ISO 6421:2012-08 (E)

Hydrometry - Methods for assessment of reservoir sedimentation

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 1

4 General 1
4.1 Origin of the sediment deposited in the reservoir 1
4.2 Overview of reservoir-sedimentation assessment methods 1

5 Sediment transport balance 2

6 Topographic survey methods 3
6.1 General 3
6.2 Reservoir sedimentation surveys 3
6.3 Frequency 4
6.4 Survey equipment 4
6.5 Density measurements and sediment samplers 7

7 Topographic survey using the contour method 8
7.1 General 8
7.2 Hydrographic survey 9
7.3 Topographic surveys 9
7.4 Computation of reservoir capacity 10

8 Topographic survey using a cross-sectional (range line) method 10
8.1 General 10
8.2 Reference frames/graphs 11
8.3 Calculation of reservoir capacity 15

9 Sub-bottom mapping 19

10 Remote-sensing methods 20
10.1 General 20
10.2 Advantages 20
10.3 Limitations 20

11 Light detection and ranging 20
11.1 General 20
11.2 Aerial applications of LiDAR 21
11.3 Ground-based applications of LiDAR 21

12 Aerial imagery methods 22
12.1 General 22
12.2 Photogrammetry methods 22
12.3 Satellite imagery methods 23

13 Uncertainty analysis 23

13.1 General 23
13.2 Principles 23
13.3 Estimation of uncertainty 24

Annex A (informative) Optimization of the arrangement of ranges 28

Annex B (informative) Introduction to measurement uncertainty 32

Bibliography 40