

ISO 13628-3:2000-12 (E)

Petroleum and natural gas industries - Design and operation of subsea production systems - Part 3: Through flowtime (TFL) systems

Contents	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms, definitions and abbreviated terms	1
3.1 Terms and definitions	2
3.2 Abbreviated terms	3
4 TFL system	4
4.1 Description of system	4
4.2 TFL components	4
4.3 System/equipment design	5
4.4 Pressure rating	6
5 TFL surface equipment	6
5.1 General	6
5.2 Service pump	9
5.3 TFL control manifold	9
5.4 TFL control console and instrumentation	9
5.5 Lubricator	11
5.6 Fluid storage and working tank	13
5.7 Separator	13
5.8 Testing	13
6 TFL piping system	13
6.1 General	13
6.2 Design	14
6.3 Fabrication	20
6.4 Testing	26
7 Subsea tree, tubing hanger, diverters and selectors	26
7.1 Subsea tree design	26
7.2 Subsea tree testing	35
7.3 Tubing hanger design	35
7.4 Tubing hanger testing	36
7.5 Diverters, deflectors and selectors	36
7.6 Diverter design	42
7.7 Diverter testing	43
8 Completion equipment and tools	43
8.1 General	43
8.2 Completion design	44
8.3 Tubing	44
8.4 Surface-controlled subsurface safety system	44
8.5 Packers	45
8.6 Telescoping joints	45
8.7 Landing nipples	46

8.8	Circulation members	46
8.9	Circulation controls	47
8.10	Standing valves and isolation/production devices	47
8.11	TFL tool design	48
9	Operations	48
9.1	General	48
9.2	Personnel and training	48
9.3	Completion equipment	49
9.4	Satellite well and template well control systems	49
9.5	Service planning and documentation	49
9.6	Fluid selection/well preparation	50
9.7	Pumping operations	50
9.8	Returning well to production	51
10	Summary of capabilities	51
Annex A (normative) TFL pipe		52
A.1	Technical delivery conditions	52
A.2	Dimension and grades	52
A.3	Length	52
A.4	Drift tests	52
A.5	Hydrostatic tests	52
A.6	Marking	52
Annex B (informative) TFL operating pressure		53
B.1	General	53
B.2	Example problem	53
Annex C (informative) TFL completions		58
C.1	General	58
C.2	Single string, single zone, annular circulation completion	58
C.3	Single string, single zone, side string circulation completion	60
C.4	Dual-string, single-zone completion	62
C.5	Dual-string, multi-zone completions	62
Annex D (informative) TFL capabilities		65
D.1	Flow controls	65
D.2	Service work	65
Bibliography		67