

Guidance on the assessment of exposure from land contaminated with heterogeneously distributed radioactive material



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Version 1

Contents

- Background to the guidance
- Overview of the aims of the planned guidance
 - Guidance was consulted on in 2011 with main feedback being received from:
 - HPA, EA, SEPA, ONR, UKAEA, NDA, DECC
 - Currently undergoing an internal review at HPA
 - Publish summer 2012

Background – patchy contamination

- Typically encountered in the UK at:
 - Industrial sites (NORM - slag, gas mantle production)
 - Nuclear licensed sites
- Assessing radiological implications for redevelopment (planned exposure situation)
- Assessments are relatively simple
 - Use of generic parameter values and models
 - Default dose coefficients
 - Scaling estimated exposure accounts for probability of encountering radioactivity



Background – contamination by radioactive objects

- Examples in the UK where contamination is by radioactive objects:
 - Beaches near the Dounreay and Sellafield nuclear sites
 - Foreshore at Dalgety Bay
- Assessing radiological implications for remediation (existing exposure situation)
- Assessments can be very complicated
 - More specific account of object characteristics eg size, solubility
 - Need to specifically assess the probability of encountering objects



The need for guidance

- Development of many assessment methodologies
 - Widespread contamination:
W36 (HPA); RCLEA (Defra); ReCLAIM (NDA)
 - Contamination by radioactive objects:
Approach used at Dounreay / Sellafield (HPA)
- User guides on running models but little guidance on:
 - Selecting data to put into a model
 - Interpreting results from the model
 - Particularly where contamination is by discrete radioactive objects



Guidance aims

- Provide practical guidance on performing a radiological assessment of contaminated land
 - Tiered assessment
 - Defining assessment areas
 - Defining source term
 - Defining scenarios and pathways
 - Defining the representative person
 - Probability of encounter
 - Radiological protection interpretation of an assessment
 - Opinions of stakeholders



Format of the guidance

- Descriptive text
- Key questions posed relating to aspects of that area of guidance
 - ‘check list’ of important points to consider

Summary

- Practical guidance on performing an assessment for heterogeneous contamination
 - Description of features that should be considered
 - Questions to guide the direction of an assessment
 - Discussion of how to interpret the results