

E DIN EN ISO 19901-9:2017-06 (E)

Erscheinungsdatum: 2017-05-26

**Petroleum and natural gas industries - Specific requirements for offshore structures -
Part 9: Structural integrity management (ISO/DIS 19901-9:2017); English version prEN
ISO 19901-9:2017**

Inhalt

Seite

Foreword	vii
Introduction	ix
1 Scope	10
2 Normative references	10
3 Terms and definitions	11
4 Symbols	14
5 Abbreviated terms	16
6 SIM fundamentals	18
6.1 General	18
6.2 Fitness-for-service assessment	19
6.3 Management framework	19
6.4 Performance level	20
6.5 Design	20
6.6 Topsides	21
6.7 Continued service	21
6.8 Structural integrity interfaces	21
7 SIM process	22
8 Data	22
8.1 General	22
8.2 Design data	23
8.3 Fabrication and installation data	23
8.4 Condition data	23
8.5 Operational data	23
8.6 Engineering data	23
8.7 Missing data	24
8.8 Data management	24
9 Evaluation	25
9.1 General	25
9.2 Factors	25
9.3 Hazards	26
9.4 Critical structure (CS)	26
9.5 Risk	27
9.5.1 General	27
9.5.2 Consequence of failure	27
9.5.3 Likelihood of failure	29
9.5.4 Risk presentation	30
9.6 Performance level	31
9.6.1 General	31
9.6.2 Life-safety	32
9.6.3 Pollution of the environment	32
9.6.4 Financial loss	32

9.7	Fatigue	32
9.8	Assessment	33
9.8.1	General	33
9.8.2	Assessment motive	33
9.8.3	Assessment initiators	34
9.9	Mitigation measures	36
9.9.1	General	36
9.9.2	Consequence reduction	36
9.9.3	Likelihood reduction	37
10	Strategy	39
10.1	General	39
10.2	Inspection strategy	40
10.2.1	General	40
10.2.2	Inspection motives	40
10.2.3	Inspection type	41
10.2.4	Inspection method	42
10.2.5	Inspection interval	44
10.2.6	Inspection scope	48
10.2.7	Pre-selected inspection areas	51
10.3	Maintenance strategy	51
10.4	Monitoring strategy	51
10.4.1	General	51
10.4.2	Weight monitoring	52
10.4.3	Deck elevation monitoring	52
10.4.4	Natural frequency monitoring	52
10.4.5	Corrosion protection monitoring	53
10.4.6	Metoccean monitoring	53
10.5	Evacuation strategy	53
10.6	Geotechnical investigation	53
11	Program	54
11.1	General	54
11.2	Inspection program	54
11.2.1	General	54
11.2.2	Specifications	54
11.2.3	Inspection method	55
11.3	Maintenance program	57
11.4	Monitoring program	57
12	Assessment requirements	57
12.1	General	57
12.2	Assessment information	58
12.2.1	General	58
12.2.2	Information requirements	58
12.2.3	Limited or missing information	58
12.2.4	Above water information	59
12.2.5	Underwater information	59
12.2.6	Geotechnical information	59
12.3	Assessment method	59
12.3.1	General	59

12.3.2	Semi-quantitative methods	60
12.3.3	Quantitative methods.....	61
12.3.4	Fatigue analysis	63
12.4	Assessment model	63
12.4.1	General	63
12.4.2	Tubular members	63
12.4.3	Connections.....	64
12.4.4	Conductors	64
12.4.5	Damage	64
12.4.6	Repaired and strengthened elements	65
12.4.7	Foundation model	65
12.4.8	Material strength	66
12.5	Assessment for gravity hazard	66
12.5.1	General	66
12.5.2	Design level method (DLM).....	66
12.5.3	Ultimate strength method (USM)	67
12.6	Assessment for metocean hazard	67
12.6.1	General	67
12.6.2	Metocean criteria.....	67
12.6.3	Crest elevation.....	67
12.6.4	Metocean action vector - jacket.....	68
12.6.5	Metocean action vector - deck.....	68
12.6.6	Directionality of metocean hazards.....	69
12.6.7	Design level method (DLM).....	69
12.6.8	Linear-elastic redundancy method.....	69
12.6.9	Ultimate strength method (USM)	69
12.7	Assessment for seismic hazard	70
12.7.1	General	70
12.7.2	Seismic criteria	70
12.7.3	Seismic action vector	70
12.7.4	Directionality of seismic hazards	71
12.7.5	Design level method (DLM).....	71
12.7.6	Ultimate strength method (USM)	71
12.8	Assessment for collision hazard	72
12.8.1	General	72
12.8.2	Collision zone	73
12.8.3	Collision criteria	73
12.8.4	Directionality of collision hazards	73
12.8.5	Collision assessment method	74
12.9	Assessment for ice hazard	74
12.10	Assessment for explosion hazard	74
12.11	Assessment for fire hazard	74
13	Reuse	74
13.1	General	74
13.2	Fatigue in reused structures	74
13.3	Steel in reused structures	75
13.4	Inspection of reused structures	75
13.4.1	General	75

13.4.2	Initial condition assessment of structural members and connections	75
13.4.3	Extent of weld inspection	76
13.4.4	Corrosion protection systems	76
13.5	Removal and reinstallation	76
14	Decommissioning	76
14.1	General	76
14.2	Decommissioning process	76
14.3	Pre-decommissioning data gathering	77
14.4	Planning and engineering	77
14.5	Well decommissioning	77
14.6	Facilities decommissioning	77
14.7	Pipeline decommissioning	77
14.8	Conductor removal	77
14.9	Structure decommissioning	78
14.10	Site clearance	78
Annex A	(informative) Additional information and guidance	79
A.1	Scope	79
A.2	Normative references	80
A.3	Terms and definitions	80
A.4	Symbols	80
A.5	Abbreviated terms	80
A.6	SIM fundamentals	80
A.7	SIM process	90
A.8	Data	91
A.9	Evaluation	95
A.10	Strategy	119
A.11	Program	137
A.12	Assessment requirements	140
A.13	Reuse	164
A.14	Decommissioning	167