

DIN EN ISO 19901-8:2024-01 (E)

**Oil and gas industries including lower carbon energy - Offshore structures - Part 8:
Marine soil investigations (ISO 19901-8:2023); English version EN ISO 19901-8:2023**

Contents	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols, units and abbreviated terms	6
4.1 Symbols	6
4.2 Units	11
4.3 Abbreviated terms	12
5 Objectives, planning and requirements	14
5.1 Objectives	14
5.2 Planning	14
5.2.1 Sequence of activities	14
5.2.2 Integrated geoscience studies	16
5.3 Scope of work and development of project specifications	17
5.4 Health, safety and environmental requirements for marine operations	18
5.4.1 General	18
5.4.2 Investigation vessel	18
5.4.3 Hazardous substances and acoustic noise	19
5.4.4 Shallow gas	19
5.5 Other requirements	20
5.5.1 Operational requirements	20
5.5.2 Quality requirements	20
5.5.3 Specific considerations for unconventional soils	21
6 Deployment of investigation equipment	21
6.1 Non-drilling mode deployment	21
6.2 Drilling mode deployment	21
6.2.1 General	21
6.2.2 Vessel drilling	22
6.2.3 Seafloor drilling	22
6.3 Uncertainty of vertical depth measurements	22
6.3.1 General	22
6.3.2 Factors affecting the uncertainty of vertical depth measurements	23
6.3.3 Depth uncertainty classes	23
6.4 Horizontal positioning	24
6.5 Interaction of investigation equipment with the upper seabed	24
7 Drilling and logging	25
7.1 General	25
7.2 Project-specific drilling requirements	25
7.3 Drilling objectives and selection of drilling equipment and procedures	26
7.4 Drilling operations plan	26
7.5 Recording of drilling parameters	27
7.6 Borehole geophysical logging	27
7.6.1 General	27
7.6.2 Reporting of results	28
8 In situ testing	28
8.1 General	28
8.2 General requirements for the reporting of in situ tests	29
8.3 Cone penetration test	30
8.3.1 General	30
8.3.2 Equipment	30

8.3.3	Test procedures.....	31
8.3.4	Procedures for testing offshore.....	34
8.3.5	Presentation of test results.....	36
8.4	Pore pressure dissipation test.....	37
8.4.1	General	37
8.4.2	Equipment	38
8.4.3	Test procedure.....	38
8.4.4	Presentation of results.....	38
8.5	Ball and T-bar penetration tests.....	39
8.5.1	General	39
8.5.2	Equipment	41
8.5.3	Calibration and verification of ball and T-bar penetrometers.....	41
8.5.4	Procedures for testing offshore	41
8.5.5	Presentation of results.....	42
8.6	Seismic cone penetration test.....	43
8.6.1	General	43
8.6.2	Equipment	44
8.6.3	Procedures for testing offshore	44
8.6.4	Presentation of results.....	45
8.7	Other in situ tests.....	45
8.7.1	General	45
9	Sampling.....	46
9.1	Purpose and objectives of sampling.....	46
9.2	Sampling systems	46
9.3	Selection of samplers	46
9.3.1	General	46
9.3.2	Drilling mode samplers	47
9.3.3	Non-drilling mode samplers	48
9.4	Sample recovery considerations.....	49
9.5	Handling, transport and storage of samples	50
9.5.1	General	50
9.5.2	Offshore sample handling	51
9.5.3	Offshore storage	52
9.5.4	Onshore transport, handling and storage	52
10	Laboratory testing.....	52
10.1	General.....	52
10.2	Project specifications	53
10.3	Presentation of laboratory test results	53
10.4	Instrumentation, calibration and data acquisition	54
10.5	Preparation of soil specimens for testing.....	54
10.5.1	Minimum sample size and specimen dimensions.....	54
10.5.2	Preparation of disturbed samples and soil batching	54
10.5.3	Preparation of intact specimens (fine soils)	55
10.5.4	Laboratory-prepared compacted and reconstituted specimens	55
10.5.5	Preparation of remoulded samples.....	57
10.6	Evaluation of intact sample quality	57
11	Reporting.....	58
11.1	Reporting requirements	58
11.2	Presentation of field operations and factual data	59
11.3	Data interpretation and soil parameters	59
Annex A (informative) Additional information and guidance	61	
Annex B (informative) Laboratory testing	109	
Bibliography	146	