
**Surveillance of the activity
concentrations of airborne radioactive
substances in the workplace of
nuclear facilities**

*Surveillance de l'activité volumique des substances radioactives dans
l'air des lieux de travail des installations nucléaires*





COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
4 Symbols	5
5 Developing the surveillance program	5
5.1 Reasons for conducting a surveillance programme.....	5
5.1.1 General.....	5
5.1.2 Sampling when respiratory protective equipment is used.....	6
5.1.3 Sampling to establish air contamination areas.....	6
5.1.4 Air sampling as a basis for determining worker intakes.....	6
5.1.5 Air monitoring for early warning of elevated air concentrations.....	6
5.2 Graded approach to sampling.....	7
5.3 Frequency of sampling.....	8
5.3.1 General.....	8
5.3.2 Grab vs. continuous sampling.....	8
5.3.3 Continuous monitoring of activity concentrations.....	8
5.3.4 Prompt analysis of certain samples.....	9
5.4 Substitutes for air sampling.....	9
6 Location of samplers and monitors	9
6.1 General.....	9
6.2 Types of air flow studies.....	9
6.2.1 General.....	9
6.2.2 Qualitative airflow studies.....	9
6.2.3 Quantitative airflow studies.....	10
6.3 Location of samplers for estimating committed effective dose.....	10
6.4 Location of samplers for evaluating effectiveness of containment.....	11
6.5 Location of samplers for posting of air contamination areas.....	11
6.6 Location of portable samplers.....	12
6.7 Location of CAM for continuous monitoring of the activity concentration.....	12
7 Collection of samples	12
7.1 General.....	12
7.2 Sampling of aerosol particles.....	12
7.3 Gas Sampling.....	13
8 Evaluation of sampling results	14
8.1 Determining the average activity concentration.....	14
8.2 Uncertainty.....	14
8.3 Techniques for correcting for radon progeny interference.....	15
8.4 Evaluating changes in activity concentration over time.....	15
8.5 Review of sampling results.....	15
9 Evaluating the effectiveness of the sampling program	16
9.1 General.....	16
9.2 Dose-based assessment of the adequacy of the sampling program.....	16
10 Quality assurance and quality control	17
10.1 General.....	17
10.2 Sample identification, handling, and storage.....	17
10.3 Sampling and monitoring equipment.....	17
10.3.1 General.....	17
10.3.2 Performance of measuring instruments.....	18