

ISO 15589-1:2003-11 (E)

Petroleum and natural gas industries - Cathodic protection of pipeline transportation systems - Part 1: On-land pipelines

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Symbols and abbreviations	4
5	Design requirements	4
5.1	General	4
5.2	Design information	4
5.3	Criteria for CP	5
5.4	Predesign investigations	6
5.5	Electrical isolation	7
5.6	Electrical earthing	8
5.7	Electrical continuity	8
5.8	Current requirements	8
5.9	Type of CP system and selection of sites	9
6	Impressed-current systems	10
6.1	Power supply	10
6.2	Groundbeds	11
6.3	Current output control and distribution	13
7	Galvanic-anode systems	14
7.1	General	14
7.2	Zinc anodes	14
7.3	Magnesium anodes	15
7.4	Anode backfill	16
7.5	Cables and cable connections	16
8	Monitoring facilities	16
8.1	General	16
8.2	Monitoring stations (test posts)	16
8.3	Bonding to other pipelines	17
8.4	Test facilities at cased crossings	17
8.5	Test facilities at isolating joints	17
8.6	Drain-point test facilities	17
8.7	Miscellaneous monitoring facilities	17
9	Special facilities	17
9.1	Temporary protection	17
9.2	Protective casings	17
9.3	Parallel power lines or a.c. traction systems	18
9.4	Lightning protection	18
9.5	Surge arrestors	18
9.6	CP cables and cable connections	18

9.7	Monitoring stations and distribution boxes	19
10	Commissioning	20
10.1	General	20
10.2	Equipment tests	20
10.3	System tests	21
11	Inspection and monitoring	21
11.1	General	21
11.2	Frequencies of inspection	21
11.3	Monitoring plan	22
11.4	Monitoring equipment	23
11.5	Specialized surveys	23
12	Maintenance and repair	23
13	Documentation	24
13.1	Design documentation	24
13.2	Commissioning documentation	25
13.3	Inspection and monitoring documentation	25
13.4	Operating and maintenance documentation	25
13.5	Maintenance records	26
	Annex A (normative) CP measurements	27
	Annex B (normative) Electrical interference	31
	Annex C (informative) Fault detection of impressed-current systems during operation	35
	Annex D (informative) Description of specialized surveys	37
	Bibliography	40