

Contents

11.6	Submersible pump mechanical and electrical acceptance tests.	1
11.6.1	Introduction.	1
11.6.1.1	Purpose	1
11.6.1.2	Scope	1
11.6.1.3	Symbols and units	1
11.6.2	Test types	2
11.6.2.1	Non-witnessed factory pump test.	2
11.6.2.2	Witnessed factory pump test	2
11.6.3	Records and reports.	3
11.6.3.1	Requirements.	3
11.6.4	Submersible integrity tests	3
11.6.4.1	Objective	3
11.6.4.2	Mechanical integrity tests.	3
11.6.4.3	Electrical integrity tests	5
11.6.5	Instrumentation	6
11.6.5.1	Objective	6
Appendix A	Determination, application, and calculation of instrument (systematic) uncertainty (informative).	8
A.1	Determination, application, and calculation of instrument (systematic) uncertainty.	8
A.2	Distribution of probability	9
A.3	Examples of measurement uncertainty calculations	10
Figures		
	Figure 11.6.4.2.1 — Housing pressure test configuration	4
	Figure 11.6.4.2.2 — Housing vacuum test configuration.	5
	Figure A.1 — Output signal vs. pressure value	16
Tables		
	Table 11.6.1.3 — Symbols.	2
	Table 11.6.5.1.3 — Default instrument recalibration intervals	7
	Table A.1 — Lab pressure calibrator calibration data	11
	Table A.2 — Published accuracy of lab calibration devices	11
	Table A.3 — Lab precision DC current measurement device calibration data.	12
	Table A.4 — Lab DC current source calibration data.	12
	Table A.5 — Pressure transducer calibration.	13

Table A.6 — DA system current measurement module (output) calibration data.13

Table A.7 — Calculation of percent uncertainty for the discharge pressure, full system of
300-psi pressure transducer and data acquisition system14

Table A.8 — Differential pressure transducer information15

Table A.9 — Signal measurement device information15

Table A.10 — Venturi information - BIF 2-in s/n 1234515

Table A.11 — Differential pressure transducer calibration data.15

Table A.12 — Differential pressure transducer calibration data analysis16

Table A.13 — Venturi flowmeter calibration data and analysis.16

Table A.14 — Calculation of individual device uncertainty and total uncertainty17