	6.9585E+00	-1.5292E+02	3.8095E+03	4.1436E+05
2.8382E+02	4.9652E+01	9.5030E+06	-1.0981E+04	9.7054E+04	1.7500E+00	-1.5292E+02	3.5714E+03	6.1711E+05
2.8382E+02	2.4826E+01	9.0824E+06	-1.0981E+04	9.2320E+04	5.2500E+00	-1.5292E+02	3.3333E+03	7.3801E+05
2.8382E+02	0.0000E+00	7.8630E+06	-1.0981E+04	8.9953E+04	6.5000E+00	-1.5292E+02	3.0952E+03	9.6694E+05
2.5489E+02	1.2413E+03	1.0000E+01	-1.0981E+04	8.7586E+04	5.2085E+00	-1.5292E+02	2.8571E+03	1.3715E+06
2.5489E+02	1.1420E+03	1.2500E+00	-1.0981E+04	8.5218E+04	1.7500E+00	-1.5292E+02	2.6190E+03	1.7971E+06
2.5489E+02	1.0427E+03	2.0000E+01	-1.0981E+04	8.2851E+04	3.0000E+00	-1.5292E+02	2.3809E+03	2.2725E+06
2.5489E+02	1.0179E+03	1.1250E+01	-1.0981E+04	8.0484E+04	4.2500E+00	-1.5292E+02	2.1428E+03	3.4275E+06
2.5489E+02	9.9305E+02	8.4270E+01	-1.0981E+04	7.5750E+04	4.2500E+00	-1.5292E+02	1.9047E+03	3.7359E+06
2.5489E+02	9.6822E+02	4.7584E+01	-1.0981E+04	7.1015E+04	1.2500E+00	-1.5292E+02	1.6666E+03	5.0041E+06
2.5489E+02	9.4340E+02	9.3918E+01	-1.0981E+04	6.6281E+04	1.2500E+00	-1.5292E+02	1.4286E+03	5.8538E+06
2.5489E+02	9.1857E+02	8.6542E+01	-1.0981E+04	6.3914E+04	2.5000E+00	-1.5292E+02	1.1905E+03	7.3083E+06
2.5489E+02	8.9374E+02	3.2584E+02	-1.0981E+04	6.1547E+04	1.1667E+01	-1.5292E+02	9.5237E+02	9.3812E+06
2.5489E+02	8.6892E+02	3.6244E+02	-1.0981E+04	5.6812E+04	1.4693E+00	-1.5292E+02	7.1428E+02	1.1132E+07
2.5489E+02	8.4409E+02	2.3131E+02	-1.0981E+04	5.4445E+04	1.2795E+01	-1.5292E+02	4.7618E+02	1.3470E+07
2.5489E+02	8.1926E+02	6.2994E+02	-1.0981E+04	4.9711E+04	5.0000E+00	-1.5292E+02	2.3809E+02	2.6916E+07
2.5489E+02	7.9444E+02	2.5393E+03	-1.0981E+04	4.7344E+04	3.6093E+01	-1.5292E+02	0.0000E+00	4.5876E+07
2.5489E+02	7.6961E+02	3.1887E+03	-1.0981E+04	4.4976E+04	5.5225E+01	-4.2962E+02	1.0714E+04	2.5292E+01
2.5489E+02	7.4479E+02	4.6167E+03	-1.0981E+04	4.2609E+04	1.3127E+00	-4.2962E+02	1.0476E+04	1.0831E+02

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05		PAGE 20/38
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.5489E+02	7.1996E+02	7.7047E+03	-1.0981E+04	4.0242E+04	3.2608E+02	-4.2962E+02	1.0238E+04	1.2500E+00
2.5489E+02	6.9513E+02	6.5131E+03	-1.0981E+04	3.7875E+04	1.5122E+02	-4.2962E+02	9.9999E+03	1.2292E+01
2.5489E+02	6.7031E+02	1.0848E+04	-1.0981E+04	3.5508E+04	6.7672E+01	-4.2962E+02	9.7618E+03	8.5835E+01
2.5489E+02	6.4548E+02	1.1662E+04	-1.0981E+04	3.3141E+04	2.5067E+02	-4.2962E+02	9.5237E+03	2.0000E+01
2.5489E+02	6.2065E+02	1.3455E+04	-1.0981E+04	3.0773E+04	5.2988E+02	-4.2962E+02	9.2856E+03	2.8664E+02
2.5489E+02	5.9583E+02	1.7256E+04	-1.0981E+04	2.8406E+04	5.1189E+02	-4.2962E+02	9.0475E+03	4.0597E+02
2.5489E+02	5.7100E+02	2.1046E+04	-1.0981E+04	2.6039E+04	6.1050E+02	-4.2962E+02	8.8094E+03	5.5768E+02
2.5489E+02	5.4618E+02	3.9018E+04	-1.0981E+04	2.3672E+04	4.6179E+02	-4.2962E+02	8.5713E+03	4.7545E+02
2.5489E+02	5.2135E+02	3.6714E+04	-1.0981E+04	2.1305E+04	1.3110E+03	-4.2962E+02	8.3332E+03	6.8356E+02
2.5489E+02	4.9652E+02	3.8054E+04	-1.0981E+04	1.8937E+04	3.4318E+04	-4.2962E+02	8.0951E+03	2.2246E+03
2.5489E+02	4.7170E+02	6.8753E+04	-1.0981E+04	1.6570E+04	3.1419E+04	-4.2962E+02	7.8570E+03	5.5599E+03
2.5489E+02	4.4687E+02	1.0868E+05	-1.0981E+04	1.4203E+04	3.8825E+04	-4.2962E+02	7.6190E+03	7.5335E+03
2.5489E+02	4.2205E+02	1.0824E+05	-1.0981E+04	1.1836E+04	1.8611E+04	-4.2962E+02	7.3809E+03	6.3071E+03
2.5489E+02	3.9722E+02	1.3892E+05	-1.0981E+04	9.4687E+03	3.7013E+04	-4.2962E+02	7.1428E+03	1.5340E+04
2.5489E+02	3.7239E+02	1.7912E+05	-1.0981E+04	7.1015E+03	1.4666E+05	-4.2962E+02	6.9047E+03	2.3932E+04
2.5489E+02	3.4757E+02	2.1713E+05	-1.0981E+04	4.7344E+03	1.2883E+06	-4.2962E+02	6.6666E+03	3.1230E+04
2.5489E+02	3.2274E+02	2.6707E+05	-1.0981E+04	2.3672E+03	1.2379E+07	-4.2962E+02	6.4285E+03	2.9705E+04
2.5489E+02	2.9791E+02	4.4273E+05	-1.0981E+04	0.0000E+00	3.0831E+07	-4.2962E+02	6.1904E+03	6.0709E+04
2.5489E+02	2.7309E+02	4.6426E+05	-1.3570E+04	9.7054E+04	6.9585E+00	-4.2962E+02	5.9523E+03	6.6281E+04
2.5489E+02	2.4826E+02	5.5439E+05	-1.3570E+04	9.4687E+04	4.6666E+00	-4.2962E+02	5.7142E+03	9.7914E+04
2.5489E+02	2.2344E+02	6.0322E+05	-1.3570E+04	9.2320E+04	8.2085E+00	-4.2962E+02	5.4761E+03	1.5119E+05
2.5489E+02	1.9861E+02	7.8071E+05	-1.3570E+04	8.9953E+04	1.0458E+01	-4.2962E+02	5.2380E+03	1.6345E+05
2.5489E+02	1.7378E+02	9.6374E+05	-1.3570E+04	8.7586E+04	1.7500E+00	-4.2962E+02	4.9999E+03	1.4858E+05
2.5489E+02	1.4896E+02	1.2416E+06	-1.3570E+04	8.5218E+04	1.3458E+01	-4.2962E+02	4.7618E+03	1.1194E+05
2.5489E+02	1.2413E+02	2.0010E+06	-1.3570E+04	8.2851E+04	4.7500E+00	-4.2962E+02	4.5238E+03	1.7615E+05
2.5489E+02	9.9305E+01	4.3573E+06	-1.3570E+04	8.0484E+04	2.5000E+00	-4.2962E+02	4.2857E+03	2.5298E+05
2.5489E+02	7.4479E+01	7.3074E+06	-1.3570E+04	7.8117E+04	2.5000E+00	-4.2962E+02	4.0476E+03	2.7625E+05
2.5489E+02	4.9652E+01	1.0491E+07	-1.3570E+04	7.3383E+04	4.2500E+00	-4.2962E+02	3.8095E+03	4.4797E+05
2.5489E+02	2.4826E+01	1.0928E+07	-1.3570E+04	7.1015E+04	5.0000E+00	-4.2962E+02	3.5714E+03	4.9857E+05
2.5489E+02	0.0000E+00	7.7747E+06	-1.3570E+04	6.6281E+04	2.1929E-01	-4.2962E+02	3.3333E+03	5.0354E+05
2.2596E+02	1.1420E+03	2.5292E+01	-1.3570E+04	6.3914E+04	1.1075E+01	-4.2962E+02	3.0952E+03	9.6875E+05
2.2596E+02	1.1172E+03	1.0000E+01	-1.3570E+04	6.1547E+04	1.4693E+00	-4.2962E+02	2.8571E+03	1.0516E+06
2.2596E+02	1.0675E+03	1.0000E+01	-1.3570E+04	5.6812E+04	2.9167E+00	-4.2962E+02	2.6190E+03	1.8836E+06
2.2596E+02	1.0427E+03	2.0000E+01	-1.3570E+04	5.4445E+04	1.9079E+00	-4.2962E+02	2.3809E+03	2.2652E+06
2.2596E+02	1.0179E+03	2.3118E+02	-1.3570E+04	5.2078E+04	1.2720E+01	-4.2962E+02	2.1428E+03	2.8610E+06

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		DNV GL Hobong Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	CLASS T05	PAGE 21/36
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.2596E+02	9.9305E+02	9.3020E+01	-1.3570E+04	4.9711E+04	1.5664E+00	-4.2962E+02	1.9047E+03	3.4071E+06
2.2596E+02	9.6822E+02	1.0000E+01	-1.3570E+04	4.7344E+04	1.1689E+01	-4.2962E+02	1.6666E+03	4.5849E+06
2.2596E+02	9.4340E+02	6.8834E+01	-1.3570E+04	4.4976E+04	1.0053E+01	-4.2962E+02	1.4286E+03	5.1451E+06
2.2596E+02	9.1857E+02	1.5465E+02	-1.3570E+04	4.2609E+04	1.1037E+02	-4.2962E+02	1.1905E+03	6.2048E+06
2.2596E+02	8.9374E+02	2.4186E+02	-1.3570E+04	4.0242E+04	9.2498E+01	-4.2962E+02	9.5237E+02	7.0631E+06
2.2596E+02	8.6892E+02	1.1083E+02	-1.3570E+04	3.7875E+04	1.3697E+02	-4.2962E+02	7.1428E+02	7.2363E+06
2.2596E+02	8.4409E+02	9.1509E+02	-1.3570E+04	3.5508E+04	1.7808E+02	-4.2962E+02	4.7618E+02	9.0541E+06
2.2596E+02	8.1926E+02	3.1356E+02	-1.3570E+04	3.3141E+04	2.0915E+02	-4.2962E+02	2.3809E+02	1.7549E+07
2.2596E+02	7.9444E+02	6.0897E+02	-1.3570E+04	3.0773E+04	1.0190E+02	-4.2962E+02	0.0000E+00	2.9907E+07
2.2596E+02	7.6961E+02	8.4859E+02	-1.3570E+04	2.8406E+04	3.6998E+02	-7.0632E+02	1.1905E+04	1.0000E+01
2.2596E+02	7.4479E+02	2.7838E+03	-1.3570E+04	2.6039E+04	7.8462E+03	-7.0632E+02	1.0714E+04	1.2500E+00
2.2596E+02	7.1996E+02	1.2849E+03	-1.3570E+04	2.3672E+04	1.5059E+04	-7.0632E+02	1.0476E+04	1.2500E+00
2.2596E+02	6.9513E+02	3.1867E+03	-1.3570E+04	2.1305E+04	1.5231E+04	-7.0632E+02	9.9999E+03	6.0585E+01
2.2596E+02	6.7031E+02	1.3918E+03	-1.3570E+04	1.8937E+04	2.2783E+04	-7.0632E+02	9.5237E+03	4.1042E+01
2.2596E+02	6.4548E+02	2.3233E+03	-1.3570E+04	1.6570E+04	8.7477E+03	-7.0632E+02	9.2856E+03	2.1290E+02
2.2596E+02	6.2065E+02	3.8030E+03	-1.3570E+04	1.4203E+04	1.0866E+04	-7.0632E+02	9.0475E+03	4.9185E+02
2.2596E+02	5.9583E+02	5.8229E+03	-1.3570E+04	1.1836E+04	7.6983E+04	-7.0632E+02	8.8094E+03	1.7469E+02
2.2596E+02	5.7100E+02	6.3674E+03	-1.3570E+04	9.4687E+03	8.9059E+03	-7.0632E+02	8.5713E+03	1.0288E+02
2.2596E+02	5.4618E+02	8.1150E+03	-1.3570E+04	7.1015E+03	1.5334E+05	-7.0632E+02	8.3332E+03	3.0246E+02
2.2596E+02	5.2135E+02	1.8823E+04	-1.3570E+04	4.7344E+03	1.1294E+06	-7.0632E+02	8.0951E+03	2.8612E+02
2.2596E+02	4.9652E+02	1.3893E+04	-1.3570E+04	2.3672E+03	1.1290E+07	-7.0632E+02	7.8570E+03	2.6010E+03
2.2596E+02	4.7170E+02	1.7203E+04	-1.3570E+04	0.0000E+00	2.2919E+07	-7.0632E+02	7.6190E+03	3.9495E+03
2.2596E+02	4.4687E+02	2.8381E+04	-1.6159E+04	9.9422E+04	4.6666E+00	-7.0632E+02	7.3809E+03	6.4669E+03
2.2596E+02	4.2205E+02	3.0859E+04	-1.6159E+04	9.7054E+04	4.6666E+00	-7.0632E+02	7.1428E+03	7.7022E+03
2.2596E+02	3.9722E+02	5.5841E+04	-1.6159E+04	9.4687E+04	5.2500E+00	-7.0632E+02	6.9047E+03	8.7741E+03
2.2596E+02	3.7239E+02	7.3068E+04	-1.6159E+04	9.2320E+04	5.2500E+00	-7.0632E+02	6.6666E+03	5.2924E+03
2.2596E+02	3.4757E+02	1.3931E+05	-1.6159E+04	8.9953E+04	6.9585E+00	-7.0632E+02	6.4285E+03	1.9997E+04
2.2596E+02	3.2274E+02	1.4936E+05	-1.6159E+04	8.7586E+04	4.7500E+00	-7.0632E+02	6.1904E+03	3.1350E+04
2.2596E+02	2.9791E+02	1.5849E+05	-1.6159E+04	8.5218E+04	1.3458E+01	-7.0632E+02	5.9523E+03	5.5034E+04
2.2596E+02	2.7309E+02	1.6297E+05	-1.6159E+04	8.2851E+04	7.6666E+00	-7.0632E+02	5.7142E+03	6.7178E+04
2.2596E+02	2.4826E+02	2.1656E+05	-1.6159E+04	8.0484E+04	1.0458E+01	-7.0632E+02	5.4761E+03	4.2451E+04
2.2596E+02	2.2344E+02	2.5025E+05	-1.6159E+04	7.8117E+04	4.2500E+00	-7.0632E+02	5.2380E+03	5.2539E+04
2.2596E+02	1.9861E+02	3.0621E+05	-1.6159E+04	7.5750E+04	6.7500E+00	-7.0632E+02	4.9999E+03	5.4711E+04
2.2596E+02	1.7378E+02	3.6734E+05	-1.6159E+04	7.3383E+04	1.2500E+00	-7.0632E+02	4.7618E+03	1.0075E+05
2.2596E+02	1.4896E+02	7.4062E+05	-1.6159E+04	6.8648E+04	4.4167E+01	-7.0632E+02	4.5238E+03	1.3690E+05


T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

						CLASS T05	
DOCUMENT: 0065-3555 VER 00	DESCRIPTION: RNSP 15-428: Foundation loads			DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		PAGE 22/36	

Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.2596E+02	1.2413E+02	1.4943E+06	-1.6159E+04	6.3914E+04	2.5109E+00	-7.0632E+02	4.2857E+03	1.5515E+05
2.2596E+02	9.9305E+01	3.3422E+06	-1.6159E+04	6.1547E+04	1.2500E+00	-7.0632E+02	4.0476E+03	2.3169E+05
2.2596E+02	7.4479E+01	7.1810E+06	-1.6159E+04	5.9179E+04	1.2500E+00	-7.0632E+02	3.8095E+03	2.1493E+05
2.2596E+02	4.9652E+01	1.0171E+07	-1.6159E+04	5.6812E+04	2.5000E+00	-7.0632E+02	3.5714E+03	4.4878E+05
2.2596E+02	2.4826E+01	9.5415E+06	-1.6159E+04	5.4445E+04	1.6886E+00	-7.0632E+02	3.3333E+03	4.8109E+05
2.2596E+02	0.0000E+00	6.8590E+06	-1.6159E+04	5.2078E+04	3.3552E+00	-7.0632E+02	3.0952E+03	6.4784E+05
1.9704E+02	1.1172E+03	1.0000E+01	-1.6159E+04	4.9711E+04	1.4606E+01	-7.0632E+02	2.8571E+03	1.0022E+06
1.9704E+02	1.0924E+03	1.2500E+00	-1.6159E+04	4.7344E+04	2.2212E+00	-7.0632E+02	2.6190E+03	1.2080E+06
1.9704E+02	1.0675E+03	1.1250E+01	-1.6159E+04	4.4976E+04	3.3656E+02	-7.0632E+02	2.3809E+03	1.6038E+06
1.9704E+02	1.0427E+03	2.0000E+01	-1.6159E+04	4.2609E+04	6.3972E+00	-7.0632E+02	2.1428E+03	2.0210E+06
1.9704E+02	1.0179E+03	1.0000E+01	-1.6159E+04	4.0242E+04	1.7512E+00	-7.0632E+02	1.9047E+03	2.7602E+06
1.9704E+02	9.9305E+02	2.0000E+01	-1.6159E+04	3.7875E+04	1.5946E+00	-7.0632E+02	1.6666E+03	3.3360E+06
1.9704E+02	9.6822E+02	2.4701E+02	-1.6159E+04	3.5508E+04	1.7112E+02	-7.0632E+02	1.4286E+03	3.5874E+06
1.9704E+02	9.4340E+02	1.0417E+00	-1.6159E+04	3.3141E+04	3.5025E+00	-7.0632E+02	1.1905E+03	4.1390E+06
1.9704E+02	9.1857E+02	6.7335E+01	-1.6159E+04	3.0773E+04	7.6472E+00	-7.0632E+02	9.5237E+02	3.7802E+06
1.9704E+02	8.9374E+02	1.5796E+02	-1.6159E+04	2.8406E+04	1.8184E+02	-7.0632E+02	7.1428E+02	4.6099E+06
1.9704E+02	8.6892E+02	1.1900E+02	-1.6159E+04	2.6039E+04	1.9830E+01	-7.0632E+02	4.7618E+02	5.8152E+06
1.9704E+02	8.4409E+02	3.5417E+01	-1.6159E+04	2.3672E+04	2.0233E+02	-7.0632E+02	2.3809E+02	1.1492E+07
1.9704E+02	8.1926E+02	1.9438E+02	-1.6159E+04	2.1305E+04	1.5292E+03	-7.0632E+02	0.0000E+00	1.8818E+07
1.9704E+02	7.9444E+02	9.2740E+02	-1.6159E+04	1.8937E+04	2.4391E+04	-9.8303E+02	1.0952E+04	2.0000E+01
1.9704E+02	7.6961E+02	2.8785E+02	-1.6159E+04	1.6570E+04	1.0934E+04	-9.8303E+02	1.0238E+04	1.0000E+01
1.9704E+02	7.4479E+02	1.5121E+02	-1.6159E+04	1.4203E+04	5.3760E+03	-9.8303E+02	9.7618E+03	1.6833E+02
1.9704E+02	7.1996E+02	7.7251E+01	-1.6159E+04	1.1836E+04	1.1329E+04	-9.8303E+02	9.5237E+03	1.6604E+02
1.9704E+02	6.9513E+02	2.8333E+01	-1.6159E+04	9.4687E+03	2.8388E+04	-9.8303E+02	9.2856E+03	1.0000E+01
1.9704E+02	6.7031E+02	2.0094E+02	-1.6159E+04	7.1015E+03	1.6325E+05	-9.8303E+02	9.0475E+03	4.1667E+01
1.9704E+02	6.4548E+02	7.4440E+02	-1.6159E+04	4.7344E+03	1.5488E+06	-9.8303E+02	8.8094E+03	2.4993E+02
1.9704E+02	6.2065E+02	1.5297E+03	-1.6159E+04	2.3672E+03	1.1974E+07	-9.8303E+02	8.5713E+03	5.2292E+01
1.9704E+02	5.9583E+02	1.6340E+03	-1.6159E+04	0.0000E+00	1.8833E+07	-9.8303E+02	8.3332E+03	2.4368E+02
1.9704E+02	5.7100E+02	1.2838E+03	-1.8748E+04	9.7054E+04	4.6666E+00	-9.8303E+02	8.0951E+03	2.5118E+02
1.9704E+02	5.4618E+02	2.4549E+03	-1.8748E+04	9.2320E+04	1.7500E+00	-9.8303E+02	7.8570E+03	9.4270E+01
1.9704E+02	5.2135E+02	5.2767E+03	-1.8748E+04	8.7586E+04	1.1625E+01	-9.8303E+02	7.6190E+03	6.9924E+02
1.9704E+02	4.9652E+02	2.5652E+03	-1.8748E+04	8.5218E+04	9.8751E+00	-9.8303E+02	7.3809E+03	1.6459E+03
1.9704E+02	4.7170E+02	6.9670E+03	-1.8748E+04	8.2851E+04	1.2500E+00	-9.8303E+02	7.1428E+03	1.6369E+03
1.9704E+02	4.4687E+02	9.8263E+03	-1.8748E+04	8.0484E+04	3.5000E+00	-9.8303E+02	6.9047E+03	4.0904E+02
1.9704E+02	4.2205E+02	1.2533E+04	-1.8748E+04	7.8117E+04	4.5167E+01	-9.8303E+02	6.6666E+03	5.0424E+03

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05		PAGE 23/36
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.9704E+02	3.9722E+02	2.7120E+04	-1.8748E+04	7.5750E+04	4.2500E+00	-9.8303E+02	6.4285E+03	7.3220E+03
1.9704E+02	3.7239E+02	2.0043E+04	-1.8748E+04	7.3383E+04	9.7292E+01	-9.8303E+02	6.1904E+03	8.2460E+03
1.9704E+02	3.4757E+02	4.2717E+04	-1.8748E+04	7.1015E+04	1.7500E+00	-9.8303E+02	5.9523E+03	1.2662E+04
1.9704E+02	3.2274E+02	4.7481E+04	-1.8748E+04	6.8648E+04	4.4167E+01	-9.8303E+02	5.7142E+03	2.0919E+03
1.9704E+02	2.9791E+02	6.0477E+04	-1.8748E+04	6.6281E+04	2.2917E+00	-9.8303E+02	5.4761E+03	7.8946E+03
1.9704E+02	2.7309E+02	8.5912E+04	-1.8748E+04	6.3914E+04	1.2500E+00	-9.8303E+02	5.2380E+03	9.5280E+03
1.9704E+02	2.4826E+02	1.4081E+05	-1.8748E+04	6.1547E+04	2.5000E+00	-9.8303E+02	4.9999E+03	4.0368E+04
1.9704E+02	2.2344E+02	1.3911E+05	-1.8748E+04	5.9179E+04	8.5898E+01	-9.8303E+02	4.7618E+03	3.0913E+04
1.9704E+02	1.9861E+02	1.2143E+05	-1.8748E+04	5.6812E+04	1.1983E+00	-9.8303E+02	4.5238E+03	5.3541E+04
1.9704E+02	1.7378E+02	1.1390E+05	-1.8748E+04	5.4445E+04	4.1667E+01	-9.8303E+02	4.2857E+03	5.7564E+04
1.9704E+02	1.4896E+02	2.3009E+05	-1.8748E+04	4.7344E+04	6.2656E-02	-9.8303E+02	4.0476E+03	1.3582E+05
1.9704E+02	1.2413E+02	9.6075E+05	-1.8748E+04	4.4976E+04	1.2500E+00	-9.8303E+02	3.8095E+03	1.7085E+05
1.9704E+02	9.9305E+01	2.6786E+06	-1.8748E+04	4.2609E+04	1.1250E+01	-9.8303E+02	3.5714E+03	3.0138E+05
1.9704E+02	7.4479E+01	6.1068E+06	-1.8748E+04	4.0242E+04	5.3257E-01	-9.8303E+02	3.3333E+03	4.2681E+05
1.9704E+02	4.9652E+01	9.9460E+06	-1.8748E+04	3.7875E+04	2.1146E+00	-9.8303E+02	3.0952E+03	4.4430E+05
1.9704E+02	2.4826E+01	1.0734E+07	-1.8748E+04	3.5508E+04	6.2656E-02	-9.8303E+02	2.8571E+03	6.3611E+05
1.9704E+02	0.0000E+00	6.0178E+06	-1.8748E+04	3.3141E+04	9.1102E+00	-9.8303E+02	2.6190E+03	9.2359E+05
1.6811E+02	1.1420E+03	1.2500E+00	-1.8748E+04	3.0773E+04	2.3809E+00	-9.8303E+02	2.3809E+03	1.1562E+06
1.6811E+02	1.1172E+03	2.0000E+01	-1.8748E+04	2.8406E+04	5.0424E+02	-9.8303E+02	2.1428E+03	1.3338E+06
1.6811E+02	1.0924E+03	1.7500E+00	-1.8748E+04	2.6039E+04	1.7978E+02	-9.8303E+02	1.9047E+03	1.7486E+06
1.6811E+02	1.0179E+03	1.2500E+00	-1.8748E+04	2.3672E+04	2.8467E+02	-9.8303E+02	1.6666E+03	2.0547E+06
1.6811E+02	9.9305E+02	2.5292E+01	-1.8748E+04	2.1305E+04	1.6440E+02	-9.8303E+02	1.4286E+03	2.2909E+06
1.6811E+02	9.6822E+02	1.0000E+01	-1.8748E+04	1.8937E+04	2.9914E+03	-9.8303E+02	1.1905E+03	2.3829E+06
1.6811E+02	9.4340E+02	2.5000E+00	-1.8748E+04	1.6570E+04	4.0739E+03	-9.8303E+02	9.5237E+02	2.4181E+06
1.6811E+02	9.1857E+02	1.0667E+01	-1.8748E+04	1.4203E+04	3.5535E+04	-9.8303E+02	7.1428E+02	2.2941E+06
1.6811E+02	8.9374E+02	1.4542E+01	-1.8748E+04	1.1836E+04	5.4232E+04	-9.8303E+02	4.7618E+02	3.3470E+06
1.6811E+02	8.6892E+02	2.5834E+01	-1.8748E+04	9.4687E+03	8.8907E+04	-9.8303E+02	2.3809E+02	7.2178E+06
1.6811E+02	8.4409E+02	1.1000E+01	-1.8748E+04	7.1015E+03	1.4914E+05	-9.8303E+02	0.0000E+00	1.1300E+07
1.6811E+02	8.1926E+02	2.2917E+00	-1.8748E+04	4.7344E+03	1.1166E+06	-1.2597E+03	1.1428E+04	1.0000E+01
1.6811E+02	7.9444E+02	1.3100E+02	-1.8748E+04	2.3672E+03	9.5022E+06	-1.2597E+03	1.0714E+04	1.0000E+01
1.6811E+02	7.6961E+02	4.5167E+01	-1.8748E+04	0.0000E+00	1.1957E+07	-1.2597E+03	9.7618E+03	1.1250E+01
1.6811E+02	7.4479E+02	5.0833E+00	-2.1336E+04	9.4687E+04	1.7500E+00	-1.2597E+03	9.5237E+03	1.2500E+00
1.6811E+02	7.1996E+02	2.4079E+02	-2.1336E+04	8.9953E+04	2.9167E+00	-1.2597E+03	9.2856E+03	5.2917E+01
1.6811E+02	6.9513E+02	1.0885E+02	-2.1336E+04	8.7586E+04	1.7500E+00	-1.2597E+03	9.0475E+03	1.1250E+01
1.6811E+02	6.7031E+02	1.1422E+03	-2.1336E+04	8.2851E+04	1.7500E+00	-1.2597E+03	8.8094E+03	1.1250E+01

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV-GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05	PAGE 24/36
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.6811E+02	6.4548E+02	4.8324E+02	-2.1336E+04	8.0484E+04	6.2501E+00	-1.2597E+03	8.5713E+03	5.5292E+01
1.6811E+02	6.2065E+02	4.6340E+02	-2.1336E+04	7.8117E+04	1.5625E+01	-1.2597E+03	8.3332E+03	2.6334E+01
1.6811E+02	5.9583E+02	7.3817E+02	-2.1336E+04	7.5750E+04	4.6875E+01	-1.2597E+03	8.0951E+03	1.3625E+02
1.6811E+02	5.7100E+02	5.4336E+02	-2.1336E+04	7.3383E+04	1.1250E+01	-1.2597E+03	7.8570E+03	4.8755E+03
1.6811E+02	5.4618E+02	1.3570E+03	-2.1336E+04	7.1015E+04	8.9166E+01	-1.2597E+03	7.6190E+03	2.0000E+01
1.6811E+02	5.2135E+02	4.7624E+02	-2.1336E+04	6.8648E+04	5.6458E+01	-1.2597E+03	7.3809E+03	3.2964E+02
1.6811E+02	4.9652E+02	2.1545E+03	-2.1336E+04	6.6281E+04	5.4167E+01	-1.2597E+03	7.1428E+03	1.6735E+02
1.6811E+02	4.7170E+02	5.9242E+03	-2.1336E+04	6.3914E+04	2.5000E+00	-1.2597E+03	6.9047E+03	3.6708E+02
1.6811E+02	4.4687E+02	6.8326E+03	-2.1336E+04	6.1547E+04	3.1328E-02	-1.2597E+03	6.6666E+03	1.5760E+02
1.6811E+02	4.2205E+02	6.2101E+03	-2.1336E+04	5.9179E+04	8.4616E+01	-1.2597E+03	6.4285E+03	8.5416E+00
1.6811E+02	3.9722E+02	7.1092E+03	-2.1336E+04	5.6812E+04	1.2500E+00	-1.2597E+03	6.1904E+03	2.5426E+03
1.6811E+02	3.7239E+02	8.9922E+03	-2.1336E+04	5.4445E+04	1.2500E+02	-1.2597E+03	5.9523E+03	1.9042E+02
1.6811E+02	3.4757E+02	1.8140E+04	-2.1336E+04	5.2078E+04	6.2656E-02	-1.2597E+03	5.7142E+03	2.8648E+03
1.6811E+02	3.2274E+02	1.1669E+04	-2.1336E+04	4.9711E+04	3.3960E+00	-1.2597E+03	5.4761E+03	3.2044E+03
1.6811E+02	2.9791E+02	2.2496E+04	-2.1336E+04	4.7344E+04	1.8667E+02	-1.2597E+03	5.2380E+03	5.7590E+03
1.6811E+02	2.7309E+02	1.9655E+04	-2.1336E+04	4.4976E+04	2.7792E+01	-1.2597E+03	4.9999E+03	5.4269E+03
1.6811E+02	2.4826E+02	2.3129E+04	-2.1336E+04	4.2609E+04	9.2293E+00	-1.2597E+03	4.7618E+03	2.3515E+04
1.6811E+02	2.2344E+02	3.8797E+04	-2.1336E+04	3.7875E+04	2.5000E+00	-1.2597E+03	4.5238E+03	1.2329E+04
1.6811E+02	1.9861E+02	5.2408E+04	-2.1336E+04	3.5508E+04	1.8882E+02	-1.2597E+03	4.2857E+03	4.9881E+04
1.6811E+02	1.7378E+02	5.0725E+04	-2.1336E+04	3.3141E+04	8.9712E+03	-1.2597E+03	4.0476E+03	3.0591E+04
1.6811E+02	1.4896E+02	1.3734E+05	-2.1336E+04	3.0773E+04	1.8667E+02	-1.2597E+03	3.8095E+03	6.8927E+04
1.6811E+02	1.2413E+02	3.6072E+05	-2.1336E+04	2.8406E+04	3.9101E+02	-1.2597E+03	3.5714E+03	7.6069E+04
1.6811E+02	9.9305E+01	1.4389E+06	-2.1336E+04	2.6039E+04	1.7477E+04	-1.2597E+03	3.3333E+03	9.6905E+04
1.6811E+02	7.4479E+01	4.5433E+06	-2.1336E+04	2.3672E+04	2.5966E+04	-1.2597E+03	3.0952E+03	2.2048E+05
1.6811E+02	4.9652E+01	8.9995E+06	-2.1336E+04	2.1305E+04	2.6579E+04	-1.2597E+03	2.8571E+03	2.1504E+05
1.6811E+02	2.4826E+01	1.1684E+07	-2.1336E+04	1.8937E+04	1.9622E+04	-1.2597E+03	2.6190E+03	4.0351E+05
1.6811E+02	0.0000E+00	7.0255E+06	-2.1336E+04	1.6570E+04	1.0218E+04	-1.2597E+03	2.3809E+03	5.4693E+05
1.3918E+02	1.0675E+03	2.9167E+00	-2.1336E+04	1.4203E+04	3.3452E+04	-1.2597E+03	2.1428E+03	8.2889E+05
1.3918E+02	1.0427E+03	1.7500E+00	-2.1336E+04	1.1836E+04	7.5790E+04	-1.2597E+03	1.9047E+03	9.6085E+05
1.3918E+02	1.0179E+03	5.2085E+00	-2.1336E+04	9.4687E+03	1.1287E+05	-1.2597E+03	1.6666E+03	1.0381E+06
1.3918E+02	9.9305E+02	2.5000E+00	-2.1336E+04	7.1015E+03	2.9173E+05	-1.2597E+03	1.4286E+03	1.1369E+06
1.3918E+02	9.6822E+02	1.2500E+00	-2.1336E+04	4.7344E+03	1.7750E+06	-1.2597E+03	1.1905E+03	1.3271E+06
1.3918E+02	9.4340E+02	8.5085E+01	-2.1336E+04	2.3672E+03	9.8482E+06	-1.2597E+03	9.5237E+02	1.2029E+06
1.3918E+02	9.1857E+02	1.7500E+00	-2.1336E+04	0.0000E+00	1.0043E+07	-1.2597E+03	7.1428E+02	1.3376E+06
1.3918E+02	8.9374E+02	9.3294E+01	-2.3925E+04	1.0416E+05	2.9167E+00	-1.2597E+03	4.7618E+02	1.7632E+06

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH


DOCUMENT: 0065-3555 VER 00	DESCRIPTION: RNSP 15-428: Foundation loads	DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	PAGE 25/36
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

T04 0053-2020 Ver 06 - Approved- Exported from DMS: 2021-02-03 by INVOL

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.3918E+02	8.6892E+02	1.1208E+01	-2.3925E+04	9.9422E+04	2.9167E+00	-1.2597E+03	2.3809E+02	4.2723E+06
1.3918E+02	8.4409E+02	7.0000E+00	-2.3925E+04	8.5218E+04	1.7500E+00	-1.2597E+03	0.0000E+00	6.5222E+06
1.3918E+02	8.1926E+02	3.5000E+00	-2.3925E+04	8.2851E+04	1.0000E+01	-1.5364E+03	1.0238E+04	1.0000E+01
1.3918E+02	7.9444E+02	7.0000E+00	-2.3925E+04	8.0484E+04	4.6875E+01	-1.5364E+03	9.9999E+03	2.0000E+01
1.3918E+02	7.6961E+02	8.9585E+00	-2.3925E+04	7.8117E+04	1.0000E+01	-1.5364E+03	9.2856E+03	1.2500E+00
1.3918E+02	7.4479E+02	1.7500E+00	-2.3925E+04	7.5750E+04	6.2708E+01	-1.5364E+03	9.0475E+03	4.1667E+01
1.3918E+02	7.1996E+02	8.3335E+01	-2.3925E+04	7.3383E+04	4.5292E+01	-1.5364E+03	8.8094E+03	2.5000E+00
1.3918E+02	6.9513E+02	1.0417E+01	-2.3925E+04	7.1015E+04	9.3335E+01	-1.5364E+03	8.5713E+03	1.2500E+00
1.3918E+02	6.7031E+02	3.8437E+02	-2.3925E+04	6.8648E+04	6.8209E+01	-1.5364E+03	8.3332E+03	1.3750E+01
1.3918E+02	6.4548E+02	4.6194E+02	-2.3925E+04	6.6281E+04	2.3833E+02	-1.5364E+03	8.0951E+03	6.0585E+01
1.3918E+02	6.2065E+02	3.3896E+02	-2.3925E+04	6.3914E+04	5.8333E+01	-1.5364E+03	7.8570E+03	8.4585E+01
1.3918E+02	5.9583E+02	2.7392E+02	-2.3925E+04	6.1547E+04	1.4375E+01	-1.5364E+03	7.6190E+03	1.1250E+01
1.3918E+02	5.7100E+02	1.1208E+02	-2.3925E+04	5.9179E+04	1.8990E+02	-1.5364E+03	7.3809E+03	1.1250E+01
1.3918E+02	5.4618E+02	1.7875E+02	-2.3925E+04	5.6812E+04	4.0292E+01	-1.5364E+03	7.1428E+03	1.0417E+00
1.3918E+02	5.2135E+02	2.3271E+02	-2.3925E+04	5.4445E+04	5.0861E+02	-1.5364E+03	6.9047E+03	8.3020E+01
1.3918E+02	4.9652E+02	7.5465E+02	-2.3925E+04	5.2078E+04	1.6773E+02	-1.5364E+03	6.6666E+03	8.3333E+00
1.3918E+02	4.7170E+02	1.0548E+03	-2.3925E+04	4.9711E+04	1.7667E+02	-1.5364E+03	6.4285E+03	2.2917E+00
1.3918E+02	4.4687E+02	2.2450E+03	-2.3925E+04	4.7344E+04	2.1600E+02	-1.5364E+03	6.1904E+03	1.2552E+02
1.3918E+02	4.2205E+02	2.5425E+03	-2.3925E+04	4.4976E+04	3.5511E+02	-1.5364E+03	5.9523E+03	3.7500E+00
1.3918E+02	3.9722E+02	1.4230E+03	-2.3925E+04	4.2609E+04	7.7314E+01	-1.5364E+03	5.7142E+03	2.4104E+02
1.3918E+02	3.7239E+02	2.7450E+03	-2.3925E+04	4.0242E+04	2.3908E+02	-1.5364E+03	5.4761E+03	1.1308E+02
1.3918E+02	3.4757E+02	6.6014E+03	-2.3925E+04	3.7875E+04	4.5482E+02	-1.5364E+03	5.2380E+03	2.8996E+02
1.3918E+02	3.2274E+02	5.8307E+03	-2.3925E+04	3.5508E+04	3.4749E+04	-1.5364E+03	4.9999E+03	4.4583E+03
1.3918E+02	2.9791E+02	6.0198E+03	-2.3925E+04	3.3141E+04	4.7101E+02	-1.5364E+03	4.7618E+03	2.5378E+03
1.3918E+02	2.7309E+02	6.4759E+03	-2.3925E+04	3.0773E+04	1.8097E+04	-1.5364E+03	4.5238E+03	8.1772E+03
1.3918E+02	2.4826E+02	2.5443E+04	-2.3925E+04	2.8406E+04	5.1554E+02	-1.5364E+03	4.2857E+03	2.2884E+03
1.3918E+02	2.2344E+02	2.8256E+04	-2.3925E+04	2.6039E+04	7.3175E+02	-1.5364E+03	4.0476E+03	1.0889E+04
1.3918E+02	1.9861E+02	2.6363E+04	-2.3925E+04	2.3672E+04	1.7714E+04	-1.5364E+03	3.8095E+03	1.6258E+04
1.3918E+02	1.7378E+02	1.7271E+04	-2.3925E+04	2.1305E+04	5.4523E+04	-1.5364E+03	3.5714E+03	1.9955E+04
1.3918E+02	1.4896E+02	2.3909E+04	-2.3925E+04	1.8937E+04	2.9260E+04	-1.5364E+03	3.3333E+03	7.6460E+04
1.3918E+02	1.2413E+02	2.3994E+05	-2.3925E+04	1.6570E+04	3.2492E+04	-1.5364E+03	3.0952E+03	7.8098E+04
1.3918E+02	9.9305E+01	1.1303E+06	-2.3925E+04	1.4203E+04	2.9693E+04	-1.5364E+03	2.8571E+03	7.7034E+04
1.3918E+02	7.4479E+01	4.2887E+06	-2.3925E+04	1.1836E+04	1.0172E+05	-1.5364E+03	2.6190E+03	2.0218E+05
1.3918E+02	4.9652E+01	1.2327E+07	-2.3925E+04	9.4687E+03	1.8467E+05	-1.5364E+03	2.3809E+03	2.5514E+05
1.3918E+02	2.4826E+01	1.9968E+07	-2.3925E+04	7.1015E+03	6.4053E+05	-1.5364E+03	2.1428E+03	3.5150E+05

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05 PAGE 26/36	
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.3918E+02	0.0000E+00	1.1903E+07	-2.3925E+04	4.7344E+03	2.6724E+06	-1.5364E+03	1.9047E+03	5.4698E+05
1.1026E+02	1.0179E+03	1.1125E+01	-2.3925E+04	2.3672E+03	1.1285E+07	-1.5364E+03	1.6666E+03	4.8020E+05
1.1026E+02	9.9305E+02	6.4166E+00	-2.3925E+04	0.0000E+00	1.1185E+07	-1.5364E+03	1.4286E+03	5.5066E+05
1.1026E+02	9.6822E+02	9.0000E+00	-2.6514E+04	8.7586E+04	1.0000E+01	-1.5364E+03	1.1905E+03	4.7578E+05
1.1026E+02	9.1857E+02	7.0000E+00	-2.6514E+04	8.5218E+04	1.0000E+01	-1.5364E+03	9.5237E+02	4.5290E+05
1.1026E+02	8.9374E+02	8.2500E+00	-2.6514E+04	7.8117E+04	4.1667E+01	-1.5364E+03	7.1428E+02	6.6048E+05
1.1026E+02	8.6892E+02	6.5000E+00	-2.6514E+04	7.5750E+04	5.2917E+01	-1.5364E+03	4.7618E+02	9.0273E+05
1.1026E+02	8.4409E+02	1.7500E+00	-2.6514E+04	7.3383E+04	3.8209E+01	-1.5364E+03	2.3809E+02	1.8485E+06
1.1026E+02	8.1926E+02	1.7500E+00	-2.6514E+04	7.1015E+04	7.1667E+01	-1.5364E+03	0.0000E+00	3.4321E+06
1.1026E+02	7.9444E+02	2.5000E+00	-2.6514E+04	6.8648E+04	2.9687E+02	-1.8131E+03	1.0714E+04	4.1667E+01
1.1026E+02	7.6961E+02	1.2500E+00	-2.6514E+04	6.6281E+04	1.4935E+02	-1.8131E+03	1.0476E+04	1.2500E+00
1.1026E+02	7.4479E+02	1.7500E+00	-2.6514E+04	6.3914E+04	3.2296E+02	-1.8131E+03	8.5713E+03	1.0000E+01
1.1026E+02	7.1996E+02	2.9167E+00	-2.6514E+04	6.1547E+04	1.8413E+02	-1.8131E+03	6.6666E+03	1.7500E+00
1.1026E+02	6.9513E+02	1.2500E+00	-2.6514E+04	5.9179E+04	5.4977E+02	-1.8131E+03	6.4285E+03	2.0000E+01
1.1026E+02	6.7031E+02	1.2500E+00	-2.6514E+04	5.6812E+04	5.2488E+02	-1.8131E+03	6.1904E+03	2.5292E+01
1.1026E+02	6.4548E+02	1.0792E+02	-2.6514E+04	5.4445E+04	5.8866E+02	-1.8131E+03	5.9523E+03	4.2917E+01
1.1026E+02	6.2065E+02	8.9585E+01	-2.6514E+04	5.2078E+04	1.3808E+03	-1.8131E+03	5.7142E+03	1.8750E+01
1.1026E+02	5.9583E+02	1.6854E+02	-2.6514E+04	4.9711E+04	1.4273E+03	-1.8131E+03	5.4761E+03	9.9335E+01
1.1026E+02	5.7100E+02	3.7500E+01	-2.6514E+04	4.7344E+04	1.9598E+03	-1.8131E+03	5.2380E+03	4.6780E+02
1.1026E+02	5.4618E+02	1.1492E+02	-2.6514E+04	4.4976E+04	1.9377E+03	-1.8131E+03	4.9999E+03	6.1347E+02
1.1026E+02	5.2135E+02	2.8208E+02	-2.6514E+04	4.2609E+04	3.2049E+03	-1.8131E+03	4.7618E+03	2.6453E+03
1.1026E+02	4.9652E+02	1.8183E+02	-2.6514E+04	4.0242E+04	1.1891E+04	-1.8131E+03	4.5238E+03	1.5770E+03
1.1026E+02	4.7170E+02	2.0009E+02	-2.6514E+04	3.7875E+04	4.6951E+03	-1.8131E+03	4.2857E+03	1.8633E+03
1.1026E+02	4.4687E+02	3.8798E+02	-2.6514E+04	3.5508E+04	2.0871E+04	-1.8131E+03	4.0476E+03	5.3131E+03
1.1026E+02	4.2205E+02	1.2808E+03	-2.6514E+04	3.3141E+04	3.1392E+04	-1.8131E+03	3.8095E+03	5.2787E+03
1.1026E+02	3.9722E+02	8.1532E+02	-2.6514E+04	3.0773E+04	1.8486E+04	-1.8131E+03	3.5714E+03	1.6434E+04
1.1026E+02	3.7239E+02	7.2302E+02	-2.6514E+04	2.8406E+04	5.4421E+03	-1.8131E+03	3.3333E+03	2.4419E+04
1.1026E+02	3.4757E+02	2.5533E+03	-2.6514E+04	2.6039E+04	4.2946E+04	-1.8131E+03	3.0952E+03	5.0360E+04
1.1026E+02	3.2274E+02	2.3083E+03	-2.6514E+04	2.3672E+04	1.0744E+04	-1.8131E+03	2.8571E+03	8.4560E+04
1.1026E+02	2.9791E+02	3.8725E+03	-2.6514E+04	2.1305E+04	1.1073E+04	-1.8131E+03	2.6190E+03	1.2244E+05
1.1026E+02	2.7309E+02	2.3257E+03	-2.6514E+04	1.8937E+04	3.0686E+04	-1.8131E+03	2.3809E+03	6.6557E+04
1.1026E+02	2.4826E+02	3.7591E+03	-2.6514E+04	1.6570E+04	7.2531E+04	-1.8131E+03	2.1428E+03	1.1380E+05
1.1026E+02	2.2344E+02	1.0977E+04	-2.6514E+04	1.4203E+04	1.2903E+05	-1.8131E+03	1.9047E+03	2.4229E+05
1.1026E+02	1.9861E+02	4.9476E+04	-2.6514E+04	1.1836E+04	2.4386E+05	-1.8131E+03	1.6666E+03	2.4427E+05
1.1026E+02	1.7378E+02	6.6165E+04	-2.6514E+04	9.4687E+03	3.7785E+05	-1.8131E+03	1.4286E+03	2.6720E+05

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 Natural, Denmark A/S Tårnsørens Parkvej 8, 2 DK-2900 Hillerød VAT No. DK894832314		CLASS T05		PAGE 27/36	
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
1.1026E+02	1.4896E+02	4.6498E+04	-2.6514E+04	7.1015E+03	8.9970E+05	-1.8131E+03	1.1905E+03	2.1043E+05
1.1026E+02	1.2413E+02	1.1360E+05	-2.6514E+04	4.7344E+03	3.2242E+06	-1.8131E+03	9.5237E+02	1.8202E+05
1.1026E+02	9.9305E+01	5.4206E+05	-2.6514E+04	2.3672E+03	1.2072E+07	-1.8131E+03	7.1428E+02	2.3068E+05
1.1026E+02	7.4479E+01	3.0328E+06	-2.6514E+04	0.0000E+00	1.1196E+07	-1.8131E+03	4.7618E+02	3.4453E+05
1.1026E+02	4.9652E+01	1.3009E+07	-2.9103E+04	8.0484E+04	1.0000E+01	-1.8131E+03	2.3809E+02	8.6814E+05
1.1026E+02	2.4826E+01	2.6773E+07	-2.9103E+04	7.5750E+04	2.0000E+01	-1.8131E+03	0.0000E+00	2.0267E+06
1.1026E+02	0.0000E+00	1.6959E+07	-2.9103E+04	7.3383E+04	1.0302E+02	-2.0898E+03	1.1428E+04	1.2500E+00
8.1330E+01	1.1917E+03	1.7500E+00	-2.9103E+04	7.1015E+04	8.8332E+01	-2.0898E+03	9.7618E+03	1.0000E+01
8.1330E+01	1.0924E+03	5.8333E+00	-2.9103E+04	6.8648E+04	4.0000E+01	-2.0898E+03	7.3809E+03	8.3020E+01
8.1330E+01	1.0675E+03	5.2085E+00	-2.9103E+04	6.6281E+04	9.5292E+01	-2.0898E+03	7.1428E+03	1.2500E+00
8.1330E+01	1.0427E+03	2.9167E+00	-2.9103E+04	6.3914E+04	5.1090E+02	-2.0898E+03	6.4285E+03	5.0000E+00
8.1330E+01	1.0179E+03	8.1251E+00	-2.9103E+04	6.1547E+04	3.1906E+02	-2.0898E+03	6.1904E+03	2.5000E+00
8.1330E+01	9.9305E+02	5.8333E+00	-2.9103E+04	5.9179E+04	1.0395E+03	-2.0898E+03	5.9523E+03	2.5000E+00
8.1330E+01	9.6822E+02	1.7500E+00	-2.9103E+04	5.6812E+04	1.2367E+03	-2.0898E+03	5.7142E+03	8.7500E+00
8.1330E+01	9.4340E+02	5.2500E+00	-2.9103E+04	5.4445E+04	1.4377E+03	-2.0898E+03	5.4761E+03	3.1250E+01
8.1330E+01	9.1857E+02	5.2500E+00	-2.9103E+04	5.2078E+04	2.7274E+03	-2.0898E+03	5.2380E+03	2.5000E+01
8.1330E+01	8.9374E+02	5.2085E+00	-2.9103E+04	4.9711E+04	1.8989E+03	-2.0898E+03	4.9999E+03	2.5000E+00
8.1330E+01	8.6892E+02	4.2500E+00	-2.9103E+04	4.7344E+04	4.6824E+03	-2.0898E+03	4.7618E+03	9.2335E+01
8.1330E+01	8.1926E+02	1.2500E+00	-2.9103E+04	4.4976E+04	1.9683E+04	-2.0898E+03	4.5238E+03	1.2146E+02
8.1330E+01	7.6961E+02	1.2500E+00	-2.9103E+04	4.2609E+04	9.5475E+03	-2.0898E+03	4.2857E+03	4.9986E+02
8.1330E+01	7.4479E+02	1.2500E+00	-2.9103E+04	4.0242E+04	2.3762E+04	-2.0898E+03	4.0476E+03	1.9167E+02
8.1330E+01	6.9513E+02	2.5000E+00	-2.9103E+04	3.7875E+04	1.6838E+04	-2.0898E+03	3.8095E+03	2.6354E+02
8.1330E+01	6.7031E+02	6.6666E+00	-2.9103E+04	3.5508E+04	2.3651E+04	-2.0898E+03	3.5714E+03	2.4402E+03
8.1330E+01	6.4548E+02	9.1666E+00	-2.9103E+04	3.3141E+04	3.6450E+04	-2.0898E+03	3.3333E+03	6.4961E+03
8.1330E+01	6.2065E+02	8.8333E+00	-2.9103E+04	3.0773E+04	4.3018E+04	-2.0898E+03	3.0952E+03	9.0950E+03
8.1330E+01	5.9583E+02	1.0833E+01	-2.9103E+04	2.8406E+04	4.1394E+04	-2.0898E+03	2.8571E+03	7.9369E+03
8.1330E+01	5.7100E+02	2.1250E+01	-2.9103E+04	2.6039E+04	4.6233E+04	-2.0898E+03	2.6190E+03	1.3415E+04
8.1330E+01	5.4618E+02	7.5000E+00	-2.9103E+04	2.3672E+04	6.4433E+04	-2.0898E+03	2.3809E+03	1.7199E+04
8.1330E+01	5.2135E+02	5.8502E+01	-2.9103E+04	2.1305E+04	5.3254E+04	-2.0898E+03	2.1428E+03	5.3706E+04
8.1330E+01	4.9652E+02	7.2917E+01	-2.9103E+04	1.8937E+04	9.5771E+04	-2.0898E+03	1.9047E+03	5.6973E+04
8.1330E+01	4.7170E+02	2.2163E+02	-2.9103E+04	1.6570E+04	1.5763E+05	-2.0898E+03	1.6666E+03	7.4635E+04
8.1330E+01	4.4687E+02	1.5284E+02	-2.9103E+04	1.4203E+04	1.9453E+05	-2.0898E+03	1.4286E+03	6.0944E+04
8.1330E+01	4.2205E+02	2.2729E+02	-2.9103E+04	1.1836E+04	3.6618E+05	-2.0898E+03	1.1905E+03	4.3421E+04
8.1330E+01	3.9722E+02	3.3393E+02	-2.9103E+04	9.4687E+03	9.2803E+05	-2.0898E+03	9.5237E+02	6.1789E+04
8.1330E+01	3.7239E+02	2.6700E+02	-2.9103E+04	7.1015E+03	1.5901E+06	-2.0898E+03	7.1428E+02	9.9360E+04

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05		PAGE 28/36
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
8.1330E+01	3.4757E+02	6.2677E+02	-2.9103E+04	4.7344E+03	4.3764E+06	-2.0898E+03	4.7618E+02	2.2425E+05
8.1330E+01	3.2274E+02	8.8767E+02	-2.9103E+04	2.3672E+03	1.2650E+07	-2.0898E+03	2.3809E+02	5.0597E+05
8.1330E+01	2.9791E+02	1.2931E+03	-2.9103E+04	0.0000E+00	1.2900E+07	-2.0898E+03	0.0000E+00	8.6114E+05
8.1330E+01	2.7309E+02	2.1880E+03	-3.1691E+04	7.1015E+04	1.0302E+02	-2.3665E+03	1.1190E+04	1.2500E+00
8.1330E+01	2.4826E+02	1.0060E+03	-3.1691E+04	6.8648E+04	3.7535E+02	-2.3665E+03	9.7618E+03	1.2500E+00
8.1330E+01	2.2344E+02	1.8700E+03	-3.1691E+04	6.6281E+04	2.5222E+02	-2.3665E+03	7.8570E+03	1.2500E+00
8.1330E+01	1.9861E+02	1.4188E+04	-3.1691E+04	6.3914E+04	3.6824E+02	-2.3665E+03	6.9047E+03	4.1667E+01
8.1330E+01	1.7378E+02	1.1634E+04	-3.1691E+04	6.1547E+04	4.4353E+02	-2.3665E+03	6.6666E+03	2.5000E+00
8.1330E+01	1.4896E+02	4.2861E+04	-3.1691E+04	5.9179E+04	2.7133E+02	-2.3665E+03	6.4285E+03	2.5000E+00
8.1330E+01	1.2413E+02	8.6916E+04	-3.1691E+04	5.6812E+04	1.2835E+03	-2.3665E+03	6.1904E+03	5.1667E+01
8.1330E+01	9.9305E+01	1.6632E+05	-3.1691E+04	5.4445E+04	2.6965E+03	-2.3665E+03	5.9523E+03	1.2500E+00
8.1330E+01	7.4479E+01	2.0456E+06	-3.1691E+04	5.2078E+04	4.3543E+03	-2.3665E+03	5.4761E+03	3.8333E+00
8.1330E+01	4.9652E+01	1.0459E+07	-3.1691E+04	4.9711E+04	6.2991E+03	-2.3665E+03	5.2380E+03	3.9042E+01
8.1330E+01	2.4826E+01	2.8935E+07	-3.1691E+04	4.7344E+04	7.4154E+03	-2.3665E+03	4.9999E+03	3.5417E+00
8.1330E+01	0.0000E+00	1.8974E+07	-3.1691E+04	4.4976E+04	1.3902E+04	-2.3665E+03	4.7618E+03	3.2500E+01
5.2403E+01	1.1420E+03	8.1251E+00	-3.1691E+04	4.2609E+04	1.5691E+04	-2.3665E+03	4.5238E+03	2.7083E+01
5.2403E+01	1.0924E+03	2.9167E+00	-3.1691E+04	4.0242E+04	1.4721E+04	-2.3665E+03	4.2857E+03	7.0585E+01
5.2403E+01	1.0427E+03	4.1666E+00	-3.1691E+04	3.7875E+04	3.2890E+04	-2.3665E+03	4.0476E+03	2.1104E+02
5.2403E+01	1.0179E+03	5.2085E+00	-3.1691E+04	3.5508E+04	3.1184E+04	-2.3665E+03	3.8095E+03	1.2010E+03
5.2403E+01	9.9305E+02	1.2500E+00	-3.1691E+04	3.3141E+04	4.1846E+04	-2.3665E+03	3.5714E+03	9.1333E+01
5.2403E+01	9.4340E+02	1.7500E+00	-3.1691E+04	3.0773E+04	5.4898E+04	-2.3665E+03	3.3333E+03	3.9225E+03
5.2403E+01	9.1857E+02	1.2500E+00	-3.1691E+04	2.8406E+04	7.7101E+04	-2.3665E+03	3.0952E+03	3.5706E+03
5.2403E+01	7.6961E+02	1.2500E+00	-3.1691E+04	2.6039E+04	9.3541E+04	-2.3665E+03	2.8571E+03	3.4117E+03
5.2403E+01	6.9513E+02	2.5000E+00	-3.1691E+04	2.3672E+04	1.0863E+05	-2.3665E+03	2.6190E+03	5.7906E+03
5.2403E+01	6.7031E+02	2.9167E+00	-3.1691E+04	2.1305E+04	1.4119E+05	-2.3665E+03	2.3809E+03	2.2379E+03
5.2403E+01	6.4548E+02	2.4167E+01	-3.1691E+04	1.8937E+04	1.3326E+05	-2.3665E+03	2.1428E+03	4.8306E+03
5.2403E+01	6.2065E+02	5.4166E+00	-3.1691E+04	1.6570E+04	2.0686E+05	-2.3665E+03	1.9047E+03	1.5282E+04
5.2403E+01	5.9583E+02	5.3833E+01	-3.1691E+04	1.4203E+04	3.0050E+05	-2.3665E+03	1.6666E+03	8.9596E+03
5.2403E+01	5.7100E+02	9.2500E+00	-3.1691E+04	1.1836E+04	5.6660E+05	-2.3665E+03	1.4286E+03	4.2304E+04
5.2403E+01	5.4618E+02	7.5000E+00	-3.1691E+04	9.4687E+03	1.0759E+06	-2.3665E+03	1.1905E+03	2.4716E+04
5.2403E+01	5.2135E+02	4.2917E+01	-3.1691E+04	7.1015E+03	2.1276E+06	-2.3665E+03	9.5237E+02	2.0450E+04
5.2403E+01	4.9652E+02	2.5000E+01	-3.1691E+04	4.7344E+03	4.9938E+06	-2.3665E+03	7.1428E+02	6.0806E+03
5.2403E+01	4.7170E+02	1.3042E+02	-3.1691E+04	2.3672E+03	1.2330E+07	-2.3665E+03	4.7618E+02	5.3719E+04
5.2403E+01	4.4687E+02	9.4167E+01	-3.1691E+04	0.0000E+00	1.1915E+07	-2.3665E+03	2.3809E+02	1.3724E+05
5.2403E+01	4.2205E+02	9.2250E+01	-3.4280E+04	7.5750E+04	1.0000E+01	-2.3665E+03	0.0000E+00	4.2239E+05

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads	DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 29/36
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
5.2403E+01	3.9722E+02	1.1433E+02	-3.4280E+04	7.1015E+04	1.0000E+01	-2.6433E+03	7.3809E+03	1.2500E+00
5.2403E+01	3.7239E+02	3.6475E+02	-3.4280E+04	6.1547E+04	4.7090E+02	-2.6433E+03	7.1428E+03	4.1667E+01
5.2403E+01	3.4757E+02	2.8879E+02	-3.4280E+04	5.6812E+04	2.8051E+02	-2.6433E+03	6.9047E+03	2.5000E+00
5.2403E+01	3.2274E+02	2.4467E+02	-3.4280E+04	5.2078E+04	2.6898E+03	-2.6433E+03	6.6666E+03	5.0000E+00
5.2403E+01	2.9791E+02	4.4500E+02	-3.4280E+04	4.9711E+04	2.9259E+03	-2.6433E+03	6.4285E+03	1.2500E+00
5.2403E+01	2.7309E+02	1.6475E+02	-3.4280E+04	4.7344E+04	7.0716E+03	-2.6433E+03	6.1904E+03	2.5000E+00
5.2403E+01	2.4826E+02	1.6575E+02	-3.4280E+04	4.4976E+04	7.8232E+03	-2.6433E+03	5.4761E+03	2.5000E+00
5.2403E+01	2.2344E+02	4.4302E+03	-3.4280E+04	4.2609E+04	1.0191E+04	-2.6433E+03	4.9999E+03	2.0000E+01
5.2403E+01	1.9861E+02	8.8342E+02	-3.4280E+04	4.0242E+04	1.6965E+04	-2.6433E+03	4.7618E+03	2.1726E+02
5.2403E+01	1.7378E+02	6.8349E+03	-3.4280E+04	3.7875E+04	2.4173E+04	-2.6433E+03	4.5238E+03	4.7916E+00
5.2403E+01	1.4896E+02	1.1147E+04	-3.4280E+04	3.5508E+04	2.4691E+04	-2.6433E+03	4.2857E+03	2.0000E+01
5.2403E+01	1.2413E+02	4.0689E+04	-3.4280E+04	3.3141E+04	6.7143E+04	-2.6433E+03	4.0476E+03	1.8604E+02
5.2403E+01	9.9305E+01	7.8225E+04	-3.4280E+04	3.0773E+04	7.1382E+04	-2.6433E+03	3.8095E+03	7.0585E+01
5.2403E+01	7.4479E+01	8.1281E+05	-3.4280E+04	2.8406E+04	9.4434E+04	-2.6433E+03	3.5714E+03	1.3474E+03
5.2403E+01	4.9652E+01	5.8678E+06	-3.4280E+04	2.6039E+04	9.7050E+04	-2.6433E+03	3.3333E+03	4.8799E+03
5.2403E+01	2.4826E+01	1.6812E+07	-3.4280E+04	2.3672E+04	1.3245E+05	-2.6433E+03	3.0952E+03	2.1517E+02
5.2403E+01	0.0000E+00	1.3968E+07	-3.4280E+04	2.1305E+04	1.6454E+05	-2.6433E+03	2.8571E+03	2.7247E+03
2.3477E+01	1.1172E+03	5.2085E+00	-3.4280E+04	1.8937E+04	1.9764E+05	-2.6433E+03	2.6190E+03	1.2985E+02
2.3477E+01	9.1857E+02	1.7500E+00	-3.4280E+04	1.6570E+04	2.4266E+05	-2.6433E+03	2.3809E+03	3.7954E+02
2.3477E+01	8.1926E+02	1.2500E+00	-3.4280E+04	1.4203E+04	4.2858E+05	-2.6433E+03	2.1428E+03	6.2875E+03
2.3477E+01	7.9444E+02	2.5000E+00	-3.4280E+04	1.1836E+04	7.9603E+05	-2.6433E+03	1.9047E+03	1.5000E+02
2.3477E+01	7.1996E+02	1.2500E+00	-3.4280E+04	9.4687E+03	1.5548E+06	-2.6433E+03	1.6666E+03	3.0329E+03
2.3477E+01	6.9513E+02	1.7500E+00	-3.4280E+04	7.1015E+03	2.8792E+06	-2.6433E+03	1.4286E+03	3.1104E+02
2.3477E+01	6.4548E+02	1.2500E+00	-3.4280E+04	4.7344E+03	5.8970E+06	-2.6433E+03	1.1905E+03	1.2139E+04
2.3477E+01	6.2065E+02	4.6666E+00	-3.4280E+04	2.3672E+03	1.3178E+07	-2.6433E+03	9.5237E+02	1.6706E+04
2.3477E+01	5.9583E+02	2.9167E+00	-3.4280E+04	0.0000E+00	1.1114E+07	-2.6433E+03	7.1428E+02	2.1444E+04
2.3477E+01	5.7100E+02	6.2500E+00	-3.6869E+04	5.9179E+04	8.3020E+01	-2.6433E+03	4.7618E+02	3.9216E+04
2.3477E+01	5.4618E+02	1.2500E+00	-3.6869E+04	5.6812E+04	9.3020E+01	-2.6433E+03	2.3809E+02	9.4534E+04
2.3477E+01	5.2135E+02	4.6750E+01	-3.6869E+04	5.4445E+04	2.7967E+03	-2.6433E+03	0.0000E+00	1.8645E+05
2.3477E+01	4.9652E+02	2.3750E+01	-3.6869E+04	4.9711E+04	1.2908E+04	-2.9200E+03	8.8094E+03	1.2500E+00
2.3477E+01	4.7170E+02	1.2917E+01	-3.6869E+04	4.7344E+04	2.9426E+03	-2.9200E+03	7.8570E+03	4.1667E+01
2.3477E+01	4.4687E+02	6.5000E+00	-3.6869E+04	4.4976E+04	1.8400E+04	-2.9200E+03	7.3809E+03	2.0000E+01
2.3477E+01	4.2205E+02	9.6666E+00	-3.6869E+04	4.2609E+04	1.9901E+04	-2.9200E+03	6.1904E+03	1.2500E+00
2.3477E+01	3.9722E+02	3.3833E+01	-3.6869E+04	4.0242E+04	3.5076E+04	-2.9200E+03	5.9523E+03	2.2917E+00
2.3477E+01	3.7239E+02	4.2500E+00	-3.6869E+04	3.7875E+04	1.6986E+04	-2.9200E+03	4.7618E+03	2.5000E+00

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05 PAGE 30/36	
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
2.3477E+01	3.4757E+02	2.6250E+01	-3.6869E+04	3.5508E+04	2.4220E+04	-2.9200E+03	4.2857E+03	2.2500E+01
2.3477E+01	3.2274E+02	7.9833E+01	-3.6869E+04	3.3141E+04	4.3493E+04	-2.9200E+03	4.0476E+03	2.0000E+01
2.3477E+01	2.9791E+02	1.9009E+02	-3.6869E+04	3.0773E+04	4.6531E+04	-2.9200E+03	3.8095E+03	2.2500E+01
2.3477E+01	2.7309E+02	3.4443E+03	-3.6869E+04	2.8406E+04	9.0727E+04	-2.9200E+03	3.5714E+03	1.0833E+02
2.3477E+01	2.4826E+02	3.4112E+03	-3.6869E+04	2.6039E+04	1.4554E+05	-2.9200E+03	3.3333E+03	5.2486E+02
2.3477E+01	2.2344E+02	1.6600E+02	-3.6869E+04	2.3672E+04	1.1705E+05	-2.9200E+03	3.0952E+03	1.1689E+03
2.3477E+01	1.9861E+02	3.7289E+03	-3.6869E+04	2.1305E+04	1.9964E+05	-2.9200E+03	2.8571E+03	7.0000E+01
2.3477E+01	1.7378E+02	3.1054E+03	-3.6869E+04	1.8937E+04	2.7729E+05	-2.9200E+03	2.6190E+03	5.9819E+02
2.3477E+01	1.4896E+02	6.7583E+03	-3.6869E+04	1.6570E+04	2.4451E+05	-2.9200E+03	2.3809E+03	2.4583E+01
2.3477E+01	1.2413E+02	1.0166E+04	-3.6869E+04	1.4203E+04	4.0639E+05	-2.9200E+03	2.1428E+03	1.6813E+03
2.3477E+01	9.9305E+01	2.1192E+04	-3.6869E+04	1.1836E+04	8.9358E+05	-2.9200E+03	1.9047E+03	3.5333E+01
2.3477E+01	7.4479E+01	1.4923E+05	-3.6869E+04	9.4687E+03	1.6985E+06	-2.9200E+03	1.6666E+03	1.4583E+03
2.3477E+01	4.9652E+01	1.5603E+06	-3.6869E+04	7.1015E+03	3.4010E+06	-2.9200E+03	1.4286E+03	3.7958E+02
2.3477E+01	2.4826E+01	5.9697E+06	-3.6869E+04	4.7344E+03	6.9110E+06	-2.9200E+03	1.1905E+03	8.0208E+03
2.3477E+01	0.0000E+00	9.6585E+06	-3.6869E+04	2.3672E+03	1.2757E+07	-2.9200E+03	9.5237E+02	5.0890E+03
-5.4503E+00	8.6892E+02	2.9167E+00	-3.6869E+04	0.0000E+00	1.0334E+07	-2.9200E+03	7.1428E+02	2.9080E+03
-5.4503E+00	8.4409E+02	1.2500E+00	-3.9458E+04	5.6812E+04	8.3020E+01	-2.9200E+03	4.7618E+02	2.7069E+03
-5.4503E+00	7.9444E+02	2.9167E+00	-3.9458E+04	5.4445E+04	2.4074E+03	-2.9200E+03	2.3809E+02	2.9023E+04
-5.4503E+00	6.9513E+02	1.2500E+00	-3.9458E+04	5.2078E+04	3.6491E+03	-2.9200E+03	0.0000E+00	8.3900E+04
-5.4503E+00	6.4548E+02	3.0000E+00	-3.9458E+04	4.7344E+04	2.6920E+04	-3.1967E+03	7.8570E+03	1.2500E+00
-5.4503E+00	6.2065E+02	1.2500E+00	-3.9458E+04	4.4976E+04	1.9637E+04	-3.1967E+03	6.4285E+03	1.0000E+01
-5.4503E+00	5.9583E+02	2.9167E+00	-3.9458E+04	4.2609E+04	3.1600E+04	-3.1967E+03	5.7142E+03	2.5000E+00
-5.4503E+00	5.4618E+02	6.4166E+00	-3.9458E+04	4.0242E+04	5.5773E+04	-3.1967E+03	4.5238E+03	2.5000E+00
-5.4503E+00	4.9652E+02	2.7792E+01	-3.9458E+04	3.7875E+04	4.2624E+04	-3.1967E+03	4.2857E+03	2.5000E+00
-5.4503E+00	4.7170E+02	4.2500E+00	-3.9458E+04	3.5508E+04	5.1907E+04	-3.1967E+03	4.0476E+03	5.0000E+00
-5.4503E+00	4.4687E+02	1.1667E+01	-3.9458E+04	3.3141E+04	6.4205E+04	-3.1967E+03	3.8095E+03	5.0585E+01
-5.4503E+00	4.2205E+02	6.4166E+00	-3.9458E+04	3.0773E+04	3.9770E+04	-3.1967E+03	3.5714E+03	5.0000E+00
-5.4503E+00	3.9722E+02	6.5500E+01	-3.9458E+04	2.8406E+04	6.2042E+04	-3.1967E+03	3.3333E+03	2.2500E+01
-5.4503E+00	3.7239E+02	7.7083E+01	-3.9458E+04	2.6039E+04	9.9224E+04	-3.1967E+03	3.0952E+03	1.7417E+02
-5.4503E+00	3.4757E+02	9.4583E+01	-3.9458E+04	2.3672E+04	1.1946E+05	-3.1967E+03	2.8571E+03	8.5833E+01
-5.4503E+00	3.2274E+02	2.8083E+01	-3.9458E+04	2.1305E+04	1.3422E+05	-3.1967E+03	2.6190E+03	2.8971E+02
-5.4503E+00	2.9791E+02	1.6358E+02	-3.9458E+04	1.8937E+04	2.1487E+05	-3.1967E+03	2.3809E+03	1.0188E+02
-5.4503E+00	2.7309E+02	1.7250E+02	-3.9458E+04	1.6570E+04	3.5371E+05	-3.1967E+03	2.1428E+03	9.1833E+01
-5.4503E+00	2.4826E+02	2.2542E+02	-3.9458E+04	1.4203E+04	5.8358E+05	-3.1967E+03	1.9047E+03	6.1820E+02
-5.4503E+00	2.2344E+02	2.8217E+02	-3.9458E+04	1.1836E+04	7.7037E+05	-3.1967E+03	1.6666E+03	1.3558E+02


T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by APRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		DNV GL Denmark A/S Tuborg Parkvej 8, 2 DNV GL DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 31/36
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-5.4503E+00	1.9861E+02	4.4867E+02	-3.9458E+04	9.4687E+03	1.7728E+06	-3.1967E+03	1.4286E+03	1.8604E+02
-5.4503E+00	1.7378E+02	4.0211E+03	-3.9458E+04	7.1015E+03	4.1172E+06	-3.1967E+03	1.1905E+03	3.3458E+02
-5.4503E+00	1.4896E+02	6.6111E+03	-3.9458E+04	4.7344E+03	6.9779E+06	-3.1967E+03	9.5237E+02	8.7500E+01
-5.4503E+00	1.2413E+02	3.9002E+03	-3.9458E+04	2.3672E+03	1.1910E+07	-3.1967E+03	7.1428E+02	4.7500E+01
-5.4503E+00	9.9305E+01	1.0572E+04	-3.9458E+04	0.0000E+00	8.6465E+06	-3.1967E+03	4.7618E+02	8.5970E+03
-5.4503E+00	7.4479E+01	2.6591E+04	-4.2046E+04	4.7344E+04	8.4640E+03	-3.1967E+03	2.3809E+02	1.5200E+04
-5.4503E+00	4.9652E+01	2.9347E+05	-4.2046E+04	4.4976E+04	1.2037E+04	-3.1967E+03	0.0000E+00	4.8595E+04
-5.4503E+00	2.4826E+01	2.6310E+06	-4.2046E+04	4.2609E+04	2.8162E+04	-3.4734E+03	8.8094E+03	2.5000E+00
-5.4503E+00	0.0000E+00	5.6789E+07	-4.2046E+04	4.0242E+04	3.3235E+04	-3.4734E+03	4.0476E+03	5.0585E+01
-3.4377E+01	8.6892E+02	1.2500E+00	-4.2046E+04	3.7875E+04	8.9057E+04	-3.4734E+03	3.5714E+03	2.5000E+00
-3.4377E+01	8.1926E+02	2.9167E+00	-4.2046E+04	3.5508E+04	6.4210E+04	-3.4734E+03	3.0952E+03	2.5000E+00
-3.4377E+01	7.6961E+02	1.7500E+00	-4.2046E+04	3.3141E+04	5.6851E+04	-3.4734E+03	2.8571E+03	2.2500E+01
-3.4377E+01	7.4479E+02	8.8333E+00	-4.2046E+04	3.0773E+04	6.9589E+04	-3.4734E+03	2.6190E+03	2.5000E+00
-3.4377E+01	7.1996E+02	3.5000E+00	-4.2046E+04	2.8406E+04	1.1617E+05	-3.4734E+03	2.3809E+03	9.5833E+01
-3.4377E+01	6.4548E+02	1.7500E+00	-4.2046E+04	2.6039E+04	8.9455E+04	-3.4734E+03	2.1428E+03	4.7500E+01
-3.4377E+01	6.2065E+02	4.7500E+00	-4.2046E+04	2.3672E+04	1.5941E+05	-3.4734E+03	1.9047E+03	5.0000E+00
-3.4377E+01	5.9583E+02	1.7500E+00	-4.2046E+04	2.1305E+04	1.4689E+05	-3.4734E+03	1.6666E+03	2.5000E+00
-3.4377E+01	5.4618E+02	3.0000E+00	-4.2046E+04	1.8937E+04	2.0712E+05	-3.4734E+03	1.4286E+03	8.8333E+01
-3.4377E+01	5.2135E+02	3.0000E+00	-4.2046E+04	1.6570E+04	2.6769E+05	-3.4734E+03	1.1905E+03	1.0000E+01
-3.4377E+01	4.9652E+02	3.5000E+00	-4.2046E+04	1.4203E+04	3.8126E+05	-3.4734E+03	9.5237E+02	5.0000E+00
-3.4377E+01	4.7170E+02	6.4166E+00	-4.2046E+04	1.1836E+04	6.9526E+05	-3.4734E+03	7.1428E+02	9.8085E+01
-3.4377E+01	4.4687E+02	8.1666E+00	-4.2046E+04	9.4687E+03	1.7821E+06	-3.4734E+03	4.7618E+02	2.0142E+02
-3.4377E+01	4.2205E+02	5.2500E+00	-4.2046E+04	7.1015E+03	3.9796E+06	-3.4734E+03	2.3809E+02	1.1237E+03
-3.4377E+01	3.9722E+02	2.0417E+01	-4.2046E+04	4.7344E+03	7.6830E+06	-3.4734E+03	0.0000E+00	3.2393E+03
-3.4377E+01	3.7239E+02	9.6666E+00	-4.2046E+04	2.3672E+03	1.2869E+07	-3.7501E+03	4.2857E+03	2.5000E+00
-3.4377E+01	3.4757E+02	1.5917E+01	-4.2046E+04	0.0000E+00	7.9189E+06	-3.7501E+03	3.8095E+03	2.5000E+00
-3.4377E+01	3.2274E+02	2.4250E+01	-4.4635E+04	4.7344E+04	2.9167E+00	-3.7501E+03	3.5714E+03	4.0000E+01
-3.4377E+01	2.9791E+02	2.8250E+01	-4.4635E+04	4.2609E+04	1.4957E+04	-3.7501E+03	2.6190E+03	2.0000E+01
-3.4377E+01	2.7309E+02	2.4067E+02	-4.4635E+04	4.0242E+04	1.8814E+04	-3.7501E+03	2.3809E+03	2.0000E+01
-3.4377E+01	2.4826E+02	2.3258E+02	-4.4635E+04	3.7875E+04	4.1985E+04	-3.7501E+03	2.1428E+03	5.0000E+00
-3.4377E+01	2.2344E+02	2.1683E+02	-4.4635E+04	3.5508E+04	7.5353E+04	-3.7501E+03	1.9047E+03	2.5000E+00
-3.4377E+01	1.9861E+02	7.8650E+02	-4.4635E+04	3.3141E+04	1.0369E+05	-3.7501E+03	1.6666E+03	5.0000E+00
-3.4377E+01	1.7378E+02	9.1250E+02	-4.4635E+04	3.0773E+04	8.9655E+04	-3.7501E+03	1.4286E+03	2.2500E+01
-3.4377E+01	1.4896E+02	1.3090E+03	-4.4635E+04	2.8406E+04	1.0848E+05	-3.7501E+03	1.1905E+03	2.2500E+01
-3.4377E+01	1.2413E+02	7.5916E+03	-4.4635E+04	2.6039E+04	1.7935E+05	-3.7501E+03	9.5237E+02	1.9104E+02


T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK89832314		CLASS T05		PAGE 32/36
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-3.4377E+01	9.9305E+01	1.1884E+04	-4.4635E+04	2.3672E+04	1.5553E+05	-3.7501E+03	7.1428E+02	1.9104E+02
-3.4377E+01	7.4479E+01	1.4397E+04	-4.4635E+04	2.1305E+04	2.1180E+05	-3.7501E+03	4.7618E+02	8.5168E+01
-3.4377E+01	4.9652E+01	8.3028E+04	-4.4635E+04	1.8937E+04	2.2540E+05	-3.7501E+03	2.3809E+02	2.1458E+02
-3.4377E+01	2.4826E+01	3.4606E+05	-4.4635E+04	1.6570E+04	2.6531E+05	-3.7501E+03	0.0000E+00	2.1051E+03
-3.4377E+01	0.0000E+00	5.9766E+05	-4.4635E+04	1.4203E+04	4.6972E+05	-4.0268E+03	5.7142E+03	2.5000E+00
-6.3304E+01	8.1926E+02	2.9167E+00	-4.4635E+04	1.1836E+04	9.9254E+05	-4.0268E+03	2.8571E+03	5.0000E+00
-6.3304E+01	7.6961E+02	2.9167E+00	-4.4635E+04	9.4687E+03	2.7764E+06	-4.0268E+03	2.6190E+03	2.5000E+00
-6.3304E+01	6.9513E+02	4.6666E+00	-4.4635E+04	7.1015E+03	6.1499E+06	-4.0268E+03	2.3809E+03	2.5000E+00
-6.3304E+01	6.7031E+02	2.9167E+00	-4.4635E+04	4.7344E+03	1.2282E+07	-4.0268E+03	2.1428E+03	2.5000E+01
-6.3304E+01	6.4548E+02	1.7500E+00	-4.4635E+04	2.3672E+03	1.6726E+07	-4.0268E+03	1.9047E+03	5.0585E+01
-6.3304E+01	6.2065E+02	1.7500E+00	-4.4635E+04	0.0000E+00	9.5792E+06	-4.0268E+03	1.6666E+03	7.5000E+00
-6.3304E+01	5.9583E+02	3.0000E+00	-4.7224E+04	5.2078E+04	2.9167E+00	-4.0268E+03	1.4286E+03	7.5000E+00
-6.3304E+01	5.7100E+02	5.2500E+00	-4.7224E+04	4.0242E+04	9.8346E+03	-4.0268E+03	9.5237E+02	1.6604E+02
-6.3304E+01	5.4618E+02	1.7500E+00	-4.7224E+04	3.7875E+04	6.2944E+03	-4.0268E+03	7.1428E+02	5.0000E+00
-6.3304E+01	4.9652E+02	3.5000E+00	-4.7224E+04	3.5508E+04	7.2298E+03	-4.0268E+03	4.7618E+02	7.9335E+01
-6.3304E+01	4.7170E+02	3.5000E+00	-4.7224E+04	3.3141E+04	2.2721E+04	-4.0268E+03	2.3809E+02	7.8085E+01
-6.3304E+01	4.4687E+02	1.4000E+01	-4.7224E+04	3.0773E+04	9.4634E+04	-4.0268E+03	0.0000E+00	2.7114E+03
-6.3304E+01	3.9722E+02	1.7500E+01	-4.7224E+04	2.8406E+04	1.2827E+05	-4.3035E+03	3.0952E+03	2.0000E+01
-6.3304E+01	3.7239E+02	2.1000E+01	-4.7224E+04	2.6039E+04	2.3270E+05	-4.3035E+03	2.8571E+03	1.2333E+02
-6.3304E+01	3.4757E+02	2.3250E+01	-4.7224E+04	2.3672E+04	2.1905E+05	-4.3035E+03	2.3809E+03	4.2500E+01
-6.3304E+01	3.2274E+02	1.0033E+02	-4.7224E+04	2.1305E+04	3.8003E+05	-4.3035E+03	2.1428E+03	2.5000E+00
-6.3304E+01	2.9791E+02	2.8500E+01	-4.7224E+04	1.8937E+04	6.2525E+05	-4.3035E+03	1.9047E+03	1.0333E+02
-6.3304E+01	2.7309E+02	2.0550E+02	-4.7224E+04	1.6570E+04	9.5220E+05	-4.3035E+03	1.6666E+03	2.5000E+00
-6.3304E+01	2.4826E+02	2.2500E+01	-4.7224E+04	1.4203E+04	1.0617E+06	-4.3035E+03	9.5237E+02	2.0000E+01
-6.3304E+01	2.2344E+02	7.6667E+01	-4.7224E+04	1.1836E+04	2.1271E+06	-4.3035E+03	7.1428E+02	2.2500E+01
-6.3304E+01	1.9861E+02	1.4575E+02	-4.7224E+04	9.4687E+03	4.5054E+06	-4.3035E+03	4.7618E+02	2.5000E+00
-6.3304E+01	1.7378E+02	6.7333E+01	-4.7224E+04	7.1015E+03	8.7457E+06	-4.3035E+03	2.3809E+02	1.5000E+01
-6.3304E+01	1.4896E+02	1.2958E+02	-4.7224E+04	4.7344E+03	1.7494E+07	-4.3035E+03	0.0000E+00	2.4917E+02
-6.3304E+01	1.2413E+02	3.9367E+02	-4.7224E+04	2.3672E+03	2.0827E+07	-4.5802E+03	5.7142E+03	2.5000E+00
-6.3304E+01	9.9305E+01	2.5592E+02	-4.7224E+04	0.0000E+00	1.0880E+07	-4.5802E+03	4.9999E+03	2.5000E+00
-6.3304E+01	7.4479E+01	5.9808E+02	-4.9813E+04	4.2609E+04	2.9167E+00	-4.5802E+03	2.8571E+03	2.2500E+01
-6.3304E+01	4.9652E+01	4.1168E+04	-4.9813E+04	4.0242E+04	5.0000E+01	-4.5802E+03	2.3809E+03	2.0000E+01
-6.3304E+01	2.4826E+01	1.0245E+05	-4.9813E+04	3.7875E+04	3.4884E+03	-4.5802E+03	1.9047E+03	2.5000E+00
-6.3304E+01	0.0000E+00	5.1438E+04	-4.9813E+04	3.5508E+04	6.3944E+03	-4.5802E+03	1.1905E+03	5.0000E+00
-9.2231E+01	8.9374E+02	1.7500E+00	-4.9813E+04	3.3141E+04	6.0217E+02	-4.5802E+03	4.7618E+02	2.5000E+00

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK9832314		CLASS T05		PAGE 33/36	
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Original Instruction: T05 0065-3555 VER 00

T05 0065-3555 Ver 00 - Approved - Exported from DMS: 2017-03-06 by ARRAH

Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-9.2231E+01	7.4479E+02	2.9167E+00	-4.9813E+04	3.0773E+04	1.1920E+04	-4.5802E+03	2.3809E+02	1.0000E+01
-9.2231E+01	6.2065E+02	2.9167E+00	-4.9813E+04	2.8406E+04	3.2834E+04	-4.5802E+03	0.0000E+00	1.0000E+01
-9.2231E+01	5.9583E+02	1.7500E+00	-4.9813E+04	2.6039E+04	4.2999E+04	-4.8569E+03	7.1428E+02	2.5000E+00
-9.2231E+01	5.4618E+02	1.7500E+00	-4.9813E+04	2.3672E+04	1.3412E+05	-4.8569E+03	2.3809E+02	6.2500E+01
-9.2231E+01	5.2135E+02	1.7500E+00	-4.9813E+04	2.1305E+04	2.1773E+05	-4.8569E+03	0.0000E+00	2.2500E+01
-9.2231E+01	4.9652E+02	3.5000E+00	-4.9813E+04	1.8937E+04	3.3245E+05	-5.1336E+03	9.5237E+02	2.5000E+00
-9.2231E+01	4.4687E+02	7.0000E+00	-4.9813E+04	1.6570E+04	7.7272E+05	-5.1336E+03	7.1428E+02	2.5000E+00
-9.2231E+01	4.2205E+02	5.2500E+00	-4.9813E+04	1.4203E+04	1.0949E+06	-5.1336E+03	2.3809E+02	2.5000E+00
-9.2231E+01	3.9722E+02	5.2500E+00	-4.9813E+04	1.1836E+04	2.1484E+06	-5.4103E+03	0.0000E+00	8.8333E+01
-9.2231E+01	3.7239E+02	5.2500E+00	-4.9813E+04	9.4687E+03	4.5092E+06			
-9.2231E+01	3.4757E+02	3.5000E+00	-4.9813E+04	7.1015E+03	9.4972E+06			
-9.2231E+01	3.2274E+02	3.1667E+01	-4.9813E+04	4.7344E+03	1.8522E+07			
-9.2231E+01	2.9791E+02	1.5750E+01	-4.9813E+04	2.3672E+03	2.2285E+07			
-9.2231E+01	2.7309E+02	3.2250E+01	-4.9813E+04	0.0000E+00	1.0268E+07			
-9.2231E+01	2.4826E+02	2.9417E+01	-5.2401E+04	4.7344E+04	2.9167E+00			
-9.2231E+01	2.2344E+02	4.6834E+01	-5.2401E+04	3.7875E+04	2.9167E+00			
-9.2231E+01	1.9861E+02	4.4583E+01	-5.2401E+04	3.3141E+04	5.0000E+01			
-9.2231E+01	1.7378E+02	1.2383E+02	-5.2401E+04	3.0773E+04	1.0000E+02			
-9.2231E+01	1.4896E+02	7.4167E+01	-5.2401E+04	2.8406E+04	5.0000E+01			
-9.2231E+01	1.2413E+02	1.4800E+02	-5.2401E+04	2.6039E+04	1.2652E+04			
-9.2231E+01	9.9305E+01	1.2908E+02	-5.2401E+04	2.3672E+04	2.6259E+03			
-9.2231E+01	7.4479E+01	1.3392E+02	-5.2401E+04	2.1305E+04	3.1571E+04			
-9.2231E+01	4.9652E+01	7.3760E+03	-5.2401E+04	1.8937E+04	4.5809E+04			
-9.2231E+01	2.4826E+01	7.8263E+03	-5.2401E+04	1.6570E+04	1.6859E+05			
-9.2231E+01	0.0000E+00	1.0324E+04	-5.2401E+04	1.4203E+04	5.2851E+05			
-1.2116E+02	8.1926E+02	2.9167E+00	-5.2401E+04	1.1836E+04	1.1156E+06			
-1.2116E+02	5.9583E+02	2.5000E+00	-5.2401E+04	9.4687E+03	2.4350E+06			
-1.2116E+02	5.2135E+02	3.5000E+00	-5.2401E+04	7.1015E+03	6.0291E+06			
-1.2116E+02	4.9652E+02	1.7500E+00	-5.2401E+04	4.7344E+03	1.2307E+07			
-1.2116E+02	4.7170E+02	5.2500E+00	-5.2401E+04	2.3672E+03	1.4530E+07			
-1.2116E+02	4.4687E+02	3.5000E+00	-5.2401E+04	0.0000E+00	7.7491E+06			
-1.2116E+02	4.2205E+02	7.7500E+00	-5.4990E+04	2.8406E+04	2.9167E+00			
-1.2116E+02	3.9722E+02	5.2500E+00	-5.4990E+04	2.6039E+04	6.1415E+03			
-1.2116E+02	3.7239E+02	1.4750E+01	-5.4990E+04	2.1305E+04	6.2269E+03			
-1.2116E+02	3.4757E+02	7.0000E+00	-5.4990E+04	1.8937E+04	1.2638E+04			

DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		DNV GL Denmark A/S Tuborg Parkvej 8, 2 DNV GL DK-2900 Hellerup VAT No. DK89832314	CLASS T05 PAGE 34/36
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Original In : uction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-1.2116E+02	3.2274E+02	1.7500E+00	-5.4990E+04	1.6570E+04	7.4769E+03			
-1.2116E+02	2.9791E+02	6.0000E+00	-5.4990E+04	1.4203E+04	1.2181E+05			
-1.2116E+02	2.7309E+02	9.5000E+00	-5.4990E+04	1.1836E+04	2.6486E+05			
-1.2116E+02	2.4826E+02	2.1000E+01	-5.4990E+04	9.4687E+03	8.1251E+05			
-1.2116E+02	2.2344E+02	1.6333E+01	-5.4990E+04	7.1015E+03	2.5395E+06			
-1.2116E+02	1.9861E+02	2.2500E+01	-5.4990E+04	4.7344E+03	5.5436E+06			
-1.2116E+02	1.7378E+02	4.7333E+01	-5.4990E+04	2.3672E+03	7.5082E+06			
-1.2116E+02	1.4896E+02	4.6000E+01	-5.4990E+04	0.0000E+00	3.8751E+06			
-1.2116E+02	1.2413E+02	1.2783E+02	-5.7579E+04	2.3672E+04	5.0000E+01			
-1.2116E+02	9.9305E+01	2.3450E+02	-5.7579E+04	1.6570E+04	1.1667E+01			
-1.2116E+02	7.4479E+01	8.7833E+01	-5.7579E+04	1.4203E+04	1.2295E+04			
-1.2116E+02	4.9652E+01	2.0300E+02	-5.7579E+04	1.1836E+04	6.8043E+03			
-1.2116E+02	2.4826E+01	7.8050E+02	-5.7579E+04	9.4687E+03	1.5963E+05			
-1.2116E+02	0.0000E+00	1.2253E+03	-5.7579E+04	7.1015E+03	7.7532E+05			
-1.5008E+02	5.2135E+02	3.5000E+00	-5.7579E+04	4.7344E+03	1.8501E+06			
-1.5008E+02	4.9652E+02	3.5000E+00	-5.7579E+04	2.3672E+03	2.8853E+06			
-1.5008E+02	4.2205E+02	2.5000E+00	-5.7579E+04	0.0000E+00	1.4318E+06			
-1.5008E+02	3.9722E+02	7.0000E+00	-6.0168E+04	2.1305E+04	1.7500E+00			
-1.5008E+02	3.2274E+02	6.0000E+00	-6.0168E+04	9.4687E+03	1.7227E+04			
-1.5008E+02	2.9791E+02	3.5000E+00	-6.0168E+04	7.1015E+03	1.3903E+04			
-1.5008E+02	2.7309E+02	7.0000E+00	-6.0168E+04	4.7344E+03	2.3210E+05			
-1.5008E+02	2.4826E+02	7.0000E+00	-6.0168E+04	2.3672E+03	4.3735E+05			
-1.5008E+02	2.2344E+02	2.1000E+01	-6.0168E+04	0.0000E+00	2.4526E+05			
-1.5008E+02	1.9861E+02	3.7500E+01	-6.2756E+04	9.4687E+03	5.8333E+00			
-1.5008E+02	1.7378E+02	3.1417E+01	-6.2756E+04	7.1015E+03	6.8862E+03			
-1.5008E+02	1.4896E+02	1.9000E+01	-6.2756E+04	4.7344E+03	7.7781E+04			
-1.5008E+02	1.2413E+02	4.9167E+01	-6.2756E+04	2.3672E+03	4.0625E+04			
-1.5008E+02	9.9305E+01	5.0333E+01	-6.2756E+04	0.0000E+00	2.7129E+04			
-1.5008E+02	7.4479E+01	4.3333E+01	-6.5345E+04	7.1015E+03	1.0000E+02			
-1.5008E+02	4.9652E+01	6.0750E+01	-6.5345E+04	4.7344E+03	5.8333E+00			
-1.5008E+02	2.4826E+01	3.3017E+02	-6.5345E+04	2.3672E+03	2.2450E+02			
-1.5008E+02	0.0000E+00	1.5450E+02	-6.5345E+04	0.0000E+00	1.1867E+02			
-1.7901E+02	4.2205E+02	3.5000E+00	-6.7934E+04	4.7344E+03	3.5000E+00			
-1.7901E+02	3.9722E+02	2.5000E+00	-6.7934E+04	0.0000E+00	3.5000E+00			
-1.7901E+02	3.4757E+02	3.5000E+00	-7.0523E+04	2.3672E+03	5.8333E+00			


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DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		GL Denmark A/S Parkvej 8, 2 800 Hellerup CVR No. DK89832314		CLASS T05	
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Markov Matrices								
Tower shear, bottom F _y [kN]			Tower bending, bottom M _x [kNm]			Tower torsion, bottom M _z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-1.7901E+02	3.2274E+02	8.5000E+00	-7.0523E+04	0.0000E+00	5.8333E+00			
-1.7901E+02	2.9791E+02	3.5000E+00	-7.3111E+04	2.3672E+03	5.8333E+00			
-1.7901E+02	2.7309E+02	1.3917E+01						
-1.7901E+02	2.4826E+02	7.0000E+00						
-1.7901E+02	2.2344E+02	3.5000E+00						
-1.7901E+02	1.9861E+02	1.0500E+01						
-1.7901E+02	1.7378E+02	6.0000E+00						
-1.7901E+02	1.4896E+02	3.0333E+01						
-1.7901E+02	1.2413E+02	4.2000E+01						
-1.7901E+02	9.9305E+01	1.3000E+01						
-1.7901E+02	7.4479E+01	1.9833E+01						
-1.7901E+02	4.9652E+01	4.0750E+01						
-1.7901E+02	2.4826E+01	9.5000E+01						
-1.7901E+02	0.0000E+00	2.5667E+01						
-2.0794E+02	4.2205E+02	7.0000E+00						
-2.0794E+02	2.9791E+02	3.5000E+00						
-2.0794E+02	2.7309E+02	1.3917E+01						
-2.0794E+02	2.2344E+02	3.5000E+00						
-2.0794E+02	1.9861E+02	2.5000E+00						
-2.0794E+02	1.7378E+02	1.7500E+01						
-2.0794E+02	1.4896E+02	1.4000E+01						
-2.0794E+02	1.2413E+02	2.5833E+01						
-2.0794E+02	9.9305E+01	1.5333E+01						
-2.0794E+02	7.4479E+01	3.3750E+01						
-2.0794E+02	4.9652E+01	3.4917E+01						
-2.0794E+02	2.4826E+01	2.4500E+01						
-2.0794E+02	0.0000E+00	3.8750E+01						
-2.3686E+02	3.4757E+02	3.5000E+00						
-2.3686E+02	3.2274E+02	3.5000E+00						
-2.3686E+02	1.7378E+02	1.3917E+01						
-2.3686E+02	1.4896E+02	3.5000E+00						
-2.3686E+02	1.2413E+02	1.6333E+01						
-2.3686E+02	9.9305E+01	1.3917E+01						
-2.3686E+02	7.4479E+01	1.7500E+01						
-2.3686E+02	4.9652E+01	2.4667E+01						

Original Instruction: T05 0065-3555 VER 00

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DOCUMENT: 0065-3555 VER 00		DESCRIPTION: RNSP 15-428: Foundation loads		 DNV GL Denmark A/S Tuborg Parkvej 8, 2 DK-2900 Hellerup VAT No. DK37832314		CLASS T05		PAGE 36/36	
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Original Instruction: T05 0065-3555 VER 00

Markov Matrices								
Tower shear, bottom F_y [kN]			Tower bending, bottom M_x [kNm]			Tower torsion, bottom M_z [kNm]		
Level	Range	Cycles	Level	Range	Cycles	Level	Range	Cycles
-2.3686E+02	2.4826E+01	3.2501E+01						
-2.3686E+02	0.0000E+00	9.3333E+00						
-2.6579E+02	1.9861E+02	9.3333E+00						
-2.6579E+02	1.4896E+02	1.0417E+01						
-2.6579E+02	9.9305E+01	7.0000E+00						
-2.6579E+02	7.4479E+01	1.1667E+01						
-2.6579E+02	2.4826E+01	9.3333E+00						
-2.6579E+02	0.0000E+00	5.8333E+00						
-2.9472E+02	1.4896E+02	5.8333E+00						
-2.9472E+02	7.4479E+01	2.1000E+01						
-2.9472E+02	2.4826E+01	1.5167E+01						
-2.9472E+02	0.0000E+00	1.5167E+01						
-3.2365E+02	1.9861E+02	1.0417E+01						
-3.2365E+02	2.4826E+01	1.1667E+01						
-3.5257E+02	7.4479E+01	5.8333E+00						
-3.5257E+02	2.4826E+01	9.3333E+00						
-3.8150E+02	0.0000E+00	5.8333E+00						
-4.1043E+02	2.4826E+01	1.1667E+01						

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